

Keeping Metro Safe, Reliable & Affordable



FY2019–FY2028





Yellow safety sign with multiple circular icons and text, including 'N02'.

N02



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A Message from the General Manager/CEO

The Metro system is a powerful economic engine for the National Capital Region, connecting residents in the State of Maryland, Commonwealth of Virginia and the District of Columbia to jobs, housing, entertainment, and schools, while providing affordable and accessible transit service for close to 20 million visitors each year.

In 2018, Metro achieved a milestone with the creation of the Authority's first dedicated capital funding. In recognition of the progress Metro is making to improve safety, service reliability and financial management, the regional funding jurisdictions passed historic legislation that will provide, for the first time, a dedicated funding stream to support capital programs and will rebuild pride in Metro. The capital investments the Authority undertakes in the coming years will further improve the safety, reliability, and affordability of our operations, rebuild pride in Metro, and encourage customers to choose Metro as a key part of their daily journey.

As Metro implements one of the largest capital reinvestment programs in the transit industry, we must also remain focused on stabilizing Metro's operating costs and revenues in a changing transit market. Management's efforts to improve service delivery and drive enhanced cost efficiencies and effective service delivery will minimize funding demands on the region. By continuing the hard work of rebuilding, reforming and improving Metro, our transit system can adapt and grow to meet the needs of this dynamic region.

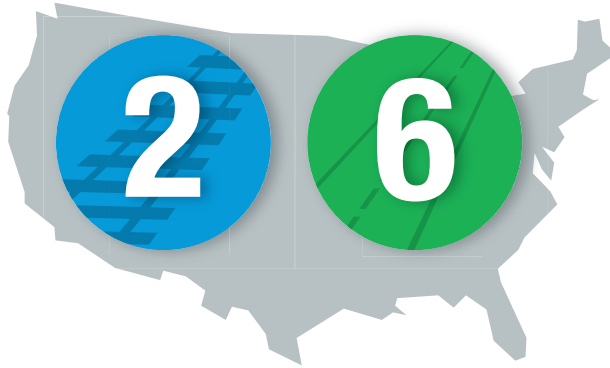


Paul J. Wiedefeld
WMATA General Manager/Chief Executive Officer
Washington Metropolitan Area Transit Authority

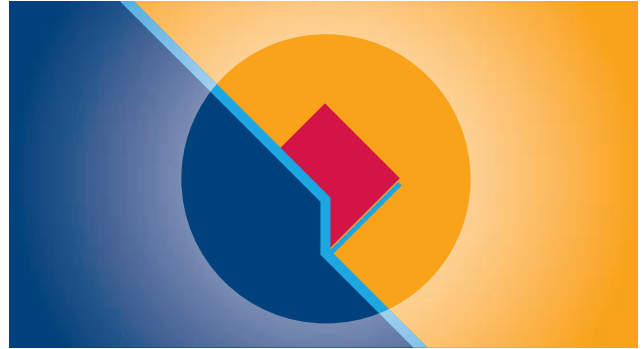


Metro At A Glance

SECOND BUSIEST RAIL TRANSIT SYSTEM; SIXTH BUSIEST BUS NETWORK IN THE U.S.



\$235 BILLION OF PROPERTY VALUE IS WITHIN A HALF-MILE OF METRORAIL STATIONS



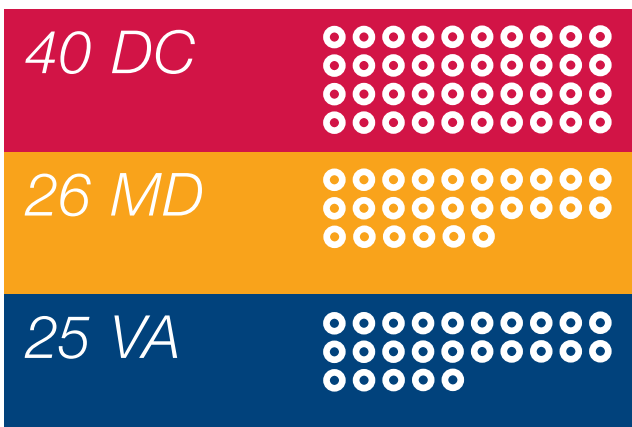
1 MILLION AVERAGE WEEKDAY PASSENGER TRIPS



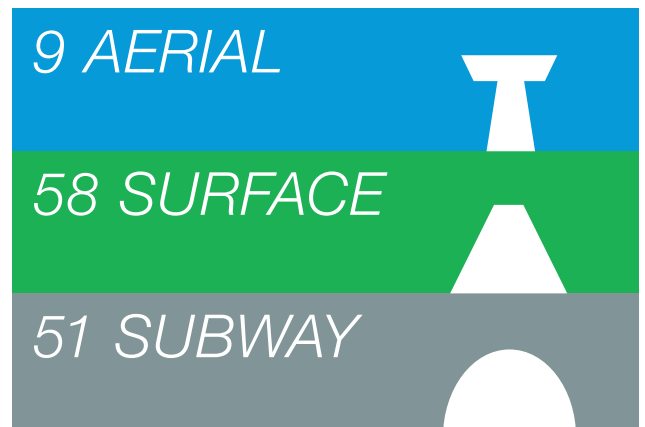
168 BUS LINES



91 RAIL STATIONS



118 MILES OF RAILS



Executive Summary

Metro is committed to improving the safety, reliability, and affordability of its system by substantially improving its assets—from rail stations, tracks and traction power infrastructure to the vehicles, maintenance facilities and cooling systems—and providing a better transit experience for hundreds of thousands of customers each day.



As Metro launches a \$15.5 billion, 10-year capital improvement program in FY2020, the Authority must also focus on controlling operating cost growth. With a rapidly changing transit landscape, Metro must address today's challenges while preparing for changes in the coming decade.

Specifically, Metro Must Address

- **Deferred capital backlog**
Metro must reduce its maintenance backlog while providing customers with reliable quality service. Striking this balance requires fundamental changes to how capital investment work is planned and executed.
- **Unsustainable operating model**
Over the next decade, Metro needs to reduce projected operating subsidies by almost \$2 billion in total to stay within the growth cap established by Metro's funding jurisdictions. Meeting this baseline will be difficult and the tough decisions ahead will require commitment from both the Authority and the region.

To do this, an assessment of Metro's services and how each fits into the regional mobility landscape is necessary. The 2017

report authored by former U.S. Department of Transportation (USDOT) Secretary Ray LaHood laid out key opportunities to realign Metro's operating model around increasing efficiency and strategically rightsizing Metro's services to meet customer demand. Developing an operating model that values safety, reliability, and fiscal constraints requires decisions that attract ridership, prioritize efficient resource allocation and align service levels with demand. Although tough, these actions are critical to achieve the following priorities by FY2028:

- All assets in good condition through the investment of the Capital Improvement Program
- A sustainable operating model that ensures this region's transit is affordable for customers and taxpayers
- Bring customers back to the Metro system through safe, reliable and affordable services

This document lays out the challenges Metro faces for internal and external stakeholders and the tradeoffs necessary to achieve a balance. With this understanding, Metro can work collaboratively to implement the Keeping Metro Safe, Reliable, and Affordable (KMSRA) strategy that meets these challenges.



Keeping Metro Safe, Reliable & Affordable

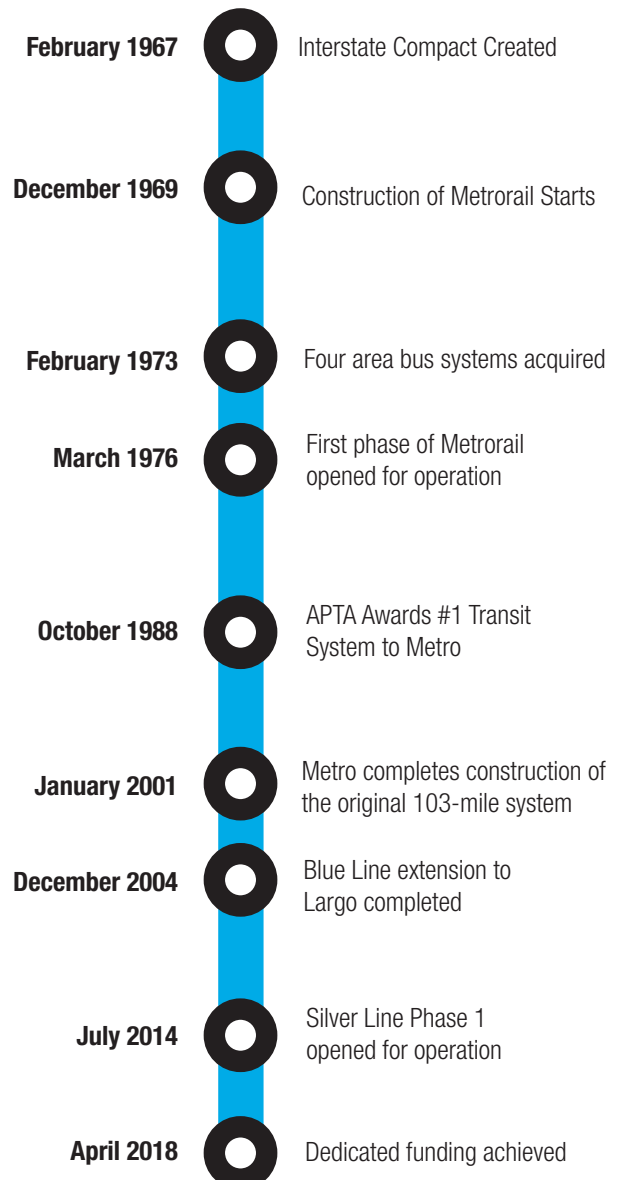
Over the past three years, Metro has focused on immediate priorities to improve system safety, service reliability and affordability. During this period, the annual capital investment has increased to more than \$1.2 billion in FY2018. These investments are advancing system safety and reliability through maintenance and rehabilitation projects, as well as expanded preventive maintenance programs and the acquisition of new 7000 series railcars.

On the operating side, Metro countered revenue shortfalls over the past three years by implementing aggressive expense controls and reducing the size of Metro's workforce by 800 positions. In addition, Metro is working with the jurisdictions to provide MetroAccess customers with alternative, lower-cost service options.

In April 2017, GM/CEO Paul J. Wiedefeld announced the Keeping Metro Safe, Reliable, and Affordable (KMSRA) plan. The plan called for 10 actions to restore the system to a state of good repair and establish long-term financial sustainability. In the following months, significant progress has been made to achieve these goals, but work remains.



Metro Milestones





The 10 Principles of Keeping Metro Safe, Reliable & Affordable Plan: Progress Update

Capital Budget Principles



Cap the annual jurisdictional capital contribution growth at 3 percent



Invest \$15.5 billion over the next 10 years for critical capital projects, increasing the average annual investment to \$1.5 billion



Establish a multi-year, stable revenue source generating \$500 million per year to a Capital Trust Fund



Dedicate the Capital Trust Fund exclusively to capital investment, not day-to-day operations

Secure Congressional reauthorization for federal capital investment (PRIIA) at least at the current level of \$1.5 billion over 10 years

Operating Budget Principles



Cap the annual jurisdictional operating contribution growth at 3 percent



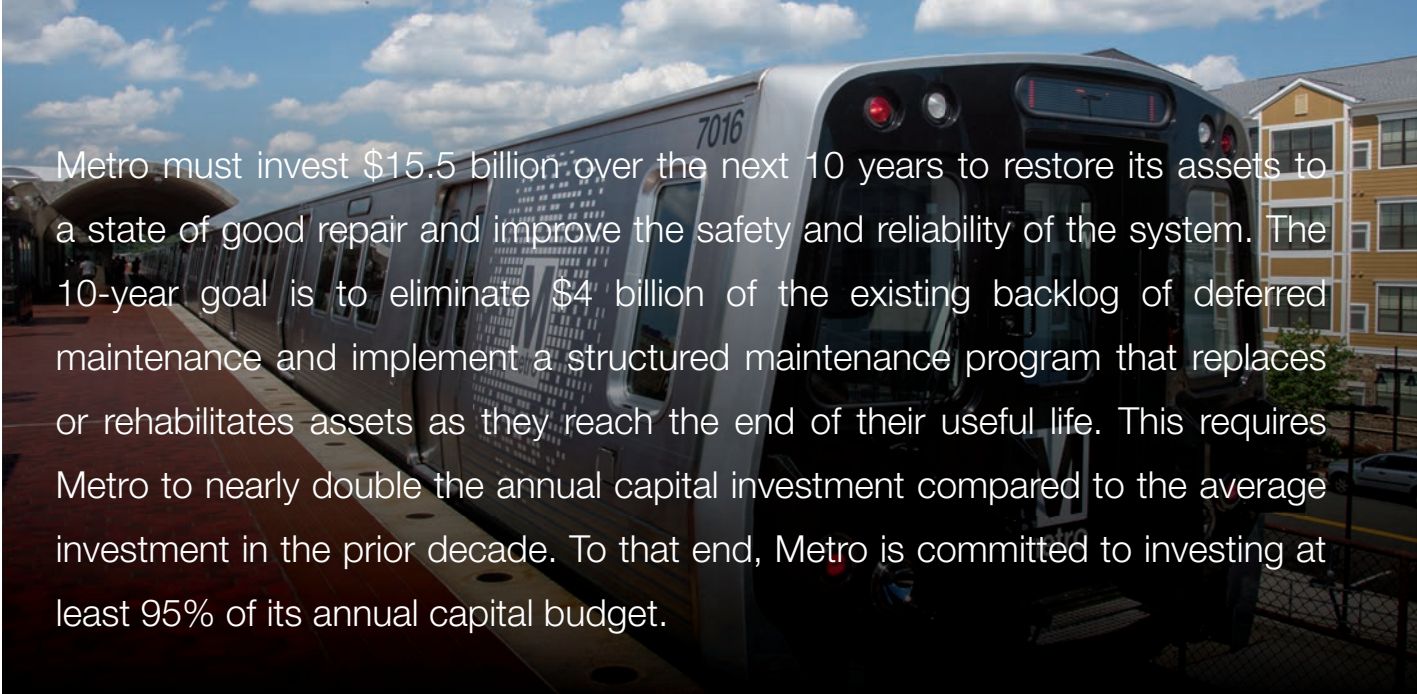
Support the flexibility to reduce costs through innovation and competitive contracting, where effective

Amend the National Capital Area Interest Arbitration Standards Act (Wolf Act) to require consideration of WMATA's financial condition

Initiate a new retirement program for new hires

Create a Rainy Day Fund to mitigate unforeseen obligations

Building a Safe and Reliable System



Metro must invest \$15.5 billion over the next 10 years to restore its assets to a state of good repair and improve the safety and reliability of the system. The 10-year goal is to eliminate \$4 billion of the existing backlog of deferred maintenance and implement a structured maintenance program that replaces or rehabilitates assets as they reach the end of their useful life. This requires Metro to nearly double the annual capital investment compared to the average investment in the prior decade. To that end, Metro is committed to investing at least 95% of its annual capital budget.

Maintaining Metro assets in a state of good repair (SGR) is essential to providing safe, reliable and efficient service to the region. These investments are not optional; they are a service delivery requirement and are the focus of the Capital Improvement Program.

Embracing Transit Asset Management

Today, Metro does too many unplanned repairs throughout the system. Unplanned work disrupts service, reduces reliability and negatively impacts Metro's customers.

In the coming years, Metro will reorient the program around a transit asset management approach to maintenance and capital investments. Transit asset management is based on the principle that maintenance, rehabilitation, or replacement of an asset should be done on a planned, regularly recurring cycle, based on the condition or age of the asset. The result of this will be a safer, more reliable system with fewer service disruptions that impact customers.

This philosophy of life-cycle asset management has become the standard in the private sector, and federal law requires transit properties to implement asset management. Embracing transit asset management will ensure that Metro is compliant with Federal Transit Administration (FTA) regulations, but more importantly it will build the necessary framework to better identify and prioritize required maintenance and

capital activities while improving project planning and delivery functions. Improvements to the capital management and planning program include:

- Implementing regular and standardized asset condition assessments that allow Metro to create a comprehensive consolidated database with an inventory of asset conditions and useful lives. This information would inform the Capital Needs Inventory (CNI), maintenance plans and project planning process.
- Evaluating and prioritizing each project against the CNI to ensure the most critical projects are addressed first; avoiding the risk of advancing projects that are less critical because they are easy to access or implement.
- Instituting a new Development and Evaluation (D&E) process to ensure projects included in the program are fully vetted prior to receiving funding which will increase Metro's ability to deliver projects on time and within scope and budget.
- Streamlining procurement processes throughout the Authority to ensure there are sufficient contracts and resources to support a \$1.5 billion average annual investment.

Major Capital Improvement Projects

Project	10-Yr Estimate	Result
8000 Series Railcar Acquisition	Greater than \$500 million	Increased reliability of the fleet, which will consist of 85% new vehicles
State of Good Repair projects for Traction Power, Automatic Train Control, and Track and Structures	Greater than \$1.0 billion	Reduced train delays and service disruptions
Replacement of Bus and Access Fleets	Greater than \$900 million	New, reliable, updated buses and vans
Radio and Cellular Infrastructure Upgrade	Greater than \$300 million	Reliable cellphone service for customers and a dependable radio system for first responders and operations
Platform Rehabilitation	Greater than \$500 million	New, level platforms that facilitate safe boarding and exiting of trains for customers
Fare Collection System Upgrade	Greater than \$200 million	Payment flexibility, more modern options and a reduction in the cost to collect revenue
Station Lighting	Greater than \$150 million	Brighter, safer stations
TSP/Bus Priority Corridor Network	Greater than \$100 million	Faster and more reliable bus service

- Continuing to provide adequate work windows to support the level of preventive maintenance required to keep a safe and reliable system through adjusted service hours and more efficient track access procedures.
- Establishing an effective right-of-way plan that assigns work windows in a timely manner. This will ensure capital projects are delivered on schedule and allow for better communication to customers about the potential impacts of capital work.

Improving Safety, Reliability and Preparing for the Future

The majority of the Capital Improvement Program will focus on projects that improve the safety and reliability of the system. Metro will make initial investments to develop and plan the next generation of projects that prepare Metro for the future.

Safety

Metro is committed to improving its Metrorail, Metrobus, and MetroAccess vehicles and infrastructure to ensure the safety of customers and employees. Some of the major areas of focus are:

- Tunnel ventilation
- New radio and wireless systems
- Wayside-worker protection
- Fire life safety systems, such as fire alarms

State of Good Repair

As a 40-year-old system, much of Metro's infrastructure has exceeded its useful life and needs to be rehabilitated or replaced. Over the next 10 years, Metro will:

- Purchase new railcars and buses
- Continue aggressive track rehabilitation program
- Upgrade train control signal systems
- Increase capacity and improve reliability of power system
- Replace four bus maintenance facilities with modern, efficient facilities
- Replace or rehabilitate escalators and elevators

Preparing Metro for the Future

Metro also needs to find ways to move customers more efficiently, implement new and better ways to pay fares, and identify and incorporate emerging technologies. Over the next 10 years, Metro will:

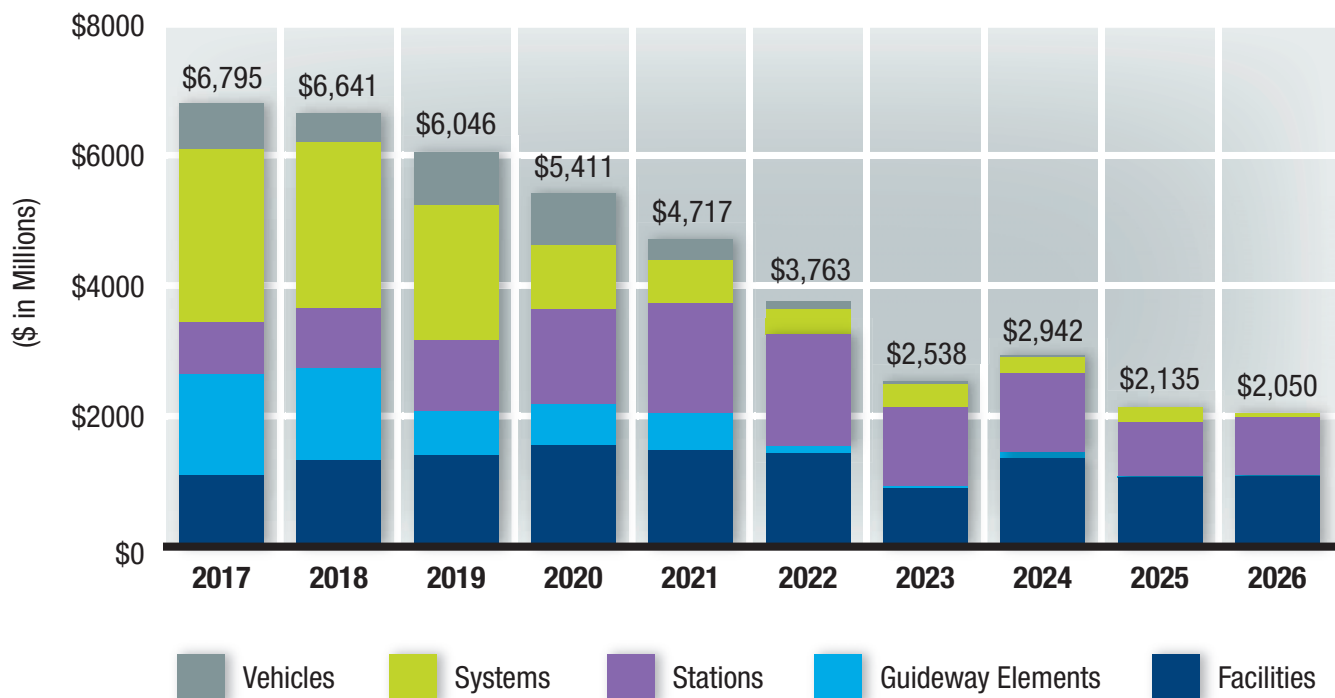
- Modernize the fare collection system including adding a mobile payment option

- Begin to address passenger circulation challenges in core stations
- Prepare Metro to move toward a new Automatic Train Control System
- Develop the next generation of capital projects such as Red Line water remediation, tunnel ventilation, replacement bus garages, railcar overhaul facility, and Rosslyn Tunnel

Funding the Capital Improvement Program

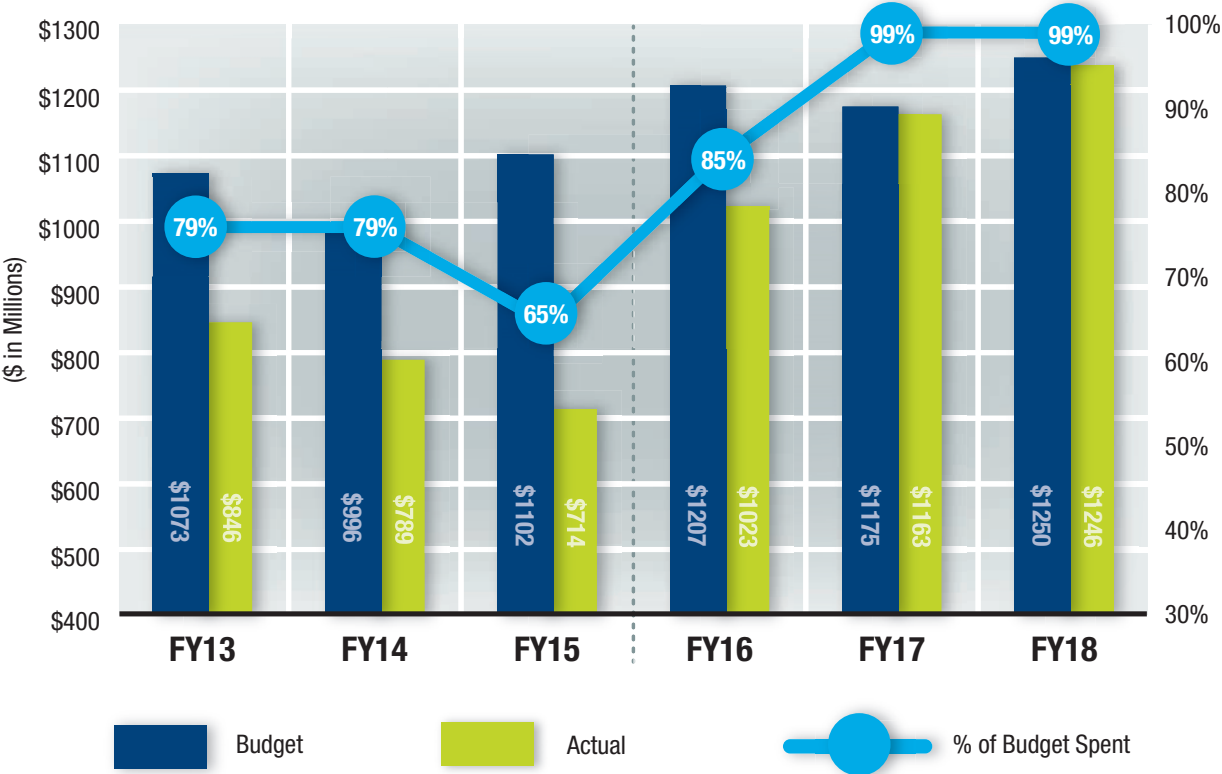
Metro's ambitious \$15.5 billion, 10-year capital program will be funded by a mix of sources including federal grants, state and local contributions, new dedicated funding and debt financing. Over the next decade, the traditional mix of funding provides Metro an estimated \$9.2 billion to support the capital program, dedicated funding provides \$5 billion and debt issuance covers the remaining \$1.3 billion.

Impact of Capital Investment on State of Good Repair Backlog





Percent of Capital Program Invested Annually



The Passenger Rail Investment and Improvement Act of 2008 (PRIIA), which will expire in FY2020, poses a large risk to one of Metro's traditional funding sources. Combined with local matching funds, this grant provides \$300 million in annual funding to support the capital program. To maintain current funding levels, Congress must reauthorize PRIIA or identify a replacement source for the FY2021 budget cycle and beyond.

In the spring of 2018, the region came together and established a dedicated capital funding source that will provide Metro \$500 million annually. The dedicated funding will provide Metro the flexibility to plan critical capital projects on a long-term horizon and align necessary financing required to support the program. The new dedicated funding will provide \$5.0 billion over 10 years.

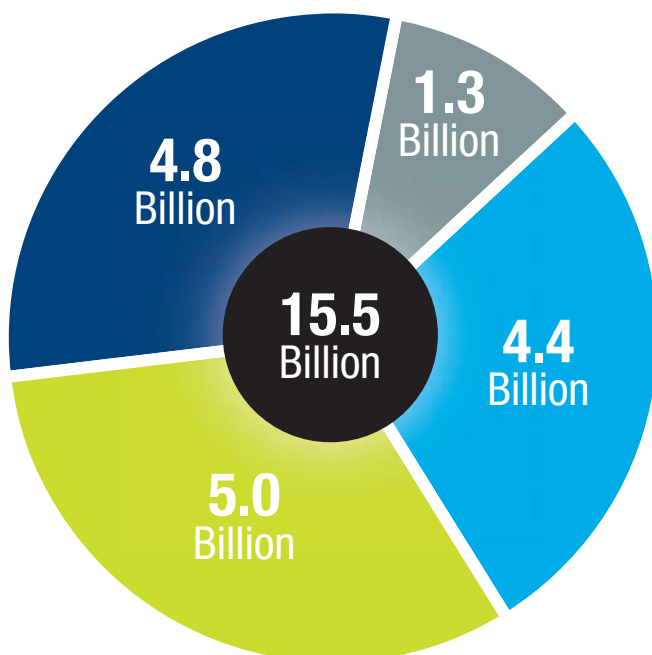
Over the next nine years, Metro will need to raise an additional \$1.3 billion through debt financing, adding to the debt issued in FY2019. Long-term debt will allow Metro to smooth out cash flows as projects move through their lifecycle and provide the flexibility to accelerate projects as necessary. The timing of when debt will be issued is dependent on how Metro executes the capital program. Current projections show additional financing needs to start by FY2024. The new dedicated funding stream should help investors gain the confidence to issue this level of anticipated debt.

Issuing debt to fund Metro's 10-year capital program will impact the availability of future dedicated funding to directly support projects. In addition to its availability for current capital needs, dedicated funds may be used as a pledge for debt financing.





10-Year Capital Program Funding



Dedicated Funding, \$5.0 billion
A new funding source that will provide a stable \$500 million annually starting in FY2020.

Federal Grants, \$4.8 billion
Metro's capital program is supported by federal formula grants and the Passenger Rail Investment Act (PRIIA) grant, which expires in FY2020. The 10-year funding forecast assumes the PRIIA grant is renewed.

State & Local, \$4.4 billion
Metro's jurisdictions provide matching funds to federal grants and system performance funding.

Long-Term Debt, \$1.3 billion
In FY2019, Metro issued \$263 million in debt to support the capital program. Over the next nine years, Metro will need an additional \$1.3 billion.

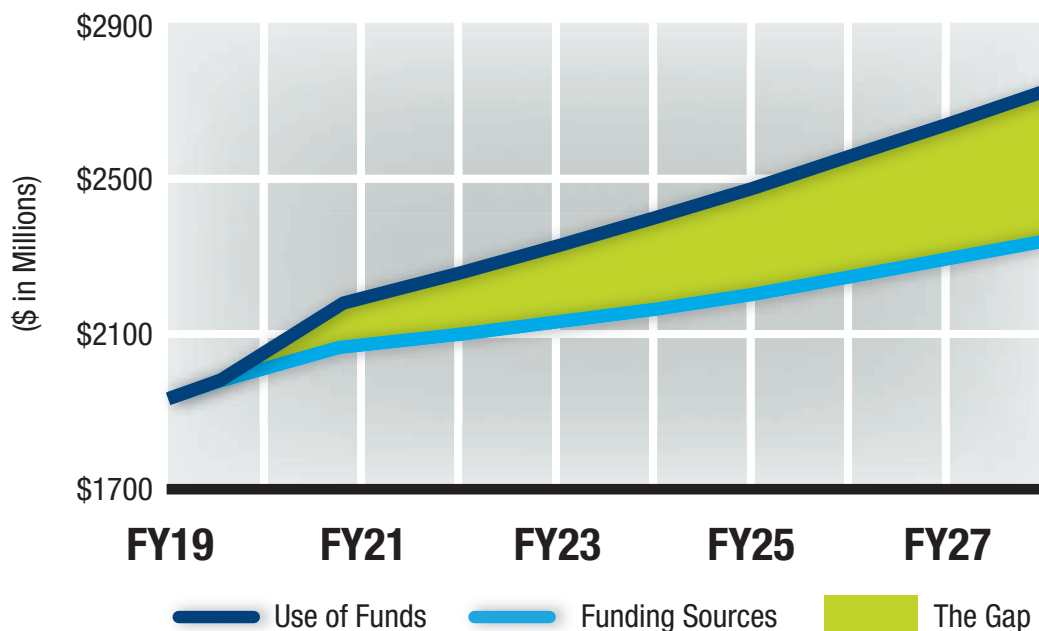
Creating a Sustainable Operating Model

To maintain annual operating subsidy growth at three percent, current forecasts predict an annual budgetary shortfall of \$46 million in FY2020 that grows to nearly \$400 million by FY2028. To put this in perspective, a \$400 million reduction would require the elimination of half of Metro's non-labor costs. Instead, changes to how Metro operates will be necessary to close the budget gap.

Some of the necessary changes have been identified in recent reports on Metro. In March 2017, the Governor of Virginia requested an independent review of Metro's finances, management, and operations. In December 2017, former USDOT Secretary Ray LaHood issued a report to the Governor and public summarizing his findings (Appendix F). The report contained several recommendations including six specific recommendations addressing operating deficits. Metro's KMSRA strategy addresses these recommendations.

Over the past three fiscal years, Metro has started to improve the operating model through efficiency initiatives that reduced positions, implemented new absenteeism protocols, restructured healthcare plans to reduce cost, closed underutilized sales offices, and reformed the workers' compensation program. These initiatives along with others are projected to save Metro more than \$500 million over the next decade. However, these changes will not be enough. More work and difficult choices will be necessary in the coming years.

Expenditure and Funding Forecast¹



¹ Excludes the Potomac Yard Station. Funding sources include subsidy and revenues.

LaHood Report Recommendations

Recommendation	Metro's Strategy
Increase rail reliability to return rail ridership	Through SafeTrack and the Back2Good initiatives, Metro has begun to address the reliability of the rail system. Rail customer on-time performance (OTP) improved to 90 percent. Railcar performance is the best its been in eight years. However, there is much still to be done over the next decade. Metro will continue to aggressively invest in capital improvements to return rail assets to a state of good repair to continue increasing safety and reliability.
Reset bus service to match demand	A Metrobus strategy and roadmap study began in Spring 2018. The study will inform Metro's future service levels and compliance with the 3 percent mandate.
Increase employee pension contributions	During the union contract negotiation of 2017, Metro proposed changes that would protect current employees and retirees but control future pension costs.
Decrease fare evasion	In May 2017, Metro started the Fair Share pilot program at Fort Totten and Gallery Place rail stations to test more secure swing gates to stop fare evaders. The pilot successfully reduced fare evasion and the program has been expanded to all rail stations. Half of all rail stations were outfitted with new swing gates through December 2018 with remaining stations to be completed by the end of 2019. Metro is exploring options to decrease fare evasion in its bus network.
Increase revenues from advertising	In the FY2020 budget, advertising revenues are predicted to increase to a total of \$27.7 million. Strategies to increase advertising revenues through the expansion of digital assets and other opportunities will begin in FY2019.
Decrease absenteeism	In early 2017, Metro implemented a number of initiatives to reduce absenteeism. The goal is to better control absenteeism and associated overtime costs for back-filling absences. Timely and consistent application of Metro's Absenteeism Policy has so far reduced incidents and hours of unplanned absences, paid sick leave and unpaid leave.

Future Cost Containment Strategies

Metro will look for permanent annual cost reductions each year to chip away at projected annual deficits. A cross-agency team has been created to focus on driving organizational change, working with departments to identify new opportunities for expense reduction or revenue increases, and reporting on progress.

The most significant operating cost drivers are personnel costs, primarily wages and benefits, which account for approximately 70 percent of expenditures. Growth in this

area is expected to add more than \$550 million in new costs in the next decade. Controlling labor cost growth is a key component of Metro's operating budget strategy, which will include:

- Lowering absenteeism;
- Pursuing automation, such as track inspections and railway cleaning vehicles;
- Continuing to explore alternative operations options, such as the contracting of operations and maintenance at Cinder Bed bus garage;

- Improving how Metro schedules and deploys resources;
- Studying Metrobus service to evaluate the levels and types of service provided;
- Evaluating Metrorail service to identify opportunities to meet service needs cost-efficiently;
- Pursuing changes in the Arbitration Standards Act, effectively requiring consideration of Metro's financial condition;
- Introducing a new retirement program for new hires; and
- Consolidating employee pension and healthcare plans.

Non-personnel expenditures account for the rest of operating spending (approximately 30 percent) and include items such as materials, energy, and paratransit service. Although not as large as the labor categories, developing strategies to mitigate cost growth and risk in these categories is part of the 10-year long term strategy.

Purchasing of materials and supplies necessary to maintain bus and rail assets is a significant portion of non-personnel expenditures, approximately \$100 million annually. Eliminating inefficiency and waste from the supply chain process is a cornerstone of the non-personnel strategy.

In August 2018, a third-party started a comprehensive review of Metro's supply chain management. The goal is to efficiently ensure that the right parts are at the right place at the right time. Recommendations and an implementation plan are scheduled to be completed in 2019.

As part of Metro's effort to maintain clean financial audits, Metro will improve alignment of annual expenses to appropriate operating and capital initiatives. Beginning in FY2019, Metro will initiate an operating model assessment for capital-eligible unplanned maintenance activities currently funded through the operating budget for realignment to the capital program, similar to costs for scheduled replacement or acquisition of capital assets which are funded out of the capital budget.

An energy study evaluating Metro's assets was completed in 2018 and a series of recommendations were made that identified opportunities to reduce electricity and fuel consumption. A list of projects with high return-on-investment (ROI) has been created and new capital projects have been proposed as part of the FY2020 budget process to begin implementing longer-term investments. However, near-term opportunities are being accelerated into the current fiscal year and will impact the FY2019 and FY2020 operating energy budgets.



In September, Metro and its partner jurisdictions and local bus operators launched the Bus Transformation Project (<https://bustransformationproject.com/>) with the goal to create a bold, new vision and a collaborative action plan for the future of bus in the region. The project will explore all factors that influence the quality of bus service, from technology and transit priority, to funding structures, coordination, and service provision roles. It will identify the role of bus in the range of travel choices and define the role of Metrobus within that context. The project is being led by an Executive Steering Committee and includes stakeholder groups, comprised

of Metro, jurisdictional staff, transit agencies, community organizations, advocates, and the disability community. An online survey was conducted in the Fall of 2018 to gather public insight on travel choices and priorities for future investments. The project team held 20 pop-ups across the region to gather insight from riders and non-riders. Finally, the project team has held discussions at each of Metro's bus divisions to talk with operators, supervisors, and maintenance staff. Draft strategies are expected in the spring, with the final strategies in the summer and an action plan for implementation expected by the end of 2019.

One of the largest non-personnel categories of growth is expected to be in paratransit service. It is forecasted to grow by \$113 million, becoming the biggest non-personnel expense within the next few years. Many customers who are unable to use the fixed-route system rely on our federally mandated paratransit service. While providing this service is critical, Metro is working to develop strategies to provide high-quality alternative options to this customer base and find ways to more efficiently provide current service.

Stabilizing and Increasing Revenues

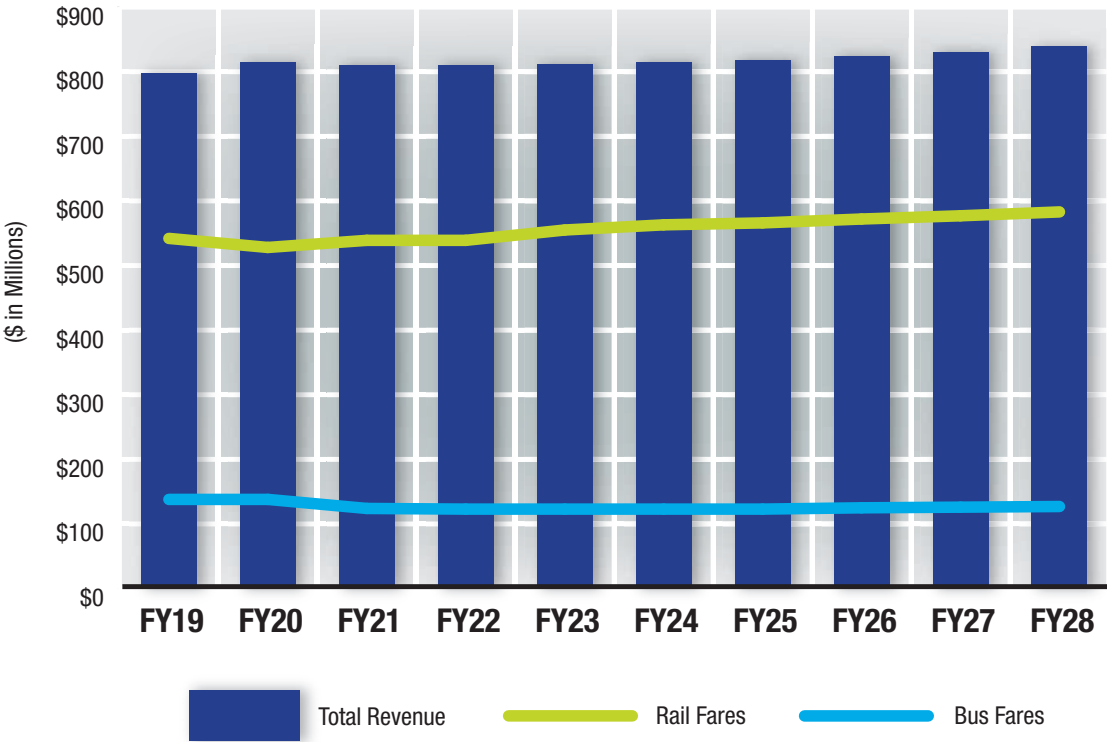
Containing and controlling costs is only half of the strategy to maintain the operating subsidy at three percent annually. Operations are funded in part by both fare-paying riders and commercial revenues, but the largest source of support are taxpayers who benefit from transit service through enhanced mobility, traffic mitigation, jobs, economic development, and improved environmental quality. Over the next decade, rail and bus ridership is expected to stabilize and growth will be minimal, which means revenue from passenger fares will not keep pace with costs.

Future forecasts of bus ridership and revenue will be influenced by the recommendations of the Bus Transformation Project. Increasing and diversifying revenues is required in order for Metro to meet the subsidy growth cap.

Metro’s main revenue tactics are to:

- Leverage capital investments to increase service safety and reliability with the goal of attracting more customers;
- Expand support for transit-oriented joint development to create greater opportunities for customers to ride transit;
- Improve and expand fare product offerings;
- Modernize fare collection system;
- Continue strategies to reduce fare evasion; and
- Optimize non-fare revenues, including advertising and monetizing assets, such as fiber optic leasing.

10-Year Operating Revenue Forecast



The Challenge That Remains

Metro has a lot of difficult work ahead to rebuild and improve the regional transit system, but it is already making progress in addressing the challenges of delivering a \$15.5 billion, 10-year capital improvement program and ensuring that operating subsidy growth for existing services stays below three percent. Capital program leadership is developing new processes and protocols to improve planning and execution, and new internal teams are being created to cut across silos and barriers and lead the cultural change required to develop a more sustainable operating model. Metro will need to change how it functions, from administration to maintenance, identifying opportunities to provide better quality services using fewer resources. Through the annual budget process, Metro will propose implementable solutions for the operating and capital budgets and continue to present quarterly reports on progress for customers and stakeholders.



Although there are several internal challenges, there are other key changes that Metro seeks the region's help to address:

Establish a Rainy Day Fund

With the creation of the dedicated funding stream to support capital investments, Metro needs an operating contingency reserve fund to better position the Authority to deal with unpredictable financial shocks. This fund will insulate jurisdictions from the added costs of major disruptions to Metro's operating environment, including snow events and major events in the D.C. region.

Reform the Wolf Act

The National Capital Area Interest Arbitration Standards Act (Wolf Act) needs to be amended to require consideration of Metro's financial condition as part of the collective bargaining arbitration process. Such an amendment will reflect Metro's true financial capacity and drive decisions that are in line with the jurisdictions' ability to pay.



Restructure Retirement Benefits

- Other Post-Employment Benefits

In FY2018, Metro set aside \$3 million generated from savings from absenteeism and overtime controls to establish a dedicated OPEB fund as part of a long-term strategy to address the obligation. However, Metro's unfunded OPEB liability is approximately \$1.8 billion. While Metro has eliminated post-retirement healthcare for new employees, this obligation is likely to grow until fully addressed by Metro and the region.

- New Retirement Program for New Hires

Metro currently has an unfunded pension liability of \$1.0 billion. Similar to OPEB, Metro needs to establish a new defined-contribution program for all new hires while preserving the current program for legacy employees. A defined-contribution plan will allow Metro to continue to ensure retirement savings for its employees in a more financially sustainable way.

PRIIA Reauthorization

Metro continues to encourage the U.S. Congress to reauthorize the Passenger Rail Investment and Improvement Act (PRIIA) beyond FY2020, which provides \$150 million in

annual federal funds matched by \$150 million provided by the District of Columbia, State of Maryland, and Commonwealth of Virginia.

Long-Term Debt Repayment Strategy

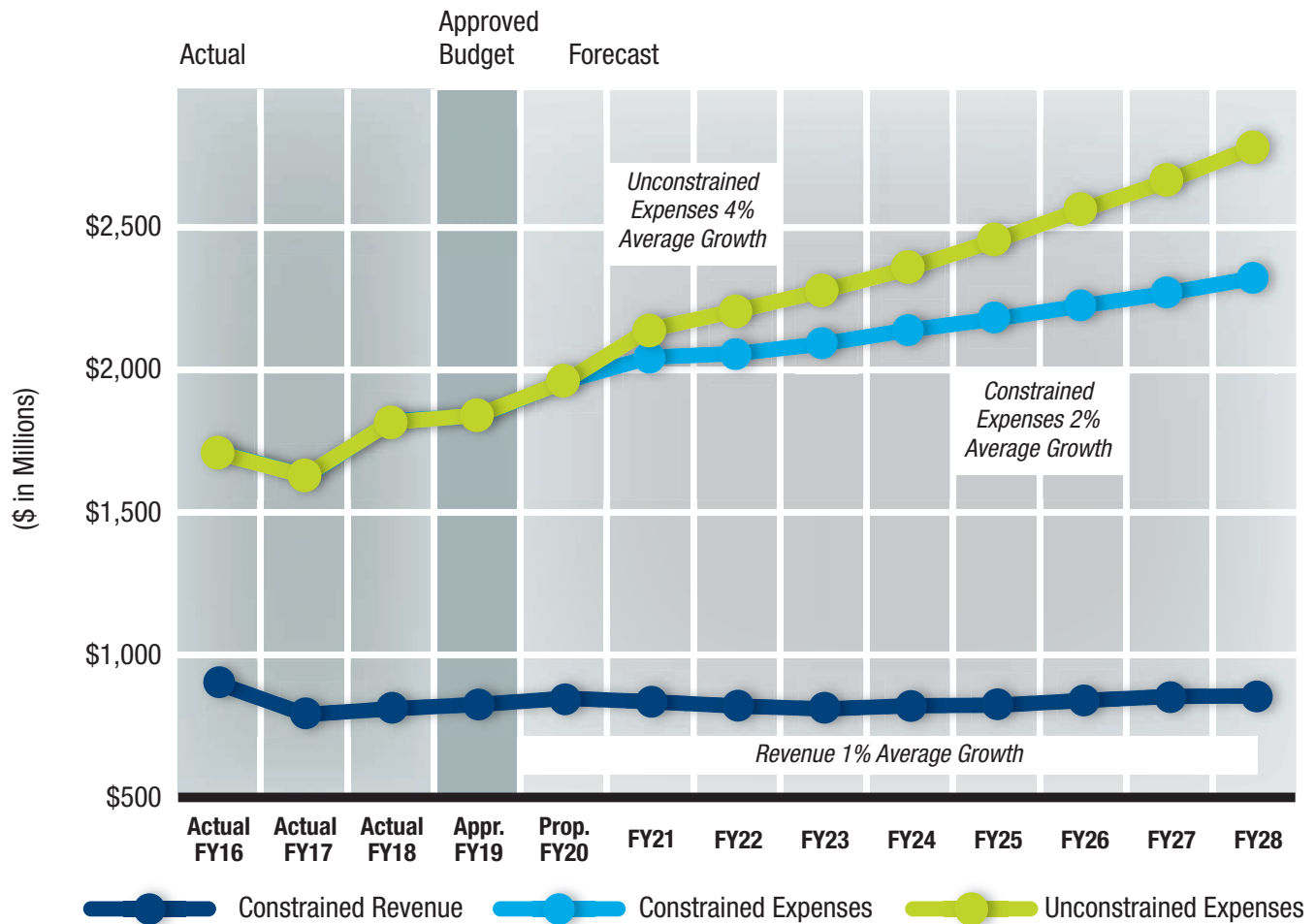
Metro will need to issue long-term debt over the next 10 years in order to stabilize cash flows and accelerate near term capital investments. The region will need to agree upon a strategy to deal with the resulting debt service payments beyond FY2028 to ensure adequate funds remain for ongoing capital investment.

Summary

Maintaining operating subsidy growth at or below three percent is attainable by streamlining and improving capital investments; concentrating on key personnel and non-personnel cost controls; and increasing and diversifying revenues. Help will be needed from regional partners and the Board of Directors to find solutions to several large challenges outlined above for this plan to work. However, with the support of customers, regional partners, Board of Directors, and employees, Metro can achieve its three priorities: safety, reliability, and fiscal responsibility.

Appendix A

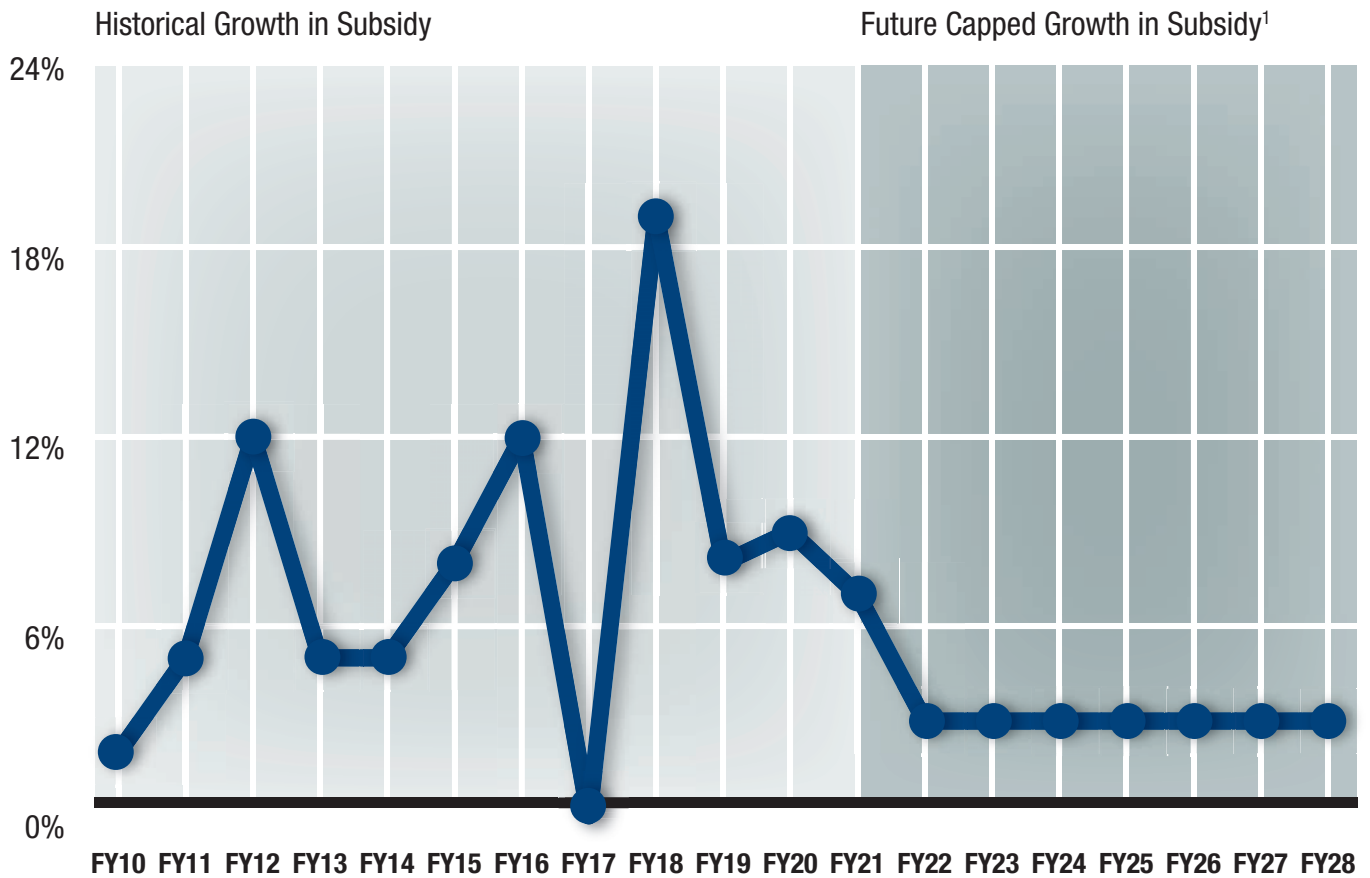
Unconstrained Expense Growth Compared to Constrained Expense Growth¹



¹ Excludes Potomac Yard revenue and expenses.

Appendix B

Growth in Subsidy



1 Operating Subsidy growth is set at 3% not including permitted legislative exclusions.

Appendix C

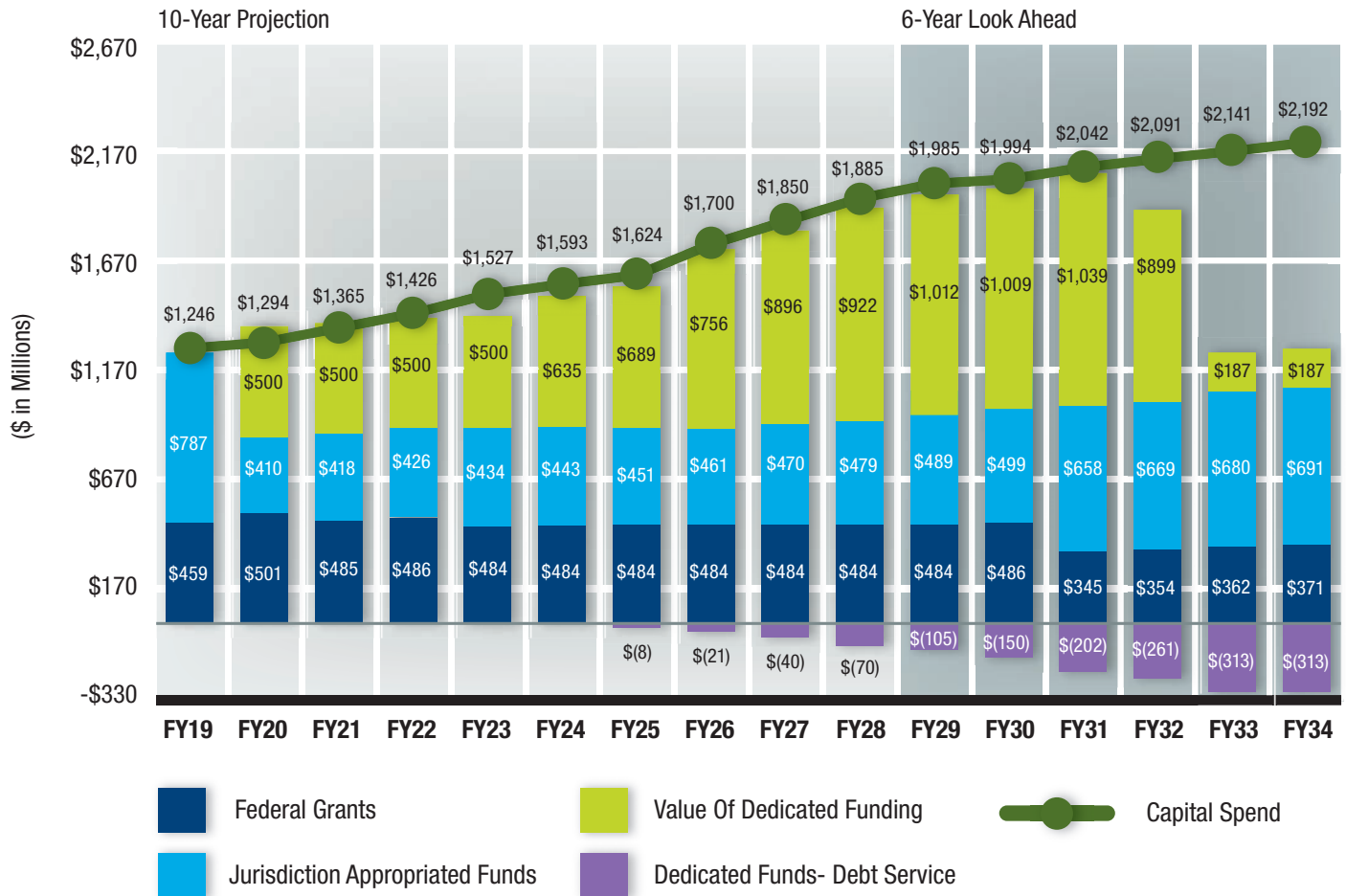
6-Year Capital Improvement Program: FY2020-2025 Proposed Budget

Investment Category (\$ in millions)				Total
	System Preservation	D&E	Major Projects	
Railcars	\$734	\$0	\$1,042	\$1,776
	<ul style="list-style-type: none"> • Make preventive maintenance, rehabilitation and safety reliability improvements • Rehabilitate railcar maintenance facilities, including equipment at these facilities 		<ul style="list-style-type: none"> • Complete delivery of 7000 series railcar • Procure 8000 Series Railcars • Construct new heavy overhaul railcar facility • Improve capacity and reliability at New Carrollton and Shady Grove Yards 	
Rail Systems	\$560	\$4	\$661	\$1,225
	<ul style="list-style-type: none"> • Rehabilitate electrical systems powering the trains: <ul style="list-style-type: none"> – Return AC power systems to a state of good repair – Purchase equipment to support the rehabilitation efforts – Replace power cables • Rehabilitate signals & communications systems that locate and direct Metrorail trains: <ul style="list-style-type: none"> – Replace mainline switch machines and yard switch machines – Renew ATC Cable Replace old track circuits – Automate train control systems at yards 	<ul style="list-style-type: none"> • Evaluate potential new initiatives to address rail systems' needs, such as: <ul style="list-style-type: none"> – New train control technology – Headway simulation 	<ul style="list-style-type: none"> • Increase power supply capacity to support 8-car trains • Replace radio and wireless infrastructure • Implement Track Inspector Location Awareness system-wide 	
Track & Structures	\$878	\$19	\$594	\$1,491
	<ul style="list-style-type: none"> • Rehabilitate and renew track infrastructure and structural components based on condition • Purchase track maintenance equipment • Rehabilitate heavy track equipment • Rehabilitate structural components, such as elevated platforms, bridges, and retaining walls 	<ul style="list-style-type: none"> • Evaluate initiatives to address third rail reconfiguration • Evaluate initiatives to address needs related to tunnel ventilation • Evaluate initiatives to address bridge rehabilitation 	<ul style="list-style-type: none"> • Mitigate water intrusion system-wide • Rehabilitate bridges • Reconfigure third rail • Ventilate tunnels 	

	System Preservation	D&E	Major Projects	
Stations & Passenger Facilities	\$686	\$111	\$856	\$1,654
	<ul style="list-style-type: none"> Rehabilitate and renew stations systems Increase bicycle parking capacity at stations Rehabilitate stations Rehabilitate parking garages Rehabilitate escalators and elevators 	<ul style="list-style-type: none"> Evaluate potential new initiatives to address station systems' needs Evaluate various initiatives to address structural improvements, such as canopies, storm damage repair and architecture surveys Evaluate capacity upgrades at L'Enfant and Farragut stations 	<ul style="list-style-type: none"> Complete Silver Line expansion and Potomac Yard station Improve lighting at all underground stations Improve circulation at Gallery Place Upgrade Fare Collection System Complete Platform Rehabilitation at up to 20 stations 	
Bus & Paratransit Vehicles	\$946	\$2	\$426	\$1,374
	<ul style="list-style-type: none"> Replace Metrobus and Paratransit fleets at the end of their useful life Rehabilitate Metrobus fleet at mid-life Rehabilitate bus maintenance facilities, including equipment located at these facilities 	<ul style="list-style-type: none"> Evaluate potential new initiatives to address maintenance and passenger facilities' needs Evaluate potential needs for new bus garages 	<ul style="list-style-type: none"> Complete Andrews Federal Center bus garage Replace/rebuild Northern and Bladensburg bus facilities Expand and upgrade Kiss & Ride facilities Replace bus shelters that are beyond useful life 	
Business Support	\$595	\$41	\$648	\$1,284
	<ul style="list-style-type: none"> Replace or update assets that support WMATA operations such as: <ul style="list-style-type: none"> Data network systems and infrastructure Software and hardware MTPD equipment Environmental compliance Non-revenue vehicles Roofs 	<ul style="list-style-type: none"> Evaluate potential new IT initiatives Evaluate energy management alternatives 	<ul style="list-style-type: none"> Develop timekeeping system Upgrade financial systems Consolidate WMATA offices 	
TOTAL	\$4,399	\$178	\$4,228	\$8,805

Appendix D

Capital Funding Strategy



■ Appendix E

TECHNICAL PANEL FINAL REPORT ON METRO

April 2017

COG CHIEF ADMINISTRATIVE OFFICERS TECHNICAL PANEL FINAL REPORT ON METRO

Prepared by the COG Chief Administrative Officers Technical Panel on Metro, April 26, 2017

ABOUT COG

The Metropolitan Washington Council of Governments (COG) is an independent, nonprofit association that brings area leaders together to address major regional issues in the District of Columbia, suburban Maryland, and Northern Virginia. COG's membership is comprised of 300 elected officials from 23 local governments, the Maryland and Virginia state legislatures, and U.S. Congress.

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INTRODUCTION AND PURPOSE

In this Final Report, the Technical Panel presents further analysis on moving forward to provide the dedicated funding needed to support WMATA's continuing restoration and sustained system maintenance to assure it provides safe, reliable service to our region.

In October 2016, the COG (Council of Governments) Chief Administrative Officers (CAO) Technical Panel presented the Interim Report on Metro¹ (Washington Metropolitan Area Transit Authority - WMATA and its Metro system). The Interim Report presented a preliminary analysis of data to provide the technical foundation for pursuing a comprehensive-long-term approach to funding Metro. The Interim Report described the essential role Metro plays in the continued prosperity and livability of the region, and sought to define regional expectations on system performance focused on customer expectations. The Interim Report incorporated a robust financial forecasting model that enables projecting the long-term (10-year) financial needs of Metro.

The COG Board accepted the Interim Report on October 26, 2016. See Appendix A.

Focus of This Report

This Final Report is focused on the capital and maintenance needs of WMATA and how the region's localities can help meet those needs, to bring Metro to a State of Good Repair², to help it stay well-maintained and to advance projects required to address critical system needs.

This report is focused on finances. It does not include any discussion of WMATA governance, or other potential reforms. These are important issues, but are not part of the charge for the Technical Panel.

WMATA comprises Metrorail, Metrobus and MetroAccess. This report focuses on the capital and maintenance needs for WMATA, with primary focus on Metrorail.

¹ Metropolitan Washington County of Governments, "COG Technical Panel Interim Report on Metro," October 2016.

² "State of Good Repair" (SGR) means the condition in which a capital asset is able to operate at a full level of performance, which is defined as: 1) the asset is able to perform its manufactured design function; 2) the use of the asset in its current condition does not pose a known unacceptable safety risk; and 3) the asset's life-cycle investment needs have been met or recovered, including all scheduled maintenance, rehabilitation and replacements. This is included in the Federal Transit Administration's (FTA) final rule on transit asset management (Federal Register, July 26, 2016, p. 48963, <https://www.gpo.gov/fdsys/pkg/FR-2016-07-26/pdf/2016-16883.pdf>) (accessed April 17, 2017).

THE BOTTOM LINE

WMATA/Metro are vital to our region's continued success and economic growth. Metro has suffered from decades of delayed maintenance and insufficient capital investment, and must be provided the resources it needs to build on recent progress – to fully achieve a State of Good Repair and execute additional capital and maintenance projects essential for the long-term viability of the system. The COG CAO Metro Technical Panel worked together for the better part of a year to come forward with a regional solution for this regional asset.

The Technical Panel found that the predominant funding problem faced by WMATA is a **significant capital shortfall** that requires urgent attention. It concluded that a regional funding solution must be in place by no later than January, 2019 as local governments cannot afford the steep bill for Metro's needed capital and maintenance program while simultaneously financing their jurisdictional needs for schools and other critical infrastructure.

The Technical Panel concluded it is time to act for the good of the region, and establish **dedicated funding** to fill the major gap in funding needed for Metro's capital and maintenance – to assure the long-range safety and reliability of the system. After examining many different options, the Panel concluded that a **dedicated sales tax** is the best, most equitable revenue option.

The Technical Panel found that a dedicated sales tax is the source of funding for most large transit systems in the nation, and for logical reasons. It is a reasonable solution that spreads the cost widely, over the entire region, including tens of millions of annual visitors. It provides a stable funding source, well understood by investors to debt-finance substantial capital infrastructure needs at low interest rates. It is easily understood.

It's important to remember that **everyone benefits from Metro**, whether you take it or not – everyone benefits from congestion relief; from the need for fewer roads, bridges, etc.; and from the environmental benefits.

The Technical Panel's analysis demonstrates that doing nothing is not acceptable. A safe and reliable Metro system is fundamental to the long-term success of our region.

EXECUTIVE SUMMARY

In this Final Report, the Technical Panel presents further analysis on moving forward to provide the dedicated funding needed to support WMATA's continuing restoration and sustained system maintenance to assure it provides safe, reliable service to our region. The Technical Panel investigated, analyzed and discussed numerous options to support Metro's long-term capital and maintenance needs.

The Case for Metro Investment

It is clear that Metro is an essential asset to the region. The Interim Report described the strong case for investing further in Metro – economic value, transportation benefits (congestion reduction, environmental benefits); and the downside of not investing. Metro's health is critical to the region's ability to continue to prosper and thrive. Above all, it is important to remember that Metro is a regional asset, a regional issue, and a regional priority.

The Panel believes that localities must move forward, together, to give Metro the resources it needs to build on its progress in the past year.

Failure to invest in Metro – to restore it to a safe, reliable system in state of good repair – could reduce regional tax revenues by \$1 billion to \$2 billion annually³. The lack of investment puts at risk \$50 billion of investment, adjacent to Metro, that depends on a safe and reliable system. The success of the region's economy overall relies heavily on a world-class transit system.

Capital and Maintenance Funding Needed

The scope and scale of Metrorail's infrastructure, long-term capital and maintenance funding needs require billions of dollars of investment. These problems are insurmountable in the absence of significant new funding – funding that faces competing priorities in the localities. Years of deferred maintenance, insufficient capital investment, and expanding service hours (reducing time available for track maintenance) have brought Metro to the current state. If the region desires for Metrorail to continue to support economic development and mobility, the region must find a financial solution to support Metro.

The Funding Gap

The capital funding required to achieve a State of Good Repair is \$15.6 billion of investment over the next 10 years⁴. Analysis of anticipated revenues for capital investment indicates a funding shortfall (gap) for State of Good Repair of \$6.1 billion or an annual average gap of \$610 million per year (pay-as-you-go). The total estimated capital funding need is higher than the previous estimate in the Interim Report of 11.7 billion. **It is not possible to close this gap through farebox revenue and cost-**

³ Jeffrey S. DeWitt, "WMATA's Funding Needs: The Magnitude and the Effect, Updated to Reflect WMATA's Proposed FY 2018 Budget," March 31, 2017 (Office of the Chief Financial Officer, District of Columbia).

⁴ Ibid

saving measures alone. The vast majority of Metro’s funding gap is due to insufficient capital funding, including significant capital needs beyond State of Good Repair.

The Technical Panel concluded that the best way to achieve long-term capital funding is through bonding, with dedicated funding paying the debt service. Bonds will distribute the cost of capital projects over the lifetime of the project – the most feasible answer. The Technical Panel also concluded that the best way to fund the debt service on the bonds would be a dedicated funding source – **a dedicated tax.**

In addition, WMATA faces a \$1.3 billion funding gap for maintenance needs; this represents \$130 million per year (pay-as-you-go) requirement, which could also be funded by a dedicated tax.

Today, federal funding (including PRIIA – Passenger Rail Investment and Improvement Act of 2008) provides about 30% of WMATA’s funding, which is assumed to continue in these projections. If federal funding drops, the funding gap will grow.

In order to contain WMATA’s expense growth within a reasonable operating budget, the Panel suggests Metro limit its spending growth. For example, placing annual growth caps of 3% on capital and operating expenses and 2% for some non-personnel costs are assumptions built into the financial analysis in this report.

Regional Revenue Analysis

These are difficult times. Localities and states are struggling with capital budgets. As a region, localities must come together to find a solution.

The Technical Panel reviewed all potential options for raising revenue in the region. After much discussion and debate, the Panel concluded that a dedicated funding solution is required to support WMATA’s essential capital and maintenance needs. To raise this funding, the Panel finds that the best revenue solution is an addition to the general sales tax in all localities in the WMATA Compact area in the National Capital Region. This funding would be designated for capital or maintenance needs only – it would not be used for daily operating expenses.

Choosing to implement an addition to the general sales tax in the WMATA Compact region could provide enough funding to allow Metro to make continuous improvements to achieve safety and reliability, with the goal of reaching full State of Good Repair within 10 years.

The CAOs did not come to this recommendation lightly. After analyzing all the options, the Panel found this is the most equitable solution. Metro benefits the entire region – regardless of whether a person takes Metro or not – by boosting the regional economy, supporting employees, and relieving traffic congestion.

A uniform regional sales tax brings many benefits:

- Easily understood by the public.
- All residents in the Metro Compact area pay the same.
- For example, a 1% increase in the sales tax is generally equitable to taxpayers across the region, wherever a purchase is made.

- Provides stable funding source well understood by investors to debt-finance substantial capital infrastructure needs at low interest rates.
- Dedicated sales tax is source of funding for most large transit systems in the nation.
- It is a reasonable solution that spreads the cost widely, over the entire region, including tens of millions of annual visitors.

This finding is very similar to a 2005 COG report⁵, which recommended “sales tax as the best means of generating dedicated revenue.”

Regional Approach: Proposed Sales Tax

The sales tax revenue – consistent across the region – raises the necessary financing for Metro’s capital and maintenance needs, but not in the exact proportions of the Compact formula. The Panel recognizes this difference, and believes this can be addressed in the implementation phase.

Performance Metrics

WMATA tracks hundreds of performance metrics every year. This information helps them identify priorities and where improvements need to be made. The Panel has identified these metrics as important measures of Metro’s progress:

- Safety
- Reliability
- Customer experience
- Financial management

Over the last year, Metro has made excellent progress in its SafeTrack program. More maintenance work is necessary and will be a priority in coming years.

What Capital and Maintenance Buys

The Panel expects that a significant regional investment will yield tangible results, including:

- Ongoing rehabilitation and replacement of track – to ensure reliable service and restore user confidence.
- Replace nearly 600 older railcars with 7000 series state-of-the-art railcars – this alone will greatly help to improve service and reduce outages and service time.
- Replace or rehabilitate approximately 240 escalators – to improve access and customer experience.
- Rehabilitate approximately 100 elevators – to improve access to trains.
- Replace or refurbish fare gates and fare boxes – to improve customer experience and provide greater accountability.
- Replace or rehabilitate approximately 185 buses per year – to improve service and reliability.

⁵ Metropolitan Washington Council of Governments, “Report of the Metro Funding Panel,” January 6, 2005, page 35. Accessed April 7, 2017: <http://www.mwcog.org/uploads/pub-documents/9VpeWw20051109142424.pdf>

- Additional critical capital projects (not included in the \$15.6 billion), such as Rosslyn connection, relining Red Line tunnels, power systems; these could be funded through available funds from the dedicated tax.

Challenges and Next Steps

The vision for Metro is achievable. Much can be accomplished in the next few years; capital investments can support a Metro system that works smoothly, dependably, with minimal delays and disruptions. A system that has sufficient dedicated funding can ensure regular maintenance and replacement of aging equipment. A safe and reliable system can continue to fuel economic development, continue to pull thousands of cars off the roads, and continue to support those who live, work, play, and visit in the National Capital Region.

This essential *regional asset* requires a *regional solution*.

THE CASE FOR METRO INVESTMENT

The Panel's Interim Report⁶ came to the same fundamental conclusion that many have: **the Metrorail system is essential to the prosperity of the region.**

Panel members concurred with the December 2015 District of Columbia Office of the Chief Financial Officer's (DC CFO) report, which stated that Metro's overall health is "absolutely imperative to accommodate business and population growth" across the region⁷. In a recent article, The Washington Post's "Dr. Gridlock" underscored Metro's role in the region, writing, "Metro is too necessary to fail ... The region's plans for commercial, office and housing development presume the existence of the subway system ... The Downtown D.C. Business Improvement District sees fixing the Metrorail infrastructure as essential to the future of the region's hub."⁸

The Panel's Interim Report⁹ provided an analysis of data on WMATA/Metro, summarizing a number of analyses and studies. The Interim Report focused on safety, reliability, customer experience and the system's benefits to the region – to provide the technical foundation necessary to pursue a comprehensive, long-term approach to funding Metro and provide it with a solid financial foundation.

A look at the numbers. Without Metro, hundreds of thousands more vehicles would be on the roads:

- More than 1 million trips are made on an average weekday on Metro (bus and rail).
- Approximately 5% of rail trips are made by a person who lives elsewhere in the United States (visitors).
- Another 9% of rail trips are made by residents in the region but outside of the Compact area.

On an average weekend:

- Nearly half a million trips are made on an average weekend on Metro (bus and rail).
- Approximately 12% of rail trips were made by a person who lives elsewhere in the United States (visitors).
- Another 7% of rail trips were made by residents in the region but outside of the compact area.

It has been proven that **Metro fosters smart growth**. The 2011 WMATA technical report, "Making the Case for Transit,"¹⁰ measured and assessed benefits such as avoidance of additional road capacity and parking costs; travel time savings; travel cost savings; accident reduction savings; emissions reduction savings; and land value premium impacts.

⁶ MWCOG, "Interim Report on Metro."

⁷ Office of the Chief Financial Officer, District of Columbia, "Recommended Capital Planning Process for Remediation of Metrorail's Infrastructure Challenges," December 2015.

⁸ Robert Thomson, "'Death spiral'? No. Metro is too necessary to fail," The Washington Post, March 22, 2017. Accessed March 29, 2017: https://www.washingtonpost.com/local/trafficandcommuting/death-spiral-no-metro-is-too-necessary-to-fail/2017/03/20/03d6fcea-0744-11e7-b77c-0047d15a24e0_story.html?utm_term=.14a98e7e2445

⁹ MWCOG, "Interim Report on Metro."

¹⁰ Washington Metropolitan Area Transit Authority, "Making the Case for Transit: WMATA Regional Benefits of Transit, Technical Report," November 2011. Accessed March 20, 2017: <https://www.wmata.com/initiatives/case-for-transit/upload/WMATA-Making-the-Case-for-Transit-Final-Tech-Report.pdf>

It is clear that **Metro brings economic value**. Several studies show that proximity to Metrorail brings higher real estate values; boosts economic development; brings more property tax revenues.¹¹ For example, Virginia's investment in the rail system was \$941 million for 1978-2000, with a net return in tax revenue of \$2.1 billion, for a net gain to the Commonwealth of \$1.2 billion on a dollar-for-dollar basis.¹²

A poorly functioning Metro that is unsafe, unreliable, and lacks adequate capacity harms the region by causing delays that keep workers from getting to their jobs on time; increasing traffic congestion and disrupting the flow of people and commerce in the region; and harming Metro's ability to operate and improve as it loses riders and fare revenues. This will encourage more sprawl and a more car-dependent community.

The cost of not acting is high. It is essential that the region supports Metro to continue on its path toward a State of Good Repair. "With Metro, the region works. Without Metro, the region would be less wealthy, harder to get around, and have less economic activity," the 2011 WMATA report found¹³. Furthermore, the report found that properties near Metro stations had higher real estate values and produced more property tax revenues.

Metro is an investment-worthy asset; its infrastructure is valued at \$40 billion. Currently, \$50 billion of investments are active or planned near Metro stations.¹⁴

The DC CFO's report concludes that failure to invest in Metro, to restore it to a safe, reliable system in state of good repair, could reduce regional economic growth by $\frac{1}{4}$ to $\frac{1}{2}$ percent or more, reducing regional tax revenues by \$1 billion to \$2 billion per year.¹⁵

There has also been significant impact of reduced reliability in the form of lost productivity for Metro system users, estimated at \$51-61 million per year (2014-2015). And the cost of delay for 2015-2016 is preliminarily estimated at \$153-253 million.¹⁶ Without providing Metro the resources it needs, traffic congestion will worsen and economic growth in the region will slow.¹⁷

The entire region will suffer if the region does not invest in Metro. A preliminary analysis from the DC CFO shows that failure to implement dedicated funding will hurt all localities in the region. To bring Metro to State of Good Repair (capital and maintenance), localities would have to contribute significant sums; for example, over 10 years, Prince George's County would contribute \$1.3 billion and Fairfax County, \$1.1 billion.

¹¹ MWCOG, "Interim Report on Metro."

¹² Ibid

¹³ WMATA, "Making the Case."

¹⁴ MWCOG, "Interim Report on Metro."

¹⁵ How this is calculated: the $\frac{1}{4}$ that equals \$1.0 billion is the impact of reducing the total tax revenue growth derived from the COG demographic forecast that is estimated at 2.5% annually. In other words, the population, household and employment forecast translates into about 2.5% annual growth in the combined income, property, and sales taxes for the Metro Compact area. Keeping the math simple, that is about \$40 billion a year as the total tax base today. If, over 10 years, that grows at 2.5% per year, ignoring compounding, that is \$10 billion more in year 10 ($25\% \times 40$). If growth is reduced from 2.5% to 2.25%, or 0.25 percent, that is a 10% reduction in growth ($0.25/2.5$). Ten percent of \$10 billion in growth is \$1.0 billion. This is oversimplified, as the calculation would be a bit larger with compounding. (Source: Office of the Chief Financial Officer, District of Columbia.)

¹⁶ Freudberg, "Technical Panel Status Update."

¹⁷ Jeffrey S. DeWitt, "WMATA's Funding Needs."

Localities have major competing priorities for infrastructure investments within their jurisdictions; a new regional solution is needed for these long-term Metro priorities. The table¹⁸ below shows the bill that jurisdictions would face without a regional solution.



Total 10-Year Funding Gap Summary

(\$ Millions)							
CIP Funding Gap				\$ 6,157.05			
Maintenance Budget Gap				\$ 1,300.29			
Total				\$ 7,457.34			
Annual Average (10 Years - FY 2017-FY 2026)				\$ 745.73			

(Dollars in Thousands)							
		FY 2017		FY 2020	FY 2023	FY 2026	Total
Jurisdictional Share Gap Funding Needed	%	Current Year	%	Add-on Needed for Gap - Above Current Year			Gap Need
District of Columbia	37.2%	\$ 416,700	35.7%	\$ 232,305	\$ 108,099	\$ 633,556	\$ 2,671,543
Montgomery County	17.1%	193,050	16.4%	106,652	49,630	290,872	1,226,604
Prince George's	17.7%	235,550	17.0%	110,394	51,371	301,078	1,269,643
Maryland Subtotal	34.8%	\$ 428,600	33.4%	\$ 217,086	\$ 101,021	\$ 592,071	\$ 2,496,786
Alexandria	4.5%	33,000	4.3%	27,761	12,918	75,712	319,276
Arlington	8.2%	77,100	7.9%	51,143	23,799	139,483	588,196
City of Fairfax	0.3%	2,550	0.3%	1,871	871	5,103	21,519
Fairfax County	14.7%	155,450	14.1%	91,683	42,664	250,048	1,054,449
Falls Church	0.3%	3,150	0.3%	1,871	871	5,103	21,519
Loudoun County	0.0%	-	4.1%	26,600	12,378	72,546	283,520
Virginia Subtotal	28.0%	\$ 271,250	30.9%	\$ 200,969	\$ 93,521	\$ 548,104	\$ 2,289,007
Unfunded	100.0%	-	100.0%	\$ 650,360	\$ 302,641	\$ 1,773,731	\$ 7,457,336

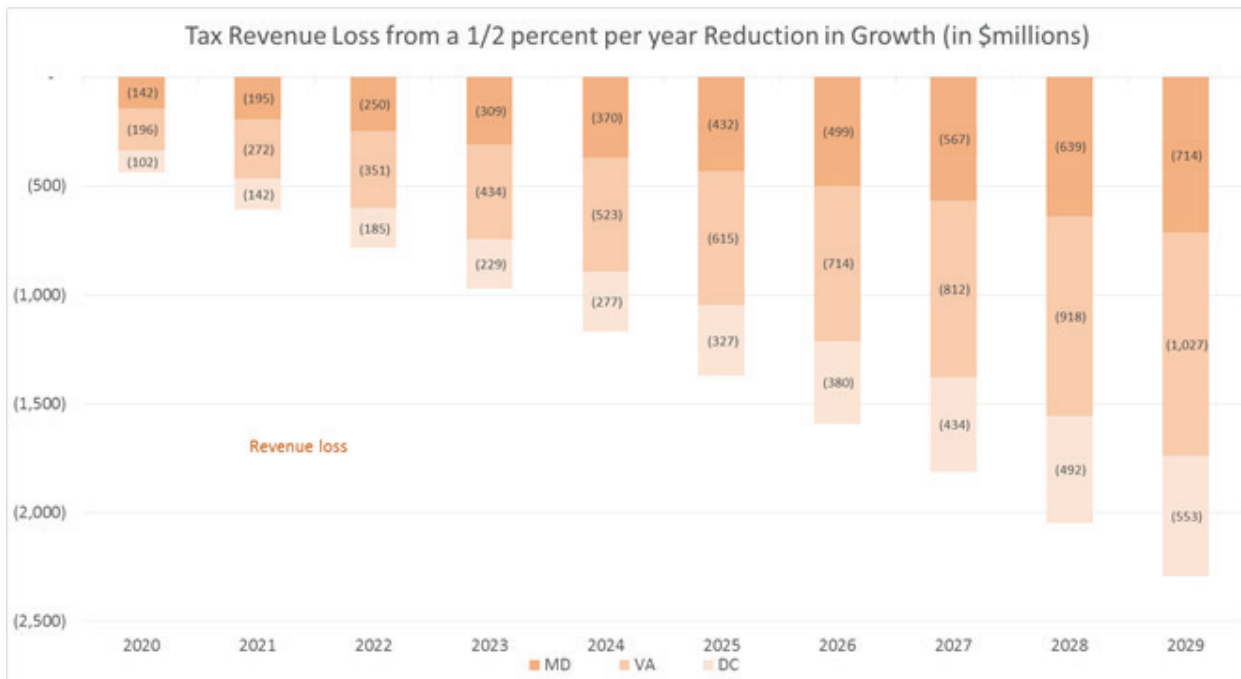
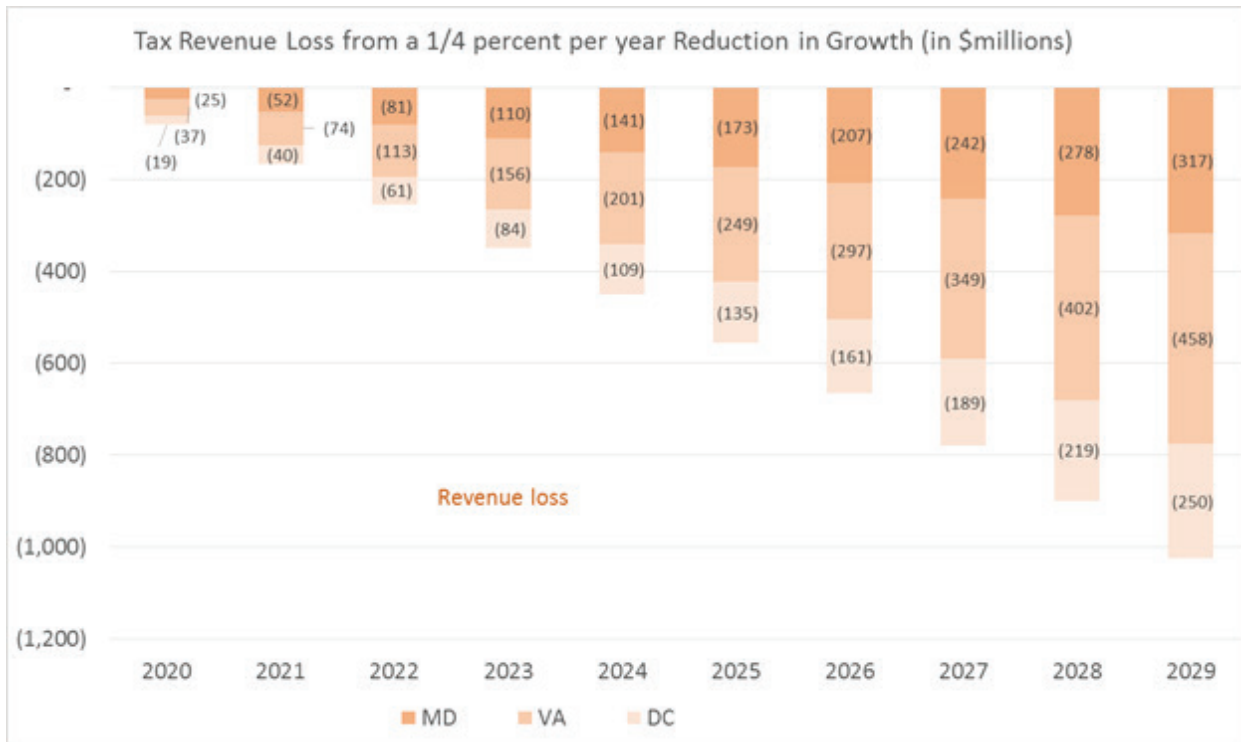
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Failure to invest in Metro will slow economic growth in the region, resulting in annual losses to area income taxes, estimated from \$1 to 2.3 billion in 10 years.¹⁹

Regional growth forecasts rely on a fully functioning Metro system. The worse Metro performs, the lower the region's ability to accommodate population and job growth will be. The reduction in growth will negatively impact local jurisdiction Sales, Property, Income, and Corporate taxes. Below are charts that show the loss in local tax revenue of a 0.25% and a 0.5% percentage point reduction in growth. These reductions are off of the baseline revenue growth rate of 3%. This was found from the 1% real growth in population/jobs coming from the COG regional forecasts and per capita income growth of 2% being conservatively assumed.

¹⁸ Ibid

¹⁹ Ibid



CAPITAL AND MAINTENANCE FUNDING NEEDED

As an essential asset to our region, Metro must continue on its path to State of Good Repair, so that the region can depend on reliable, safe service that is sustainable over the long-term. Years of deferred maintenance, insufficient financial investment, and expanding service hours (reducing time available for track maintenance) have brought us to the current state.

To bring Metro to a safe, reliable and stable State of Good Repair, WMATA must make a number of capital investments (totaling \$15.6 billion) over the next 10 years²⁰:

- Rail vehicles and vehicle parts: \$3.3 billion
- Rail systems: \$3.0 billion
- Track, structures, and systems: \$2.1 billion
- Passenger facilities and stations: \$2.6 billion
- Bus and paratransit investments: \$2.6 billion
- Business support systems: \$2.0 billion
- Repayment of short-term borrowing: \$0.2 billion

In addition to this \$15.6 billion for capital needs, an additional \$1.3 billion over a 10-year period is needed for maintenance of the capital investment. Localities have major competing priorities for infrastructure investments within their jurisdictions; a new regional solution is needed to pay for these long-term Metro priorities.

Capital and Maintenance Needs Will Continue

In addition to these important safety and reliability projects, there are many known projects on Metro's list of needs. Here are additional critical capital projects (not part of the \$15.6 billion) that are also important for safety and reliability. Their timing will vary and some are likely to stretch beyond the 10-year period for State of Good Repair. Other projects will come up and be added to the list over time. Estimated costs of other critical capital projects beyond the State of Good Repair are analyzed in the Capital Needs Inventory²¹ as requiring as much as estimated \$10 billion.

- New Rosslyn Connection
- Major Station Capacity Increases
- Heavy Overhaul Facility (Rail)
- Red Line Water Remediation
- Improved Tunnel Ventilation
- Bladensburg Bus Garage
- Metro Office Facilities

²⁰ Ibid

²¹ Washington Metropolitan Area Transit Authority, "10-Year Capital Needs; Inventory and Prioritization, CY 2017-2026 Needs," November 2016, accessed April 19, 2017: <https://www.wmata.com/initiatives/plans/upload/CNI-full-report-and-appendices.pdf>

THE FUNDING GAP

Having agreed that Metro is an essential regional asset – one that needs significant **capital and maintenance** investment – the Technical Panel examined budgets and needs. After fully evaluating WMATA's long-term needs, the Panel determined that the fundamental problem is that WMATA's capital needs are vast, sustained long-term maintenance is essential, and insufficient funding is currently available.

The Panel spent the better part of year determining how best to fill the significant funding gap for capital and maintenance.

Capital Funding Gap

The capital funding required to achieve a State of Good Repair is \$15.6 billion of investment over the next 10 years. Analysis of anticipated revenues for capital investment indicates a funding shortfall (gap) for State of Good Repair of \$6.1 billion or an annual average gap of \$610 million per year (pay-as-you-go). The total estimated capital funding need is higher than the previous estimate in the Interim Report of 12.6 billion. It is not possible to close this gap through farebox revenue and cost-saving measures alone. The vast majority of Metro's funding gap is due to insufficient capital funding, including significant capital needs beyond State of Good Repair.

Closing the Gap

The Panel concluded that the best way to provide long-term capital funding is through bonds, with dedicated funding going to pay the debt service. Bonds will distribute the cost of capital projects over the lifetime of the project, which benefits the region today, as well as future residents – the most feasible answer. WMATA has little debt outstanding, and has the capacity to issue substantial new debt, but would need a new dedicated revenue source established to secure this new financing.

The Panel concluded that the best way to fund the debt service on the bonds would be a dedicated funding source – a dedicated tax. The next section, “Regional Revenue Analysis,” describes options on how to generate these revenues. The maintenance gap could be funded on a pay-as-you-go basis, using the same dedicated revenue source.

Assumptions

To develop estimates of long-term funding needs, the Technical Panel thoroughly vetted the District of Columbia's independent CFO's (Chief Financial Officer) financial model for calculating long-term Metro funding needs. Subsequent to detailed review by the Chief Administrative Officers and their senior financial management staffs, and acknowledgement by WMATA that the model represented a reasonable set of assumptions, the Technical Panel endorsed the DC CFO's Financial model.

In order to contain WMATA's expense growth within a reasonable operating budget, the Panel assumed WMATA will limit its spending growth. The analysis specifically incorporates annual growth

caps of 3% on capital and operating expenses and 2% for some non-personnel costs. These assumptions are built into the financial analysis in this report. The primary cost and revenue assumptions in the model are:

Key Cost Assumptions Include:

- Base operating year FY 2018.
- Base capital plan year FY 2017. Using FY 2017 as the base because it was a more representative base year; the FY 2018 request was out of the ordinary.
- Analysis assumes WMATA personnel costs do not increase more than 3% per year (slower than current rate of growth). Assumes no funding increases for personnel in FY2018.
- Capital funding gap through FY 2026 estimated at ~\$6.1 billion.²²
- Operating funding gap through FY 2026 estimated at ~1.3 billion.²³
- Operating and capital needs – updated based on FY 2018 WMATA budgets and Capital Needs Inventory (CNI).
- Analysis focused on achieving State of Good Repair, coupled with ongoing preventative maintenance.
- Use of bonding (6%, 30 year municipal type revenue bonds) to finance long-term public capital projects is good public policy, spreading costs over the lifecycle of the asset.
- Keeps fuel and utilities inflated at 2% annually.

Key Revenue Assumptions Include:

- Analysis assumes local and state operating subsidies continue at FY 2018 level, escalated 3% annually and that capital contributions continue at FY 2017 level, escalated at 3% annually.
- Analysis assumes Federal PRIIA (\$150 million + \$150 million DC-MD-VA match) and FTA funding continue at same level.²⁴
- Assumes passenger revenue growth – from ridership and/or fare increases – of 3% starting in 2021.

Recent analyses bring overall conclusions:²⁵

- Recent analyses indicate 10-year capital funding gap larger, operating funding gap smaller than October 2016 estimates.
- Similar to October 2016 conclusion, recent analyses suggest dedicated funding starting in FY 2019, coupled with debt financing, is required to fund State of Good Repair capital needs gap, plus maintenance cost gap, and additional critical capital project investments.

²² Freudberg, "Technical Panel Status Update."

²³ Ibid

²⁴ DeWitt, "WMATA's Funding Needs."

²⁵ Freudberg, "Technical Panel Status Update."

REGIONAL REVENUE ANALYSIS

Metro is a regional asset, a regional issue, and a regional priority. This regional priority needs a regional solution, as well as a regional viewpoint.

Bridging the Funding Gap

Metro faces a capital gap of \$15.6 billion through FY 2026 and a maintenance gap estimated at ~\$1.3 billion,²⁶ plus as documented in the Capital Needs Inventory²⁷, has at least several billion dollars of additional critical capital needs.

Revenue Options

The Panel considered a wide range of revenue options for the WMATA Compact region. They are described briefly here, and in more detail in Appendix B, “Revenue Options,” and Appendix C, “Tax Options for Funding Metrorail’s Capital Needs.”²⁸

Type of Tax	Tax Increase	Annual Tax Revenue Collected in WMATA Compact Region
Sales Tax	1.0%	\$650 million
Property Tax (all property)	8 cents per \$100	\$650 million
Property Tax (½ mile from Metro)	43 cents per \$100	\$650 million
Gas Tax	16.3% increase	\$650 million


- Sales Tax – a 1% general sales tax in the region would generate the required amount, and would spread the cost widely, not only across the region, but also including tens of millions of visitors.
- Property Taxes – To raise the needed amount, the property tax rate would have to be increased 8 to 43 cents, which is significant, especially for homeowners and businesses within a half-mile of Metro stations.
- Gas Tax -- reaching the required amount would require a 16.3% increase in gas tax across the region.

²⁶ Ibid

²⁷ WMATA Capital Needs Inventory

²⁸ Jeffrey S. DeWitt, “COG Technical Report – Tax Options for Funding Metrorail’s Capital Needs,” April, 2017.

The table below provides the estimated revenue raised from each of these four options by jurisdiction:



Distribution of Regional Uniform Taxes Collected by Jurisdiction

Jurisdictions:	District of Columbia	Montgomery County	Prince George's County	Arlington County	City of Alexandria	Fairfax County	City of Falls Church	City of Fairfax	Loudon County	
Scenarios to raise \$650 million per year:										
1) Sales Tax										
Uniform tax rate to generate \$650mm	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	TOTAL
Amount paid by jurisdiction w/uniform rate	\$ 148	\$ 91	\$ 81	\$ 39	\$ 32	\$ 179	\$ 4	\$ 10	\$ 66	\$ 650
Jurisdiction share of the total revenue	22.8%	14.0%	12.5%	6.0%	4.9%	27.6%	0.6%	1.5%	10.2%	100.0%
2) Property Tax										
Uniform tax rate to generate \$650mm (\$/100 of assessment)	\$ 0.080	\$ 0.080	\$ 0.080	\$ 0.080	\$ 0.080	\$ 0.080	\$ 0.080	\$ 0.080	\$ 0.080	TOTAL
Amount paid by jurisdiction w/uniform rate	\$ 142	\$ 124	\$ 59	\$ 55	\$ 31	\$ 176	\$ 3	\$ 5	\$ 58	\$ 652
Jurisdiction share of the total revenue	21.7%	19.0%	9.1%	8.5%	4.7%	27.0%	0.4%	0.7%	8.9%	100.0%
3) Property Tax near Metro										
Uniform tax rate to generate \$650mm (\$/100 of assessment)	\$ 0.428	\$ 0.428	\$ 0.428	\$ 0.428	\$ 0.428	\$ 0.428	\$ 0.428	\$ 0.428	\$ 0.428	TOTAL
Amount paid by jurisdiction w/uniform rate	\$ 328	\$ 67	\$ 28	\$ 108	\$ 32	\$ 80	\$ 4	\$ 4	\$ -	\$ 650
Jurisdiction share of the total revenue	50.5%	10.3%	4.3%	16.5%	4.9%	12.4%	0.6%	0.6%	0.0%	100.0%
4) Gas Tax										
Uniform tax rate to generate \$650mm	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	TOTAL
Amount paid by jurisdiction w/uniform rate	\$ 41	\$ 169	\$ 148	\$ 26	\$ 19	\$ 160	\$ 8	\$ 12	\$ 67	\$ 650
Jurisdiction share of the total revenue	6.3%	26.0%	22.8%	4.0%	3.0%	24.6%	1.2%	1.8%	10.4%	100.0%

The Panel also considered two other options:

- Value Added Tax (VAT) – a tax on the value-added at each stage in production of goods and services. Exists nowhere in the United States; elsewhere, it is implemented as a national sales tax.
- Commuter Tax – two states cannot tax the same earned income; also, Congress barred the District in 1973 from imposing a commuter tax.

A Shared Regional Economy

It's important to have this discussion in the context of the regional economy. People who live, work, visit and play in the region do so across the region, without regard to jurisdictional borders. People in DC buy their cars in Maryland or Virginia. People stay in an Arlington hotel and eat meals in DC. Virginia residents visit National Harbor for dinner and a show.

And the region includes the tens of millions of people who come here to visit – for business, for vacation, to run a marathon, to visit our attractions, to witness history. They, too, use – and can help pay for – Metro.

Metro benefits everyone – those who take Metro and those who do not. Metro removes vehicles from the roads, relieves congestion, lessens the need for additional roads, bridges, and parking, and brings environmental benefits, including fewer carbon emissions. Everyone has a stake in Metro and its success.

In order to support bond funding needed for Metro's critical capital and maintenance needs, it is necessary to find a method to generate the hundreds of millions of dollars per year, to pay the debt service and pay-go for maintenance.

This is **new money** – money that is not collected today. This new money will come from the entire region ... and will be dedicated to capital/maintenance needs for an essential regional entity.

This includes not only those who live in the NCR (National Capital Region), but also anyone who comes here for business, for vacation, for a visit, for entertainment. Government officials may think of jurisdictions as individual and separate, but people flow back and forth across boundary lines without giving it much thought.

An important part of running a major rail system is the needed ongoing maintenance and investment. Metrorail was originally conceived as a regional Compact, without dedicated funding. It is the only major big-city rail system in the U.S. (perhaps the world) without dedicated funding. This lack puts Metro – known as “America’s Subway” – at risk, and keeps Metro from regaining world-class status. As Greater Greater Washington noted, “And while securing dedicated funding wouldn’t fix all of Metro’s woes, a more stable and reliable operating budget funding would bring Metro’s budget in line with other systems and help provide a stronger platform for keeping the entire system in a state of good repair.”²⁹

REGIONAL APPROACH: PROPOSED SALES TAX

The Panel worked together to consider and analyze numerous options for dedicated regional funding. The Panel believes that Metro is so important to our region that the region must invest in its future. The Panel concludes that the sales tax best meets criteria for funding the capital and maintenance needs gap and additional critical capital projects.

The Panel recommends that the COG Board take a serious look at proposing that DC, Maryland and Virginia add to the general sales tax in all Metro Compact jurisdictions. It is not a perfect solution, but it comes closest to collecting revenue as if a regional taxing entity existed, and is an efficient and stable method to generate the revenue needed for Metro’s critical capital needs.

A uniform regional sales tax brings many benefits:

- Easily understood by the public.
- All residents in the Metro Compact area pay the same
- For example, a 1% increase in the sales tax is equitable across the region, wherever a purchase is made.
- Provides stable funding source well understood by investors to debt-finance substantial capital infrastructure needs at low interest rates.
- Dedicated sales tax is source of funding for most large transit systems in the nation.
- It is a reasonable solution that spreads the cost widely, over the entire region, including tens of millions of visitors annually.
- Dedicated, stable funding allows for longer-term capital planning not currently included in the \$15.6 billion needed for a State of Good Repair.

The Panel’s conclusion regarding the sales tax option is the same as one made in 2005. A COG report then also concluded with its “preferred option” for a regional sales tax: “Based on revenue production and the rating criteria, the Panel finds that four revenue sources would be most appropriate for consideration by regional elected officials. Among these the preferred option would be a uniform regional sales tax ... While there are issues as to the incidence of the tax and its

²⁹ Matt Eldridge and Rayanne Hawkins, “How does Metro’s funding compare to other cities’ systems?”, Greater Greater Washington, March 25, 2016; accessed April 7, 2017: <https://gqwash.org/view/41125/how-does-metros-funding-compare-to-other-cities-systems>

regressivity, at the levels contemplated these should not overcome its simplicity, its effectiveness in capturing visitor revenue, and its ability to grow with the regional economy.”³⁰

The Panel acknowledged there are differences between jurisdictional revenue generation from the sales tax and the WMATA funding formula. As these and other issues arise in the implementation phase, more discussion will be needed by policy officials to work out those details.

PERFORMANCE METRICS

WMATA tracks hundreds of performance metrics every year. This information helps them identify priorities and where improvements need to be made. The Panel has selected these metrics as important measures of Metro’s progress: safety, reliability, customer experience, financial management. The metrics from 2016:³¹

Safety. Safety is Metro’s highest priority. For 2016, Metrorail’s “major events” (collisions, derailments, etc.) will end up slightly lower than 2015. Major events overall – including Metrobus and MetroAccess – will end up slightly higher than 2015.

While it’s vital that the region helps Metro make needed capital/maintenance improvements, WMATA ranks third-lowest in the nation for fewest “major events” among major heavy rail systems, on a per-mile basis. (Miami-Dade Transit and San Francisco Bay Area Rapid Transit are lower.)³²

Reliability. Metrorail’s on-time performance is at 70%, with 85% completing trips within 5 minutes of expected arrival time. New railcars and continued preventative maintenance are expanding reliability and making steady improvements. Customer surveys help measure rider satisfaction. WMATA has already accepted 316 of the 748 7000 Series railcars ordered.

Cost recovery. Looking at the past four years, Metro’s cost recovery ratio is currently at its lowest – 47%, largely due to the impacts of SafeTrack and reduced service.

Financial. WMATA ended FY 2016 on budget and completed its audit on time with no new findings. WMATA’s federal ECHO privileges were restored for future grants; WMATA also recovered more than \$1.3 billion in grant expenses. Over the last year, WMATA has improved its ability to invest capital funds to improve the system, reaching a historic high of \$1 billion in capital investment.

³⁰ MWCOG, “Report of Metro Funding Panel.”

³¹ Washington Metropolitan Area Transit Authority (WMATA), “Regional Measures,” March 28, 2017 -- see Appendix D.


³² Ibid

On April 18, 2017, WMATA released updated metrics for the first three months of 2017.³³ A few highlights:

- Half as many trains were offloaded in the first three months of 2017 as compared to the same period in 2016. The significant improvement in customer reliability was the result of the ongoing, accelerated retirement of all 1000- and 4000-series railcars, Metro's oldest and least reliable, respectively, combined with a "get well" maintenance program on the transit authority's other railcars to make them more reliable.
- In the first three months of the year, a total of 218 trains were offloaded (a rate of 2.4 offloads per day), as compared to 433 offloads during the same period in 2016.
- Metro's "mean distance between delays," a metric that tracks how far a railcar travels, on average, before encountering a problem that delays a train, improved nearly 70 percent - from 48,064 miles between delays in the first quarter of 2016 to 81,451 miles in the first quarter of 2017. Specifically, propulsion-related delays were down 39 percent and door problems were down 16 percent during the period.
- Metro has implemented an industry-first method of measuring on-time performance that is based on the actual customer experience, tracking travel times from the moment a customer taps into the system to the moment they tap out. So far this month, Metro customers have arrived within five minutes of their expected arrival time about 90 percent of the time, even with SafeTrack maintenance in effect.


BACK2GOOD

Customer Update #2: April 18, 2017




RAILCARS

- **Customers experiencing fewer offloads:** Railcar offloads cut in half in the first three months of 2017, compared to the same period last year.
- **Railcar "Get Well Plan" seeing results:** Propulsion-related delays down 39% and door-related delays down 16% in the first three months of 2017, compared to the same period last year.
- **Out with the old:** 70% of the 1000-series railcars and 46% of the 4000-series railcars removed from passenger service to date.
- **In with the new:** 39 new 7000-series trains in service at the end of March 2017 – now accounting for 1/3 of all Metro trains during rush hour.




SAFETY

- **Buses being equipped with new safety feature:** New flashing amber safety lights are being mounted on the front and back of Metrobuses to catch the attention of pedestrians and prevent rear collisions.




WI-FI AND CELLULAR SERVICE

- **New underground cell phone service available:** Cell phone coverage in Metro's underground tunnels has expanded to the Red Line between Glenmont and Silver Spring. This is part of an ongoing project to bring underground cell service system wide.
- **Station Wi-Fi program expanding:** Metro will expand Wi-Fi service in underground stations from the current 6 locations to 30 by the end of 2017. All remaining underground stations will have Wi-Fi available in the first half of 2018.



FINANCIAL MANAGEMENT

- **Fiscal Year 2018 Budget approved:** A balanced budget for FY18 required shared sacrifice by regional funders, Metro employees and management, and customers.



STATION IMPROVEMENTS

- **Escalator performance continues at six-year high:** System wide, escalator performance averaged 95% for the first three months of 2017 – the highest in more than six years.

For more information on WMATA's plan for 2017, visit wmata.com/back2good

³³ Washington Metropolitan Area Transit Authority (WMATA), "Back2Good Customer Update," April 18, 2017, accessed April 19, 2017: <https://www.wmata.com/about/back2good/initiatives.cfm>

Update: SafeTrack Metrics

As its SafeTrack program demonstrates, Metro is making a concerted effort to improve its safety and reliability within its existing tools and resources. The 12-month program is nearing completion; more work is necessary and will be a priority in coming years. Highlights of the work completed to date:³⁴

Safety. In 2016, track-related delays reduced by 7%, including delays caused by smoke, fire or arcing insulators (compared to previous year).

To ensure all these programs are effective in meeting stated quality objectives, in October 2016, WMATA established an independent internal compliance department that reports directly to the General Manager, providing quality assurance and oversight. This internal compliance function, overall, is intended to promote compliance with internal policies and procedures, external laws, regulations and directives while adding greater accountability and transparency to Metro's compliance and internal control activities.

Reliability. By the end of calendar year 2017, nearly 20 percent of all track in the Metrorail system will be refurbished, improving service reliability. This includes 50,000+ rail ties, reducing the number of defective ties to less than 5,000. More than 25,000+ track fasteners have already been replaced. More than 20,000 linear feet of grout pad have been replaced, which would have taken 2-½ years to accomplish under previous maintenance access.

Financial. As of now, 12 of 16 SafeTrack surges are complete. To achieve this, WMATA is spending at a higher rate than in the past – a good indicator that WMATA will be able to accelerate its infrastructure projects.

WHAT CAPITAL AND MAINTENANCE INCLUDES

In proposing this funding plan, localities have a number of expectations. The Panel expects that a significant regional investment will yield tangible results, including:

- Metro will be an organization worthy of the region's continued support and expanded investment.
- WMATA will be good stewards of our investment.
- Metro will manage an expanded budget that will help to rebuild trust with the region.
- Metrorail will be in State of Good Repair.
- Metro will continue to enable economic growth in the region.

³⁴ Paul J. Wiedefeld, WMATA, "Testimony of Paul J. Wiedefeld, General Manager and Chief Executive Officer of the Washington Metropolitan Area Transit Authority; Before a hearing of the Subcommittee on Government Operations under the Committee on Oversight and Government Reform, March 29, 2017: <https://oversight.house.gov/wp-content/uploads/2017/03/17-3-29-Testimony-of-Paul-Wiedefeld.pdf>, accessed April 11, 2017.

The Panel expects that significant regional investment – \$15.6 billion for capital and \$1.3 billion for maintenance – will yield tangible results, including:

- Ongoing rehabilitation and replacement of track – to ensure reliable service and restore user confidence.
- Replace nearly 600 older railcars – this alone will greatly help to improve service and reduce outages and service time.
- Replace or rehabilitate approximately 240 escalators – to improve access and customer experience.
- Rehabilitate approximately 100 elevators – to improve access to trains.
- Replace or refurbish fare gates and fare boxes – to improve customer experience and provide greater accountability.
- Replace or rehabilitate approximately 185 buses per year – to improve service and reliability.

Additional critical capital projects (not included in the \$15.6 billion), such as Rosslyn connection, relining Red Line, power systems; these may be able to be funded through available funds from the dedicated tax.

CHALLENGES FACING STATE PARTNERS

Today, state partners contribute significant funding to support WMATA and its localities.

For example, in Maryland, the state funds 100% of Maryland jurisdictions' required funding for WMATA operations and capital. For FY 2018, Maryland will provide \$223.7 million in capital funding for WMATA.

The picture in Virginia tells a different story.

In FY 2018, Virginia will provide \$195.6 million in funding for WMATA capital expenses, which includes \$102.9 million from local member jurisdictions and \$92.7 million in state funding. Officials at the Virginia Dept. of Rail and Public Transportation (DRPT) tell us that these state funds are not guaranteed going forward because the state will be losing about \$110M/year in statewide transit funding with the loss of Capital Project Revenue Bonds in 2019. As of this time the state has not identified a replacement source of revenues to cover this gap, and any new funds will require action by the General Assembly. (See Appendix E for more details.)

While the localities fully support the effort to fund Metro's capital needs, the Panel is aware that state funds are not assured and must compete with other transportation priorities in the states.

The Panel consulted with and thanks representatives from the District and the states:

- Chris Conklin, Deputy Director, Transportation Policy, Montgomery County
- Todd Horsley, Director of Northern Virginia Transit Programs, Virginia Dept. of Rail and Public Transportation (DRPT)
- Jennifer Mitchell, Director, Virginia Dept. of Rail and Public Transportation (DRPT)
- K. Jane Williams, Director, Maryland Department of Transportation (MDOT) Washington Area Transit Office

CHALLENGES AND NEXT STEPS

The Panel members worked together to develop a long-term regional solution for Metro. In working toward its recommendation, all Panel members are all in full agreement that the localities must find the right solution for the region. Working together was very rewarding for Panel members, as everyone values the benefit Metro brings to our two states, District, and all our localities.

The Panel identified needs and next steps:

- COG Board accepts report from the Technical Panel and asks the Metro Strategy Group to develop recommendations for consideration at the June COG Board meeting.
- COG coordinates with the business community, with the initiative led by former Secretary LaHood in Virginia, with Maryland and D.C., with the WMATA General Manager and Board of Directors, and with others, to receive inputs.
- Legislative proposals are developed to implement the funding plan with a goal of consideration in the 2018 legislative sessions.
- The critical importance of federal funding support – PRIIA and FTA grants – must remain a very high priority to help contribute to Metro’s long-term success.

As the old saw goes, “Sometimes the hardest thing and the right thing are the same.” Metro must be preserved – and improved – for the good of the region.

APPENDIX A: COG BOARD RESOLUTION ACCEPTING THE CAO TECHNICAL PANEL INTERIM REPORT

Resolution R63-2016
October 26, 2016

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION ACCEPTING THE CHIEF ADMINISTRATIVE OFFICERS TECHNICAL PANEL ON METRO INTERIM REPORT

WHEREAS, the Metrorail system is the most significant regional transportation system and plays a critical role in meeting the National Capital Region's socio-economic and mobility needs and has served this need for the past 40 years; and

WHEREAS, the region's leaders are unified in their desire to help the Washington Metropolitan Area Transit Authority (WMATA) address the safety and service reliability issues faced by its Metrorail system that are partly due to funding constraints; and

WHEREAS, the current state of safety and service concerns associated with Metrorail and the resultant disruptions to mobility and commerce in the region reaffirms the need to thoroughly explore and address to the best of the region's ability the funding and revenue needs of the Metrorail system; and

WHEREAS, on June 8, 2016 the board adopted Resolution R39-2016 authorizing the Executive Director to convene a Technical Panel of Chief Administrative Officers and Chief Financial Officers to partner with WMATA to develop safety and reliability performance metrics for Metro, analyze operating and capital funding needs, and assess revenue options to meet operating and capital funding needs; and

WHEREAS, the panel also analyzed the economic value of Metro and its importance to the region.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS THAT:

1. The board accepts the Technical Panel's Interim Report and expresses its gratitude to its members for their support to date, and for continuing its work on this critical priority for the region.
2. The board directs the Executive Director and the Technical Panel to coordinate with the WMATA General Manager to complete its technical foundation work and provide a final report to the COG

Board of Directors by the end of the first quarter of 2017, consistent with the focus areas in R39-2016, plus the addition of analysis of the economic value of Metro.

I HEREBY CERTIFY THAT the foregoing resolution was adopted by the COG Board of Directors on October 26, 2016.

**Laura Ambrosio
COG Communications Specialist**

APPENDIX B: REVENUE OPTIONS

The committee considered the following revenue options, described briefly in the table below and in more detail in Appendix C.

Funding Source	Pro	Con
Sales Tax	Simple to implement/raise awareness of 1% increase	Potential legal constraints re: state approval for local add-on
	Applies equally to all Compact area jurisdictions	Not proportional to current share of jurisdictions' Metro funding
	Consistent with other large transit agencies' source of funds	Not all subject to tax utilize the service
VAT	Easier to collect than a sales tax	Administrative and political difficulty replacing a sales tax
	Self-enforcing to a large degree	Educating the public about distributional implications of a VAT
	Likely generates more revenue than a sales tax does	Is typically implemented at the National level, not State
	Affects individuals/businesses equally	--
Motor Vehicle Fuel Tax	Complements Metrorail's purpose of reducing road congestion and environmental damage by discouraging driving	Relatively low level of revenue generated; would require a very large increase in the tax rate
	--	Gasoline taxes set at state level
Commuter Tax	Tax pays for the benefits commuters receive in the jurisdiction they work	Congress barred DC from imposing a Commuter Tax on non-residents in 1973
	--	2 states cannot tax the same income, so commuter tax results in a credit for taxes paid in other jurisdictions
	--	Administrative and political difficulty in implementing

APPENDIX C: TAX OPTIONS FOR FUNDING METRORAIL'S CAPITAL NEED

Source: Office of the Chief Financial Officer, District of Columbia

One method to cover the costs of necessary maintenance and capital expenditures needed to restore the Metrorail system is to implement a new dedicated funding source. As part of the COG Metro Technical Panel, several dedicated funding options for Metrorail have been discussed. These options would generate revenue in the jurisdictions served by Metrorail (DC, Montgomery County, Prince George's County, Arlington County, City of Alexandria, Fairfax County, City of Falls Church, City of Fairfax, Loudoun County) and the revenue raised would be dedicated to funding Metrorail's maintenance and improvements. The four specific revenue options that this committee shortlisted include: Sales Tax, Value-Added Tax (VAT), Motor Vehicle Fuel Tax, and a Commuter Tax. The subsequent sections of this report discuss these options in more detail and provide the high level benefits and drawbacks of each option.

Sales Tax

In order to generate the estimated cost of necessary repairs and capital expenditures, the region could institute a 1% general sales tax. In D.C., for example, this would raise the general sales tax rate from 5.75% to 6.75%. If each jurisdiction in the region added 1% to their respective Sales and Use Taxes, the increased revenues would be sufficient to fund Metrorail's needed improvements.

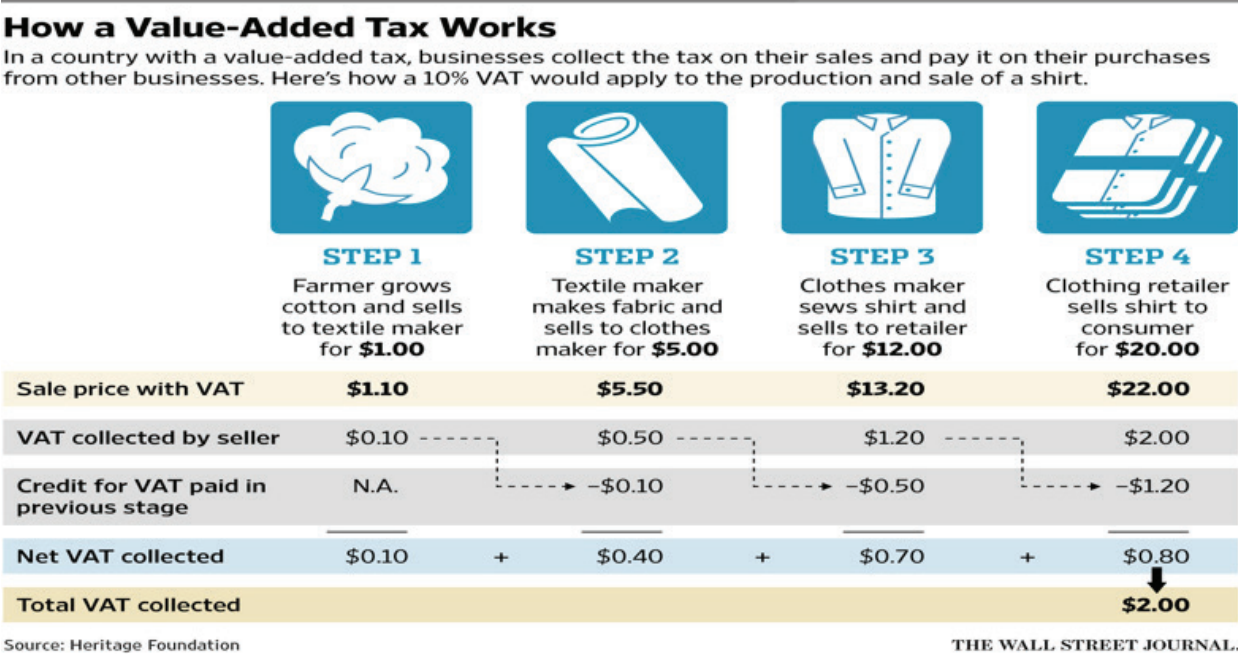
There are several benefits to this proposal. First, it is simple to raise awareness of a 1% increase in tax (i.e. 1 cent on the dollar). Second, since this add-on to the sales tax would apply across all the Compact area jurisdictions, it would not change the current relative sales tax burdens across the participating jurisdictions. As such, it would not change the incentive for consumers to shop in one jurisdiction over another. Additionally, a dedicated sales tax is what most major jurisdictions around the country use to fund their transit systems, so it would be consistent with what other large transit agencies in other cities do.

Drawbacks of this proposal include legal constraints some jurisdictions may have in imposing a local add-on to the sales tax; Virginia and Maryland jurisdictions require state legislative body approval to levy a local add-on to the sales tax. Another downside of a broad-based add-on sales tax is that some of those paying pay the tax would not be Metrorail riders and might consider it unfair that they are paying for a service they do not use (although there are indirect benefits in the form of less road congestion and better air quality). Finally, the 1% regional tax is not entirely proportional to the current share of each jurisdiction's funding levels for Metro. This will need to be addressed going forward.

Value Added Tax

A value-added tax (or VAT), is used in many parts of the industrialized world but nowhere in the United States (although Puerto Rico came very close to implementing a VAT tax in 2016). Similar to the state and local sales and use tax, in many countries the VAT is implemented as a national sales tax. It is a tax on the value-added at each stage in the chain of production of both goods and services

and, ultimately, consumers end up paying the entire cost of the VAT (see diagram below). One implementation of the VAT (the credit-invoice) requires that firms offset the tax they have paid on their purchase of goods and services against the tax they charge on the sales of their goods and services.



In the illustration above, the final customer paid \$22 for the shirt, of which \$2 (or 10%) was the VAT embedded in the price. Effectively, the customer paid the full cost of the 10% VAT even though it was collected in increments along the production process because the intermediate stages of production can pass on the net tax paid to the following stage.

Although the VAT seems more complicated than a retail sales and use tax, proponents say a VAT is easier to collect (and harder to evade) than a sales tax. The VAT is self-enforcing to a large degree because an intermediate producer must file a tax return for taxes paid on good and services purchased; thus, tax authorities can glean information on taxes collected by an intermediate producer because businesses in the next stage in the production chain would report having paid a VAT to the prior producer. The VAT, in theory, could generate increased tax revenues, and would, like a 1% regional sales tax, not target specific individuals or businesses. However, some of the major drawbacks would include the administrative and political difficulty in replacing a sales tax with a value-added tax and educating the public about the distributional implications of the VAT. Furthermore, almost all of the existing VAT systems apply at the national level, doing so at the state or region level would be novel. The COG Metro Technical Panel did not estimate any revenues that would be generated by switching to a VAT.

Gas Tax

Every state in the U.S. implements some form of tax on motor vehicle gasoline. The state taxes are on top of the federal gasoline tax which is 18.4 cents per gallon. Some states assess a per-gallon tax rate that is collected at the pump. Other states charge wholesalers a tax on the wholesale price of a gallon, and some states assess a sales tax on the purchase of gasoline[1]. According to the American Petroleum Institute[2], the national average of both state and federal taxes for gasoline is 49.44 cents per gallon. Maryland, Virginia, and the District, comparatively, have rates of 51.90, 41.73, and 41.90 respectively.

Increasing the gasoline tax was a proposal the COG Metro Technical Panel considered in addition to the two aforementioned proposals. In the District, all revenue generated by the Motor Vehicle Fuel Tax is dedicated to the Highway Trust Fund. Each fiscal year, the District generates roughly \$20 million from this tax. To raise enough revenue to bridge the capital funding gap, all the jurisdictions would have to significantly increase their gasoline tax rates. This was quickly seen as unfeasible. Another difficulty with this idea is that gasoline taxes are currently set at the state level for Maryland and Virginia and some legislative changes at the state level to increase the tax rates in the Metrorail jurisdictions.

Commuter Tax

A commuter tax is a tax charged to persons who work, but do not live, in a certain locality. In the metropolitan D.C. area, for example, the idea would be that the District would levy a tax on the roughly 300,000 Maryland and Virginia residents who work in the District, while Maryland and Virginia jurisdictions in the Compact Area would tax District residents working in their jurisdictions. The underlying argument for this is that this tax would pay for the public services that benefit commuters (including the direct and indirect benefits of Metrorail) in the jurisdiction they work. Since two states cannot tax the same earned income, a commuter tax would require that residents filing taxes in their home jurisdiction receive a credit for taxes paid to other jurisdictions – an obvious point of contention to those states.

The idea of a commuter tax in the DC area has been long discussed. In fact, as part of the Home Rule Act of 1973, Congress barred the District from imposing a commuter tax on non-residents. The controversial point here was that more than 40 communities across the country, however, do levy commuter taxes – none subject to congressional approval.[3]

The COG Metro Technical Panel did not evaluate potential tax rates or revenues generated by a commuter tax as it is, in terms of feasibility, quite difficult to implement.

[1] <https://taxfoundation.org/state-gasoline-tax-rates-2016>

[2] <http://www.api.org/oil-and-natural-gas/consumer-information/motor-fuel-taxes/gasoline-tax>

[3] <http://www.washingtonpost.com/wp-dyn/content/article/2005/11/04/AR2005110401052.html>

APPENDIX D: WMATA REGIONAL MEASURES

Source: WMATA, March 28, 2017

Regional Measures Washington Metropolitan Area Transit Authority



Priorities

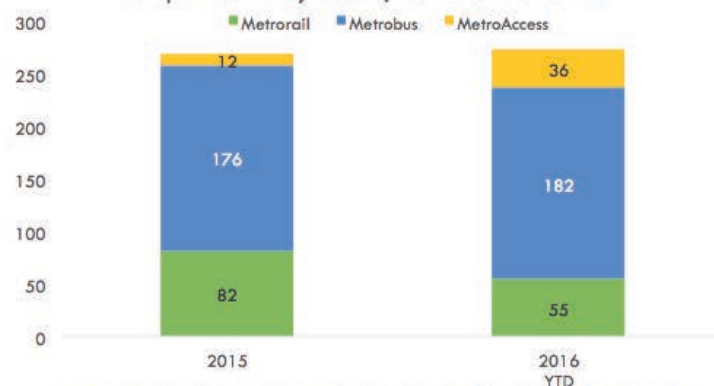
CY2016 Results

Safety - How Metro is making safety its first priority and ensuring it will continue to significantly improve in a way that restores the trust of the public and regulators

As measured by

- National Transit Database (NTD)-reported Major Events, including collisions, derailments, fires, security incidents, and all other reportable events

Major Events by Mode, 2015 & 2016 YTD*



*2015 includes full-year data; 2016 includes YTD through November

Reliability - How Metro is ensuring riders will get to destinations on time and delivering quality customer service

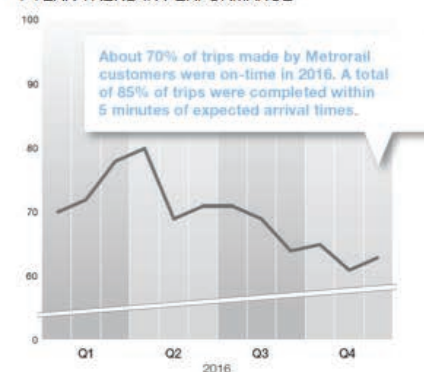
As measured by

- Rail customers on time (MyTripTime)
- Customer experience ratings, based on a quarterly survey of nearly 800 customers.

ANNUAL PERFORMANCE
Rail Customer
On-Time Performance



1-YEAR TREND IN PERFORMANCE



Customer Experience 70% Overall experience

Experience Factors from Q3 of Calendar Year 2016

- 60% Service Reliability
- 79% Personal Safety/Security
- 70% Customer Service

Regional Measures

Washington Metropolitan Area Transit Authority



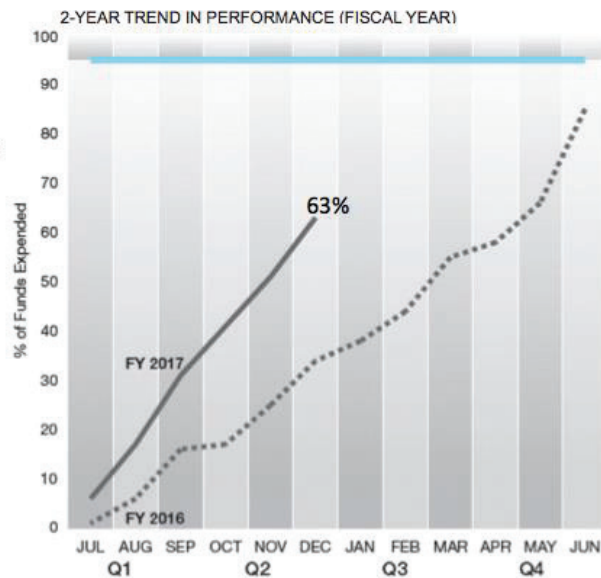
Priorities

Financial - How Metro is managing capital funds to make smart investments and restore the system and operating efficiently to limit the need for growth in jurisdictional subsidies

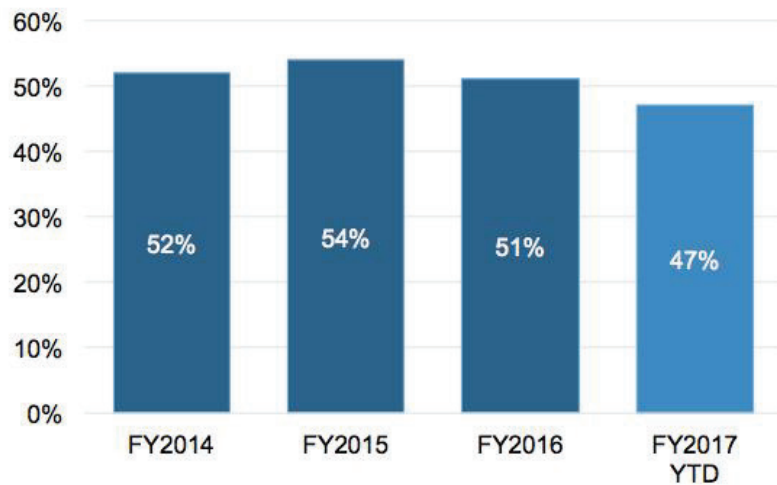
As measured by

- Capital Funds Invested
- Cost Recovery Ratio

FY2017/Q1 & Q2 Results



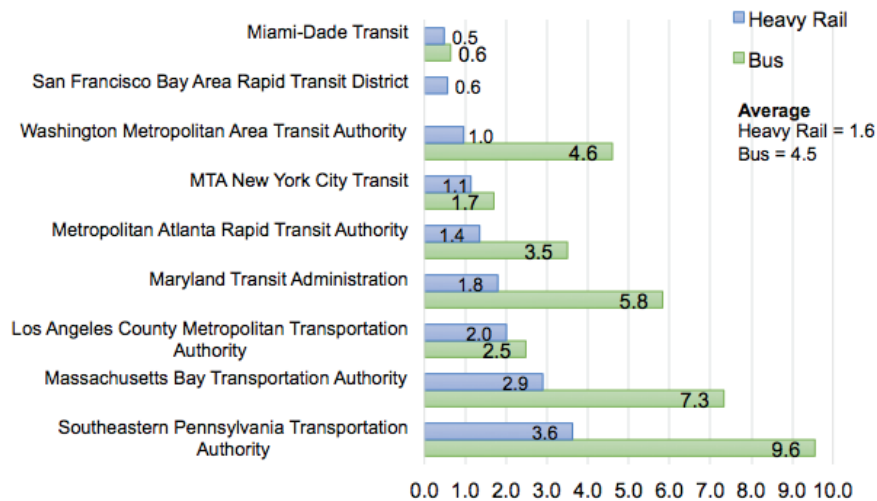
Cost Recovery Ratio



Definitions and Context

Major Events. National Transit Database-reported Major Events include the following Safety & Security event data reported via NTD form S&S-40 in five categories: (1) Collisions (includes all collision types reported to NTD, excludes suicides), (2) Derailments (includes all derailments reported to NTD), (3) Fires (includes all fires reported to NTD), (4) Security (includes all security events reported to the NTD), and (5) NOC ("Not Otherwise Classified" includes all other reportable events). The following chart compares WMATA to peer transit agencies.

Safety: Major Events divided by Millions of Vehicle & Passenger Car Revenue Miles, 2015



Source: National Transit Database, 2015 data (most recent full-year available)

Rail customers on time (MyTripTime): Percentage of customer journeys completed on time using customer Smartrip data. Number of journeys completed on time ÷ Total number of journeys

Factors incorporated in this measure include: railcar availability, fare gate availability, elevator and escalator availability, infrastructure conditions, speed restrictions, single-tracking around scheduled track work, railcar delays (e.g., doors), or passenger-caused delays.

Customer experience: Based on a quarterly customer satisfaction survey of nearly 800 customers. Measure derived from aggregation of experiential factor ratings.

Capital Funds Invested. Percentage of capital budget spent. Cumulative monthly capital expenditures ÷ fiscal year capital budget, including actual rollover from previous fiscal year

Cost Recovery Ratio. Total share of operating expenses recovered through non-subsidy revenue generation, including passenger fares, parking, advertising, and real estate.

APPENDIX E: VIRGINIA STATE FUNDING

Source: Virginia Department of Rail and Public Transportation (DRPT)

In Virginia, state funding for mass transit capital projects is currently provided from three primary sources. In FY 2018 state funding is estimated to be approximately \$249 million from the following:

- Approximately \$98 million annually from the state Transportation Trust Fund (TTF)
- Approximately \$41 million from federal grant funds
- \$110 million annually from Transportation Capital Project Revenue (CPR) bonds
 - The CPR bonds have a 10-year term that will expire in 2018 and cannot be renewed or extended
 - CPR bonds provide \$60 million annually for statewide transit capital needs
 - CPR bonds also provide \$50 million annually for state match to federal PRIIA funding for state of good repair needs at the Washington Metropolitan Area Transit Authority (WMATA)

In FY 2018, Virginia will provide \$195.6 million in funding for WMATA capital expenses, which includes \$102.9 million from local member jurisdictions and \$92.7 million in state funding. Officials at the Virginia Dept. of Rail and Public Transportation (DRPT) tell us that these state funds are not guaranteed going forward because the state will be losing about \$110M/year in statewide transit funding with the loss of Capital Project Revenue Bonds in 2019. As of this time the state has not identified a replacement source of revenues to cover this gap, and any new funds will require action by the General Assembly.

CPR bond revenues currently comprise approximately 44% of revenues used for state funding for mass transit capital projects. Expiration of these bonds in 2018 will leave transit systems in the Commonwealth, including WMATA, without necessary funds for capital improvement, at a time when transit demand and needs continue to grow across Virginia.

Today DRPT is able to provide state funding for 68% of the cost of rolling stock purchases and 34% of costs for most transit facility and systems projects. Assuming no additional revenues are generated, by 2021 DRPT will be unable to provide funding for any transit expansion projects and state funding for state of good repair projects would likely be capped at 36%. This reduced state transit capital funding will require local jurisdictions to significantly increase the amount of funding they will be required to contribute to transit capital projects at their own local transit systems as well as to WMATA. In FY 18, local jurisdictions in Virginia who are members of the WMATA Compact are budgeted to provide \$208.7 million in local funding for WMATA capital expenses.

In 2016, the Virginia General Assembly enacted HB 1359, creating the Transit Capital Revenue Advisory Board (RAB) to examine the impacts of the forthcoming revenue reduction created by the expiration of the CPR bonds in 2018. Additionally, the RAB is tasked with identifying possible sources of replacement revenue, and to develop methodologies for prioritization of transit capital funds similar to the successful HB2 (SMART SCALE) program enacted in 2015.

Thus far, the RAB has focused on validating the transit capital needs and developing a transit capital prioritization process. The transit capital needs work was summarized in three ten year (FY 18 – FY 27) funding scenarios with the conservative base case projecting a funding gap of \$178M in FY 27.

Furthermore, analysis indicates that existing state transit capital funds are insufficient to cover just those needs associated with maintaining a state of good repair for existing transit assets. Consequently, existing state transit capital grant match rates cannot be maintained without additional revenue. Reduced state capital grant contributions will likely result in a reduction in transit capital investments by Virginia transit agencies, or will require additional funding from local, regional, or federal funding sources to make up the gap created by reductions in state funding.

For the purpose of prioritization, it is proposed that projects will be divided into two major groups that will follow separate prioritization processes: State-of-Good Repair (SGR) and Major Expansion projects. In this proposed approach, minor capital expansion projects will be evaluated and prioritized using the same criteria as the SGR projects. Both prioritization processes will use a different set of criteria and scoring process, and will ultimately lead to two separate lists of prioritized projects. Project scores would be compared against other transit projects and ranked relative to cost (i.e. cost-effectiveness) within the two categories.

APPENDIX F: WMATA'S FUNDING NEEDS PRESENTATION TO THE COG BOARD

Presentation made by Jeffrey DeWitt, District of Columbia CFO to the COG Board of Directors on April 26, 2017.



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WMATA's Funding Needs

The Magnitude and the Effect

Updated to Reflect WMATA's Proposed FY 2018 Budget

Presentation to the COG Board

April 26, 2017



Overview

- Development of a reasonable basis to estimate the total WMATA funding gap
 - ✓ *Realistic State of Good Repairs (SGR) capital needs*
 - ✓ *Operating and maintenance gap*
- The models initially developed for this analysis have been updated based on WMATA's Proposed FY 2018 operating and capital budgets
- Potential impact of the Capital Needs Inventory (CNI) versus the CIP
- Need for additional contributions to fill the gap, and the impact on jurisdictions
- Determine the needed level of a dedicated funding source



Assumptions to Address the Funding Gap

Data

- Created “out-year” funding based on WMATA’s FY 2018 proposed budget for expenses.
- Used WMATA’s 6-year CIP (FY 2018-FY 2023) as basis for capital needs analysis.
- Developed key forecasting assumptions (inflation, growth, etc.).
- Included Loudoun County and Metropolitan Washington Airports Authority (MWAA) impacts (beginning in FY 2020).

Funding Assumptions

- Federal PRIIA contributions will continue at present levels through FY 2026
- Jurisdictional contribution changes:
 - ✓ *Operating and Maintenance - 3% annual increases using FY 2018 as the base*
 - ✓ *Capital – Assumes we will meet the FY 2018 WMATA need, and then beginning in FY 2019 applied a 3% annual increase - using FY 2017 as the base year*
- Assumes dedicated funding source (beginning in January of 2019), escalated at 3% per year

Analysis

- Determine operating and maintenance gap
- Determine capital gap
- Determine impact of a dedicated regional tax to fund shortfall



Key Assumptions – Operating and Maintenance

Operating and Maintenance Budget

- Required State of Good Repair maintenance (Safe-Track) is built into the WMATA proposed budgets.
- Assumed WMATA's FY 2018-2020 operating budget, then escalated after that at 3% annually.
- Passenger revenues track WMATA estimates through FY 2020, and then are escalated at 3% annually to reflect either ridership and/or fee increases, beginning in FY 2021.
- Assumes Jurisdictions will contribute to meet the FY 2018 need.
- Assumes State and local operating subsidies grow at a 3% annually compounded rate (FY 2018 as the base year). Personnel, services, materials and supplies are inflated at a 3% compounded annual rate.
- Fuel, propulsion power and utilities are inflated at a 2% annual compounded rate.
- Reflects additional operating expenses of Silver Line coming online in FY 2020.
- OPEB contributions are increased per the FY 2017 assessment recommendation – starting in FY 2019.
- Funding gap does not reflect any potential impacts of a new collective bargaining agreement.

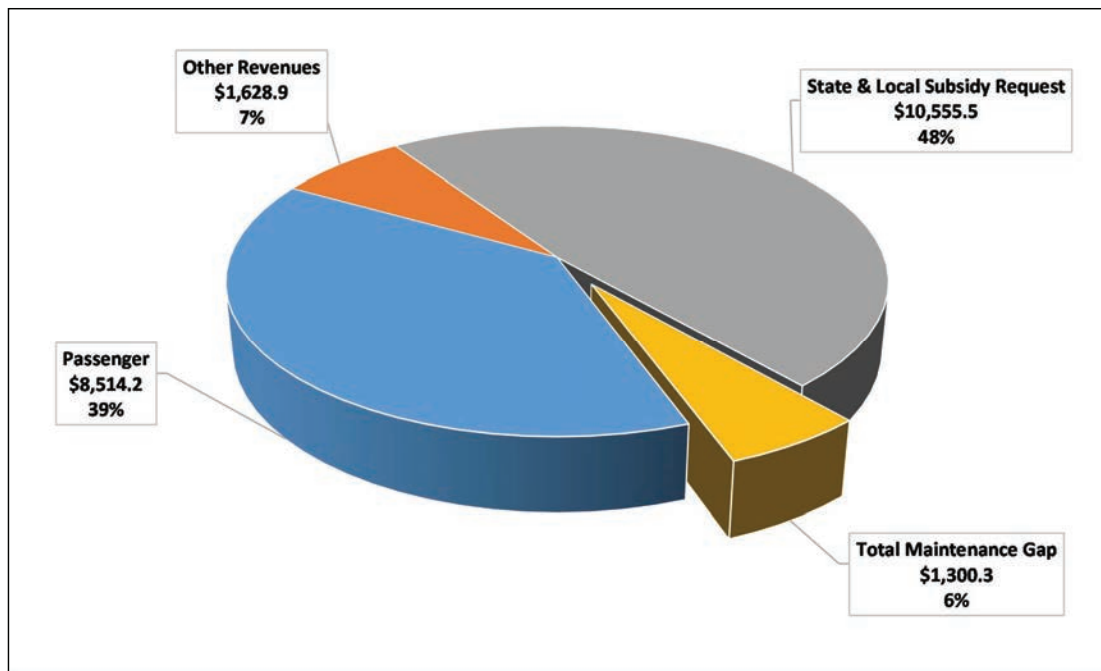
(Dollars in Thousands)	
	10 Year Total
Revenues:	
Passenger	\$ 7,710,909
Other Passenger	\$ 209,154
Parking	\$ 468,667
Advertising	\$ 263,456
Joint Development	\$ 86,027
Fiber Optics	\$ 162,023
Other	\$ 118,967
Jurisdictional Reimbursements	\$ 320,584
Total Direct Revenues	\$ 9,339,788
State & Local Subsidy Request	10,757,967
Total Revenues	\$ 20,097,755
Expenses:	
Personnel	\$ 14,986,925
Services	\$ 3,320,006
Materials and Supplies	\$ 1,386,991
Utilities - Fuel	\$ 368,075
Fuel and Propulsion Power	\$ 943,349
Casualty and Liability	\$ 330,620
Leases and Rentals	\$ 95,090
Miscellaneous	\$ 60,364
Capital Allocation	\$ (472,609)
OPEB - Additional Need based on FY 2017 Assessment	\$ 180,000
Total Expenses	\$ 21,198,810
Operating and Maint Gap (Expense minus Revenue)	\$ (1,101,056)
State and Local Debt Service (Metro Matters)	\$ (199,232)
Total Funding Gap	\$ (1,300,288)

See the full Pro Forma for greater details



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Operating Revenue & Maintenance Funding Gap (in \$millions)



Total is approx. \$21 Billion



Key Assumptions - CIP

Capital Improvements Program

- Assumes PRIIA funding is continued at current levels beyond FY 2019, and assumes Federal Formula Grants remain flat.
- The 6-year CIP is from WMATA's "FY 2018 Proposed Budget – December 1, 2016".
- Assumes the jurisdictions meet the WMATA requested budget for FY 2018.
- Assumes 3% annual escalation on jurisdictional contributions for the remainder of the 10 year period (above FY 2017 base).
- Used the WMATA proposed 6-year CIP of \$7.2B – the additional \$8.4B was assumed to occur beyond the CIP planning period, and within the 10 year plan, for a total of \$15.6B total CIP.
- Based on CNI SGR adjusted to reflect safety and reliability totaling approx. \$15.6 billion.

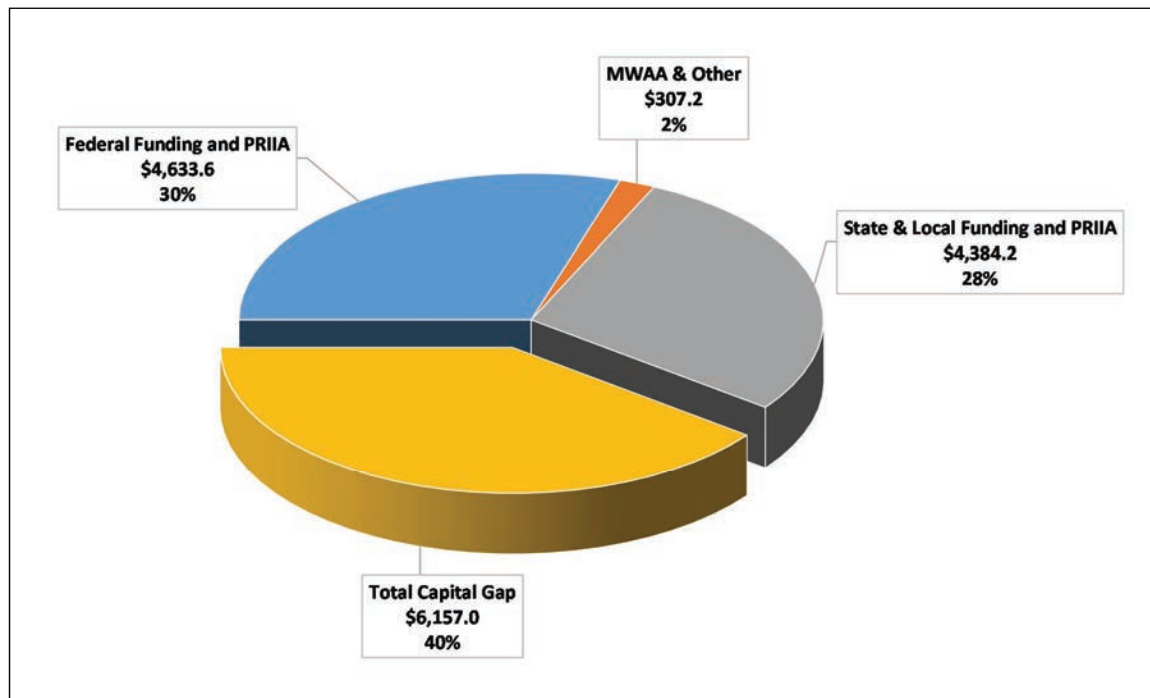
(Dollars in Thousands)	
	10 Year Total
Sources:	
Federal Formula Grants	3,053,350
Other Federal Grants	58,200
Federal PRIIA	1,522,000
Federal Subtotal	4,633,550
MWAA	292,000
Other	15,200
State and Local PRIIA Match	1,522,000
Local Match to Federal Formula	764,650
System Performance - Local ('Regular' CIP)	1,885,452
State and Local Subtotal <i>(per WMATA proposed budget through FY2023)</i>	4,172,102
Other State and Local	62,100
<i>Additional Short-Term Borrowing Required for Capital</i>	150,000
Total Sources	\$ 9,474,952
Uses:	
Rail Vehicles/Vehicle Parts	3,301,000
Rail Systems	3,036,000
Track, Structures, and Systems	2,050,000
Passenger Facilities and Stations	2,559,000
Bus and Paratransit Investments	2,572,000
Business Support	1,964,000
Repayment of Short-Term Borrowing	150,000
Total Uses	\$ 15,632,000
Capital Funding Gap	\$ (6,157,048)

See the full Pro Forma for greater details



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Capital Budget Revenue & Funding Gap (in \$millions)



Total is approx. \$15.6 Billion



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Total 10-Year Funding Gap Summary

(\$ Millions)

CIP Funding Gap	\$ 6,157.05
Maintenance Budget Gap	\$ 1,300.29
Total	\$ 7,457.34
Annual Average (10 Years - FY 2017-FY 2026)	\$ 745.73

(Dollars in Thousands)

		FY 2017		FY 2020	FY 2023	FY 2026	Total
Jurisdictional Share Gap Funding Needed	%	Current Year	%	Add-on Needed for Gap - Above Current Year			Gap Need
District of Columbia	37.2%	\$ 416,700	35.7%	\$ 232,305	\$ 108,099	\$ 633,556	\$ 2,671,543
Montgomery County	17.1%	193,050	16.4%	106,652	49,630	290,872	1,226,604
Prince George's	17.7%	235,550	17.0%	110,394	51,371	301,078	1,269,643
Maryland Subtotal	34.8%	\$ 428,600	33.4%	\$ 217,086	\$ 101,021	\$ 592,071	\$ 2,496,786
Alexandria	4.5%	33,000	4.3%	27,761	12,918	75,712	319,276
Arlington	8.2%	77,100	7.9%	51,143	23,799	139,483	588,196
City of Fairfax	0.3%	2,550	0.3%	1,871	871	5,103	21,519
Fairfax County	14.7%	155,450	14.1%	91,683	42,664	250,048	1,054,449
Falls Church	0.3%	3,150	0.3%	1,871	871	5,103	21,519
Loudoun County	0.0%	-	4.1%	26,600	12,378	72,546	283,520
Virginia Subtotal	28.0%	\$ 271,250	30.9%	\$ 200,969	\$ 93,521	\$ 548,104	\$ 2,289,007
Unfunded	100.0%	-	100.0%	\$ 650,360	\$ 302,641	\$ 1,773,731	\$ 7,457,336

See the full Pro Forma for greater details

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Recommendations to Fund Gap

- Recommend that annual capital funding gaps be debt financed (*requires a stable, predictable and truly dedicated regional funding source*)
- This would allow for a lower annual impact on jurisdictions through debt service versus pay-as-you-go capital
- Dedicated tax revenues are estimated to comfortably cover debt service payments
- There should also be sufficient remaining dedicated tax revenues to fund the gap related to maintenance funding in the budget
- There is also estimated to be revenues remaining after funding the maintenance gap for additional critical capital projects beyond the SGR, such as expansion



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Criteria for a Dedicated Funding Source

- Ease of Implementation (Can it be done through existing systems and what are administrative costs?)
- Predictable and Sustainable (Does the source of funding allow it to be pledged for debt financing?)
- Revenue Yield (Will the source provide enough revenue to meet funding gaps without excess increases above current levels?)
- Fair and Equitable (Does the tax or fee paid reflect the commensurate benefits from the transit system funded?)

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Dedicated Funding Source Options

Type of Tax	Tax Increase	Dollars Collected
Sales Tax	1% on taxable sales	\$650 Million
Property Tax (All Property)	8 cents per \$100	\$650 Million
Property Tax (1/2 mi. from Metro)	43 cents per \$100	\$650 Million
Gas Tax	16.3% Increase	\$650 Million

Other options considered include Value Added Tax (VAT), Commuter Tax and Income Tax



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Benefits of a Uniform Regional Sales Tax

- Easily understood by the public and easy to administer
- All residents in the Metro compact area pay the same
- Maintains the relative competitiveness of jurisdictions within the compact
- Provides a stable funding source well understood by investors to debt finance substantial capital infrastructure needs at low interest rates
- Grows as the economy grows to fund future needs
- Captures revenues of tourists, visitors and commuters from outside of the compact area
- A dedicated sales tax is a source of funding for most of the large transit systems in the nation, including: New York (MTA), Chicago (CTA), Massachusetts (MBTA), San Francisco (BART), Los Angeles County (LACMTA), and numerous others.

Note: In 2016 sales tax referendums for transit funding passed in San Francisco, Los Angeles and Atlanta.

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Dedicated Tax to Fund Capital Gap

- ✓ For example, a 1% dedicated regional sales tax can fund all of Metro's revised SGR capital needs in a 10-year period
- ✓ Remaining tax revenues can be used to fund additional critical capital needs beyond SGR (capacity expansion or other improvements)

Fiscal Year	Capital Funding Gap ¹	Est. Debt Service to Cover Capital Gap ²	Dedicated Tax Revenues ³	Remaining Tax Revenues prior to Funding Maintenance Gap	Annual Maintenance Funding Gap ⁴	Funds Available for other Critical Capital Projects Beyond SGR
2017	-	-	-	-	-	-
2018	-	-	-	-	(21,360)	-
2019	433,857	(31,519)	325,000	293,481	(70,089)	223,391
2020	494,263	(67,427)	669,500	602,073	(156,097)	445,976
2021	402,249	(96,650)	689,585	592,935	(164,952)	427,984
2022	149,911	(107,541)	710,273	602,732	(174,003)	428,729
2023	119,496	(116,222)	731,581	615,358	(183,144)	432,214
2024	1,450,608	(221,608)	753,528	531,920	(168,279)	363,641
2025	1,518,413	(331,918)	776,134	444,216	(176,884)	267,332
2026	1,588,251	(447,303)	799,418	352,115	(185,480)	166,636
Total	\$6,157,048	(\$1,420,188)	\$5,455,018	\$4,034,831	(\$1,300,288)	\$2,755,903

Notes:

1. Estimate. Represents the annual capital funding gap for \$15.4 billion revised SGR CIP as identified by WMATA.
2. Assumes debt funding of all annual capital gap amounts; 30-year amortization and 6% cost of borrowing.
3. Conservative estimate of revenues from a 1% regional sales tax on all jurisdictions in the compact area escalated at 3% annually for growth. First year estimated to collect only 50% of revenues due to timing of implementation.
4. Estimate. FY 2018 shortfall represents Metro Matters debt service.

Est. Costs of Other Critical Capital Projects Beyond SGR (from Metro's published CNI):

1. New Rosslyn Connection – \$2 billion or more
2. Major station capacity increases - \$260M
3. Heavy overhaul facility (Rail) - \$375M
4. Relining of Red Line tunnels – cost TBD



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Summary of Issues

- Allows WMATA to reach a State of Good Repair in 10 years
 - ✓ *SGR total capital needs are estimated by WMATA at \$15.6 Billion*
- Effort will require metro to execute approx. \$1.5B CIP annually over 10 years
- Represents a maintenance gap of \$1.3 billion and a capital gap of \$6.2 Billion (total 10-year combined gap of \$7.5B)
 - ✓ *Far exceeds reasonable capacity of the compact jurisdictions*
- A dedicated regional funding source is essential to achieve a State of Good Repair
 - ✓ A dedicated funding source collecting approx. \$650M annually, beginning in January 2019, can cover both the maintenance and capital funding gaps, as well as additional critical capital needs
- ***Without a dedicated funding source in place by January 2019, jurisdictions will not be able to fund WMATA's capital needs***

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Key Take-Aways

➤ ***At this funding level the following are required:***

- ✓ Federal funding beyond 2019 must be continued at \$150M per year with continued matching from the jurisdictions (PRIIA)
- ✓ Local jurisdictions must meet the FY 2018 operating need, and increase operating contributions by 3% annually (over FY 2018 base year) to cover cost inflation
- ✓ Local jurisdictions must meet the FY 2018 capital need, and increase capital contributions by 3% annually (over FY 2017 base year) to cover cost inflation
- ✓ WMATA's non-utility costs limited to 3% annual growth
- ✓ A regional dedicated funding source (i.e. regional sales tax) must be created to allow for sufficient debt funding of the capital gap



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Impacts of No Additional Funding

- ❑ Safe Track type delays will continue indefinitely
 - ✓ Estimated cost of rush hour (only) trip delays are estimated at between \$153M and \$235M annually
- ❑ Passenger safety risks will continue to increase
- ❑ Traffic congestion will continue and worsen
- ❑ Approx. \$25 billion of development has occurred near metro stations over the past 8 years
- ❑ Economic growth in the region will likely slow
- ❑ MWCOG economic forecast implies regional state and local government tax revenue growth from 2.5% to 4% annually, depending on per capita income growth

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Estimate of Tax Losses in Metro Compact Area (Income, Property, Sales & Use)

- Reducing the economic forecast by 0.25% to 0.50% results in annual losses to compact area taxes, collectively, ranging from \$1 billion to \$2.3 billion, respectively, after ten years.
- Areas with expected growth or redevelopment near Metro stations, or where traffic congestion can impede planned growth, can be expected to be impacted particularly hard.
- Reasonable estimates of losses for a poorly functioning transportation system will easily exceed the required new taxes collected to achieve a state of good repair.



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Other Issues

- Financial oversight of WMATA for use of dedicated funding source
- Increased monitoring to ensure control of WMATA costs escalation
- Regional efforts to continue, and increase, federal financial support
- Address any potential jurisdictional issues with a uniform regional sales tax
- Coordination of regional process for adoption of dedicated regional sales tax

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Appendix F

The LaHood Report

**REVIEW OF OPERATING, GOVERNANCE
AND FINANCIAL CONDITIONS**

AT THE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

2017

EXECUTIVE SUMMARY

This report compares the Washington Metropolitan Area Transit Authority (WMATA) against other large transit agencies on a variety of indicators. Data reflects 2015 unless otherwise stated.

Cost Structure. By multiple measures, WMATA's cost structure is generally average for a large transit agency. All-in labor costs per hour, including salaries, wages and fringe benefits, are average. The unit cost to deliver service, as measured by total operating and maintenance (O&M) spending per hour of service delivered, is average for Metrobus and nine percent above average for Metrorail. Higher than average Metrorail O&M costs derive from rail maintenance spending that is 20 percent or more above average. Costs for rail operations are average.

Although WMATA's unit costs to deliver service are mostly average, it has delivered high levels of both bus and rail service considering the level of ridership. In FY2015, bus service hours per 10,000 passenger trips were 25 percent above average, and rail service hours per 10,000 passenger trips were 22 percent above average. Bus service levels per rider have been high going back at least 15 years. For rail, high service levels per rider emerged mostly after 2009, as service kept expanding while ridership fell. In 2017, WMATA reduced train frequencies significantly and this should bring rail service levels closer to average. Corresponding changes to bus service were more limited.

Two labor policies that contribute to cost were found to be outliers. On average, WMATA's hourly employees contribute 3.1 percent of wages to pension, where the national average among all workers in defined benefit plans is 7.1 percent. In addition, WMATA's unionized employees count overtime earnings in determining post-retirement pension payments. Changing these policies would generate savings, although it should be noted that WMATA's all-in labor costs per hour were average even with these policies in place.

Funds Paid by State and Local Governments in the Region. Under the WMATA compact, any costs not covered by federal grants, fares or other internally-generated revenues are paid by the region's jurisdictions. Even though WMATA's O&M costs are average for a large transit agency, these state and local payments have been growing rapidly, at nearly 10 percent per year. This steep increase in payments is caused almost entirely by four factors:

- The cost of buying new railcars;
- Increased spending on rehabilitating the WMATA rail system;
- Growth in WMATA's contributions to pension plans; and
- A large revenue decline due to falling ridership.

After accounting for these factors, all other WMATA costs grew at around three percent per year.

Board Operations. With 16 members, WMATA's board is large. The average transit agency board has nine members. The WMATA board has nine committees or subcommittees, tied for the highest number among large peer transit agencies. Recent efforts to streamline the committee structure have not been successful. The WMATA board also has many meetings – there were 85 board, board committee and board subcommittee meetings between June 1, 2016 and May 30, 2017.

WMATA's board includes elected officials, a trait it shares with 22 percent of transit agency boards. However, because of the way WMATA is funded, the elected officials on its board could be characterized as 'dual fiduciaries' – that is, accountable for the financial health of both WMATA and a local government that makes payments to WMATA. This arrangement is very rare at other large transit agencies, which are mostly supported with dedicated taxes.

Opportunities for Improved Financial Performance. This report estimates the effects of six measures to improve WMATA finances. In dollar terms, the largest is a return of rail ridership. Metrorail ridership declined 14 percent between FY2015 and FY2017, while other U.S. heavy rail systems saw a decline of just two percent. Returning to FY2015 levels (minus the effects of this broad national decline) would reduce the need for operating subsidies by as much as \$57 million per year. WMATA's customers are its biggest funder.

The WMATA bus system is ripe for a major reset that would update where and when service is offered. The scenario analyzed for this report yields a subsidy reduction of as much as \$38 million per year, through a combination of reduced costs and increased revenues. Bringing employee contributions to pension up to the national average could be expected to yield \$25 million per year. Other changes – decreased fare evasion, more advertising, and lower absenteeism – could yield an additional \$35 million per year combined.

Implementing these measures would take several years, and achieving full results on all fronts simultaneously would be difficult. Nonetheless, it is reasonable to estimate a possible reduction in expected operating subsidies of at least \$40 million per year after several years. As described below, such a reduction in operating payments by the region's jurisdictions would allow for funds to be shifted to capital needs.

Need for Capital Investment. Metrorail opened in 1976, and many of its components began to reach their 30-year useful life around 2006. An increase in capital funding would have been appropriate at this point. Unfortunately, new federal funds under the Passenger Rail Investment and Improvement Act (PRIIA) were not approved by Congress until FY2009, and did not flow to WMATA until FY2011. It took even longer for WMATA to ramp-up spending. In FY2017, capital investment finally reached a level sufficient to stabilize the system, but the decade-long lag between growing need and lower-than-necessary investment helped create a backlog of deteriorated assets currently estimated at \$7 billion. In addition, as each year passes additional assets wear out and must be renewed. From FY2018 to FY2026, this ongoing need is estimated at a further \$1.1 billion per year.

To estimate the funding needed to cover all these state-of-good-repair needs, a financial model of WMATA's capital program was developed out to 2040. It estimates that WMATA would require additional capital funds of \$540 million per year above current contributions from its federal, state and local funding partners. If savings to the operating budget of \$40 million per year are achieved as stated above, this need could be met with \$500 million per year in new capital funding. This funding would cover only WMATA's state-of-good-repair needs; any expenditures to enhance the system would require supplemental funding.

To eliminate its state-of-good-repair backlog in a timely manner, WMATA would need to pledge a large portion of new revenues to back new borrowing, estimated by the model at \$5.9 billion. For this reason, new funding would need to be dedicated in a manner adequate to secure bonds.

ORIGIN AND METHODOLOGY

In February, 2017, the Commonwealth of Virginia enacted a requirement calling for “an objective review of the operating, governance and financial conditions” at WMATA. The review was required to “compare WMATA to other rail transit systems in the United States”. (Conference Report for House Bill 1500, Item 436#3c, 2017.) The Virginia Department of Rail and Public Transportation then contracted with the global consulting and engineering firm WSP to perform the analysis. This report presents the results of this analysis.

The primary source of information used was the National Transit Database (NTD). This database is maintained by the U.S. Department of Transportation’s Federal Transit Administration (FTA) and contains data reported by all transit agencies in the U.S. that receive federal funds. At the time this report was prepared, the latest year of NTD data for all agencies was 2015.

This report compares WMATA to eight other large transit systems: the New York Metropolitan Transit Authority (NYMTA); the Chicago Transit Authority (CTA); the Los Angeles County Metropolitan Transit Authority (LAMTA); the Massachusetts Bay Transportation Authority (MBTA); the Southeastern Pennsylvania Transportation Authority (SEPTA); New Jersey Transit (NJT); the San Francisco Bay Area Rapid Transit District (BART); and the Metropolitan Atlanta Rapid Transit Authority (MARTA). Unless otherwise noted, WMATA Metrorail is benchmarked against the heavy rail systems of seven of these eight agencies; NJT is excluded because it operates commuter rail and light rail but not heavy rail. WMATA Metrobus is also benchmarked against seven systems; BART is excluded because it has no bus system.

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PART 1. COMPARISON TO OTHER LARGE TRANSIT AGENCIES

Workforce

During its fiscal year 2017 (July 1, 2016 to June 30, 2017) WMATA had 13,032 authorized positions. Actual employment levels fluctuate below the authorized level during the year due to ebbs and flows in hiring, retirements and other factors. As shown in Figure 1, authorized staffing levels increased from FY2010 to FY2017, with some of this growth associated with the opening of the Silver Line Phase 1 in 2014. For FY2018, authorized staffing levels were reduced by 1,000, with some of the decrease coming from elimination of unfilled positions.

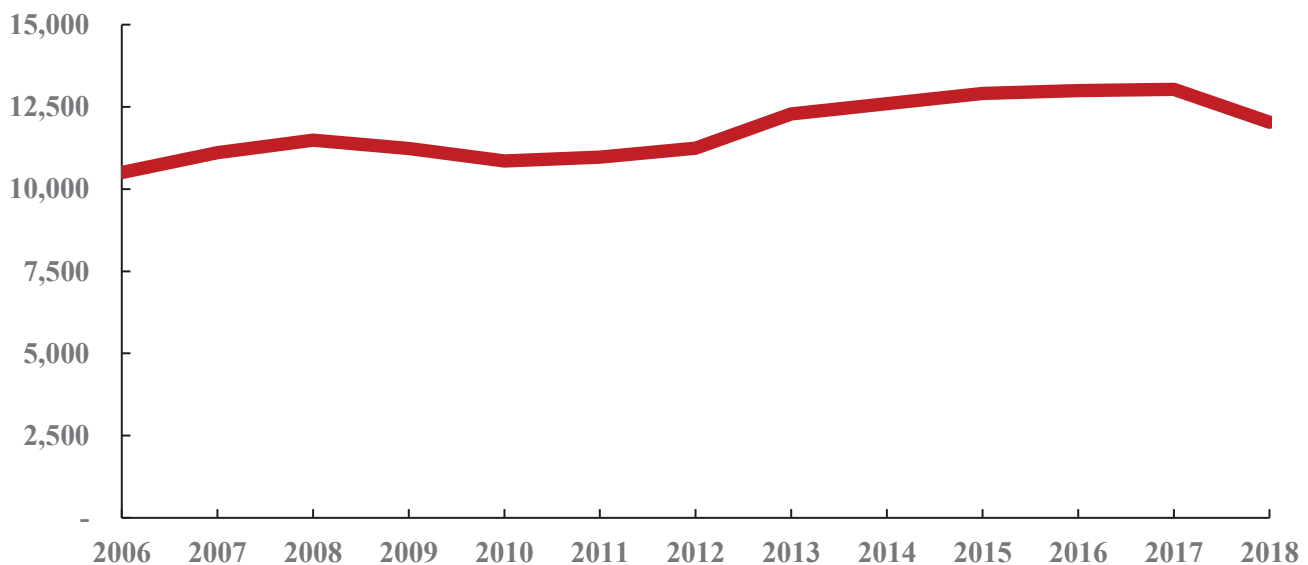


Figure 1. Total approved headcount for WMATA, FY2006 - FY2018. Source: WMATA.

Like most U.S. transit agencies, WMATA's labor force is heavily unionized; 82 percent of employees belong to a union and 18 percent do not. Union representation is divided among five union locals, the largest being the Amalgamated Transit Union (ATU) Local 689, representing 66 percent of WMATA employees.

Wages for WMATA's unionized employees are set through collective bargaining. The last two collective bargaining agreements with ATU Local 689 led to a slight increase in the value of wages. Between 2008 and 2017, ATU Local 689 employees were granted wage increases averaging 1.9 percent per year after accounting for employee contributions to pension. During this period, Washington DC area inflation averaged 1.4 percent per year. As a result, real wages for these employees grew at 0.5 percent per year on average, and in 2017 net wages were four percent higher than in 2008. Most of this net increase accrued between 2014 and 2017, a period when inflation was particularly low. Net annual wage increases granted in these years of low inflation were similar to increases granted in prior years.

Wage and salary levels heavily influence the agency's total cost in delivering service. Figure 2 (next page) compares the all-in cost of WMATA's workforce to its peer transit agencies on an hourly basis, including all salary, wage and fringe benefit costs for both labor and management. In some years WMATA's costs were slightly above the peer average, and in some years they were slightly below. Overall, WMATA's hourly labor costs have been consistently average or close to it.

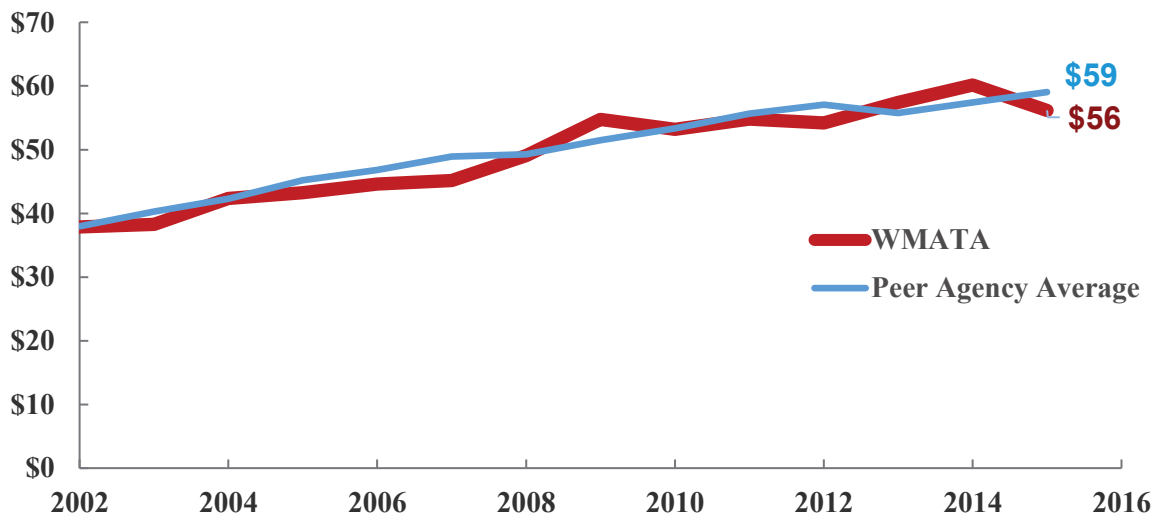


Figure 2. Total cost of wages, salaries and fringe benefits per hour worked, WMATA vs. large peer transit agencies. Source: NTD.

WMATA employees are not allowed to strike. Instead, union employees are subject to binding arbitration if labor and management cannot reach agreement. It has been suggested that a regime giving labor the right to strike and eliminating binding arbitration could lead to lower agency costs. To test this hypothesis, all-in labor costs per hour at agencies that allow strikes were compared to those same costs at no-strike agencies. No difference in labor costs between the two groups was found.

One additional method was used to assess personnel costs. Compensation at each agency, not including fringe benefits, was compared to its region's cost of living. (Cost of living was determined using the Economic Policy Institute's estimate of the cost for one adult and one child to "attain a modest yet adequate standard of living" in various regions of the country.) The average WMATA employee earns 106 percent of the DC region's cost of living, which makes WMATA average among peer transit agencies (Figure 3).

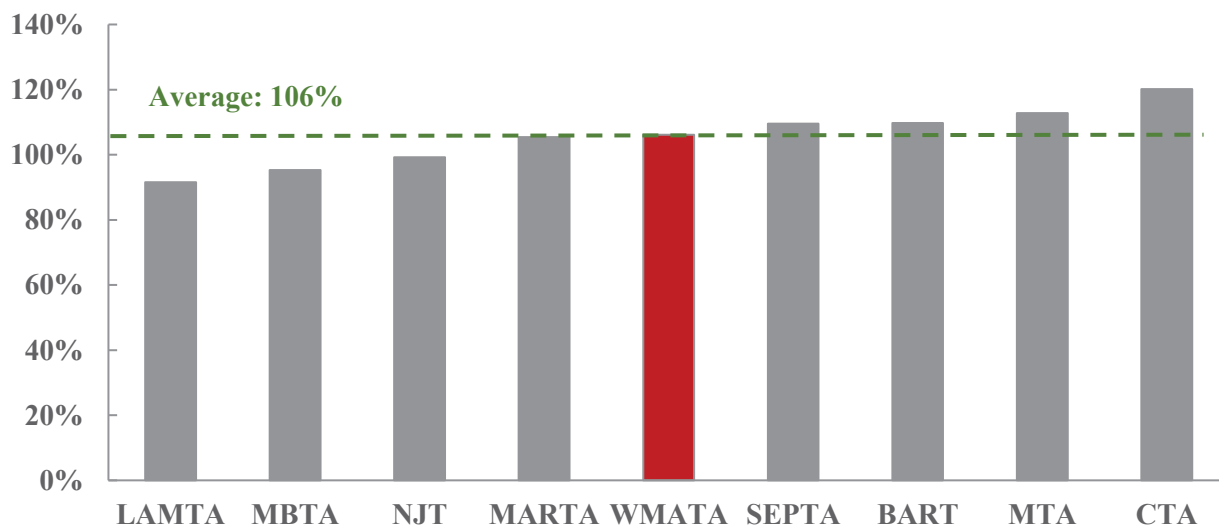


Figure 3. Average wage of transit employees as percent of a region's cost for one adult & one child "to attain a modest yet adequate standard of living", 2015. Sources: NTD; Economic Policy Institute.

WMATA maintains two notable labor policies that were found to be outliers. First, hourly employees contribute an average of 3.1 percent of wages to pension, where the national average reported by the Bureau of Labor Statistics for all workers in defined benefit plans is 7.1 percent. Second, WMATA's unionized employees count overtime earnings in determining post-retirement pension payments. Some public agencies allow this and some do not.

These two items should be viewed in context. First, even with these policies in place, WMATA's all-in labor costs per hour have been average among peer transit agencies. Second, WMATA's method of calculating base retirement payments is slightly less generous than an average of 20 selected local agencies. As shown in Figure 4, the WMATA retirement formula pays an employee retiring at age 62 with 30 years of service 55 percent of their final annual salary. The average paid by the 20 city and county governments shown in Figure 4 is 60 percent.

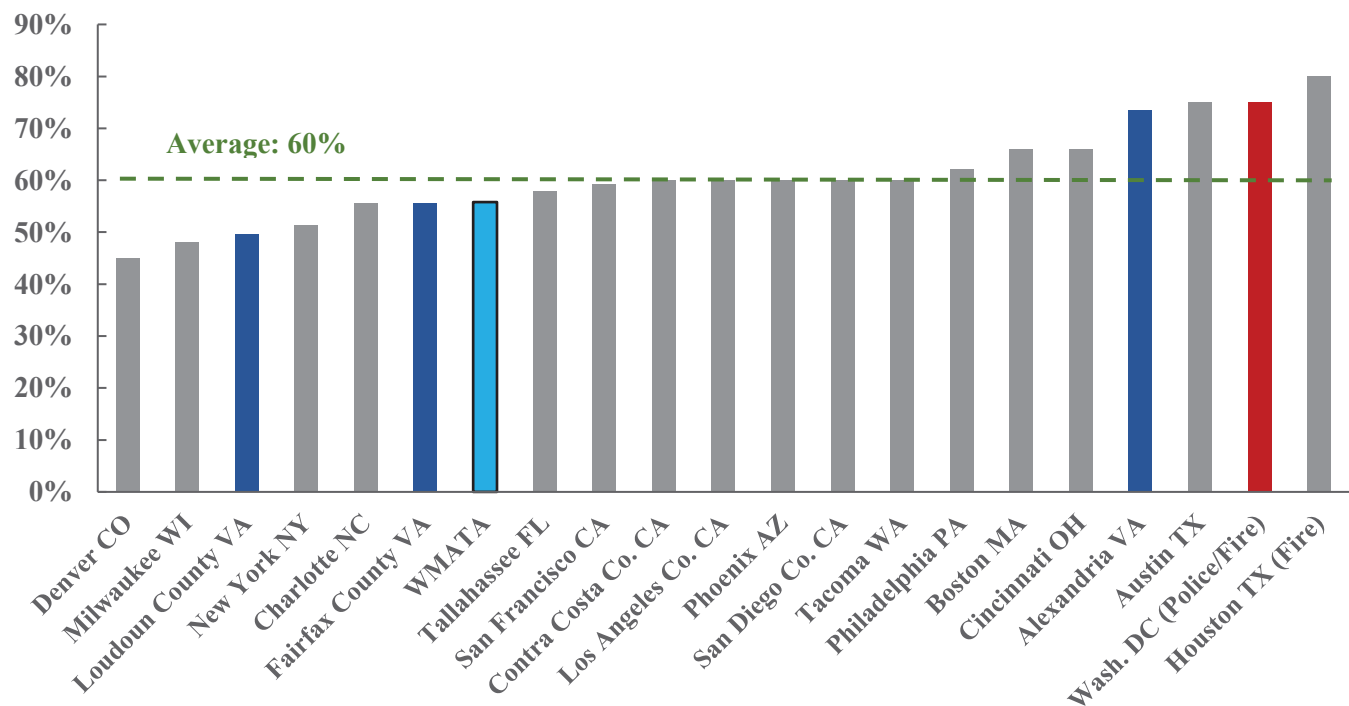


Figure 4. Retirement payments as a percent of final annual salary for an employee with 30 years of service retiring at age 62. Source: Center for State & Local Government Excellence; "Retirement Benefit Decisions by City and County Governments"; WMATA labor agreements.

Pensions

WMATA maintains defined benefit pension plans for most of its unionized employees. Under these plans, employees earn credit based on years of service and final annual salary, and receive benefits after they retire. WMATA management employees are in a defined contribution plan, similar to a 401(k).

Like most government agencies, in recent years WMATA has seen both pension liabilities and annual pension contribution amounts escalate. Several factors are at play.

- People are living longer and this leads to increasing pension liabilities. The expected lifespan of the average American adult has increased by around two years in the last 25 years, which represents more than a 15 percent increase in expected life span after the normal retirement age of 65.
- Most pension payouts to retirees are generated by investment returns on accumulated pension assets. When investment returns are strong, the burden on employers and employees to fund the pension is reduced. Inconsistent investment returns from early 2000s through the recent financial crisis led to increasing demands on employers to make pension contributions out of annual budgets.

One measure of pension health is the ‘funding ratio’, which represents the total expected value of a pension fund’s assets compared to its total expected payouts. Ideally, pension funds should be 100 percent funded, but in practice this is not usually the case. Pensions tend to achieve a 100 percent funding ratio in periods of high investment returns, and fall below 100 percent when investment returns are weaker. As shown in Figure 5, WMATA’s pensions were 77 percent funded on average in 2015. This placed them on par with - or slightly above - both the national average for public pensions (75 percent funded) and major pensions in Maryland and Virginia. DC’s two remaining defined benefit pensions were stronger.

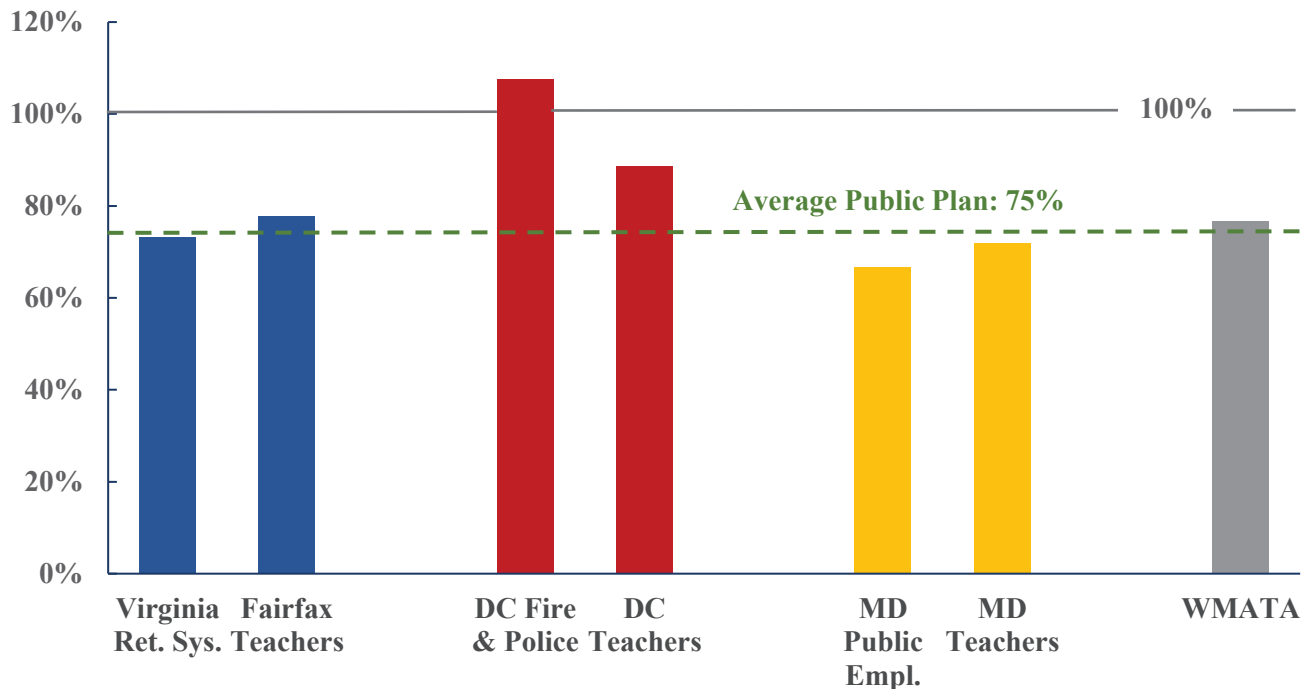


Figure 5. 2015 funding ratios for WMATA pension plans and selected DC, Maryland and Virginia plans. Source: Boston College Public Pension Plan Database; WMATA.

Although escalating contributions to pension have been a major cost item for WMATA in recent years, contribution amounts have stabilized since 2015. This is partly due to new employee contributions to pension arising from the last labor contract cycle, and partly due to stronger investment returns. Employee contributions to pensions dating from WMATA’s founding were terminated as part of a labor agreement in the 1980s, and were finally restarted in 2015. In sum, although WMATA has pension problems, there is no evidence these problems are out of character with the similar challenges faced by many other public agencies.

Safety and Security

WMATA's performance on several measures of safety and security is presented in Figure 6.

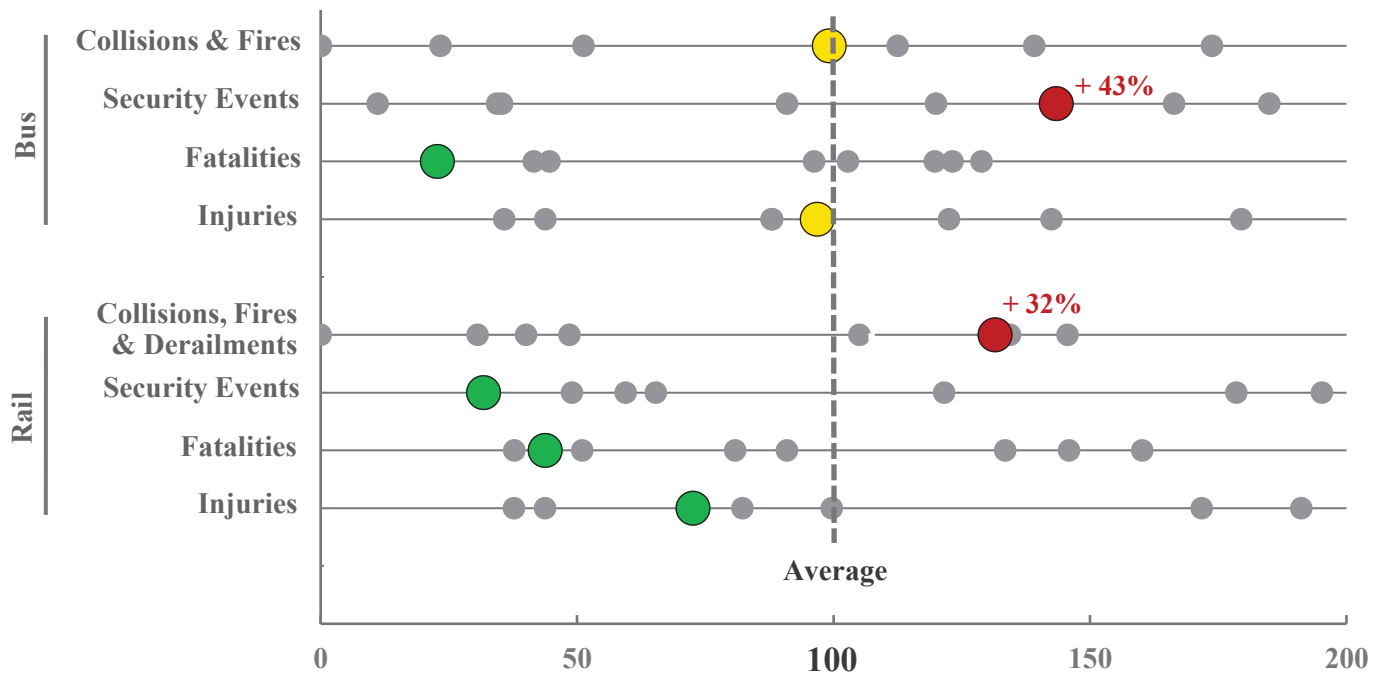


Figure 6. WMATA safety and security events compared to eight peer transit agencies, 2014-2015. Source: NTD.

During 2014 and 2015, WMATA was average or better than average on six out of eight measures, and worse than average on two measures. The number of security events on Metrobus was higher than the average of peer agencies, as were collisions, fires and derailments on Metrorail.

Bus Operations and Maintenance

A common financial measure for transit service is the 'farebox recovery ratio', which measures how much of a service's ongoing operations and maintenance expense is being recovered through fares. In FY2015, fare box recovery for WMATA's Metrobus system was just 23 percent, well below WMATA's peer agencies, which recovered 32 percent of their bus O&M costs on average.

This poor farebox recovery is not due to high costs. WMATA's FY2015 cost to deliver an hour of bus service was average. The components that produce this unit cost are shown in Figure 7, including wages, fringe benefit costs, and the efficiency of both the operations and maintenance workforces.

Poor farebox recovery at Metrobus is due to two non-cost factors. The first is low fares. Until mid-2017, WMATA's bus fare was \$1.75, low among its peer agencies. The base fare has since been raised to \$2.00, closer to the peer average of \$2.16. However, the cost of a weekly pass did not rise and is still \$17.50. (Directly comparing real world bus fares between agencies is complicated by the different policies they use to price bus/rail transfers.) The second factor causing low farebox recovery is high service levels given ridership. Hours of bus service offered per 10,000 passenger trips were 25 percent above the peer average.

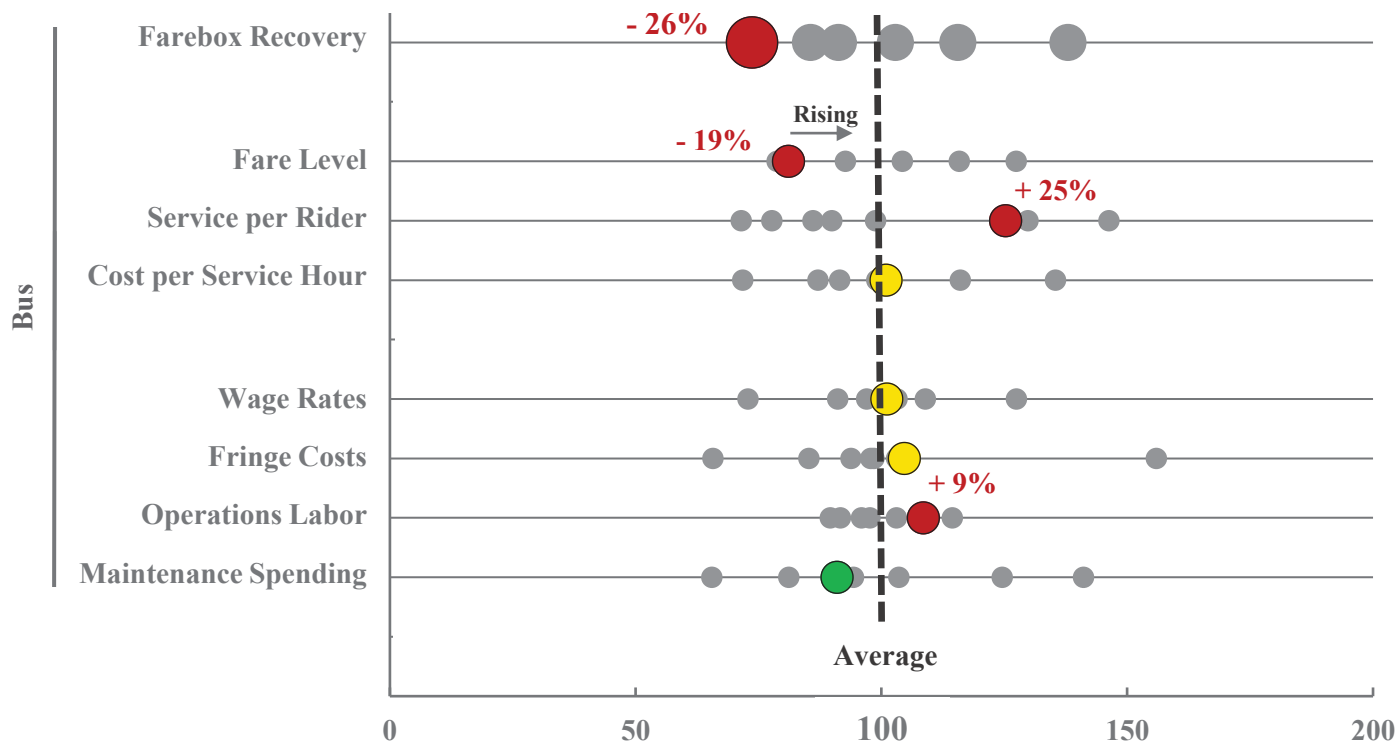


Figure 7. WMATA 2015 bus system performance vs. seven peer agencies. Source: NTD.

Low farebox recovery could be partly caused by fare evasion, but it is difficult to estimate the magnitude of this using publicly available data. Anecdotal evidence suggests that fare evasion has been rising. A consistent pattern of high service levels per rider and low fares on Metrobus has existed for many years. The recent increase to a base fare of \$2.00 makes today's Metrobus base fare as high as it has ever been on an inflation-adjusted basis, but still below the average of peer transit agencies.

The indicator labeled 'Operations Labor' depicts the number of labor hours for bus operations and administration that are required to deliver one hour of bus service. The nine percent excess indicates that labor is being used somewhat less efficiently at Metrobus than at peer bus agencies. This is one of the factors supporting the 'bus reset' suggested in Part 2 of this report.

Rail Operations and Maintenance

In contrast to Metrobus, farebox recovery for Metrorail was higher than the peer average in 2015, although declining ridership since then has likely led this figure to drop closer to the peer average.

Higher than average farebox recovery was primarily due to high fare levels compared to other heavy rail systems (shown in Figure 8 as the average fare earned by WMATA per passenger mile of travel.) Service levels on Metrorail were also higher than average – in 2015 WMATA offered 22 percent more rail service per 10,000 passenger trips than the average peer agency heavy rail system. WMATA's operations and maintenance cost per hour of rail service delivered was nine percent above the peer average. This was due to higher than average maintenance spending. Other inputs to unit cost – wage costs, fringe benefit costs and overall operations costs – were average or below average.

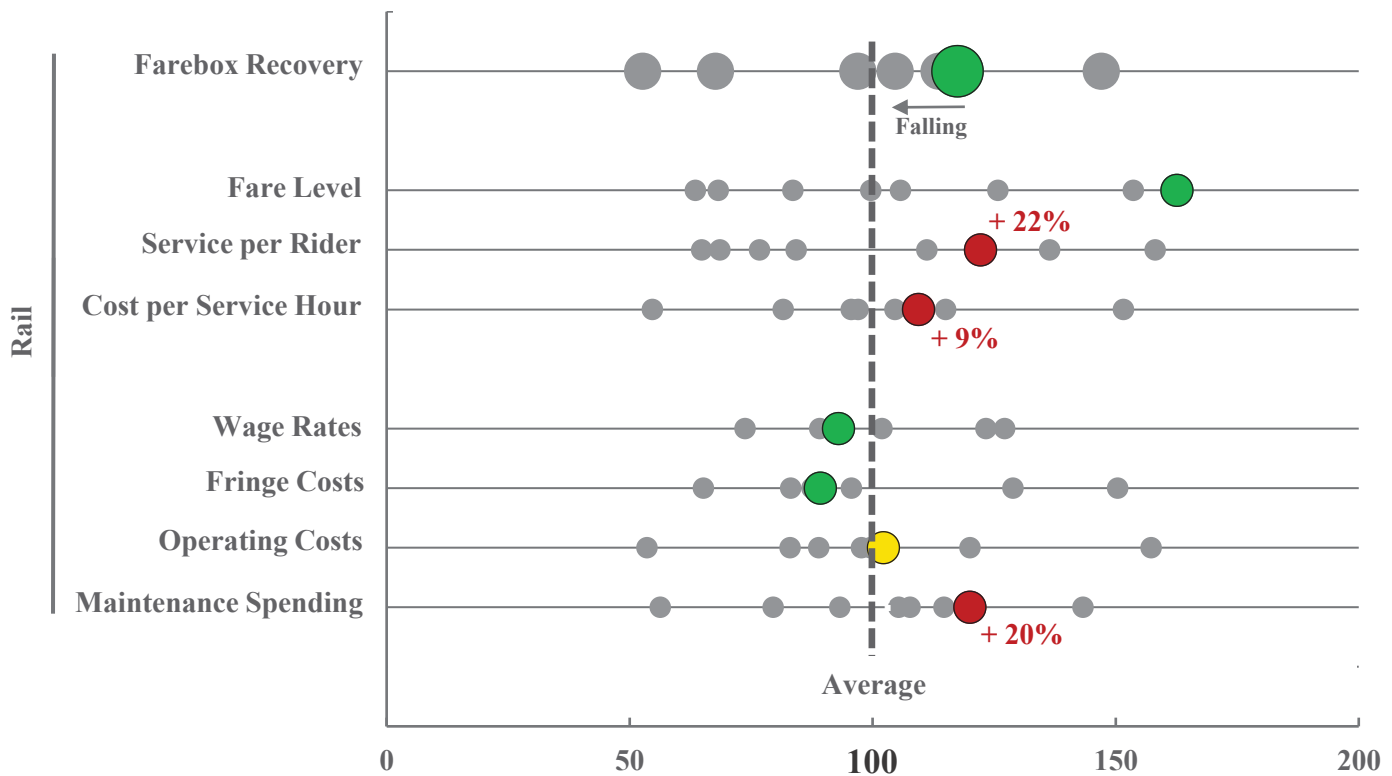


Figure 8. WMATA 2015 rail system performance vs. seven peer agencies. Source: NTD.

Unlike Metrobus, the higher than average level of Metrorail service per 10,000 passenger trips is a relatively recent phenomenon. In 2002, Metrorail's service levels per passenger were exactly average compared to peers. Between 2002 and 2009, both ridership and service levels grew. However, since then ridership has been mostly flat or declining, while service levels have continued to rise. The notable increase in service levels in 2015 shown in Figure 9 is mostly the result of the opening of Silver Line Phase 1.

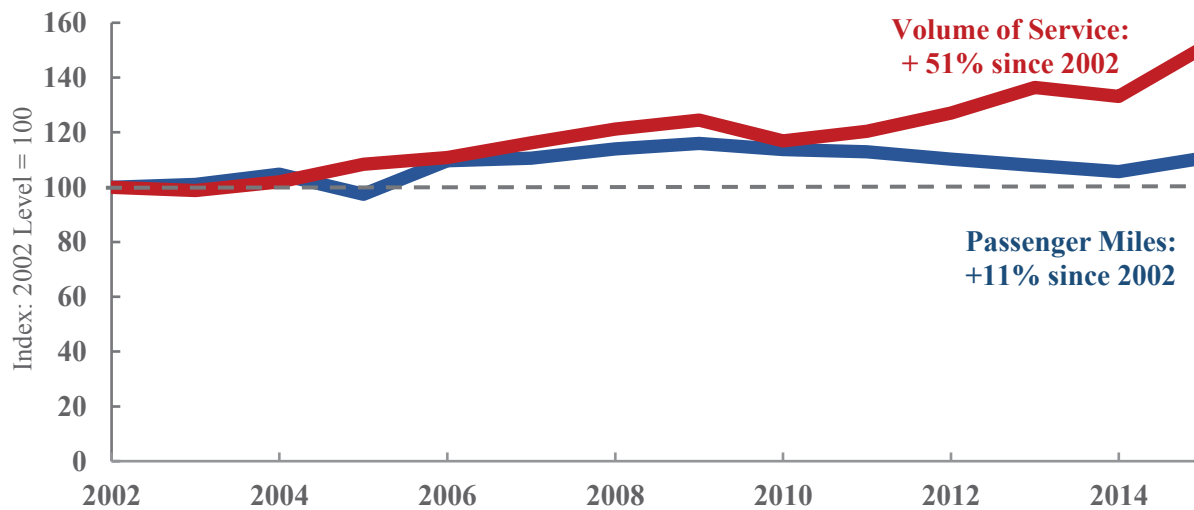


Figure 9. Change in hours of service and passenger miles travelled, WMATA Metrorail. Source: NTD.

Capital Program

WMATA's need for capital investment is determined by the age and condition of its assets. Each asset, from railcars to escalators, has a useful life. Once this useful life is exceeded, the agency must plan to reconstruct or replace the asset. Different types of assets have very different useful lives, but a general rule of thumb is to assume an average useful life of 30 years.

The Metrorail system opened in 1976 and quickly expanded, as shown in Figure 10. In its first 10 years of operation the system grew to roughly 70 miles in length, and today it is over 117 miles long. The original segments of the system began turning 30 in 2006, and today over half the length of the rail system is beyond its theoretical 30-year useful life.

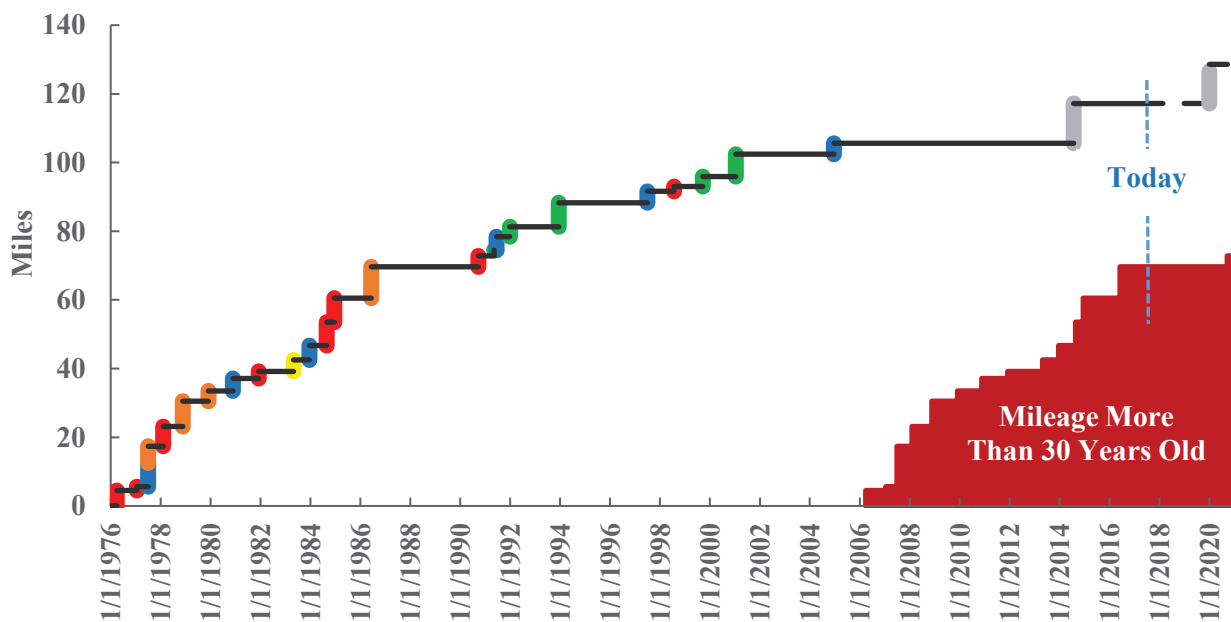


Figure 10. Growth of the Metrorail system since 1976. Source: WMATA.

To address this, an increase in capital investment to a level sufficient to reconstruct or replace assets as they wore out would have been appropriate around 2006. Although it is difficult to determine a correct theoretical investment level, a rough estimate can be made. A recent assessment by WMATA reported the total value of its asset base to be \$39 billion. Assuming a 30-year useful life for an average asset, the agency could expect to replace roughly three percent of its asset base each year at a cost of somewhere around \$1.2 billion per year.

As shown in Figure 11 (next page), in FY2017 WMATA achieved approximately this level of capital investment and plans to do so again in FY2018. However, this level was only recently achieved. The gap between necessary investment and actual investment in the preceding decade is a major reason for WMATA's backlog of deteriorated assets with an estimated cost of \$7 billion.

During this period, efforts were being made to increase capital funding. As far back as 2005 the need was identified, and in 2008 Congress passed PRIIA, which authorized \$150 million per year in new federal capital funds to be matched by an equal amount of new state and local funds. Unfortunately, for various reasons WMATA did not begin receiving these funds until FY2011, and even then had significant difficulty

in ramping up spending to utilize the new revenue. The result was a long period of sustained underinvestment.

Although current investment levels are a major improvement over prior years, it is important to note that the levels achieved since FY2016 are not sustainable given current capital funding provided to WMATA by its federal, state and local funding partners. The current baseline of capital contributions by these funders is approximately \$800 million per year, well below today's level of actual spending. In FY2016, WMATA drew down unexpended funds from prior years to make up most of the difference, but in FY2017 and FY2018 the capital budget has been sustained by taking on new debt.

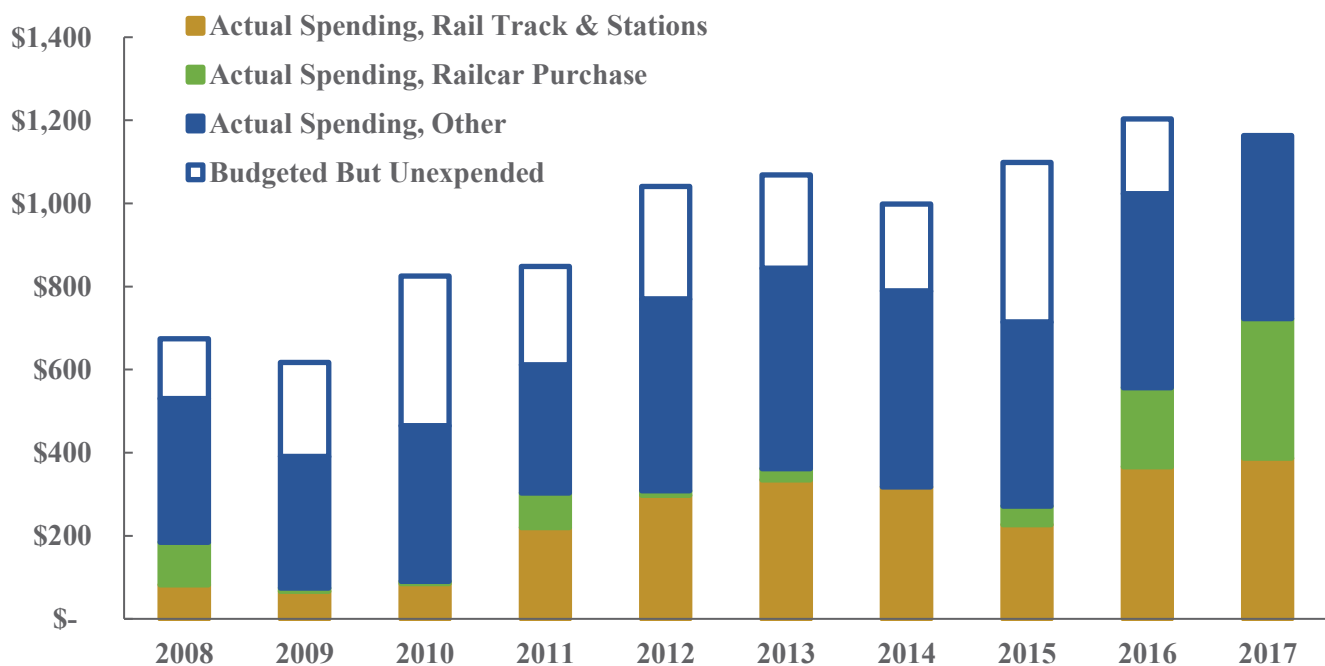


Figure 11. WMATA capital investment, millions of dollars, FY2008 to FY2017. Source: WMATA; WSP calculations.

It will not be possible for WMATA to reduce its backlog of deteriorated assets, or even sustain its current level of investment, without a major commitment of new resources from its funding partners.

Long Term Financial Sustainability

Although WMATA's service delivery costs are generally average for large transit agencies, the level of funds required annually from its state and local funding partners has been growing rapidly, rising at nearly 10 percent per year. As shown in Figure 12, these increases can be traced directly back to four main factors.

- Purchase of new railcars. WMATA is currently replacing a large share of its rail fleet, and expenditures on new railcars rose from zero in FY2014 to over \$330 million in FY2017.
- Increased spending on rail system rehabilitation. Investment in the rail system grew by nearly \$320 million per year from FY2009 to FY2017.

- Growth in contributions to pension plans. WMATA's contributions to pension have grown by more than \$150 million per year since FY2007. After growing rapidly for a decade, contribution levels have stabilized since FY2015.
- A large revenue decline due to falling ridership. Revenue from ridership has fallen by \$140 million per year.

Aside from these factors, WMATA's other costs have grown at a relatively reasonable three percent per year for the last dozen years.

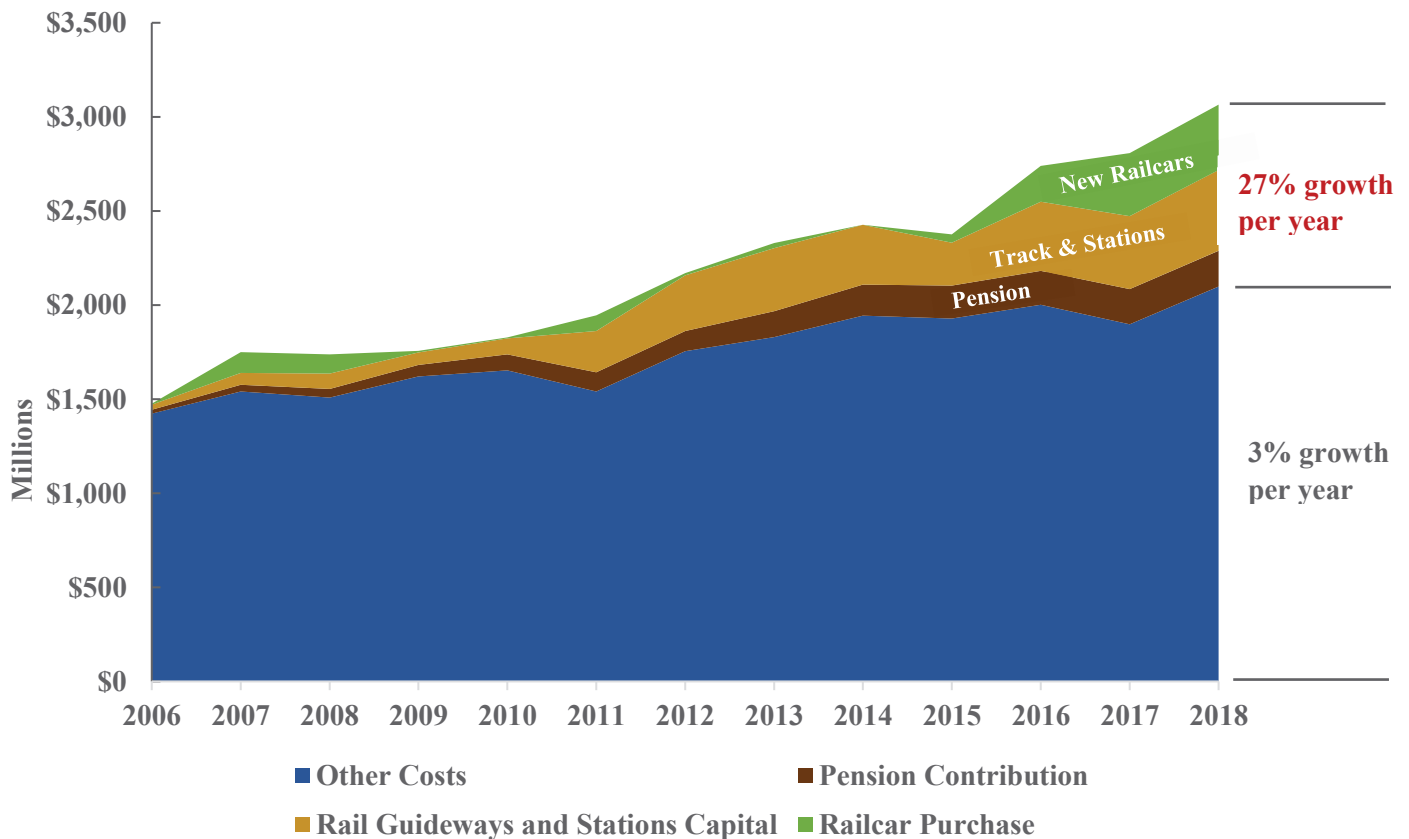


Figure 12. WMATA growth in spending in three major categories vs. all other spending, FY2006 to FY2018. Source: WMATA; WSP calculations.

Within its operating and maintenance budget, WMATA appears to be financially sustainable going forward, although improvements are possible. Several strategies to improve financial outcomes in the O&M budget are described in Part 2 of this report. Under WMATA's proposed budget for FY2019, jurisdictional contributions for operations and maintenance would rise by just three percent. No fare increases are proposed.

Within WMATA's capital budget, spending has risen but must rise even further for the system to achieve a state of good repair. This will not be possible without a substantial increase in the level of capital funding provided to WMATA.

Governance

WMATA's board currently consists of 16 members, eight Principal Members and eight Alternate Members. As shown in Figure 13, WMATA's board is larger than all but one peer agency. The average transit agency board has nine members. No peer agency board has alternate members.

WMATA's board currently has nine board committees and subcommittees, which ties it for the largest number among peer agencies. The WMATA board and its committees and subcommittees meet often. Between June 1, 2016 and May 30, 2017, there were 85 such meetings.

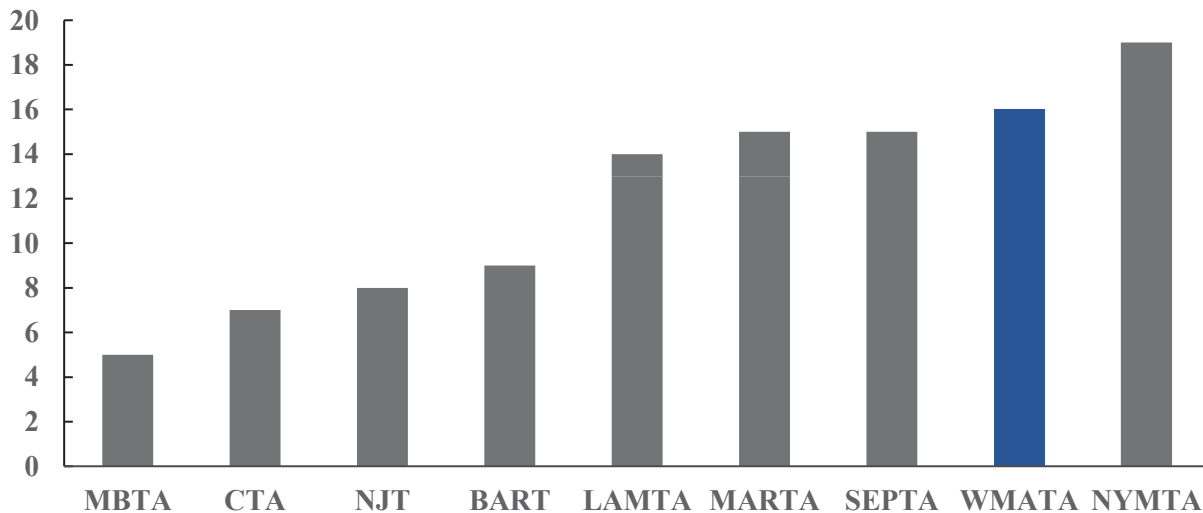


Figure 13. WMATA board size vs. boards at peer agencies. Sources: multiple.

WMATA is unique among peer agencies in giving each board contingents representing one of the three signatory jurisdictions – DC, Maryland and Virginia – a veto over major agency actions. The veto is not exercised often, but anecdotal evidence suggests that its presence nonetheless affects the dynamics of the board. Although none of the peer transit agencies allow a jurisdictional veto, this feature exists at the three other transit agencies in the U.S. that operate under Interstate Compacts: the Port Authority of New York and New Jersey, the Delaware River Port Authority in the Philadelphia region, and the Bi-State Development Agency in the St. Louis region.

WMATA's board includes local elected officials from the region, currently four of the 16 members. Arrangements of this type exist in 22 percent of transit agencies. However, in most of these cases there is a key difference. Where a transit agency is supported directly by dedicated taxes, any elected officials on the board can avoid the awkward position of both requesting funds on behalf of the transit agency and responding to this request on behalf of their home jurisdiction. This so-called 'dual fiduciary' status exists for WMATA's elected official board members. Among peer agencies, only one board member at one other agency has a similar status.

These features of the WMATA board present governance challenges over and above those faced by other transit agencies. With members often appointed to the board with the explicit understanding they will represent their home jurisdiction's policy, operational and financial preferences, WMATA faces major challenges in sustaining both a unified vision for the agency and clear parameters under which management can pursue such a vision.

PART 2. RECOMMENDATIONS

Measures to Reduce Operating Deficits

Figure 14 shows upper bound estimates for the possible financial impact of selected operating deficit reduction measures WMATA could pursue over the next several years. Each measure is described below.

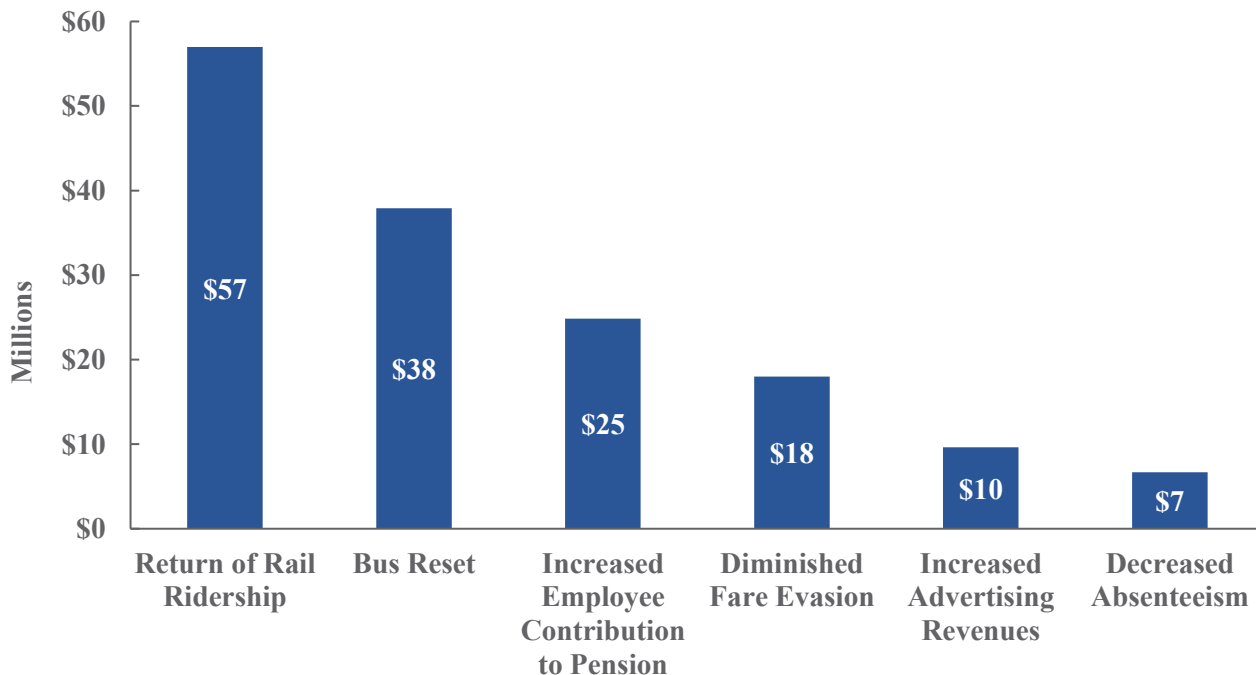


Figure 14. Upper bound estimates for the value of measures to reduce WMATA operating subsidies, in millions of dollars per year at full phase-in. Source: WMATA budget data and WSP analysis.

- **Return of Rail Ridership.** In FY2017 Metrorail ridership was 14.3 percent below FY2015 levels. During this same period, ridership at other U.S. heavy rail systems was also down, but by just 1.9 percent. With WMATA’s SafeTrack program of rail system closures now concluded, service reliability is expected to improve, and this opens the possibility that riders who fled the system may begin to return. The scenario depicted here shows the financial effect of Metrorail ridership rising back to a level that is 1.9 percent below the FY2015 level. This is estimated to produce \$76 million in new fare revenue and generate \$19 million in new costs to run more frequent trains to carry the returning riders. The net benefit to the WMATA O&M budget would be \$57 million per year.

WMATA cannot compel riders to return, and if they do return of their own volition a recovery would likely take several years. Ridership is influenced by many factors, including gasoline prices and the regional economy, but service reliability was a major factor in the loss of riders and will have a large effect on their return. The point of showing this scenario is to focus attention on the how large the effects of changes in ridership can be on agency finances. WMATA’s customers are its biggest funder.

- **Bus Reset.** WMATA is among the many transit systems experiencing flat or declining bus ridership, but its difficulties go beyond this. As shown in Figure 7, bus service levels per unit of ridership at WMATA were 25 percent higher than the peer average in 2015. There are several possible explanations for this.

WMATA could be running service on low-performing routes; its bus garages could be in locations that result in long hauls where no passengers are carried; its route structure could be out of date given changing patterns of demand; fare evasion could be masking the actual level of ridership. Each of these could play a role, or all could, but the depth of analysis necessary to understand the source of WMATA's difficulties was not possible for this report.

Nevertheless, a rough estimate was made of the possible financial consequences of a more efficient Metrobus system. The scenario presented here includes several elements. It assumes that bus fares are raised by 10 cents to \$2.10, closer to but still below the average base fare among WMATA's peer agencies. In addition, the scenario assumes that WMATA can achieve a five percent reduction in Metrobus operating costs through more efficient routing or other service adjustments or operating practices. In total, this scenario could result in a reduced need for operating subsidies of \$38 million per year once fully phased in. The analysis assumes that higher fares and adjusted service could trigger some reduction in bus patronage, but the goal should be the opposite – more efficient operations that both benefit riders and reduce WMATA's need for operating subsidies.

This analysis is presented not to endorse specific bus service changes, but to illustrate the magnitude of the issue. Determining exactly how to adjust Metrobus service will require detailed analysis, so WMATA should consider undertaking a 'bus reset'; that is, a comprehensive bus service study looking at routing, schedules, bus garage locations, work practices and the other major attributes of the bus system. As this report was being finalized, WMATA announced it would be undertaking "a study to overhaul its bus network" that appears similar to what is recommended here.

- *Increased Employee Contribution to Pension.* According to the Bureau of Labor Statistics, the average U.S. worker in a defined benefit pension plan contributes 7.1 percent of their salary to pension. The average member of WMATA's unionized workforce contributes 3.1 percent of salary. (Most contribute three percent, but Transit Police, who operate under their own contract, contribute 7.3 percent.) Raising employee contribution levels to the national average would reduce WMATA's need for operating subsidies by \$25 million per year. Pension contribution amounts are set contractually between management and unions, and so making this change would require a change to current WMATA contracts either through negotiation or arbitration.
- *Diminished Fare Evasion.* Very little reliable information exists about the extent of fare evasion at WMATA. Nevertheless, a rough estimate of its fiscal impact was made. This scenario assumes that fare evasion deprives WMATA of five percent of potential revenues from bus and rail fares, and that stricter enforcement and other measures could cut this loss by 50 percent. An estimate of the incremental cost of undertaking such enforcement measures was not made. Under this scenario WMATA could reduce its required O&M subsidies by \$18 million per year.
- *Increasing Advertising Revenues.* In 2015, WMATA's advertising revenues were proportionally the lowest among the large transit agencies studied. Advertising revenues were highest at the Chicago Transit Authority (CTA) at 1.84 percent of total O&M costs, while WMATA's advertising revenue was equal to only 1.32 percent of O&M costs. Were WMATA to increase advertising revenues to CTA's level, roughly \$10 million per year in additional funds could be generated.

- *Decreased Absenteeism.* When a worker fails to show up for their shift, someone else must be found to perform the work. This often leads to replacements working more than eight hours in a day or more than 40 hours in a week, which triggers overtime pay. In 2016, approximately 940,000 labor hours were missed due to three categories of absenteeism – sick leave, unpaid leave and absent without leave. The scenario depicted in Figure 14 shows the cost savings to WMATA due to lower overtime costs if absenteeism due to sick leave were reduced by 20 percent from 2016 levels and the other two categories were reduced by 15 percent. Savings are estimated to be \$7 million per year.

Implementing these measures could be expected to take several years, and achieving full results on any of them, let alone all simultaneously, would be difficult. Nonetheless, it seems reasonable to expect that a reduction in expected operating subsidies of at least \$40 million per year could be achieved after several years. If operating subsidies from the region’s jurisdictions can be reduced by this amount, this would allow for a corresponding increase in capita payments to WMATA that could be used to address the agency’s large capital backlog.

Additional Capital Funding

To assess the adequacy of WMATA’s current sources of capital funding, a model of WMATA’s state-of-good-repair needs and capital funding sources was developed out to 2040. This model projects that current pledged capital revenues from federal, state and local sources will average approximately \$830 million per year between FY2018 to FY2026, assuming Federal PRIIA funding continues at the current level. This baseline of current capital funding is shown in dark blue in Figure 15 (next page).

Limiting WMATA’s capital program to this level would have dire consequences. Capital investment would fall from the \$1.16 billion achieved in FY2017 to a level too low to even cover the new annual needs that will arise each year in the future, let alone tackle the large backlog of need accumulated from past years. If WMATA’s capital spending is constrained at the level of current funding commitments, the system’s condition will get worse, not better.

The next task was to estimate the level of additional capital funding required to avoid this outcome. The scenario shown in Figure 15 is designed to achieve three goals: 1) fund WMATA’s ongoing state-of-good-repair needs in future years as they arise; 2) fully eliminate WMATA’s backlog of deteriorated assets as quickly as possible; and 3) pay any debt service generated by new borrowing. In performing this analysis the following assumptions were used:

- Only state-of-good-repair costs were considered; any system enhancements would require other funds. (WMATA’s 2016 Capital Needs Inventory shows \$10 billion in potential capital projects that are over and above the agency’s state-of-good-repair needs.)
- The pace at which work can be accomplished was estimated for five different types of investment: vehicles, guideway, stations, facilities, and systems. For example, it was assumed that spending on vehicle purchases could ramp up quickly once new funding arrives, while work on guideway and stations would be more constrained due to the need to continue carrying passengers.
- New funding was assumed to start on January 1, 2019.
- Federal PRIIA funds were assumed to continue at \$150 million per year.
- Federal transit formula grants were assumed to grow at 1.5 percent per year.
- Construction costs and tax revenues were both assumed to grow at two percent per year.

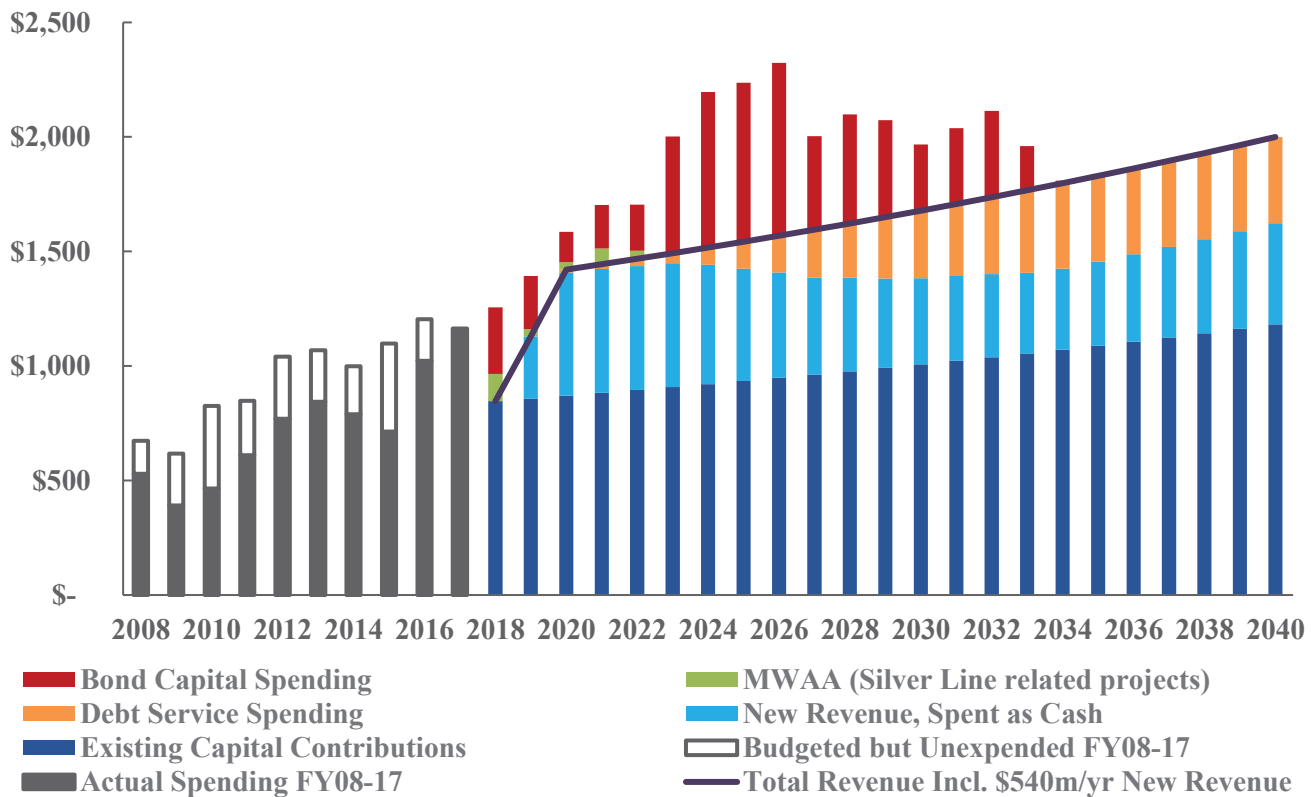


Figure 15. Model of WMATA capital spending with additional revenues, millions of dollars.
Source: WSP.

Based on these parameters, it was determined that \$540 million per year in new capital funding (dark line in Figure 15) would be needed. Some of the new funds would be spent as cash on a pay-as-you-go basis (light blue) while some would be used to support new borrowing. Bond proceeds expended each year are shown in red, and debt service on this borrowing is shown in orange. Spending would be highest in the FY2024 to FY2026 period as a new round of vehicle replacements takes place; after this it would decline slightly as backlog projects for guideway and other areas of need where spending is most constrained are completed. The state-of-good-repair backlog would be fully retired in FY2033, and thereafter WMATA would have sufficient funds to prevent a new backlog from developing and pay required debt service.

Strategies that could reduce WMATA's operating subsidies by \$40 million per year were described in the previous section, and shifting these payments from WMATA's operating budget to its capital budget would allow the agency to achieve a state of good repair with a new funding source that generates \$500 million per year starting in 2019.

To eliminate the state-of-good-repair backlog on this schedule, WMATA would need to borrow an estimated \$5.9 billion over and above its current indebtedness. Issuing 30-year bonds would incur debt service costs that peak at approximately \$375 million per year, and so most or all of a new revenue source of \$500 million per year would need to consist of dedicated funding that can be pledged to secure bonds in a manner acceptable to bond rating agencies and bond purchasers.

