



Finance and Capital Committee

Information Item IV-B

June 11, 2026

Rail Modernization Program



Board Document

OVERVIEW			
PRESENTATION NAME	Rail Modernization Quarterly Update	DOCUMENT NO.	300131
ACTION OR INFORMATION	Information		
STRATEGIC TRANSFORMATION PLAN GOAL	Service Excellence, Talented Teams, Financial & Organizational Efficiency		
RESOLUTION	No		
EXECUTIVE OWNER			
EXECUTIVE TEAM OWNER	Off, Andy		
DEPARTMENT	Deputy General Manager		
DOCUMENT INITIATOR	[Initiator] Cesari, Jill		
OTHER INFORMATION			
COMMITTEE	FCC	COMMITTEE DATE	06/11/2026
PURPOSE/KEY HIGHLIGHTS	<p>To provide the Board with an update on status and progress of the Rail Modernization Program and Red Line Modernization Project since the Board approved Metro's FY2027 Budget and FY2027-2032 Capital Improvement Plan and endorsed the project April 2026.</p> <p>Key updates include:</p> <ul style="list-style-type: none"> • Announcement of Jill Cesari as Senior Vice President, Rail Modernization Program Executive and an outline of Metro's team organization and resourcing • Submission of a request to enter the federal Capital Investment Grants program as a core capacity project • Discussion of how Metro plans to move through the federal planning process and engage stakeholders 		



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DISCUSSION

Over the past two years, Metro engaged the region in the DMVMoves process to lay out a vision for a sustainable, unified, and seamless transit network in the National Capital Region.

Without additional funding, Metro lacks the financial resources to maintain the system and investment in modernization to improve the system's safety, reliability, capacity, and efficiency. The DMVMoves plan calls for Metro to invest in rail modernization, to include a modern signal system, railcars, and platform doors.

Recent milestones:

- Metro and the Metropolitan Washington Council of Governments jointly endorse the DMVMoves Plan in November 2025
- Metro's Board endorses the Rail Modernization Program Vision and the Red Line Modernization Project
- Metro's FY2027-2032 CIP includes funding for the Red Line Modernization Project

Metro committed to provide quarterly updates on the Red Line Modernization Project, including updates on program design, implementation milestones, procurement activities, budget, organization and resourcing, and federal grant application activities.

This is the first quarterly update since the official initiation of the Red Line Modernization project. Since adoption of the Capital Improvement Program in April, Metro has several milestones to share:

- **New Rail Modernization Program Executive:** Metro announced in April that Jill R. Cesari is Metro's new Senior Vice President, Rail Modernization Program Executive, reporting to Deputy General Manager Andy Off. Ms. Cesari brings nearly 30 years of leadership and management experience in the U.S. Navy, including as commanding officer of the USS Shoup (DDG 86) and most recently as the Major Program Manager for the Aegis Integrated Combat System.
- **Grant applications:** On May 29, Metro submitted a letter to the Federal Transit Administration requesting entry into the Project Development Phase of the Capital Investment Grants



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	<p>(CIG) Program for the Red Line Modernization Project. This is the first step in advancing through the CIG program phases.</p> <ul style="list-style-type: none"> • Stakeholder Engagement: Metro has had preliminary conversations with the Federal Transit Administration regarding the federally required environmental review process, including historic preservation and cultural resource regulations. Metro’s team intends to engage with a wide range of stakeholders in the coming months and remains in discussions with the FTA about specific federal reviews. <p>Looking forward, Metro will continue to advance program delivery, engage with stakeholders, and begin the environmental compliance process. Additionally, as a project within Washington’s Monumental Core, Metro will engage with both the US Commission of Fine Arts and the National Capital Planning Commission.</p> <p>In July, Metro will update the Board on the results of the APTA Peer Review of the Rail Modernization program. The peer review team was on site at Metro between April 27 and May 1.</p>
<p>INTERESTED PARTIES</p>	<p>Current interested parties include:</p> <p>Deutsche Bahn E.C.O. NA, Hitachi, Kawasaki, Alstom, Knorr-Bremse, Parsons Transportation, HNTB, Mott McDonald, TY Lin, RK&K, Systra</p> <p>Prospective interested parties include (not exhaustive): Alstom, Hitachi, Mitsubishi Electric Power Products, Siemens Mobility, Stadler, Cisco Systems, Mass Electric Construction (MEC), AtkinsRealis, Burns Engineering, Egis, Mott MacDonal, MW Consultants, Network Rail Consulting, Radix, RL Controls, Systra, TYLin, WSP, Doorspec, ITNova, Knorr, ST Engineering, Stanley Access, WooJin IS America Inc., QEI Automation Solutions, M.C. Dean, STraffic, Aldridge Electric, C3M Power Systems, Halmar International, Kiewit, Gilgen Door Systems, Horton Automatics, Wabtec</p>
<p>RECOMMENDATION/NEXT STEPS</p>	<p>Next Steps: presentation of the recommendations from the APTA Peer Review Panel in July 2026.</p>



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FUNDING IMPACT	No funding impact – informational updates only.
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Rail Modernization Quarterly Update



Finance & Capital Committee
Washington Metropolitan Area Transit Authority
June 11, 2026

Purpose

Provide the first quarterly update since program launch in April 2026

Regular, quarterly updates on the **status and progress of the Red Line Modernization Project**, including:

- Program design
- Implementation milestones
- Procurement activities
- Budget
- Organization and resourcing
- Federal grant application activities



Board Resolution 2026-10: Endorsement of the Rail Modernization Program Vision and Red Line Modernization Project

Delivering Your Metro, the Way Forward



Service Excellence

Deliver safe, reliable, convenient, accessible, and world-class service that customers can trust across all modes.

Objectives of Service Excellence Goal

- **Safety and Security**
- **Reliability**
- **Convenience**



Talented Teams

Attract, develop, and retain world-class talent where individuals feel valued, supported, and proud of their contribution.

Objectives of Talented Teams Goal

- **Recruitment and Retention**
- **Learning and Development**
- **Customer Service Mindset**



Financial & Organizational Efficiency

Steward public resources and efficiently allocate resources where they drive the most value, to ensure service delivery.

Objectives of Financial & Organizational Efficiency Goal

- **Financial Responsibility**
- **Organizational Efficiency**
- **Energy Management**

Rail Modernization Directly Addresses Metro's Key Challenges

Investment in modern, automated systems is the path to world-class transit

Metro has a unique opportunity to align needed investments in our major systems (railcars and signals) by upgrading our capabilities with next-generation technology.

Benefits from modernization and automation can transform Metro's operations

- 1. **Safer:** reduce staff on roadway, keep trespassers off tracks, reduce track fires
- 2. **More reliable:** increase service reliability up to 99% with precision operation and dynamic adjustments, less physical infrastructure to maintain
- 3. **Greater capacity:** faster trips and more trains running per hour
- 4. **More efficient:** more productive service with the same assets and lower operating costs; growing ridership and revenue

Program Elements

Signals



Fleet



Stations/Platforms



Operations



System-wide Vision Begins with the Red Line Modernization Project



Why Modernization? The current signal system is obsolete, and modernization is the pathway to world-class transit

- Safety
- Reliability
- Capacity
- Efficiency

Red Line Project Scope: capable of fully automated operations

- Communications-Based Train Control (CBTC)
- Railcar modifications to support full automation
- Platform Doors & Protection
- Supporting systems installation & integration

DMV Moves Plan: Calls for Metro to investment in rail modernization, including a modern signal system, railcars, and platform doors; endorsed jointly by Metro and the Metropolitan Washington Council of Governments

Metro Board endorsed Rail Modernization Program Vision and Red Line Modernization Project



Metro is Making a Transformational Investment in Rail Modernization

Metro will continue to advance cost and schedule estimates as the program moves through Project Development

Approved FY2027-FY2032 Capital Improvement Program (CIP):

Red Line Modernization Project:

- Current rough order of magnitude total project cost estimate: \$1.6 billion
- Six-Year CIP programs \$913 million, including non-federal funding as local match
- Seeking a Capital Investment Grants (CIG) Program share of up to 60% of the total project cost

Washington Metropolitan Area Transit Authority

TRANSFORMATIONAL INVESTMENT

Rail Modernization Program

Overview

Metro continues to provide vital, high-capacity transit service across the region, but faces growing challenges that could limit its ability to deliver the safest, most reliable, and most efficient experience possible. Its legacy signal system—first built in the 1970s—is increasingly prone to failures, driving up costs and causing millions of minutes in customer delays each year. Core segments operate near capacity, especially on the Orange, Blue, and Silver Line corridor (between Rosslyn and Stadium Armory stations), while terminal constraints and limited fleet flexibility restrict service. These pressures come amid rising regional demand, making strategic investment in core systems essential.

Meeting this moment requires more than replacing aging infrastructure—it calls for upgrading to modern signaling technology, deploying new and retrofitted railcars, and a new approach to service delivery.

Communications-based train control (CBTC) unlocks higher throughput and faster recovery from delays. Platform doors virtually eliminate train strikes, enable orderly boarding, improving customer comfort and safety. Full automation (Grade of Automation 4 (GoA 4)) improves reliability, allows service to scale with demand, and reduces operational costs. Together, these elements form a flexible framework for modernizing Metro's rail system—adaptable and responsive to funding opportunities and regional priorities.

Investment Strategy

Metro is deploying a strategy to incrementally upgrade infrastructure, rolling stock, and operations to

meet long-term transit needs. Beginning with the Red Line, Metro intends to replace the signal system to enable future improvements, including new railcars, platform doors, and fully automated service. This will be followed by investment on the Orange, Blue, and Silver Lines and then Yellow and Green Lines.

While a new signaling system is required, other elements of the program (including platform doors and automating Metro's operations) can be pursued based on available resources in conjunction with CBTC. Each upgrade delivers immediate value while building toward a safer, more efficient, more reliable system with greater capacity.

Funding Strategy

Metro is exploring several pathways to pursue federal funds for the transformational investment, including Capital Investment Grants (CIG) Program funding. Metro has flexibility in structuring each potential corridor-based project. Each carries trade-offs in timing, complexity, and risk.

The CIG Program is a multi-year, multi-step process resulting in a grant agreement. Funds are not available until a grant agreement is signed, and costs are only reimbursable after a project enters the program. Risks include legislative changes, regional funding uncertainty, and project-level challenges such as environmental analysis, third-party agreements, and procurement. Metro is also considering Transit Infrastructure and Investment Act (TIFIA) financing and Better Utilizing Investments to Leverage Development (BUILD) grants to support specific components of the modernization effort.

Impact

This investment is anticipated to deliver world-class transit to the nation's capital. This means improved customer safety (reduced trespassing incidents and passenger strikes), improved operations, resulting in faster travel times across the system. Investments in the program are expected on Blue, Silver, Yellow, and Green Lines Signal Modernization, Platform Doors (Remaining Systemwide), and

2027 Anticipated Funding Sources

Federal Grants	<input checked="" type="checkbox"/>
PRR/RSI Grants	<input type="checkbox"/>
System Performance	<input type="checkbox"/>
Dedicated Funding	<input type="checkbox"/>
Debt	<input checked="" type="checkbox"/>

Planning Purposes

	FY30	FY31	FY32	Beyond FY32
	202.5	220.9	165.3	704.8
Total: \$913.0				

Summary Table

	ROM	Funded in Proposed Budget	Est. Percent Federal
Underway Project	28.0	Yes	0%
Design & Engineering	1,612.0	Yes	40-60%
Concept	3,845.0	No	
Platform Doors (Remaining Systemwide)	2,161.0		
TOTAL	7,646.0		

Introducing Metro's Rail Modernization Program Executive

Ms. Jill R. Cesari, Senior Vice President
Reporting to Deputy General Manager Andy Off

U.S. Navy veteran with nearly 30 years of leadership and management experience, including as the commanding officer of the USS *Shoup* (DDG 86) and most recently, as the Major Program Manager for the Aegis Integrated Combat System.

Responsibilities as Program Executive include:

- Create and build Metro's Program Management Office for Rail Modernization
- Lead and orchestrate Metro's internal experts and engage stakeholders
- Supervise delivery of the Rail Modernization Program



Delivering Rail Modernization

Metro is building upon internal expertise with external support, organized around key work streams

Program Management

Resource management, internal and external

Procurement and Acquisition

Design and Engineering:

- Platform doors conceptual design
- Signaling design
- CBTC-enabled railcars

Stakeholder Engagement

Engage stakeholders:

- USDOT and Federal Transit Administration
- Customers
- Review Agencies

Alignment with environmental and local jurisdictional historic preservation, and federal reviews

Implementation & Construction

Work planning, track access, and customer impacts during construction and testing

Civil works and installation

Technical interfaces and systems testing

Operations & Planning

Concept of Operations

Service Planning

Workforce Planning

Operational testing

Metro Requested Entry into the FTA's Capital Investment Grants (CIG) Program on May 29th

Metro's **Red Line Modernization Project** stands out compared to other CIG projects:

- **Innovative:** Red Line Modernization Project will be the first conversion of an existing line to automation in the United States
- Requesting entry to the CIG Program as a **Core Capacity** project, specifically designated to increase capacity on an existing system
- Project scope is completely contained **within Metro's existing footprint**



Metro is a Steward of a System Built for the Future

The Rail Modernization Program intends to honor Metro's architectural legacy while adopting world-class standards

Using federal funding requires following the federal planning process. Metro is in discussions with the Federal Transit Administration about compliance with the National Environmental Policy Act (NEPA) and related laws and regulations

National Environmental Policy Act (NEPA):

Establishes the framework for federal decision-making and consideration of potential environmental impacts.

Includes compliance with related laws/ regulations:

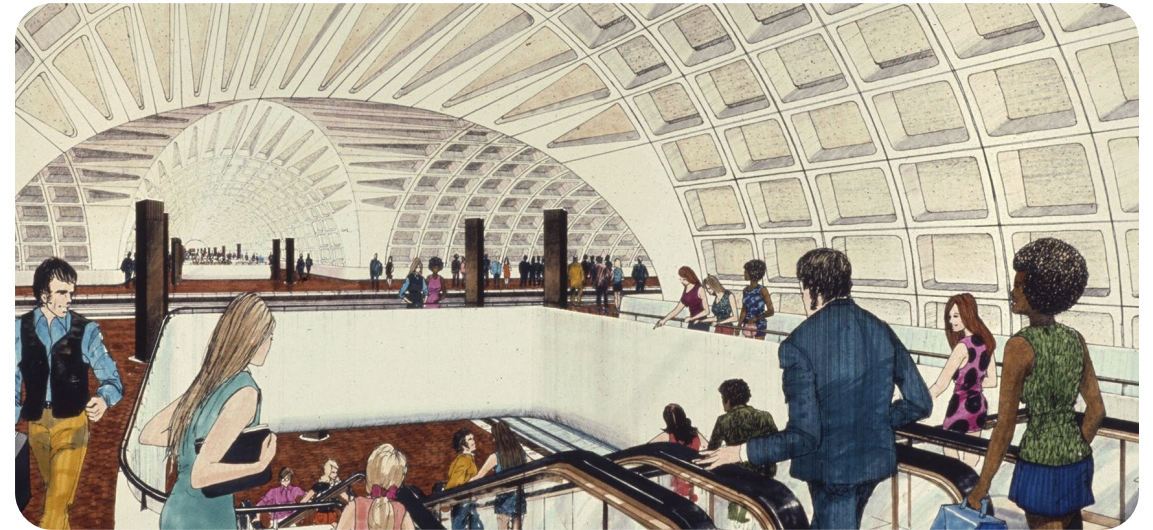
Section 106 of the National Historic Preservation Act

Section 4(f) of the Department of Transportation Act

As a project in Washington's Monumental Core, Metro will engage with:

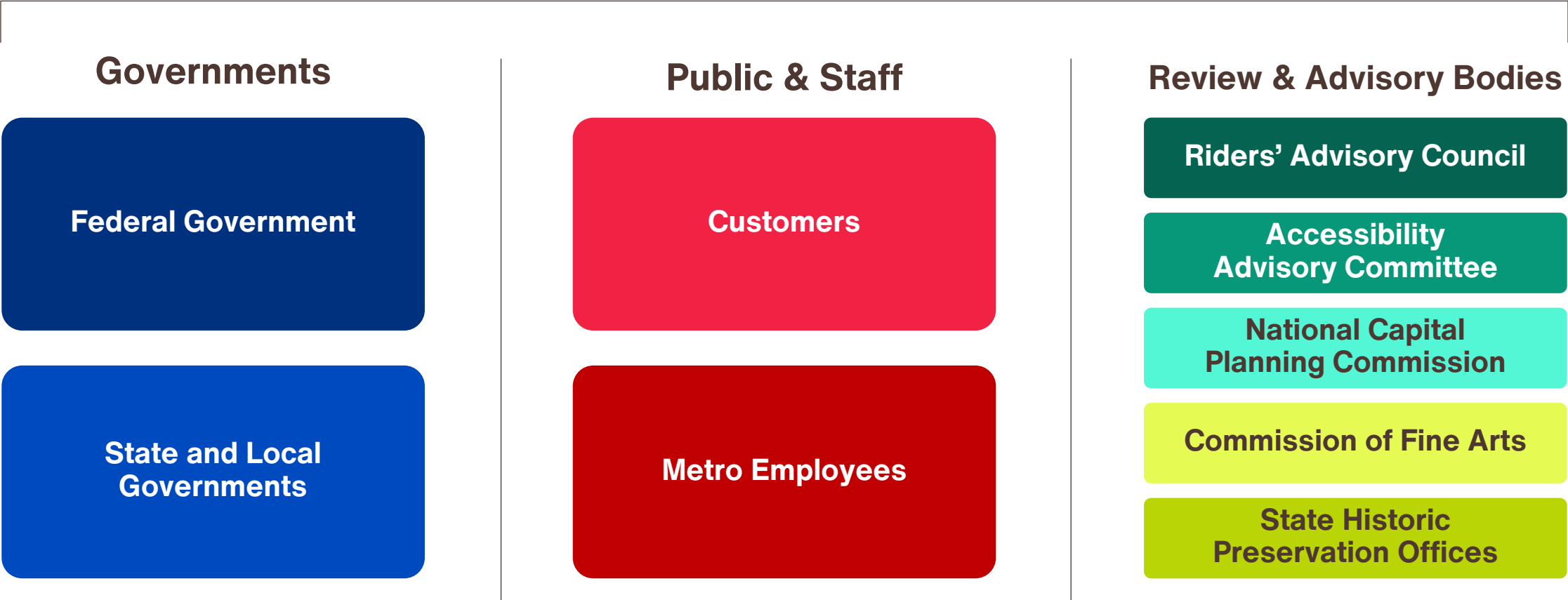
United States Commission of Fine Arts (CFA): reviews designs and aesthetics of projects within Washington

National Capital Planning Commission (NCPC): planning agency for the National Capital Region



Engaging Stakeholders is Critical to Success of the Red Line Modernization Project

Stakeholder Categories



Metro is moving forward on Rail Modernization

Planning to engage with stakeholders beginning this summer

Calendar year

We are here



Planning Phase Milestones:

- Rail Modernization Program Plan presentation (Dec. 2025)
- Capital Improvement Program public hearings & adoption (Feb-April 2026)
- Industry Day (March 2026)
- APTA Peer Review (April-May 2026)
- Submit CIG Entry Letter (May 2026)

Next Steps:

- Advance Program Delivery
- Stakeholder Engagement
- Environmental Compliance

APTA Peer Review Report Coming in July 2026

Peer Review panelists participated on-site at Metro from April 27 to May 1

- **Review conducted by experts from four peer transit agencies from around the world**, each with experience in a combination of:
 - Fully automated operations
 - Automation retrofit projects
 - Platform door installation, integration, and operation
 - Complex integration projects for modern signal systems
- **Peer Review Scope:**
 - Program Planning
 - Technical Development
 - Migration Strategy Assessment
 - Governance and Program Management
- **Outcomes:**
 - Panel expressed support of Metro's planning process
 - Validated several delivery approaches and migration strategy
 - Recommendations to be shared in July 2026



London Underground



Copenhagen Metro



Metro de Madrid



Honolulu Area Rapid Transit

Appendix

Program Background

Red Line Modernization included in Capital Improvement Program (CIP) adopted in April 2026

- Approved the FY2027-2032 CIP, including **funding for Red Line Modernization**
- **Endorsed the Rail Modernization Program Vision and the Red Line Modernization Project**
- Authorized Metro to **request entry the federal Capital Investment Grants (CIG) program** for Red Line Modernization, including commitment of funds for project development
- Established a quarterly report cadence on the status and progress of the project



Metro Rail is facing multiple challenges, with a system that is aging and increasingly outdated

+ Safety



Ongoing trespassing incidents

- Trespassers, trash, slips/trips/falls
- Human error in operation
- Challenging to mitigate with current system design

🕒 Reliability



Aging and unreliable infrastructure

- Inconsistent acceleration and braking by operators and signal system failures causing delays
- Growing maintenance costs; replacement parts are increasingly difficult to source

📊 Capacity



Insufficient room for long-term growth

- Bottlenecks at key locations limit service
- Expensive alternatives to adding capacity

\$ Efficiency







Outdated concept of operations

- Rising operating expenses and inflexible service model

Grades of Automation

Grades of Automation (GoA) are the international standard describing roles and responsibilities for train control systems and on-board staff

Grade of Automation	Type of Train Operation	Setting Train in Motion	Stopping Train	Door Closure	Operation in Event of Disruption
GoA 1 	Manual Operation with Automatic Train Protection (ATP)	Operator	Operator	Operator	Operator
GoA 2 	Semi-automatic Operation with ATP & Automatic Train Operation (ATO)	Automatic	Automatic	Operator	Operator
GoA 3 	Driverless Train Operation (DTO)	Automatic	Automatic	Train Attendant	Train Attendant
GoA 4 	Full Automation, capable of Unattended Train Operation (UTO)	Automatic	Automatic	Automatic	Automatic

International Standard IEC-62290-1

Increasing Automation

Metro operated in manual mode as a **GoA 1** system from 2009 to 2025

Metro's Automatic Train Operation (ATO) is a **GoA 2** system

Metro's systemwide Rail Modernization Program will begin with the Red Line Modernization Project

**Included in
FY2027-2032 CIP**



Phase 1

Red Line Modernization Project

Dependent on additional funding via DMV Moves



Phase 2

Orange Line, Silver Line, and Blue Line sections

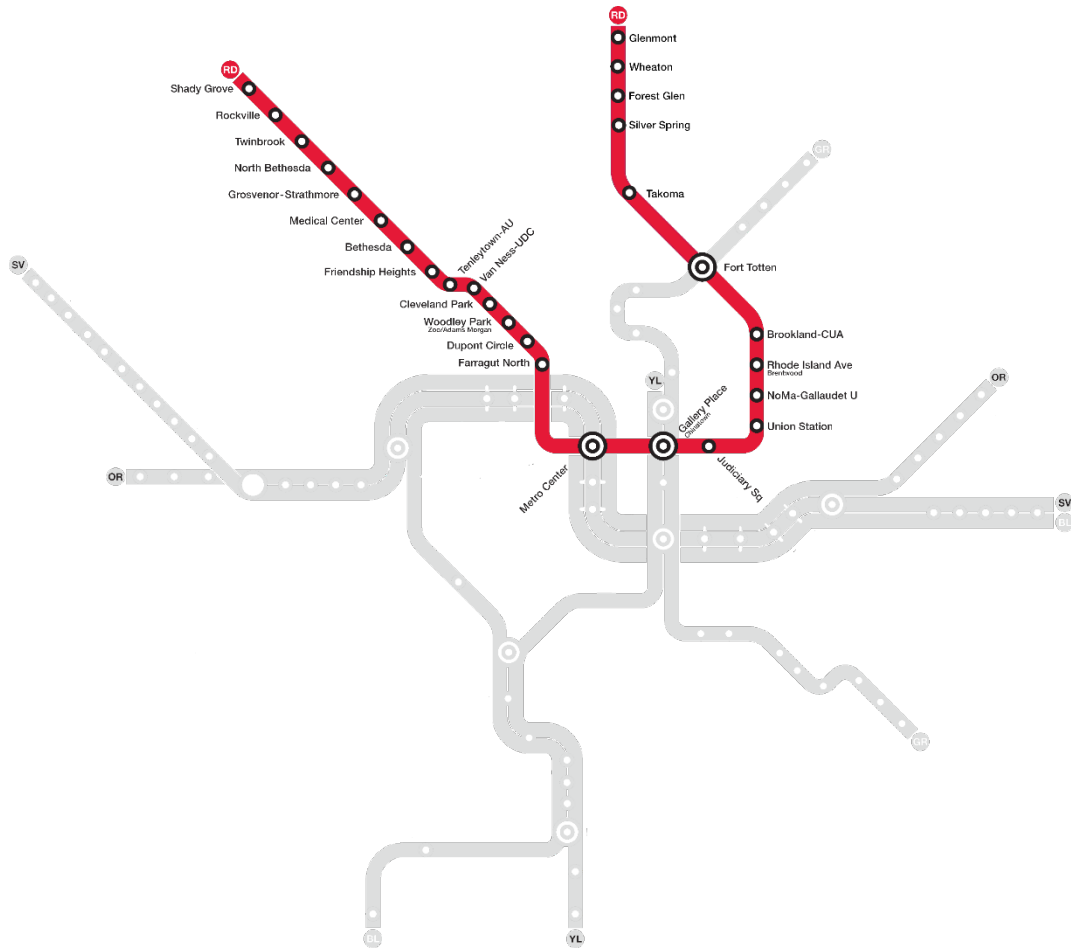


Phase 3

Yellow Line, Green Line, and remaining Blue Line sections



Red Line Modernization Project



Project Scope: capable of GoA Level 4 operations

■ Communications-Based Train Control (CBTC) Installation:

- Entire Red Line (32 miles, 27 stations)
- 3 rail yards (Shady Grove, Glenmont, Brentwood)
- Greenbelt test track

■ Railcar Conversions:

- Mix of 7000-Series and 8000-Series cars

■ Platform Doors & Protection:

- Doors at 20 stations, with potential to expand to all 27 stations

■ Supporting Systems Installation:

- Connect new systems to the Metro Integrated Command and Communications Center (MICC)
- Upgrade existing technical systems to improve monitoring and control operations

Capital Investment Grants (CIG) Program

The Red Line Modernization Project is eligible for federal funds as a Core Capacity project

- A **Core Capacity** project adds capacity to an existing corridor; Other project types (New Starts and Small Starts) focus on new corridors and extensions
- **CIG Program is a multi-year, multi-step process;** CIG is the largest FTA discretionary grant program and demand for funds exceeds supply
- Comparable large projects have received a federal grant for 40 to 60% of the eligible project cost

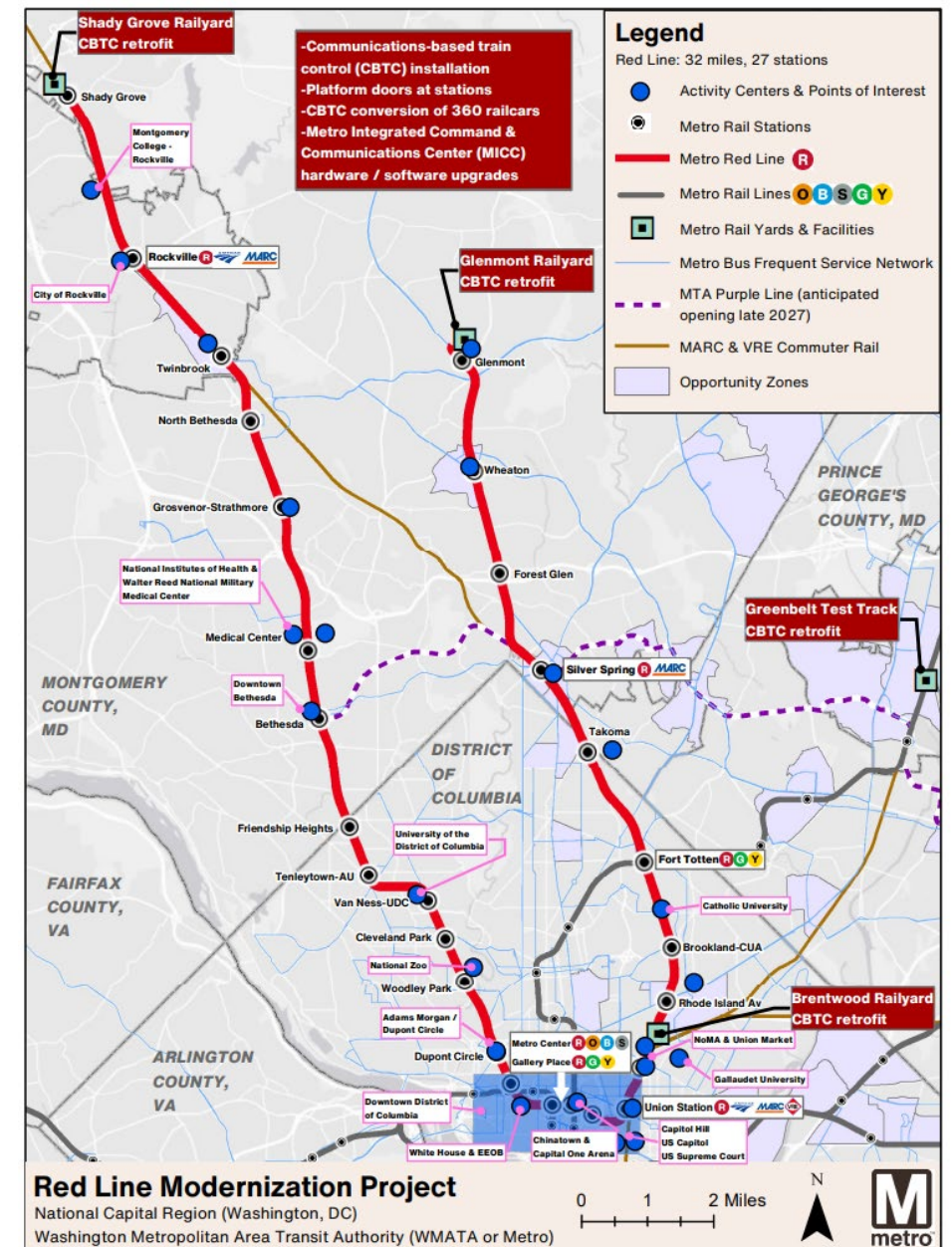


Red Line Modernization Project Map

Includes connections to transit and activity centers

The Red Line connects to:

- **Multiple activity centers and federal offices** in Maryland and the District of Columbia
- **Connections to other transit services** and modes, including
 - Metro Rail (at Metro Center, Gallery Place, and Fort Totten)
 - Amtrak (at Union Station and Rockville)
 - MARC/VRE (at Union Station, Rockville, and Silver Spring)
 - Metro Bus and local buses at every station
 - Purple Line light rail (at Bethesda and Silver Spring)
- Seven Qualified Opportunity Zones within 1/2 mile of Red Line stations



Regional Connections to Transit

The Red Line Modernization Project connects to multiple transit hubs in the region



Bethesda



Silver Spring



Union Station

Early Vendor Engagement is Key to Future Procurements

De-risking the program and future procurements using supplier engagement

- **Complex Program will require Metro to procure:**
 - Program Management Support
 - Technology Suppliers – CBTC, Platform Doors, associated subsystems
 - Railcar retrofit
 - Installation and civil works contractors
- **Steps taken till date:**
 - Request for Information (RFI) was conducted Nov 2025 which engaged vendor community on delivery models and procurement strategy
 - Industry outreach completed in Mar 2026, focused on the technology suppliers and installer community which resulted in:
 - Shared understanding for Metro’s vision;
 - Focused solution-oriented discussions

Capital Investment Grant program

CIG is the largest FTA discretionary grant program. There is greater demand for funding than is available

The CIG Program includes **three categories** of projects:

Core Capacity: A substantial corridor-based capital investment in an existing fixed guideway system that increases capacity of that corridor

Examples: BART Transbay Corridor Project; MBTA Green Line Transformation; CTA Red and Purple Line Modernization Ph. 1

New Starts: A new fixed guideway system or an extension of an existing system (rail or BRT) with a total project cost \geq \$400M and requesting \geq \$150M in CIG funding. If BRT project, must be at least 51% in dedicated lanes.

Examples: Maryland Purple Line; Silver Line Phase 1

Small Starts: A new fixed guideway system or an extension of an existing system with a total project cost $<$ \$400M and requesting $<$ \$150M in CIG funding

Example: Viers Mill Road Flash BRT

Rail Modernization is a good match for the Core Capacity Program.

Core Capacity grants focus on projects that add capacity to existing corridor, whereas New and Small Starts focus on extensions or new corridors.

NEPA and environmental reviews

Using federal funding requires following the federal planning process

National Environmental Policy Act (NEPA): Establishes the framework for federal decision-making and consideration of potential environmental impacts. NEPA documentation falls into three 'classes of action'

- **Environmental Impact Statement (EIS):** for major actions that significantly affect the environment
- **Environmental Assessment (EA):** a more concise documentation than an EIS
- **Categorical Exclusion (CE):** for actions that categorically do not have a significant impact

Section 4(f) of the Department of Transportation Act: Limits impact to parks, recreational areas, wildlife refuges, and historical sites, unless there is no feasible and prudent alternative, or the impact is *de minimis*.

Section 106 of the National Historic Preservation Act: must account for effects on historic properties, or properties eligible for listing in the National Register of Historic Places

Rail Modernization is a good candidate for a CE, because work would be limited to the existing ROW

Even a NEPA Categorical Exclusion **must still comply with the process and requirements of other environmental laws,** such as Section 4(f) and Section 106