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Washington Metropolitan
Area Transit Authority

FY2021 - FY2030

Capital Program Strategy & 10-Year Plan

January 2020



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A Message from the General Manager/CEO

With historic levels of capital investment anticipated for the coming decade, Metro's Capital Program Strategy and 10-Year Plan creates an Authority-wide framework for advancing projects that improve safety, reliability and affordability for our customers.

Landmark legislation approved by Maryland, Virginia, and the District of Columbia has made dedicated capital funding available to Metro for the first time. Sustained state and local funding, federal formula program funding, and a renewed commitment to federal dedicated funding, through reauthorization of Passenger Rail Investment and Improvement Act (PRIIA) are important to supporting the level of investment required to address capital needs. We are committed to being good stewards of these taxpayer resources.

Metro's capital investment priorities focus on the Authority's core transit assets that keep the system moving safely and reliably, such as maintenance shops, rail yards and bus garages, tracks and structures, information technology systems, and power. Major initiatives already in the pipeline, such as critical platform rebuilding efforts and bus garage replacement projects, will be completed to provide a better transit experience to hundreds of thousands of customers who ride Metrorail and Metrobus each day. And forward-looking studies will help identify the projects that can strengthen Metro for decades to come.

The 10-Year Capital Plan will at last address long-deferred needs, modernize the system and maintain our assets and inventory. By revamping the capital program, we have created a strategy and system for making prudent investments that benefit our customers and the region as a whole.



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



Executive Summary

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

As Metro continues a strategic transformation of its capital program, we are retooling efforts to maintain, modernize, and upgrade infrastructure by targeting assets before they deteriorate, bolstering project delivery, and monitoring capital project and program performance.

Our capital program has addressed longstanding challenges in customer safety, comfort, and service reliability through projects such as platform reconstruction, track rehabilitation, railcar procurement and bus garage construction. The goal of the Metro Capital Program Strategy is to establish an articulated vision behind the high-level strategy and goals for capital investments. As shown in the graphic below, our capital program has four building blocks:

- **Capital Needs Forecast.** Includes existing and anticipated needs to improve safety, achieve and then maintain assets in a state of good repair (SGR), modernize and upgrade infrastructure, and meet regulatory compliance
- **Capital Program Strategy.** (Included in this document) Establishes the vision behind the high-level strategy and goals for capital investments and outlines Metro’s priorities and outcomes of what we expect the capital program to achieve
- **10-Year Capital Plan.** (Included in this document) Details how Metro will achieve the Capital Program Strategy, identifies and explores initiatives and projects that align to the strategy by highlighting project-level detail for selected capital initiatives and listing all projects included in the plan
- **Six-Year Capital Improvement Program.** Provides a specific list of priority projects and programs for the FY2021-2026 Capital Improvement Program and the Capital Budget request for FY2021

The following Capital Program Strategy and 10-Year Capital Plan highlights Metro’s capital investment priorities. Included one-page summaries of selected major projects and programs present project descriptions, schedules, strategic goals, and estimated total costs. Appendices detail all capital initiatives within the 10-Year Plan, including estimated total project costs.



Metro at a Glance



Buses

Metrobus provides **121 million** trips annually using a fleet of **1,583** buses at **10,687** bus stops.

Rail Vehicles

Metro operates over **1,200** railcars, more than half of which are new 7000 Series cars. Trains provide about **182 million** trips annually from **91** Metrorail stations.

MetroAccess

MetroAccess' fleet of **750** paratransit vehicles delivered **2.4 million** trips in the last year to residents in Maryland, Virginia, and the District of Columbia.

Rail Infrastructure

As the third largest heavy rail transit system in the United States, Metro has a total of **118** miles of track, including **51** subway miles, **58** surface miles and **9** elevated miles.



Chapter 1.

Capital Program Strategy

Metro operates some of the busiest rail and bus transit systems in the United States. Our assets support 33 percent of the region's economic activity, host 37 percent of the region's workforce, and annually move more than triple the number of people than do the region's three major airports combined. Our services rely on an extensive portfolio of capital assets and physical infrastructure throughout the region, such as railcars, buses, tracks, stations, and maintenance facilities.

Capital Program Transformation

Metro's approach to capital planning is transforming. We are retooling efforts to prioritize capital investments to rehabilitate, replace, and modernize the system to meet the needs of customers and the region and keep the system **safe, reliable and**

affordable. We have mobilized to deliver a long-term vision through the following concrete actions:

- **Active Capital Planning.** Linking the capital program to strategic goals to align proposed projects with priority needs.
- **Bolstering Project Delivery.** Increasing capacity to timely and efficiently execute priority capital projects.
- **Transparency and Performance Tracking.** Building capital program performance measures to enable preemptive action for proactive asset maintenance and timely project delivery.

As the capital planning approach transforms, Metro is working to improve capital information, establish project priorities, measure investment success, and follow investment principles.



Improved Capital Information

One of the most distinct changes visible throughout this document is that, in addition to traditional financial data provided at the Capital Improvement Program (CIP) level, we present information by discrete project-level initiatives. Please refer to Chapter 6 for additional details regarding project information.

Capital Project Priorities

The FY2021-2030 capital planning process introduced new, structured methodology for capital project prioritization.

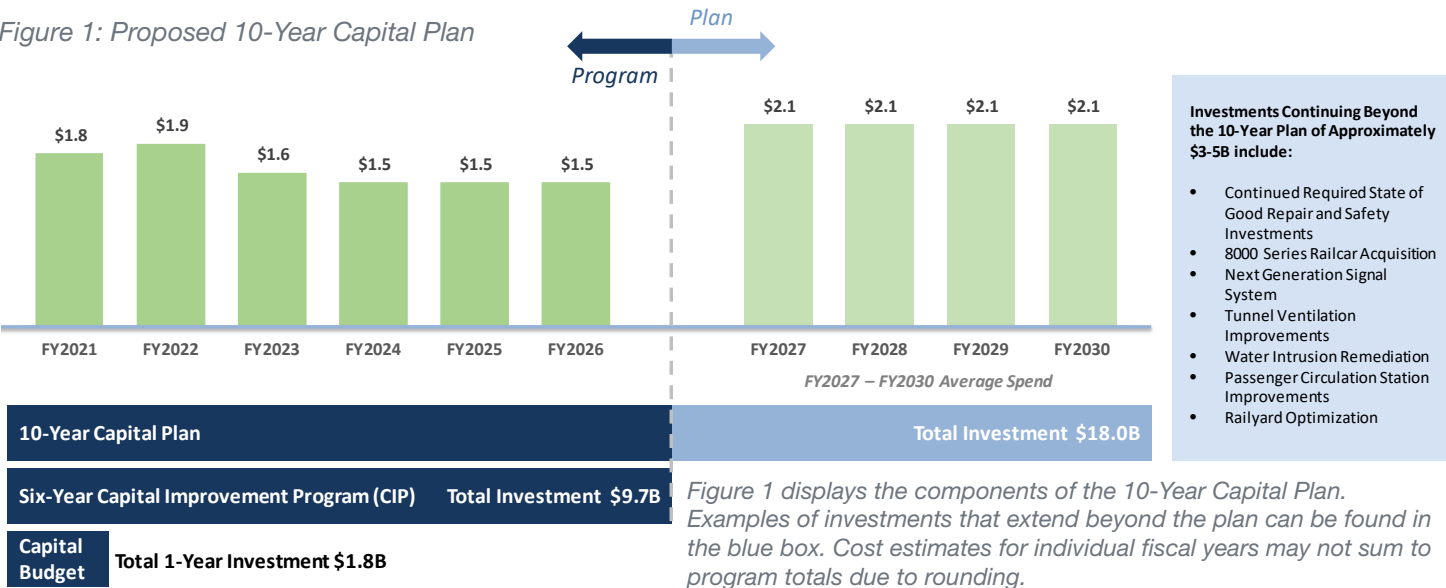
A process of assigning priorities to proposed capital investments was used to categorize and prioritize projects within the program based on the investment’s impact on improved strategic performance. These priorities and strategic goals will be used to report and track the performance of investments in the capital program.

As potential projects and concepts were considered for inclusion in the program, alignment with strategic goals was reviewed, along with information regarding purpose, scope, and projected schedule and cost.

The estimated costs and timing of projects and programs contained in the capital plan are based on the best available information at the time of publication. The plan will be updated as new information is developed. Periodic updates of ongoing and proposed projects will be issued throughout the fiscal year.

Measuring Investment Success

Greater transparency will enable the effectiveness of investments to be measured on multiple levels. First, key performance indicators (KPIs) linked to projects will be refined, tracked and reported on a regular basis. Tracking KPIs allows us to target resources to capital investments consistent with strategic goals and facilitate proactive adjustments to investments in under-performing areas. Performance will also be measured through continued evaluation of asset condition to track state of good repair progress and be reported in documents such as the Capital Needs Forecast. Finally, new investments will be evaluated through the completion of alternatives analyses and business justifications, and outcomes will be tracked throughout the life of the project to assess project success.



Investment Principles

Through the transformation of the capital program, decisions on how to execute and define the scope of projects will be made using the following five investment principles:



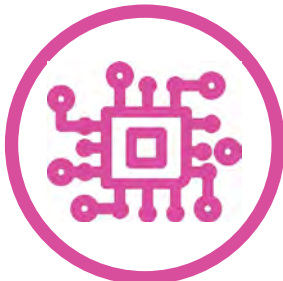
Address Customer Needs

The needs of customers for safe, reliable, and affordable transportation will be at the forefront of investment decisions.



Build for the Future

Investments in assets need to be made with an eye to the future. Planning for population growth, travel trends, job centers, and service opportunities will build flexibility to meet needs and demand.



Embrace Technology

Metro must modernize in order to deliver safe, reliable, and affordable transit service. This means thoroughly exploring opportunities to implement new and innovative technology.



Be a Good Fiscal Steward

Project justifications that demonstrate strong returns on investment and public benefits for the region and taxpayers will be advanced to keep the system affordable in the long run.



Respect the Environment

We are transforming the way Metro does business to realize an efficient and sustainable future. Many initiatives are underway to achieve energy reduction targets as outlined in the 2025 Energy Action Plan, from lighting upgrades to bus efficiency.



中國城

美國娛樂公司

metrobus

DIAGONAL CROSSING

OK



RESIDENCY FRAUD
ON HOTLINE
OSSE.DC.GOV 202-719-6500

Chapter 2.

10-Year Capital Plan

The Capital Plan from the Customer Perspective

The 10-Year Capital Plan is presented in three investment groups based on the perspective of Metro’s customers:

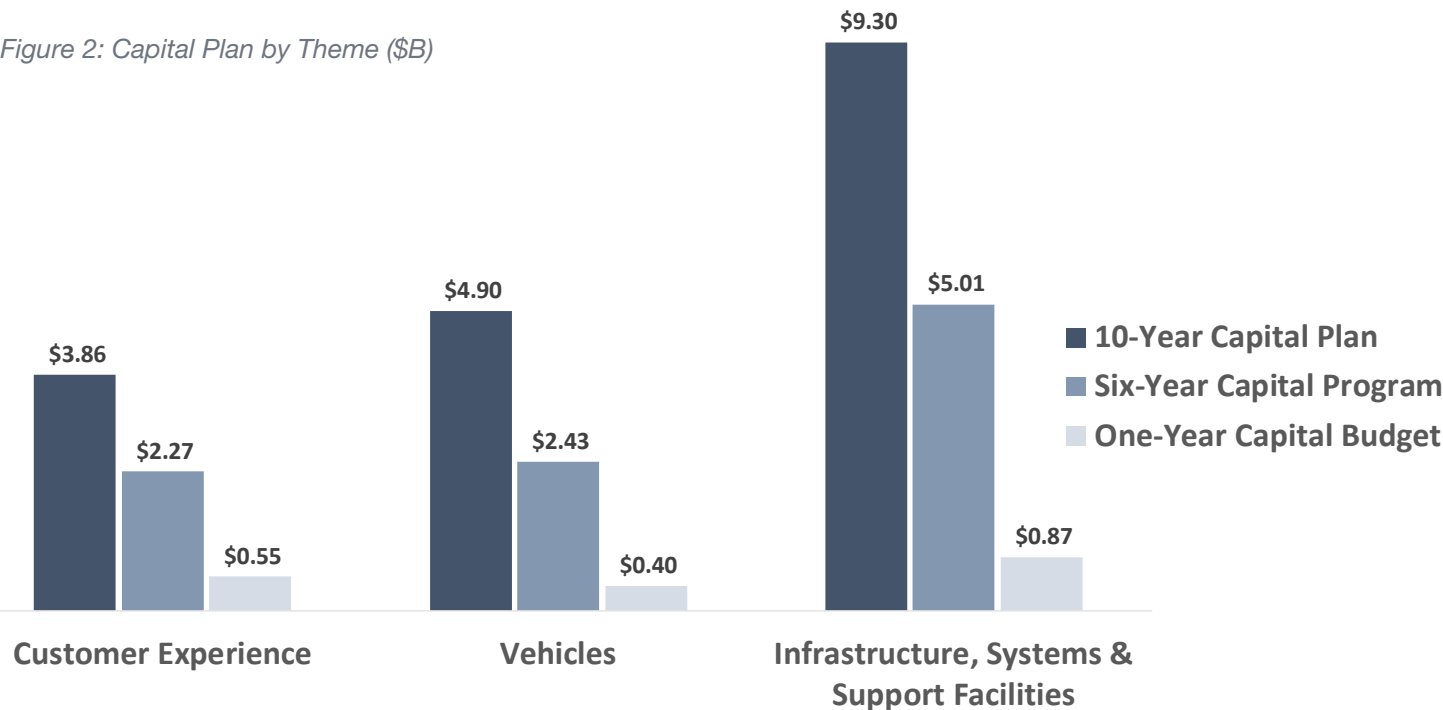
- **Customer Experience.** Making services easier for customers to access and improving system wayfinding for a better overall experience.
- **Vehicles.** Moving riders with modern and well-maintained vehicles.
- **Infrastructure, Systems & Support Facilities.** Providing necessary behind-the-scenes support to ensure safe, affordable, and reliable service.

Investments in Customer Experience

Metrorail. Customers board Metrorail trains from station platforms, and these platforms must be safe and structurally sound. The program to rebuild older platforms continues through **Stations Platform Rehabilitation – Phases 1-4**. The capital plan also includes station infrastructure upgrades for rehabilitating and replacing escalators through the **Escalator Rehabilitation and Replacement Programs** and elevators through the **Elevator Rehabilitation Program**. These investments will increase the lifespan of our assets, reduce future maintenance requirements and improve the quality of rail service provided for customers accessing stations.

Metro is investing in station cooling through the **Station Cooling Systems Upgrade**. Lighting will also be

Figure 2: Capital Plan by Theme (\$B)



Chapter 2 - 10-Year Capital Plan

upgraded to be brighter and more energy efficient within the **Above-Ground Station Lighting Installation** project, **Station Platform Edge Lighting Replacement** project and **Stations Platform Rehabilitation Program**.

The capital plan makes major investments in station systems improvements for the safety, comfort, and convenience of customers while at rail stations. The capital plan includes investments in public address systems through the project for **Public Address (PA) System Upgrades**, and passenger information displays through the **Passenger Information Displays (PID) System Upgrade and Installation** project, which includes improving the PIDs viewed by customers on station platforms and mezzanines and updating the systems that manage information to better inform customers on the status of rail services.

These investments will make stations better, and help Metro retain its existing customers and attract new ones.

Metrobus. Customers reach Metrobus at bus stops and transit centers. The capital plan includes investments in **Metrobus Shelter Replacement** through a multi-year project to replace Metrobus shelters

that have reached the end of their useful life with modern shelters.

An investment in **Customer Information Electronic Display Signs (CIEDS)** to purchase, install, and maintain new electronic display signs at key hubs will improve customer information at Metrobus stops and transit centers. CIEDS utilize Metro's intelligent transportation system (ITS) to provide customers with a real-time status of the location of Metrobuses servicing the stop. We are also making improvements to data feeds that allow third-party application developers to give customers more options for trip planning.

MetroAccess. Metro is working to improve access across the mobility landscape. Our diverse population includes riders who have difficulty accessing bus and rail systems. To help these customers use Metro, the capital plan includes investments in accessibility through the **Elevator Rehabilitation Program** and ADA-compliant bus stops.

Business Operations. The capital plan includes investments in fare collection with a **Mobile Fare Payment** project and a **Systemwide Faregate**



Replacement project, which replace aging faregates with modern gates to improve efficiency and reliability and provide seamless fare payment options for customers.

Investments in Vehicles

Once customers have reached our system, they ride to their destinations on railcars, buses and MetroAccess vehicles.

Metrorail. The capital plan is making major investments in repairing and maintaining railcars, and in replacing the oldest railcars with new, modern cars. The plan includes completion of the **Railcar Replacement - 7000 Series Acquisition** project. It also includes commencement of the **Railcar Acquisition - 8000 Series** project.

Metro is investing in overhauls of existing railcars throughout their service life through the **Railcar Rehabilitation Program**. Rehabilitated railcars will improve safety and on-time performance due to increased reliability, reduced maintenance requirements, and improved customer experience.

Metrobus. The capital plan invests in new and better buses through the **Bus Acquisition Program**. The program includes acquisition, replacement, and maintenance of both standard 40-foot and higher-capacity articulated buses to maintain an average fleet age of approximately 7.5 years.

Through the **Bus Rehabilitation Program**, Metro is investing in rehabilitation of existing buses, so that problems are prevented or corrected before customers are affected.

Metro is also upgrading the bus payment system on the vehicles with the **Systemwide Farebox Replacement Project**.

MetroAccess. The capital plan invests in new and better vehicles for MetroAccess customers through the **MetroAccess Fleet Acquisition Program**.

Figure 3: 10-Year Capital Plan by Fiscal Year

Fiscal Year	Total Capital Investments (\$B)	Six-Year Capital Improvement Program Total Investment: \$9.7B
FY2021 Budget	\$1.8	
FY2022 Plan	\$1.9	
FY2023 Plan	\$1.6	
FY2024 Plan	\$1.5	
FY2025 Plan	\$1.5	
FY2026 Plan	\$1.5	
FY2027 Plan	\$2.1	
FY2028 Plan	\$2.1	
FY2029 Plan	\$2.1	
FY2030 Plan	\$2.1	
Total 10-Year Plan	\$18.0	

Figure 3 shows 10-year Capital Plan investment levels by fiscal year. Investment levels beyond the Six-Year Program (FY2027-FY2030) are shown as averages. Cost estimates for individual fiscal years may not sum to program totals due to rounding.

Investments in Infrastructure, Systems & Support Facilities

For buses and trains to move, they must be supported. Metro is investing in the infrastructure, facilities and systems that keep trains and buses running and support our workforce in providing service to the region.

Metrorail. The capital plan invests in major resources in rail infrastructure and the systems that support rail operations. Railyards are supported by the capital plan through several projects including a **Systemwide Railyard Rehabilitation** project to bring facilities up

to current building codes, improve site safety and security for employees, and reduce disruption to critical daily operations.

Railcars run over rail infrastructure, and we are investing in all facets of this interconnected system. Tracks and their components—rails, ties and switches – are being rebuilt through the **Track Rehabilitation Program**. Significant progress was made under the SafeTrack program, but track assets require recurring maintenance and reinvestment to keep the system in a state of good repair. The capital plan funds major continuing reconstruction of tracks and related systems.

Several projects emphasize repairs and rehabilitation of aerial structures, including **Segmental Bridge Rehabilitation** to revitalize eight segmental bridges across the Metro system and the **Orange Line I-495 Structure Rehabilitation** to correct fatigue cracks in critical membrane and anchor rods.

Railcars require power and are guided by the train control system. Investments are being made to renew and upgrade the traction power system through the **Rail Power System Rehabilitation Program**.

There are multiple projects and programs to support train control systems to make them reliable and resilient, including the **Automatic Train Control (ATC) Room Rehabilitation Program**.

Railcars need to be stored overnight, inspected, maintained and rehabilitated. This is all done at railyards. Metro is building a new, state-of-the-art heavy rail overhaul facility through the **Railcar Heavy Repair and Overhaul Facility** project to centralize railcar heavy maintenance and rehabilitation activities. This facility will improve operational efficiency and give Metro the space and the technology to overhaul its large fleet of railcars on schedule.

Metrobus. Buses need to be stored overnight, and they need to be maintained to assure strong performance. This requires multiple bus garages across the region.

Many of Metro's garages are old; some of them were built long before Metro was founded. These facilities are being comprehensively rebuilt. The capital plan includes projects for these replacements, **Bus Garage Replacement – Northern**, and **Bus Garage Replacement – Bladensburg**, and an analysis of the need and



alternatives available for Western Garage through the **Western Bus Garage Replacement Study**. The bus garage overhaul schedule assures that progress occurs quickly, even as we operate full Metrobus schedules every day.

Business Operations. Currently, Metro employees are spread across the region in multiple disconnected buildings, facilities and leased offices. The capital plan includes projects to bring our workers together in consolidated, modern office buildings through

major projects, including **Headquarters Construction - District of Columbia**, **Headquarters Construction - Virginia** and **Headquarters Construction - Maryland**.

Through the **Enterprise Resource Planning (ERP) Software Integration and Replacement Study**, Metro will assess the existing suite of enterprise resource planning (ERP) systems supporting Metro's finance, procurement, workforce, payroll, and data warehousing functions to provide a roadmap of alternatives to replace the current system.

Figure 4: 10-Year Capital Plan by Investment Type

FY2021-FY2030 Planned Investments \$18.0 Billion Total 10-Year Capital Plan Investment

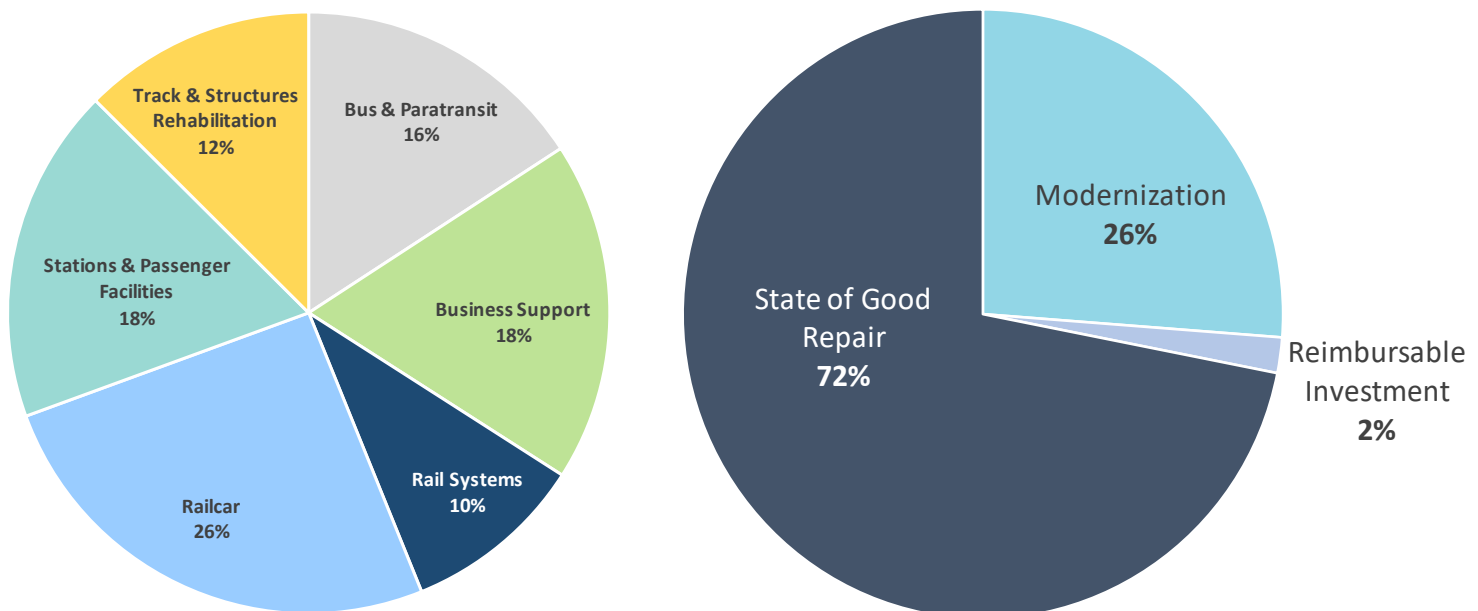


Figure 4 shows the 10-Year Capital Plan by Investment Type based on planned investment. Each investment in the capital program was categorized based on the primary intent of the investment. Please see Appendix H Glossary for more detailed investment type descriptions.



Chapter 3.

Investments in the Future

The capital plan explains what customers and the region can expect from Metro over the next few years. At the same time, Metro is planning for the future.

We are committed to continuously address transportation challenges and improve mobility in the region. As part of this commitment, we are investigating future investments that represent major needs that must be addressed in the coming decade but have not yet been fully developed for project delivery.

Automatic Train Control. When Metro was built, it used a system to control trains from a centralized computer. This was a sophisticated system for the time, and Metro was an early adopter in the United States. Unfortunately, this analog system has not aged well. As components age and become less reliable, they can be hard to maintain in part because manufacturers have stopped making replacement parts.

It is apparent that the cost, complexity and time required to assess and update the system are significant.

Metro is considering alternative courses of action. Before a decision is made, Metro will conduct the **Automatic Train Control (ATC) Next Generation Feasibility Study** to determine a preferred integration solution and identify a replacement signal system for railcar operations.

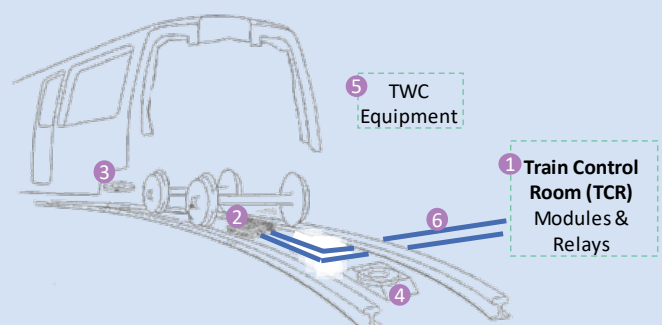
Passenger Circulation and Safety. Metro stations were built to accommodate eight-car trains, even though customer demand in the early years meant that many trains operated with only four cars. The system's designers planned for the future, and as ridership grew over the decades, platforms, stations and escalators were generally able to handle the rise in passenger loads. However, ridership growth has resulted in passenger crowding on platforms, mezzanines, and escalators during peak periods, especially in the afternoon as passengers exit the station. Metro is evaluating **Metro Station Passenger Circulation Improvements** to define future investments to improve passenger circulation and to address potential safety concerns at multiple stations including: Archives-Navy Memorial-Penn Quarter, Ballston, Bethesda, Columbia Heights, Court House, Crystal City, Farragut North, Farragut West, Federal Triangle, Foggy Bottom, Gallery Place-

Figure 5: Signaling System Equipment

Signaling System Equipment

The signaling system is composed of the following major components:

- 1 Modules located in the Train Control Room (TCR)
- 2 Bonds located in the right of way make up the track circuits
- 3 Marker Antennas located on the railcars
- 4 Marker Pairs (Marker Coils) located in the right of way
- 5 Train-to-wayside communication (TWC) equipment
- 6 Cabling that links items 1-5 above together



Chapter 3 - Investments in the Future

Chinatown, L'Enfant Plaza, McPherson Square, Metro Center, Navy Yard, New Carrollton, Shady Grove, Smithsonian, Union Station, Waterfront, and White Flint.

Electric Bus. Metro is actively investigating use of electric buses and evaluating a potential transition of the fleet to zero emissions technology. The **Electric Bus Acquisition and Evaluation** project allows Metro to test and evaluate technology available for purchase from bus builders that is evolving quickly as more manufacturers enter the market.

The capital program includes funding to test and evaluate six electric buses. Results will inform, guide, and direct Metro's strategic approach to future bus fleet composition and required supporting equipment and infrastructure. The infrastructure needed to charge an entire fleet of electric buses is very different from what Metro uses to fuel its current fleet. Any transition plan will require detailed planning to adapt bus garages and provide other charge points.

Data collected through this project will allow Metro to make informed decisions about a possible transition to a zero emissions fleet.

The Future of Metrobus. In 2018, Metro announced a comprehensive reassessment of its bus operations to gain regional consensus on a vision and action plan for the future of bus in the area and the role of Metrobus within the system. This includes what routes to operate, what times of the day to provide

different levels of service, and other fundamental features of the system.

Bus systems in the United States are in a period of rapid innovation, with ridership falling in cities of all sizes. Many factors may be at work, from technology-driven mobility options making congestion worse, to changing customer preferences, to new bikeshare, scooter and rideshare services. As congestion, affordability, and mobility concerns continue to grow in the Washington region, Metro needs to revisit its strategy for Metrobus.

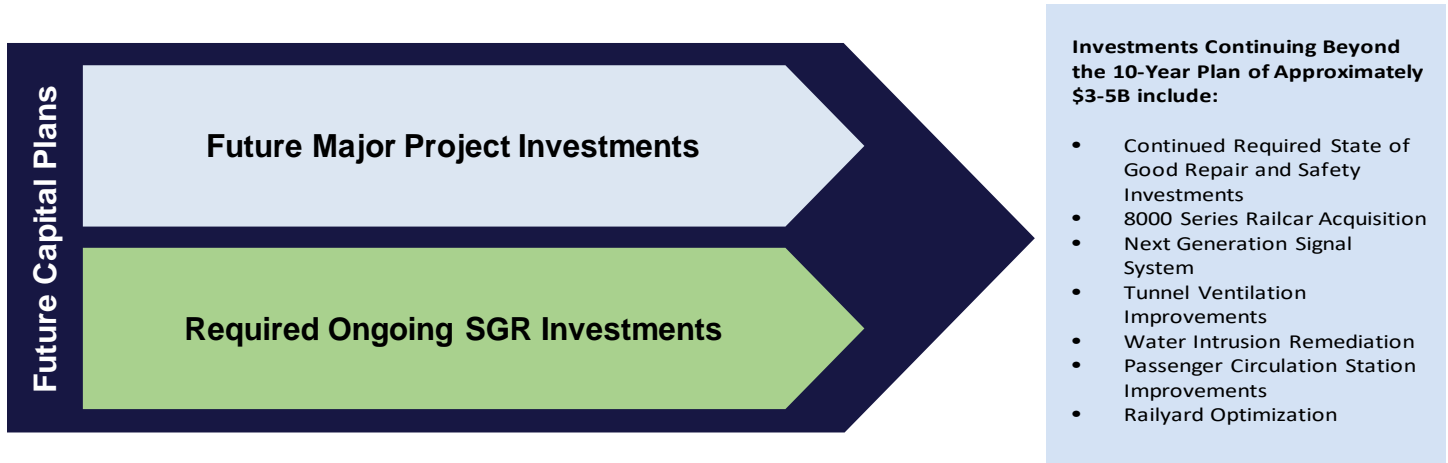
Metro may need to make structural changes to the bus service it operates, which will then be reflected in the capital program. The strategy is built around four recommendations: frequent and convenient bus service, bus priority on roadways, customer experience, and a task force for strategy implementation.

Blue / Orange / Silver Line Capacity Study. One of the most constrained portions of the Metrorail system are the tracks and tunnels that carry three separate lines – Blue, Orange and Silver – from Rosslyn in Arlington County, VA to Stadium/Armory in the District of Columbia. In particular, operations are subject to disruption and delays where the four tracks of the Blue and Orange/Silver lines merge near Rosslyn to enter the two-track tunnel under the Potomac River.

Metro is investigating infrastructure improvements, operational strategies, and service alternatives



Figure 6: Future Capital Investment Profile



Total FY2021-FY2030 planned investments are \$18 billion. Inclusion of investments beyond the 10-Year Capital Plan increase the total for currently planned investments to approximately \$22 billion.

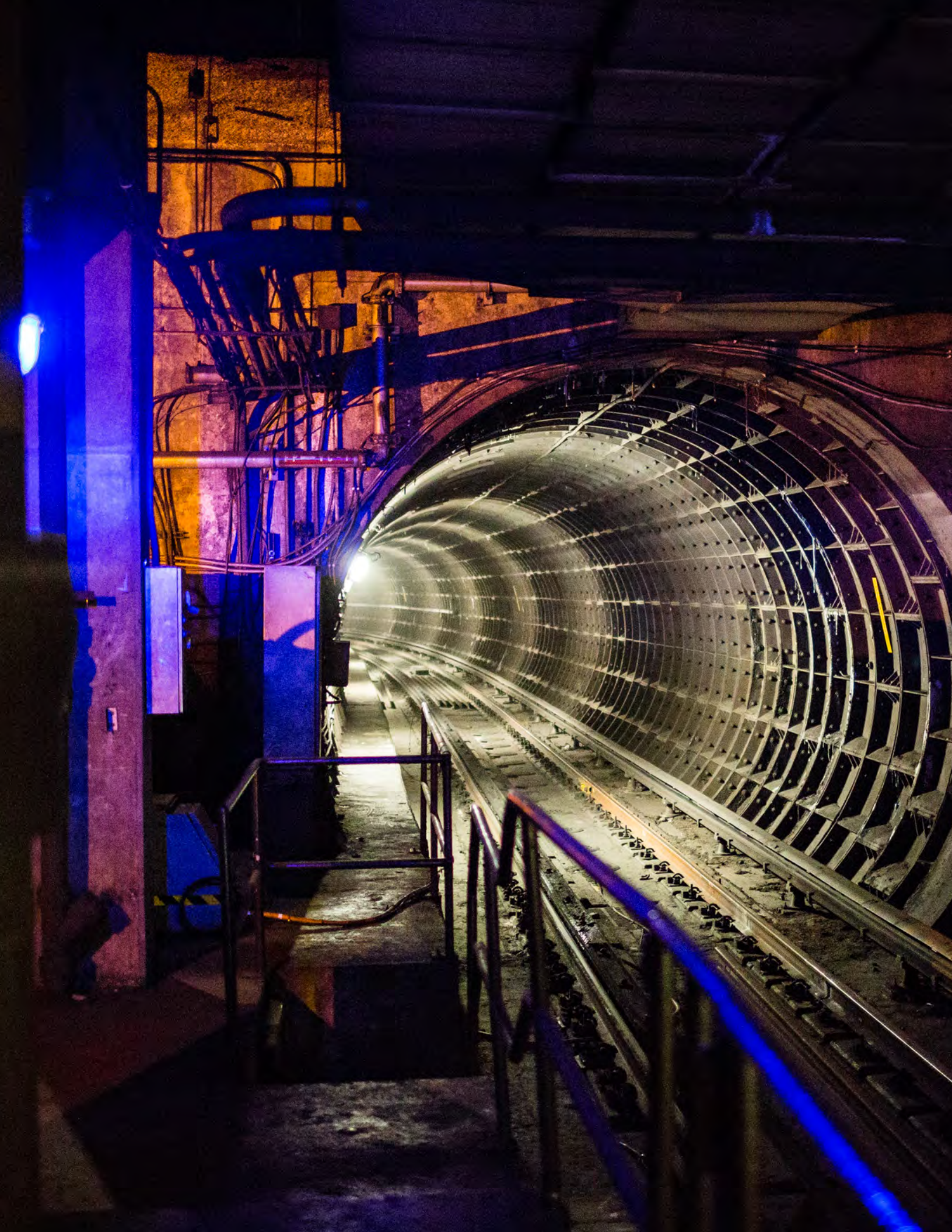
to address both short- and long-term needs as customer demand grows beyond current levels. The capital program is funding investigation of identified preliminary concepts, but construction costs could be in the billions of dollars, depending on the alternative selected. Currently there is no funding source identified for these potentially large investments. Metro aims to recommend a comprehensive strategy for federal environmental review, design, and funding in late 2020.

Yellow Line Portal Tunnel Remediation. The tunnel that takes Yellow Line trains from L'Enfant Plaza Station toward the Potomac River before trains cross into Virginia was constructed using a steel tunnel liner. The liner has deteriorated. Metro is investigating engineering options that will assure the continued structural soundness of the tunnel and tunnel liner. Once this study is complete, a decision will be made on the best remediation method to implement.

Tunnel Water Leak Mitigation. Much of the Metrorail system runs in underground tunnels. In the years since the system was constructed, cracks and water leaks have developed. This is an operational and safety issue. Water leaks create water ponding

inside of the tunnels that cause deterioration of track and equipment, damage traction power cable, require substantial corrective maintenance, and can lead to fires on the track. Problems have been concentrated in areas where tunnels are deep below ground and the water table is high. Metro has been testing various engineering solutions that limit disruption to rail service while the work is underway. Once designs have been finalized, leak mitigation efforts to reduce or prevent leaks will be implemented at high priority locations.

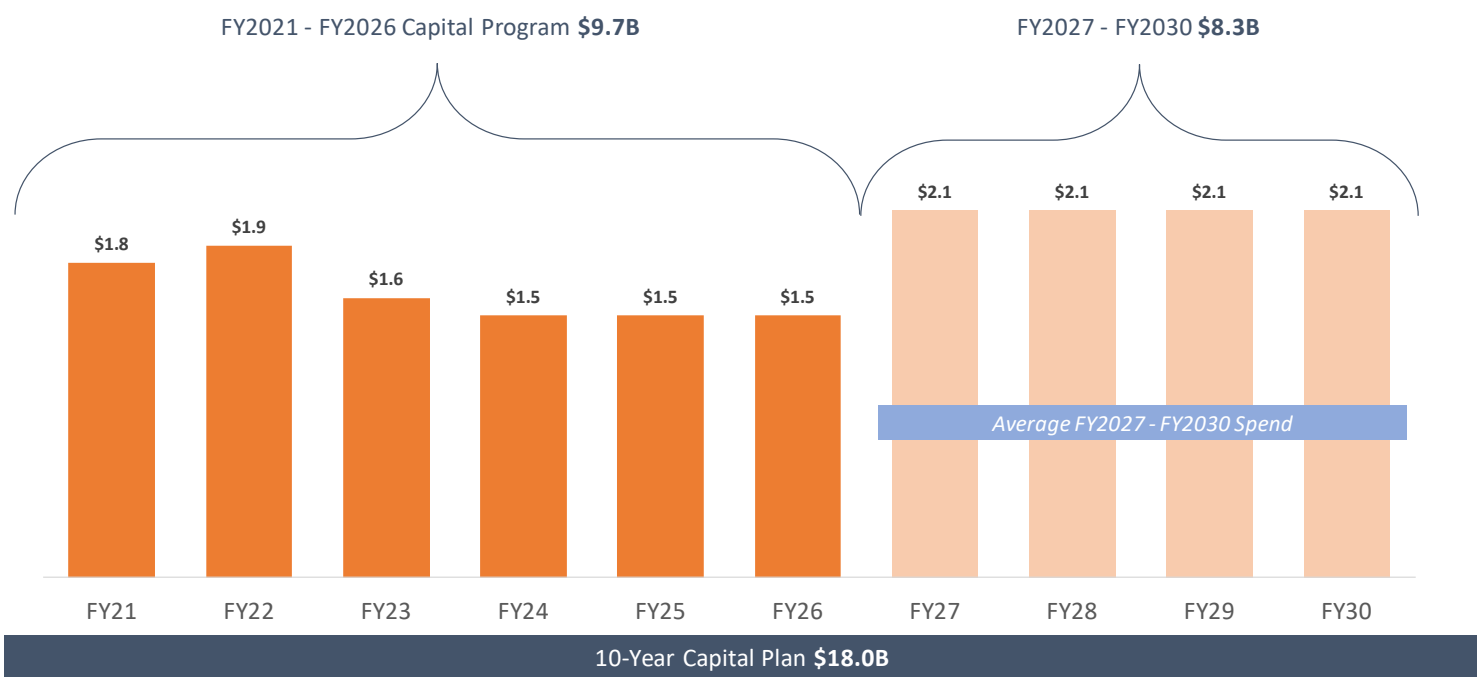
Tunnel Ventilation. The Metrorail system includes an extensive network of fans, vents, and vent shafts to handle routine air exchange in the tunnel system, and to safely and quickly remove smoke from tunnels in the event of a fire incident. As with many of Metro's legacy systems, the ventilation system needs state of good repair investments to assure it remains operational. In addition, upgrades may be required to improve total ventilation capacity beyond the design specifications that were originally built into the system. Pilot efforts are being implemented to assess options for upgrades of ventilation capacity. Systemwide implementation will follow once the improvement is evaluated and selected.



Chapter 4.

10-Year Capital Investment Details

Figure 7: 10-Year Capital Plan (\$B)



Estimated costs for individual fiscal years may not sum to program totals due to rounding.

Metro’s Capital Plan

Metro’s 10-Year Capital Plan totals approximately \$18 billion from FY2021 through FY2030. The six-year capital program aims to invest just over \$9.7 billion of investments primarily in safety, reliability, and state of good repair projects and programs. Figure 7 shows the distinction between the capital program, which incorporates funding, resource and execution capacity constraints, and the Capital Plan, which is not funding constrained in the last four years of the plan. FY2027 - FY2030 are planning

years with average spending levels of \$2.1 billion per year. Programmed investment over these years will become more refined over time.

Investment Detail

As Metro continues to transform the capital program, we will improve project tracking and delivery performance to provide transparency about what Metro is investing, when, and why.

This chapter details the status of individual ongoing major capital projects and programs in the proposed 10-Year Capital Plan. These single-page summaries include descriptions of each selected project, baseline schedule, and total project cost (TPC) estimate, among other vital investment details. The sections below define the elements of the investment pages that follow. Descriptions of investment page elements correspond to the numbers shown in Figure 8.

Project Identification, Type & Description

1

2

3

PROJECT

Water Leak Mitigation - Systemwide Water Intrusion Remediation Study

4

Project #

10312

5

Description

Conduct systemwide survey and inspection for water intrusion, permeation and irrigation solutions; coordinate with the existing utilities and design the necessary rehabilitation solutions.

- (1) Each investment has a title that describes its intended purpose. (2) To the left of the title, project type shows one of five main investment categories:
- **Study.** A detailed investigation, business justification or alternatives analysis resulting in a recommendation regarding the best course of action(s).
 - **Pilot.** Initiated as an experiment, demonstration or test before introducing a system-wide capital initiative.
 - **Project.** An investment with a definable beginning and end involving expenditures and funding for the creation, acquisition, repair, rehabilitation, replacement, modernization, improvement, or expansion of assets.
 - **Program.** An ongoing multi-year reinvestment and/or preventive maintenance activity with no defined start or end date.
 - **Concept.** A capital initiative idea that has not been fully explored or developed into a project or program.

(3) Accompanying each investment is a description of activities expected to occur within the scope of the project. (4) All investments have a unique identification number, Project #, that allows for progress and performance tracking. (5) When applicable, investment pages will show the condition of the asset prior to investment and the replaced, rehabilitated, or modernized asset in a set of stacked before (above) and after (below) images. In the case that investment in a specific asset has not begun, the images will typically show current asset condition only.



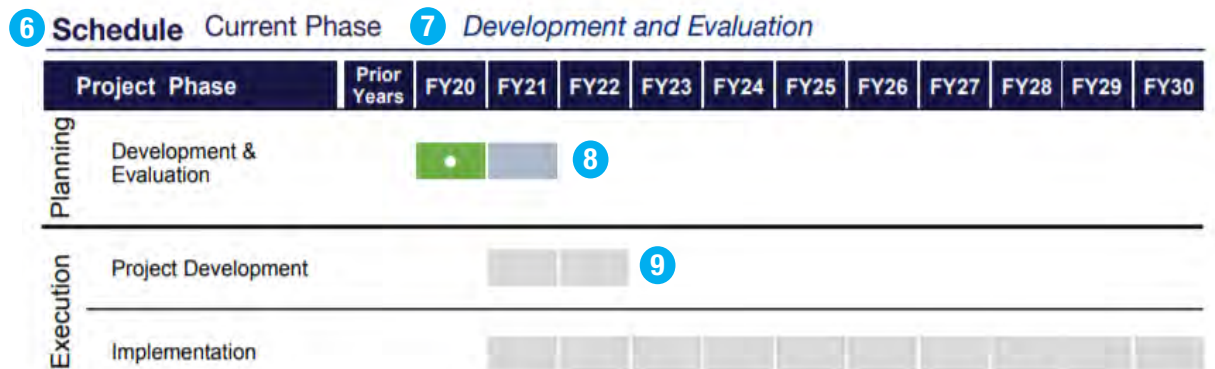
Schedule & Phase

(6) Baseline schedules are included for investment types that have defined start and end dates, such as studies, pilots, and projects.

These schedules will be used to track progress over time. Subsequent updates of the 10-Year Capital Plan will also show a current schedule to indicate variance from the baseline schedule.

Schedules show how projects progress through planning and execution phases over fiscal years. Planning phases include all work needed to develop a project idea, including business justifications or alternatives analyses, so that it can be ready for execution phases. Project planning phases include:

- **Development & Evaluation (D&E).** May require the completion and evaluation of a business justification or alternatives analysis before an implementation decision is made. Complex projects typically proceed through a development and evaluation phase prior to the preliminary/final engineering phase (project development phase).



Project execution phases include all work to design, construct, transition, and closeout a project. These phases include:

- **Project Development.** An agreement on and commitment to a proposed project.
- **Implementation.** The stage during which a project is built or procured. The project proceeds through substantial completion and resolution of outstanding/punch list items and encompasses end user approval, handoff including technical documents and manuals, training, warranty kick-off and certificate of occupancy/useful operations. The completion of administrative actions and final contractual requirements including drawings, specifications, samples, as-builts, design files, settlement of claims, and updated asset inventory record is conducted during project closeout.

(7) An investment's current phase is represented at the top of the schedule table and aligns to one of the planning or execution phases. (8) The current phase of a project is color coded with a green indicator box.

(9) In the case where a project has been approved for planning phase work but a decision has not been made whether the project will move forward to implementation, execution phases will be filled with gray. This is to indicate the intended schedule of

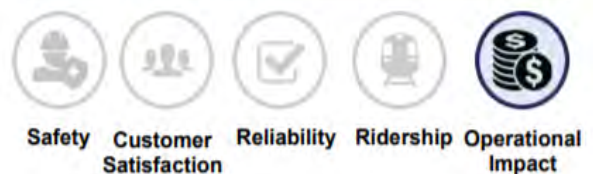
an investment's execution phases if an investment currently in planning phases becomes ready to move forward.

Strategic Drivers & Outcome

(10) Strategic drivers, also referred to as primary strategic goals throughout this document, were used to assign priorities to proposed capital investments and allow for better tracking and reporting measures. Strategic drivers are consistent with projected rehabilitation, replacement, and modernization needs and include:

- Fire/Life Safety/Regulatory
- Ridership
- Customer Satisfaction
- Reliability
- Operational Impact (collected primarily for further analysis)

10 Strategic Drivers



Specific strategic drivers impacted by an investment are represented in color, while drivers that are not directly measurable are filled with gray.

11 Outcome

Designs and corresponding repairs to AC Power Rooms, traction power substations, tie breaker stations, tunnels and other facilities regarding water intrusion issues.

(11) All proposed investments are expected to have an intended outcome that occurs as a direct result of that investment. Outcomes will describe how the investment impacts customers, operations, employees, or key performance indicators.

Cost & Anticipated Funding Source

(12) Anticipated funding source indicates how Metro intends to pay for an investment.

12 Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

(13) The cost section format varies depending on type of investment. For investments with a defined start and end date (i.e. projects, studies, pilots), it contains total project cost (TPC) estimates represented in thousands (\$000) and categorized by the same planning and execution phases as the

schedule. Execution phases that are filled with gray in the schedule, are similarly represented in the cost section since funding is not yet approved. Numbers in gray are included to indicate that funding has been planned for an investment in the event of a decision to proceed to implementation.

All TPC estimates are considered rough order of magnitude (ROM) costs and were developed during the capital planning cycle. Current estimates will be updated in subsequent publications of the 10-Year Capital Plan.

Ongoing program cost tables will show average yearly estimated cost for the 10-Year Capital Plan (FY2021-FY2030) since TPC cannot be calculated due to the ongoing nature of the investment.

13 Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$1,250	\$1,250
	Project Development	\$32,963	\$32,963
Execution	Implementation	\$626,288	\$626,288
	Total Est. Cost (TEC)	\$660,500	\$660,500

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.
Estimated costs for individual phases may not sum to total project cost due to rounding.

Figure 8: Comprehensive Description of Investment Page Elements

1

2

Water Leak Mitigation - Systemwide Water Intrusion Remediation Study


3
Description

4
Project #

10312

Conduct systemwide survey and inspection for water intrusion, permeation and irrigation solutions; coordinate with the existing utilities and design the necessary rehabilitation solutions.

5

6
Schedule

Current Phase

7
Development and Evaluation

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning												
Development & Evaluation												
Execution												
Project Development												
Implementation												

10
Strategic Drivers



Safety




Customer Satisfaction



Reliability



Ridership



Operational Impact

13
Cost (\$000)

Project Phase	ROM Cost*	Current Estimate
Planning		
Development & Evaluation	\$1,250	\$1,250
Execution		
Project Development	\$32,963	\$32,963
Implementation	\$626,288	\$626,288
Total Est. Cost (TEC)	\$660,500	\$660,500

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.
Estimated costs for individual phases may not sum to total project cost due to rounding.

11
Outcome

Designs and corresponding repairs to AC Power Rooms, traction power substations, tie breaker stations, tunnels and other facilities regarding water intrusion issues.

12
Anticipated Funding Source

☐ Federal
 ☒ State & Local
 ☐ Other

Investment Detail Contents

10002 Railcar Acquisition - 8000 Series

10566 Railcar Replacement - 7000 Series Acquisition

10058 Railcar Rehabilitation - 6000 Series

10003 Track Rehabilitation Program

10004 Bus Acquisition Program

10005 Bus Rehabilitation Program

10038 Electric Bus Acquisition and Evaluation

10008 Rail Power Infrastructure Upgrades

10012 Rail Power System Rehabilitation Program

10013 MetroAccess Fleet Acquisition Program

10021 Elevator Rehabilitation Program

10026 Escalator Rehabilitation Program

10325 Escalator Replacement

10028 Enterprise Resource Planning (ERP) Software Integration and Replacement Study

10312 Water Leak Mitigation - Systemwide Water Intrusion Remediation Study

10066 Water Leak Mitigation - Rail Tunnels

10088 Metrobus Shelter Replacement

10103 Metrobus Closed-Circuit Television (CCTV) Replacement Program

10111 Public Address (PA) System Upgrades

10053 Passenger Information Displays (PIDs) System Upgrade and Installation

10219 Customer Information Electronic Display Signs (CIEDS)

- 10153** Mobile Fare Payment
- 10433** Systemwide Faregate Replacement
- 10339** Ventilation Improvements - Red Line Pilot
- 10340** Ventilation Improvements - Systemwide
- 10445** Railcar Heavy Repair and Overhaul Facility
- 10473** Automatic Train Control (ATC) Next Generation Feasibility Study
- 10495** Automatic Train Control (ATC) Room Rehabilitation Program
- 10558** Radio Infrastructure Replacement and Band Relocation
- 10577** Bus Garage Replacement - Northern
- 10579** Bus Garage Replacement - Bladensburg
- 10677** Headquarters Construction - District of Columbia
- 10678** Headquarters Construction - Virginia
- 10681** Headquarters Construction - Maryland
- 10685** Orange, Blue, and Silver Line Junction Pocket Track Upgrade
- 10686** Railyard Rehabilitation and Optimization Study
- 10011** Systemwide Railyard Rehabilitation
- 10836** New Carrollton Railyard Optimization
- 10707** Stations Platform Rehabilitation - Phase 1
- 10708** Stations Platform Rehabilitation - Phase 2
- 10709** Stations Platform Rehabilitation - Phase 3
- 10857** Stations Platform Rehabilitation - Phase 4
- 10035** Crystal City Metrorail Station New East Entrance Study
- Multiple Projects** Silver Line to Dulles - Phase 2

Railcar Acquisition - 8000 Series

Description **Project #** 10002

Acquire and test new 8000 series rail cars to replace the 2000 series and 3000 series, which were manufactured and put into revenue service between 1983 and 1988. All 2000 and 3000 series rail cars underwent a midlife overhaul between 2003 and 2008; they are now approaching the end of their useful life. The new 8000 series fleet will adhere to modern performance metrics. The project does not include all unfunded options for future railcar fleet expansion.



Schedule Current Phase *Project Development*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

New railcars will improve safety and on-time performance due to increased reliability, reduced maintenance requirements, and improved customer experience with enhanced public announcement and information systems. This will improve service measured by the Rail Fleet Reliability key performance indicator (KPI).

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$9,379	\$9,379
	Project Development	\$46,894	\$46,894
Execution	Implementation	\$881,606	\$881,606
	Total Est. Cost (TEC)	\$937,879	\$937,879

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Total Estimated Cost (TEC) is calculated using the FY21-30 cash flow forecast and any projected cashflows beyond FY30, where applicable, because there are no historical expenditures.

Railcar Replacement - 7000 Series Acquisition

Description **Project #** 10566

The purchase of the 7000 series railcars allowed for replacement and retirement of 1000, 4000, and 5000 series railcars which were at the end of their useful lives. The 7000 series began to enter revenue service in 2015 and the last set of railcars is expected to be in service in 2020. The 7000 series provides customers with a more safe, reliable, and comfortable experience.



Schedule Current Phase *Implementation*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

New railcars will improve safety and on-time performance due to increased reliability, reduce maintenance requirements, and improve the customer experience with enhanced public announcement and information systems. This will improve service measured by the Rail Fleet Reliability key performance indicator (KPI).

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$15,456	\$15,456
	Project Development	\$77,278	\$77,278
Execution	Implementation	\$1,452,817	\$1,452,817
	Total Est. Cost (TEC)	\$1,545,550	\$1,545,550

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROGRAM

Railcar Rehabilitation - 6000 Series

Description

Project # 10058

Scheduled overhaul of all major subsystems of the 6000 series railcars including, but not limited to, propulsion, brake, door, and coupler systems to improve railcar safety and maintain a state of good repair. Program includes customer improvements, such as LED lighting, and resilient flooring and seats. The 6000 series railcars were manufactured and delivered between 2006 and 2008 with a 40-year lifespan. Metro currently owns a total of 184 6000 series railcars.



Schedule

Current Phase

Ongoing Program

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety

Customer Satisfaction

Reliability

Ridership

Operational Impact

Outcome

Rehabilitated railcars will improve safety and on-time performance due to increased reliability, reduce maintenance requirements, and improve the customer experience. This will improve service measured by the Rail Fleet Reliability key performance indicator (KPI).

Anticipated Funding Source

☒ Federal

☒ State & Local

☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
Av. Yrly. Est. Cost*	\$13,466	\$13,466

*Represents average of annual forecasted costs from FY21-30.

PROGRAM

Track Rehabilitation Program

Description

Project # 10003

Rehabilitate railroad track and infrastructure throughout the Metrorail system. Work includes rehabilitation and replacement of track components and assets such as third rail, third rail insulators, running rail, crossties, fasteners, ballast rock, and track signs.



Schedule

Current Phase

Ongoing Program

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
---------------	-------------	------	------	------	------	------	------	------	------	------	------	------

Planning

Development & Evaluation												
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Execution

Project Development												
Implementation												

Strategic Drivers



Safety

Customer Satisfaction

Reliability

Ridership

Operational Impact

Outcome

Updated tracks will deliver improved service measured by Metro-established key performance indicators (KPIs) that include MyTrip Time, Derailments, and Rail Collisions.

Anticipated Funding Source

☒ Federal

☒ State & Local

☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
-------------	--------	------------------

Av. Yrly. Est. Cost*

\$89,520

\$89,520

*Represents average of annual forecasted costs from FY21-30.

PROGRAM

Bus Acquisition Program

Description

Project # 10004

Acquisition and replacement of standard 30-foot and 40-foot buses and the higher capacity articulated buses to ensure customers are provided with safe, reliable, and modern buses, and maintain an average fleet age of approximately 7.5 years, which is in accordance with the MetroBus Fleet Management Plan. Project also includes training and spare parts.



Schedule

Current Phase

Ongoing Program

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety

Customer Satisfaction

Reliability

Ridership

Operational Impact

Outcome

An updated bus fleet will improve service measured by Metro-established Bus On-Time Performance and Bus Fleet Reliability key performance indicators (KPIs).

Anticipated Funding Source

☒ Federal

☒ State & Local

☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
Av. Yrly. Est. Cost*	\$76,548	\$76,548

*Represents average of annual forecasted costs from FY21-30.

PROGRAM Bus Rehabilitation Program

Description **Project #** 10005

Scheduled rehabilitation (vehicle overhauls) of up to 100 Metrobuses annually to ensure optimal fleet reliability, service quality, efficiency, and passenger comfort. Rehabilitation work includes vehicle equipment upgrades, engine, transmission and component overhauls, fleet and safety improvements, and other modifications on a fleet-wide basis.



Schedule Current Phase *Ongoing Program*

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
---------------	-------------	------	------	------	------	------	------	------	------	------	------	------

Planning	Development & Evaluation											
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Execution	Project Development											
	Implementation											

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

A rehabilitated bus fleet will improve service measured by Metro-established key performance indicators (KPIs) that include Bus On-Time Performance, Bus Fleet Reliability, and improved customer amenities.

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
-------------	--------	------------------

Av. Yrly. Est. Cost*	\$47,846	\$47,846
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*Represents average of annual forecasted costs from FY21-30.

PROJECT Electric Bus Acquisition and Evaluation

Description

Project # 10038

Purchase electric buses and evaluate potential transition of the fleet to zero emissions technology. Results of pilot will inform, guide, and direct Metro's strategic approach to the future bus fleet and supporting equipment and infrastructure.



Schedule Current Phase

Project Initiation

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Identify potential costs, operational impacts, organizational benefits and transitioning options related to zero emission bus fleet that would reduce the Metrobus environmental impact.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$9,325	\$9,325
	Project Development	\$8,000	\$8,000
Execution	Implementation	\$152,000	\$152,000
Total Est. Cost (TEC)		\$169,325	\$169,325

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Rail Power Infrastructure Upgrades

Description

Project # 10008

This project will upgrade and replace electrical infrastructure equipment to improve performance of the rail power system and accommodate additional eight-car trains. Upgrades to the rail power infrastructure include Traction Power Substations, Tie Breaker Stations, cabling, and transformers to both increase system capacity and reliability.



Schedule Current Phase

Implementation

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

Improved rail power infrastructure will allow Metro to increase the number of eight-car trains it can run on the system. This will improve service and reliability measured by the Metro-established MyTripTime key performance indicator (KPI).

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$4,622	\$4,622
	Project Development	\$23,112	\$23,112
Execution	Implementation	\$434,507	\$434,507
	Total Est. Cost (TEC)	\$462,242	\$462,242

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROGRAM

Rail Power System Rehabilitation Program

Description

Project # 10012

Rehabilitate traction power substations (TPSS) and tie breaker stations (TBS) systemwide approximately every 20 years to maintain a state of good repair. Program includes purchasing and upgrading damaged or obsolete electrical equipment.



Schedule

Current Phase

Ongoing Program

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
---------------	-------------	------	------	------	------	------	------	------	------	------	------	------

Planning	Development & Evaluation											
----------	--------------------------	--	--	--	--	--	--	--	--	--	--	--

Execution	Project Development											
	Implementation											

Strategic Drivers



Safety

Customer Satisfaction

Reliability

Ridership

Operational Impact

Outcome

Rehabilitated TPSS and TBS will increase rail power capabilities that improve service measured by Metro established key performance indicators (KPIs) - MyTripTime and Rail Infrastructure Reliability KPIs.

Anticipated Funding Source

☒ Federal

☒ State & Local

☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
-------------	--------	------------------

Av. Yrly. Est. Cost*

\$31,056

\$31,056

*Represents average of annual forecasted costs from FY21-30.

PROGRAM

MetroAccess Fleet Acquisition Program

Description

Project # 10013

Replace vehicles in the paratransit fleet (MetroAccess) on a lifecycle basis, consistent with the MetroAccess Fleet Plan. Vehicle replacement includes purchase of base vehicles and necessary retrofits to add paratransit equipment and features.



Schedule

Current Phase

Ongoing Program

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
---------------	-------------	------	------	------	------	------	------	------	------	------	------	------

Planning	Development & Evaluation											

Execution	Project Development											
	Implementation											

Strategic Drivers



Safety

Customer Satisfaction

Reliability

Ridership

Operational Impact

Outcome

An average paratransit fleet age below four years old or 100,000 miles, per Federal Transit Administration (FTA) requirements, and a fleet management team will improve safety, reliability, and operations.

Anticipated Funding Source

☒ Federal

☒ State & Local

☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
-------------	--------	------------------

Av. Yrly. Est. Cost*	\$12,000	\$12,000
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*Represents average of annual forecasted costs from FY21-30.

PROGRAM

Elevator Rehabilitation Program

Description

Project #10021

Rehabilitate elevators at Metrorail stations across the system to improve performance and availability. Project includes the replacement of internal elevator components and upgrade of associated lighting while ensuring that code requirements are met and a state of good repair is restored and maintained.



Schedule

Current Phase

Ongoing Program

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
---------------	-------------	------	------	------	------	------	------	------	------	------	------	------

Planning	Development & Evaluation											
----------	--------------------------	--	--	--	--	--	--	--	--	--	--	--

Execution	Project Development											
	Implementation											

Strategic Drivers



Safety

Customer Satisfaction

Reliability

Ridership

Operational Impact

Outcome

Upgraded safety for customers entering and exiting the station, increased station accessibility for all potential customers, and improved station circulation with elevators that function reliably. This will improve service measured by the Metro-established Elevator Availability key performance indicator (KPI).

Anticipated Funding Source

☒ Federal

☒ State & Local

☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
-------------	--------	------------------

Av. Yrly. Est. Cost*

\$8,650

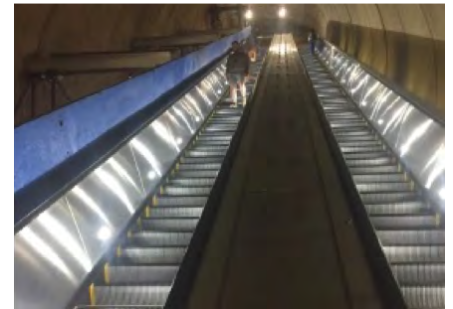
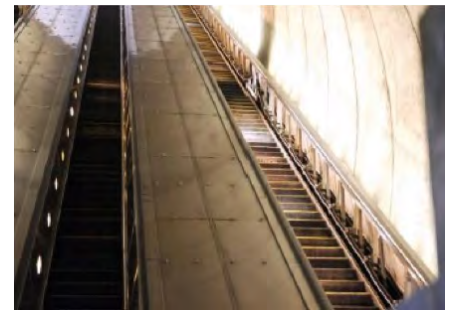
\$8,650

*Represents average of annual forecasted costs from FY21-30.

PROGRAM Escalator Rehabilitation Program

Description **Project #** 10026

Rehabilitate escalators at Metrorail stations across the system. This will include the replacement of internal escalator components and upgrade of associated lighting while ensuring that code requirements are met, and in order to restore and maintain a state of good repair. Metro maintains and operates the largest escalator stock of any transit system in the United States.



Schedule Current Phase *Ongoing Program*

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation											
Execution	Project Development											
	Implementation											

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Upgraded safety for customers entering and exiting the station, increased station accessibility for all potential customers, and improved station circulation with elevators that function reliably. This will improve service measured by the Metro-established Escalator Availability key performance indicator (KPI).

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
Av. Yrly. Est. Cost*	\$14,945	\$14,945

*Represents average of annual forecasted costs from FY21-30.

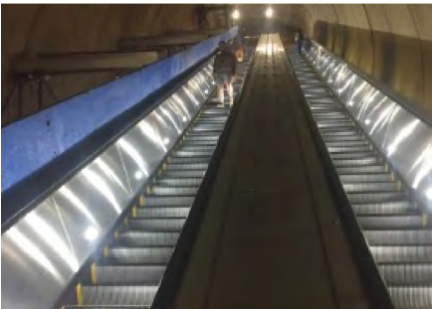
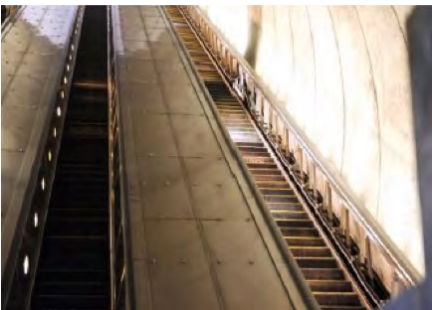
PROGRAM

Escalator Replacement

Description

Project # 10325

Replacement of escalators that have reached the end of their useful life.



Schedule

Current Phase

Ongoing Program

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
---------------	-------------	------	------	------	------	------	------	------	------	------	------	------

Planning	Development & Evaluation											

Execution	Project Development											
	Implementation											

Strategic Drivers



Safety

Customer Satisfaction

Reliability

Ridership

Operational Impact

Outcome

Modernized units are as much as 30% more energy efficient than the old units due to premium efficiency motors and adjustable frequency drives. As a result of the replacement, customers will benefit from more reliable service. Metro will also benefit from new technology in rehabilitated units that provides real-time data to monitor performance.

Anticipated Funding Source

☒ Federal

☒ State & Local

☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
-------------	--------	------------------

Av. Yrly. Est. Cost*

\$30,745

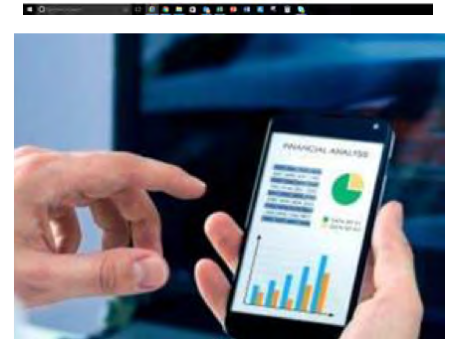
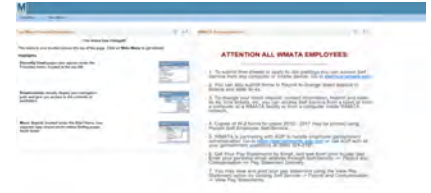
\$30,745

*Represents average of annual forecasted costs from FY21-30.

Enterprise Resource Planning (ERP) Software Integration and Replacement Study

Description **Project #** 10028

Assess the existing suite of enterprise resource planning (ERP) systems supporting Metro's finance, procurement, workforce, payroll, and data warehousing functions to provide a roadmap and alternatives to replace the current system.



Schedule Current Phase *Development and Evaluation*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation		●										
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Develop a roadmap for assessing the current state of Enterprise Resource Planning (ERP) and implementing new systems.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$16,000	\$16,000
	Project Development	\$12,500	\$12,500
Execution	Implementation	\$237,500	\$237,500
	Total Est. Cost (TEC)	\$266,000	\$266,000

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROJECT Water Leak Mitigation - Systemwide Water Intrusion Remediation Study

Description **Project #** 10312

Conduct systemwide survey and inspection for water intrusion, permeation and irrigation solutions; coordinate with the existing utilities and design the necessary rehabilitation solutions.



Schedule Current Phase *Development and Evaluation*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
Execution	Project Development												
	Implementation												

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Designs and corresponding repairs to AC Power Rooms, traction power substations, tie breaker stations, tunnels and other facilities regarding water intrusion issues.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$1,250	\$1,250
Execution	Project Development	\$32,963	\$32,963
	Implementation	\$626,288	\$626,288
Total Est. Cost (TEC)		\$660,500	\$660,500

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROGRAM

Water Leak Mitigation - Rail Tunnels

Description

Project #10066

Prioritize and perform water leak mitigation repairs on Metrorail tunnels throughout the system. Work includes grouting and other techniques to rehabilitate cracks and water leaks.



Schedule

Current Phase

Ongoing Program

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
Execution	Project Development												
	Implementation												

Strategic Drivers

Safety

Customer Satisfaction

Reliability

Ridership

Operational Impact

Outcome

Address critical rail line tunnel structure and water leak mitigation repairs to improve the safety and reliability of the system. This will improve service measured by the Metro-established Rail Infrastructure Availability key performance indicator (KPI).

Anticipated Funding Source

☐ Federal
 ☒ State & Local
 ☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
Av. Yrly. Est. Cost*	\$8,025	\$8,025

*Represents average of annual forecasted costs from FY21-30.

Metrobus Shelter Replacement

Description

Project # 10088

Multiyear program to replace deficient Metrobus shelters that have reached the end of their useful life and bring assets back to a state of good repair. These shelters are located throughout the region on Metro-owned property and are critical to provide customers with protection from weather, customer information, and other amenities.



Schedule Current Phase

Project Development

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

A prioritized, Metrobus shelter replacement strategy to improve customer safety and enhance customer satisfaction. This will improve service measured by the Metro-established Metrobus Customer Injuries and Bus-Pedestrian Strikes key performance indicators (KPIs).

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$267	\$267
	Project Development	\$1,333	\$1,333
Execution	Implementation	\$25,060	\$25,060
	Total Est. Cost (TEC)	\$26,660	\$26,660

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROGRAM

Metrobus Closed-Circuit Television (CCTV) Replacement Program

Description

Project # 10103

Replace Metrobus closed-circuit television (CCTV) camera systems on-board all Metrobus vehicles to restore and maintain a state of good repair on a lifecycle basis.



Schedule

Current Phase

Ongoing Program

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
---------------	-------------	------	------	------	------	------	------	------	------	------	------	------

Planning	Development & Evaluation											
Execution	Project Development											
	Implementation											

Strategic Drivers



Safety

Customer Satisfaction

Reliability

Ridership

Operational Impact

Outcome

The replacement of security systems beyond their useful life, which will improve safety, security, and service measured by the Metro-established Metrobus Customer Injuries and Bus Employee Injuries key performance indicators (KPIs).

Anticipated Funding Source

☒ Federal
 ☒ State & Local
 ☐ Other

Cost (\$000)

Fiscal Year	Budget	Current Estimate
-------------	--------	------------------

Av. Yrly. Est. Cost*	\$9,200	\$9,200
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*Represents average of annual forecasted costs from FY21-30.

PROJECT Public Address (PA) System Upgrades

Description **Project #** 10111

Install new public address (PA) speakers at mezzanines and platforms of all Metrorail stations to restore the PA systems into a state of good repair. PA systems are vital communications tools that allow Metro to provide announcements to customers. Metro will identify and replace broken speakers with new speakers and connect clusters of nearby speakers to a digital amplifier.



Schedule Current Phase *Project Development*

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation											
Execution	Project Development											
	Implementation											

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Provide customers with a more reliable and audible PA source for real-time service information, future service change announcement or emergency information.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase	ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$560
		\$560
Execution	Project Development	\$2,800
	Implementation	\$52,640
Total Est. Cost (TEC)		\$56,000
		\$56,000

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Passenger Information Displays (PIDs) System Upgrade and Installation

Description

Project # 10053

Upgrade and replace existing Passenger Information Displays (PIDs) at Metrorail stations across the system. These upgrades and replacements will include improving the PIDs infrastructure used by customers on station platforms and mezzanines. PIDs at stations in the Platform Rehabilitation program will be upgraded as part of those projects.



Schedule Current Phase

Project Initiation

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation											
Execution	Project Development											
	Implementation											

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

Improved station access, increased display visibility, advanced real-time information sharing during incidents and events, and enhanced overall customer experience.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase	ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$312
		\$312
Execution	Project Development	\$1,560
	Implementation	\$29,328
Total Est. Cost (TEC)		\$31,200

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

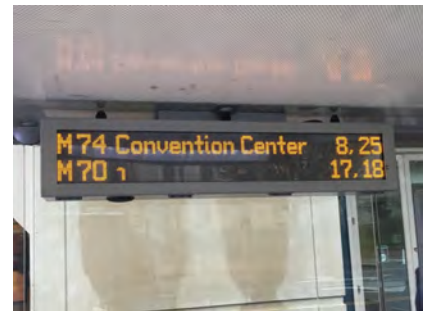
Estimated costs for individual phases may not sum to total project cost due to rounding.

Total Estimated Cost (TEC) is calculated using the FY21-30 cash flow forecast and any projected cashflows beyond FY30, where applicable, because there are no historical expenditures.

Customer Information Electronic Display Signs (CIEDS)

Description **Project #** 10219

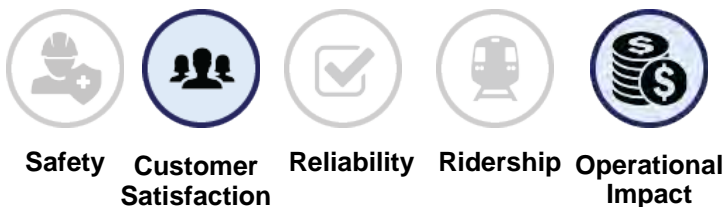
Purchase, install, and maintain new customer information electronic display signs (CIEDS) to improve customer satisfaction at Metrobus stops and key transit centers. CIEDS utilize Metro's intelligent transportation system (ITS) to provide customers with a real-time status of the location of Metrobuses servicing the stop.



Schedule Current Phase *Development and Evaluation*

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation											
Execution	Project Development											
	Implementation											

Strategic Drivers



Outcome

Improved communication of real-time information on bus locations to customers at bus stops and key transit centers will give customers the ability to make more informed route choices.

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase	ROM Cost*	Current Estimate
Planning		
Development & Evaluation	\$222	\$222
Execution		
Project Development	\$1,111	\$1,111
Implementation	\$20,890	\$20,890
Total Est. Cost (TEC)	\$22,223	\$22,223

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Mobile Fare Payment



Description **Project #** 10153

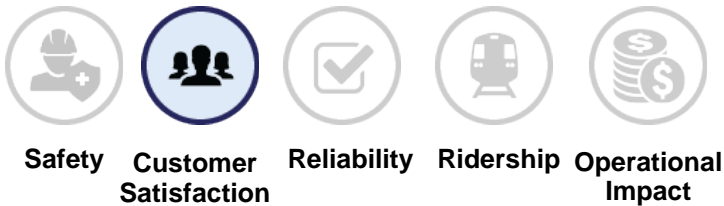
Project to develop a platform to purchase and pay Metrobus and Metrorail fares using a mobile device. Mobile fares will be an alternative to using a SmarTrip card or cash. Mobile fares will work with the existing fareboxes and faregates.



Schedule Current Phase *Implementation*

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning												
Development & Evaluation												
Execution												
Project Development												
Implementation												

Strategic Drivers



Outcome

Provide customers the flexibility to pay for Metrorail and Metrobus service, purchase monthly passes, and manage their SmarTrip account from a mobile device.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase	ROM Cost*	Current Estimate
Planning		
Development & Evaluation	\$199	\$199
Execution		
Project Development	\$997	\$997
Implementation	\$18,751	\$18,751
Total Est. Cost (TEC)	\$19,948	\$19,948

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Systemwide Faregate Replacement

Description

Project # 10433

Replace aging faregates systemwide with modern gates to improve efficiency, reliability, and provide seamless fare payment options for customers, which include current SmartTrip card fare payment as well as future fare payment technology such as mobile ticketing.



Schedule Current Phase

Implementation

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation											
	Project Development											
Execution	Implementation											

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Enhance the customer experience entering and exiting the system, mitigate fare evasion and improve Metro's ability to deploy innovations in future fare payment technologies.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase	ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$565
	Project Development	\$2,824
Execution	Implementation	\$53,100
	Total Est. Cost (TEC)	\$56,490

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROJECT Ventilation Improvements - Red Line Pilot

Description **Project #** 10339

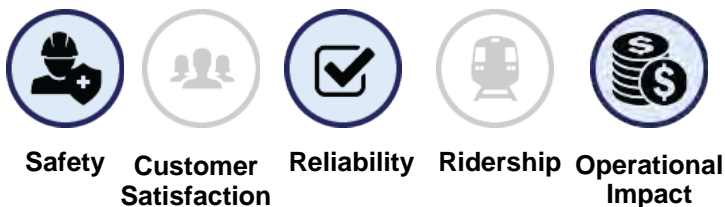
Perform a pilot evaluation to rehabilitate ventilation shaft components including, but not limited to: structural, electrical, lighting, fans, communications, equipment, ladders, steps, smoke detectors, alarms, and information technology infrastructure systemwide. Pilot will be performed on the Red Line between Woodley Park through Cleveland Park Metrorail Stations.



Schedule Current Phase *Project Initiation*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Outcome

Improved ventilation infrastructure will be used to expel smoke from tunnels in the event of a fire incident. This will improve ventilation service response measured by the Fire Incidents key performance indicator (KPI).

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$265	\$265
	Project Development	\$1,325	\$1,325
Execution	Implementation	\$24,910	\$24,910
	Total Est. Cost (TEC)	\$26,500	\$26,500

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Total Estimated Cost (TEC) is calculated using the FY21-30 cash flow forecast and any projected cashflows beyond FY30, where applicable, because there are no historical expenditures.

PROJECT Ventilation Improvements - Systemwide

Description **Project #** 10340

Rehabilitate ventilation shaft components following pilot and evaluation including, but not limited to: structural, electrical, lighting, fans, communications, equipment, ladders, steps, smoke detectors, alarms, and information technology infrastructure systemwide.



Schedule Current Phase *Development and Evaluation*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
Execution	Project Development												
	Implementation												

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Improved ventilation infrastructure ready to expel smoke from tunnels in the event of a fire incident. This will improve service measured by the Fire Incidents key performance indicator (KPI).

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$5,295	\$5,295
Execution	Project Development	\$26,477	\$26,477
	Implementation	\$497,764	\$497,764
Total Est. Cost (TEC)		\$529,536	\$529,536

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Total Estimated Cost (TEC) is calculated using the FY21-30 cash flow forecast and any projected cashflows beyond FY30, where applicable, because there are no historical expenditures.

PROJECT Railcar Heavy Repair and Overhaul Facility

Description **Project #** 10445

Acquire land and build a new heavy repair and overhaul (HR&O) facility on a 37 acre lot near the New Carrollton Metrorail station on the Orange Line in Landover, Maryland, to provide a facility to support maintenance of the modern railcar fleet. By relocating some activities to the new facility, space will be freed up at other service and inspection shops. The project also includes the construction of a new parking structure and Car Track and Equipment Maintenance (CTEM) facility at Pennsy Drive.



Schedule Current Phase *Development and Evaluation*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
Execution	Project Development												
	Implementation												

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Centralize maintenance activities to improve operation and efficiency. Improved maintenance of railcars will increase safety and reliability due to fewer anticipated railcar breakdowns. Vacated space at other railyards will increase railcar capacity and improve reliability. This will improve service measured by the Metro-established Rail Fleet Reliability and Rail Infrastructure Availability key performance indicators (KPIs).

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$6,012	\$6,012
Execution	Project Development	\$30,060	\$30,060
	Implementation	\$565,129	\$565,129
Total Est. Cost (TEC)		\$601,201	\$601,201

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

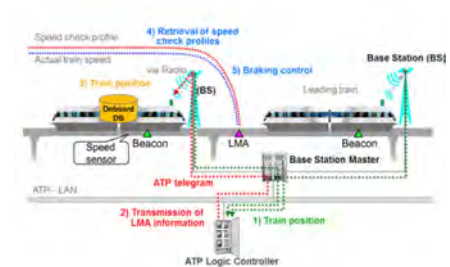
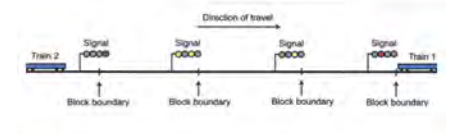
Estimated costs for individual phases may not sum to total project cost due to rounding.

Automatic Train Control (ATC) Next Generation Feasibility Study

Description

Project # 10473

Conduct a feasibility study and alternatives analysis to determine preferred future integration solution of railcar operations using replacement signal system.



Schedule

Current Phase *Development and Evaluation*

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning												
Development & Evaluation												
Execution												
Project Development												
Implementation												

Strategic Drivers



Safety Customer Satisfaction Reliability Ridership Operational Impact

Outcome

Identification of a feasible next generation Automatic Train Control (ATC) system as the current system reaches the end of its useful life.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase	ROM Cost*	Current Estimate
Planning		
Development & Evaluation	\$1,041	\$1,041
Execution		
Project Development	\$64,771	\$64,771
Implementation	\$1,230,656	\$1,230,656
Total Est. Cost (TEC)	\$1,296,468	\$1,296,468

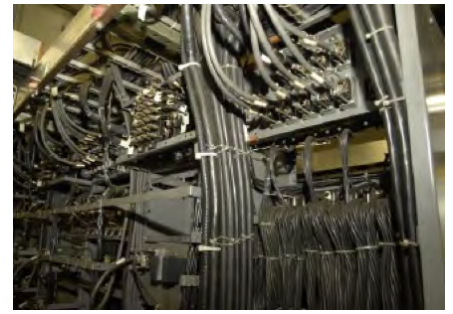
* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROGRAM Automatic Train Control (ATC) Room Rehabilitation Program

Description **Project #** 10495

Replace equipment in train control rooms (TCR) that has reached end of useful life and rehabilitate the structural integrity of TCRs impacted by water damage. Program will replace corroded or obsolete equipment with self-monitoring equipment as well as reduce the equipment's physical footprint. Pending evaluation of a future train control system, this program could replace equipment in up to 105 TCRs throughout the system to restore assets to a state of good repair.



Schedule Current Phase *Ongoing Program*

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
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Planning

Development & Evaluation

Execution

Project Development

Implementation



Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Cost (\$000)

Fiscal Year	Budget	Current Estimate
-------------	--------	------------------

Av. Yrly. Est. Cost* \$12,788 \$12,788

Outcome

Rehabilitated train control room (TCR) equipment will increase system reliability and safety by improving communication with technicians and the Rail Operations Control Center (ROCC).

*Represents average of annual forecasted costs from FY21-30.

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

PROJECT Radio Infrastructure Replacement and Band Relocation

Description **Project #** 10558

This project will replace the existing Metro Comprehensive Radio Communications System (CRCS), operating in 450-490 MHz frequency band, with a new system operating in the 700 MHz band, as required by the Federal Communications Commission (FCC) T-Band relocation that affects Metro's Ultra High Frequency radio system. The project will also install wireless signal communications throughout the tunnel system allowing customers to utilize cellular and data service while underground.



Schedule Current Phase *Implementation*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

New 700 mHz radio system and distributed antenna system (DAS) will meet Congressional requirements to relocate the radio frequency band and will provide Metrorail customers and workers access to wireless cellular service underground.

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$3,856	\$3,856
	Project Development	\$19,279	\$19,279
Execution	Implementation	\$362,444	\$362,444
	Total Est. Cost (TEC)	\$385,579	\$385,579

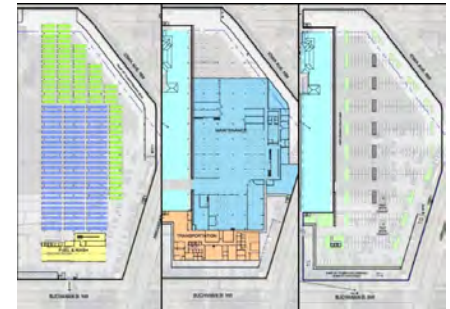
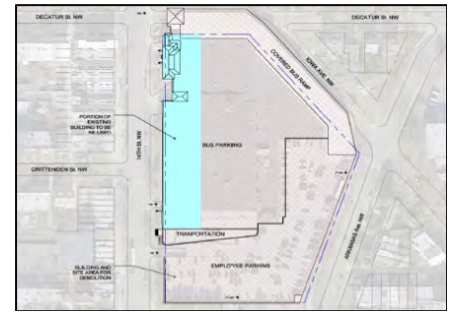
* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROJECT Bus Garage Replacement - Northern

Description **Project # 10577**

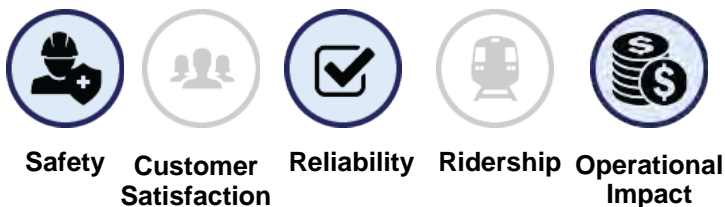
Demolition and replacement of the Northern Bus Garage in Washington, DC, which has been in use since 1907 and has structural deficiencies that prevent effective operation and to improve use and capacity of limited facility space. The new facility, will be designed to meet LEED Platinum certification, will be ready to support electric bus charging infrastructure, and will have an on-site employee parking lot, multiple access points and parking for up to 200 buses. Mixed-use retail will be incorporated into the new facility. Project will include significant environmental site cleanup and mitigate future impacts on the surrounding neighborhood. The historical facade of the garage will be retained.



Schedule Current Phase *Project Development*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Outcome

A new LEED certified bus facility that will improve bus safety, efficiency, maintenance and operations. The building will also have 55,000 square feet of potential retail space that can generate revenue and offset operating costs.

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$2,336	\$2,336
	Project Development	\$11,681	\$11,681
Execution	Implementation	\$219,601	\$219,601
	Total Est. Cost (TEC)	\$233,618	\$233,618

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Bus Garage Replacement - Bladensburg

Description

Project # 10579

Demolition and replacement of the existing bus maintenance and operations facility at Bladensburg to improve use and capacity of limited facility space. The new facility, to be designed to meet LEED Platinum certification, will have an on-site employee parking lot, multiple access points, parking for up to 300 buses, 25 maintenance bays, and a compressed natural gas (CNG) fueling station. The construction will take into account the needs of a potential future electric bus fleet.



Schedule Current Phase

Project Development

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

A new LEED certified bus facility that will improve bus safety, efficiency, maintenance and operations.

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$2,166	\$2,166
	Project Development	\$10,832	\$10,832
Execution	Implementation	\$203,642	\$203,642
Total Est. Cost (TEC)		\$216,640	\$216,640

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

PROJECT Headquarters Construction - District of Columbia

Description **Project #** 10677

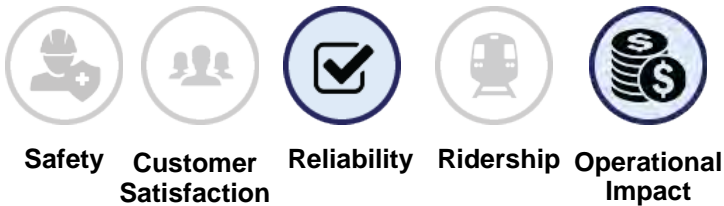
As part of Metro's regional office consolidation plan, Metro's current DC headquarters at 600 5th St. NW will be replaced with a new facility at 300 7th St. SW. The new Metro Headquarters site will be completely renovated to modern workplace standards, including new commercial amenities on the ground floor to activate the streetscape and benefit the surrounding community. In addition, Metro will improve its exterior appearance and add three floors, creating space that will be leased to generate additional revenue. The building will be designed with the goal of achieving LEED Gold certification.



Schedule Current Phase *Implementation*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Outcome

Updated and modernized office space for employees that will streamline business process, allow departments to be more logically organized and reduce leased space and Metro's long-term costs. Relocating from the existing Jackson Graham Building will generate revenue from the redevelopment of the property.

Anticipated Funding Source

☐ Federal ☒ State & Local ☒ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$2,098	\$2,098
	Project Development	\$10,491	\$10,491
Execution	Implementation	\$197,231	\$197,231
	Total Est. Cost (TEC)	\$209,820	\$209,820

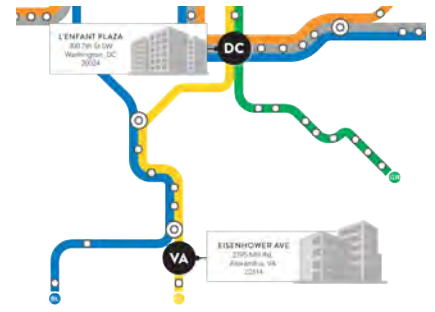
* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROJECT Headquarters Construction - Virginia

Description **Project #** 10678

As part of Metro's regional office consolidation plan, a new office building will be constructed near the Eisenhower Avenue Metrorail station in Alexandria, Virginia. The building will be designed with the goal of achieving LEED Gold certification and is part of the larger redevelopment of the Eisenhower Avenue corridor.



Schedule Current Phase *Implementation*

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
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Planning

Development & Evaluation

Execution

Project Development

Implementation

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Updated and modernized office space for employees that will streamline business process, allow departments to be more logically organized and reduce Metro's long-term costs.

Anticipated Funding Source

☐ Federal ☒ State & Local ☒ Other

Cost (\$000)

Project Phase	ROM Cost*	Current Estimate
Planning		
Development & Evaluation	\$2,883	\$2,883
Execution		
Project Development	\$14,417	\$14,417
Implementation	\$271,042	\$271,042
Total Est. Cost (TEC)	\$288,343	\$288,343

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROJECT Headquarters Construction - Maryland

Description

Project # 10681

New office in Maryland to consolidate employees near New Carrollton Metrorail station in Prince George's County, Maryland. The station is one of the region's most significant transit hubs and is served by Metro, MARC, multiple local and regional buses, Amtrak, Greyhound, and the future Maryland MTA Purple Line. The building will be designed with the goal of achieving LEED Gold certification and is part of the continued development of New Carrollton.

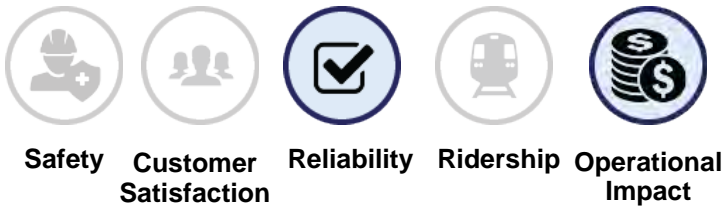


Schedule Current Phase

Project Development

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Outcome

Updated and modernized office space for employees that will streamline business process, allow departments to be more logically organized and reduce Metro's long-term costs.

Anticipated Funding Source

☐ Federal ☒ State & Local ☒ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$2,299	\$2,299
	Project Development	\$11,496	\$11,496
Execution	Implementation	\$216,129	\$216,129
Total Est. Cost (TEC)		\$229,924	\$229,924

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROJECT Orange, Blue, and Silver Line Junction Pocket Track Upgrade

Description **Project #** 10685

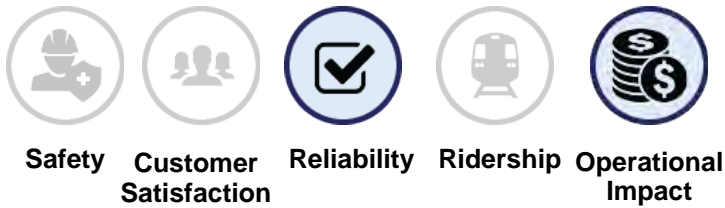
Construct a westward extension of the existing elevated structure located northeast of the Stadium Armory Metrorail station where the Orange Line merges with the Blue and Silver Lines. Trains can enter the pocket track for temporary storage and then return to the service track. The existing pocket track is not large enough to store and redeploy eight-car and six-car trains and will be extended to accommodate efficient rail service operations. The project includes structural, track, signal, power, and communication modifications.



Schedule Current Phase *Project Development*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Outcome

Improved Metrorail reliability, resilience, and flexibility that would allow safe storage and efficient deployment of extra trains in response to ridership demand, and special service patterns during large events. Additionally, it would improve customer travel times during single-tracking and better manage construction-related service disruptions.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$548	\$548
	Project Development	\$2,741	\$2,741
Execution	Implementation	\$51,533	\$51,533
	Total Est. Cost (TEC)	\$54,823	\$54,823

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Railyard Rehabilitation and Optimization Study

Description

Project # 10686

Study to optimize railyard space requirements for trains and train maintenance vehicles in preparation for future capacity constraints due to the increased use of eight-car trains and future delivery of 8000 series railcars. Study will consider all elements of the railyard including, engineering, architectural, electrical, automatic train control (ATC), fire-life safety, communications, security, landscaping, real estate development, and capacity requirements. Future railyard rehabilitation initiatives are dependent on the outcomes of this study.



Schedule Current Phase *Development and Evaluation*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
Execution	Project Development												
	Implementation												

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Optimize railyards for storage of maintenance vehicles that can be efficiently deployed for maintenance activities and store additional railcars that can be efficiently deployed for revenue service.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$2,500	\$2,500
Execution	Project Development	\$24,400	\$24,400
	Implementation	\$463,601	\$463,601
Total Est. Cost (TEC)		\$490,501	\$490,501

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Systemwide Railyard Rehabilitation

Description

Project # 10011

Address the lifecycle needs of Metro's existing railyards, including all facilities, civil, mechanical, architectural, electrical, automatic train control (ATC), fire-life safety, communications, security, site grounds landscaping, real estate development, expansion of yards and shops. Metro has eight existing railyards: Alexandria, Branch Avenue, Brentwood, Glenmont, Greenbelt, New Carrollton, Shady Grove, and West Falls Church.



Schedule Current Phase

Implementation

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

Rehabilitated railyard components will bring facilities up to current building codes, improve site safety and security for employees, increase railcar storage capacity, and reduce disruption to vital daily operations.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$2,375	\$2,375
	Project Development	\$11,876	\$11,876
Execution	Implementation	\$223,271	\$223,271
	Total Est. Cost (TEC)	\$237,522	\$237,522

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

PROJECT New Carrollton Railyard Optimization

Description

Project # 10836

Construct railyard tower and address critical yard improvements. Future potential project scope includes additional passenger railcar storage tracks to accommodate expanded railcar fleet size to implement the applicable results of the Railyard Rehabilitation and Optimization Study. This project may include the preliminary engineering, design, and construction of new operations and office building, utility relocations and connections, and the maintenance capacity improvements at the New Carrollton Yard in accordance with the study results.



Schedule

Current Phase

Project Development

Project Phase	Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning												
Development & Evaluation												
Execution												
Project Development												
Implementation												

Strategic Drivers



Safety Customer Satisfaction Reliability Ridership Operational Impact

Outcome

Optimize railyards for storage of maintenance vehicles that can be efficiently deployed for maintenance activities and store additional railcars that can be efficiently deployed for revenue service.

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase	ROM Cost*	Current Estimate
Planning		
Development & Evaluation	\$928	\$928
Execution		
Project Development	\$4,638	\$4,638
Implementation	\$87,195	\$87,195
Total Est. Cost (TEC)	\$92,761	\$92,761

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Stations Platform Rehabilitation - Phase 1

Description

Project # 10707

Reconstruct platforms and perform major station improvements at six above-ground Metrorail stations on the Blue and Yellow Lines: Braddock Road, King Street-Old Town, Eisenhower Avenue, Huntington, Van Dorn Street, and Franconia-Springfield. Customer experience improvements include slip-resistant tile, improved LED lighting, upgraded passenger shelters, new passenger information displays (PIDs), improved public address (PA) system, new closed-circuit television (CCTV) system, renovated bathrooms, and new bus shelters.



Schedule Current Phase

Implementation

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

Above-ground stations that have been upgraded and improved for customer safety and comfort. New platforms and other new/rehabilitated station assets increase the lifespan of these assets, reducing future maintenance requirements, and improving the quality of rail service provided for customers accessing these stations.

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$3,346	\$3,346
	Project Development	\$16,731	\$16,731
Execution	Implementation	\$314,536	\$314,536
	Total Est. Cost (TEC)	\$334,612	\$334,612

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Stations Platform Rehabilitation - Phase 2

Description **Project #** 10708

Rehabilitation and repair of platforms at the following stations along the Orange Line in Virginia to address potentially unsafe and deteriorating conditions: East Falls Church, West Falls Church, Dunn Loring, and Vienna. Customer experience improvements include slip-resistant tile, improved LED lighting, upgraded passenger shelters, new passenger information displays (PIDs), improved public address (PA) system, new closed-circuit television (CCTV) system, renovated bathrooms, and new bus shelters.



Schedule Current Phase *Project Development*

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

Above-ground stations that have been upgraded and improved for customer safety and comfort. New platforms and other new/rehabilitated station assets will increase the lifespan of these assets, reducing future maintenance requirements and improving the quality of rail service provided for customers accessing these stations.

Anticipated Funding Source

☒ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$3,576	\$3,576
	Project Development	\$17,880	\$17,880
Execution	Implementation	\$336,144	\$336,144
	Total Est. Cost (TEC)	\$357,600	\$357,600

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

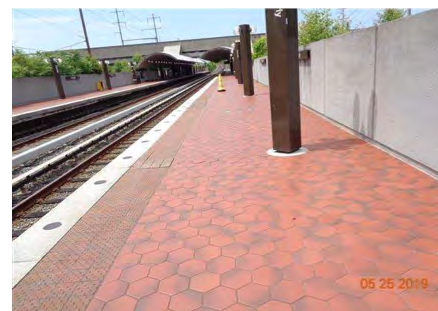
Estimated costs for individual phases may not sum to total project cost due to rounding.

Stations Platform Rehabilitation - Phase 3

Description

Project # 10709

Rehabilitation and repair of platforms at the following stations along the Yellow, Blue, and Orange Lines in Virginia and Maryland to address potentially unsafe and deteriorating conditions: Cheverly, Landover, New Carrollton, Addison Road, Ronald Reagan Washington National Airport, and Arlington Cemetery. Customer experience improvements include slip-resistant tile, improved LED lighting, upgraded passenger shelters, new passenger information displays (PIDs), improved public address (PA) system, new closed-circuit television (CCTV) system, renovated bathrooms, and new bus shelters.



Schedule Current Phase

Development and Evaluation

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
Execution	Project Development												
	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$3,688	\$3,688
Execution	Project Development	\$18,438	\$18,438
	Implementation	\$346,625	\$346,625
Total Est. Cost (TEC)		\$368,750	\$368,750

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Total Estimated Cost (TEC) is calculated using the FY21-30 cash flow forecast and any projected cashflows beyond FY30, where applicable, because there are no historical expenditures.

Outcome

Above-ground stations that have been upgraded and improved for customer safety and comfort. New platforms and other new/rehabilitated station assets will increase the lifespan of these assets, reducing future maintenance requirements and improving the quality of rail service provided for customers accessing these stations.

Anticipated Funding Source

☒ Federal ☒ State & Local ☒ Other

Stations Platform Rehabilitation - Phase 4

Description

Project # 10857

Rehabilitation and repair of platforms at the following stations along the along Green Line in Maryland to address potentially unsafe and deteriorating conditions: West Hyattsville, Prince George's Plaza, College Park-University of Maryland, and Greenbelt. Customer experience improvements include slip-resistant tile, improved LED lighting, upgraded passenger shelters, new passenger information displays (PIDs), improved public address (PA) system, new closed-circuit television (CCTV) system, renovated bathrooms, and new bus shelters, among other improvements.



Schedule Current Phase

Not Started

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
Execution	Project Development												
	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

Above-ground stations that have been upgraded and improved for customer safety and comfort. New platforms and other new/rehabilitated station assets will increase the lifespan of these assets, reducing future maintenance requirements and improving the quality of rail service provided for customers accessing these stations.

Anticipated Funding Source

☒ Federal ☒ State & Local ☒ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$2,470	\$2,470
Execution	Project Development	\$12,350	\$12,350
	Implementation	\$232,180	\$232,180
Total Est. Cost (TEC)		\$247,000	\$247,000

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Total Estimated Cost (TEC) is calculated using the FY21-30 cash flow forecast and any projected cashflows beyond FY30, where applicable, because there are no historical expenditures.

PROJECT Crystal City Metrorail Station New East Entrance Study

Description

Project # 10035

Study conducted by Metro, sponsored by and in coordination with Arlington County, to develop alternatives for a new east entrance to the Crystal City Metrorail station at 18th Street S. and Crystal Drive. Design of the new entrance will meet current Metro design and building standards. Proposed construction will include all elements associated with an underground station. The new east entrance will alleviate platform crowding and congestion, improve station capacity, and enable Metro to safely and efficiently maintain and operate the facility when ownership is transferred to the Authority. Metro completed the study and provided Arlington County with alternatives for consideration. All costs associated with the construction of the new east entrance are anticipated to be paid for by Arlington County. Construction will be managed by the local jurisdiction with Metro support. Please see Arlington County's project website for updates: <https://projects.arlingtonva.us/projects/crystal-city-metro-station-second-entrance>.



Schedule Current Phase Development and Evaluation

Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
Execution	Project Development												
	Implementation												

Strategic Drivers



Safety **Customer Satisfaction** **Reliability** **Ridership** **Operational Impact**

Outcome

A new east entrance will provide improved access to Metrorail for the anticipated increase in commuting traffic due to Amazon Headquarters development which will increase ridership. This will improve service measured by the Metro-established Elevator and Escalator Availability key performance indicators (KPIs).

Anticipated Funding Source

☐ Federal ☒ State & Local ☐ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$958	\$958
Execution	Project Development	\$13	\$13
	Implementation	\$238	\$238
Total Est. Cost (TEC)		\$1,208	\$1,208

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.

Silver Line to Dulles - Phase 2

Description

Project # Multiple

This project supports Phase 2 of the Silver Line construction, integration, and infrastructure improvements for the Silver Line expansion to Dulles International Airport. It is managed by the Metropolitan Washington Airport Authority (MWAA). Phase 2 of the Silver Line includes construction of six new stations, three in Fairfax County and three in Loudoun County. Ashburn Metrorail station will be the terminal station located in the median of the Dulles Greenway near the intersection with Route 772 (Ryan Road). This document summarizes Metro's project costs which will be reimbursed by MWAA.

Schedule Current Phase

Implementation



Project Phase		Prior Years	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Planning	Development & Evaluation												
	Project Development												
Execution	Implementation												

Strategic Drivers



Safety



Customer Satisfaction



Reliability



Ridership



Operational Impact

Outcome

Six new stations will open and begin revenue service along the Silver Line. Customers will have a direct Metrorail connection to Dulles International Airport as well as key economic and population centers in Fairfax and Loudoun Counties in Northern Virginia.

Anticipated Funding Source

☐ Federal ☐ State & Local ☒ Other

Cost (\$000)

Project Phase		ROM Cost*	Current Estimate
Planning	Development & Evaluation	\$0	\$0
	Project Development	\$11,230	\$11,230
Execution	Implementation	\$269,529	\$269,529
	Total Est. Cost (TEC)	\$280,759	\$280,759

* Rough order of magnitude (ROM) cost is an estimate developed for the FY21 Capital Program.

Estimated costs for individual phases may not sum to total project cost due to rounding.



Appendices.

Capital Plan Investments

This publication includes details regarding all planned and potential investments in the 10-Year Capital Plan.

Starting with **Appendix A**, readers will find tables that list projects, programs, pilots, studies and concepts that Metro will consider in the 10-year timeframe. Each appendix presents the portfolio from a different perspective. For example, **Appendix A** sorts investments by functional area, while **Appendix B** presents the same investment list organized by current project phase.

Due to expenditure schedule differences, programs in the 10-Year Capital Plan are broken out separately in a table that follows all other investment types. Programs are ongoing investments without defined start or end dates. For this reason, total estimated project cost cannot be calculated and instead the program table shows average yearly estimated cost.

Project tables, which include pilots, studies and concepts, show total estimated project cost, which is based on available historical cost data and forecasted future costs generated from the capital planning cycle.

Estimated cost numbers in all appendix tables are displayed in thousands (\$000). Investments that are included in the Six-Year Capital Improvement Program (CIP) are noted specifically with a check mark in the appropriate “**In CIP**” column; however, all investments listed are considered for the 10-Year Capital Plan.

The following appendices are included in this document:

Appendix A: Functional Area

Appendix B: Current Project Phase (Online Only)

Appendix C: Theme (Online Only)

Appendix D: Project Name (Online Only)

Appendix E: CIP Crosswalk (Online Only)

Appendix F: Project Number (Online Only)

**Appendix G: Jurisdictional Projects
& Reimbursable Investments (Online Only)**

Appendix H: Glossary









EXIT 64
495 South
Richmond



Appendix A.
Functional Area

APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Capital Projects							
Functional Area: Automatic Train Control							
Automatic Train Control (ATC) Asset Inventory Data Maintenance		10499	Update and manage asset inventory database of automatic train control (ATC) system infrastructure.	\$16,595	Project	Implementation	✓
Automatic Train Control (ATC) Intrusion Detection Warning (IDW) System Replacement		10479	Evaluate and replace intrusion detection warning (IDW) system, which alerts the Rail Operations Control Center (ROCC) to potential hazards in the right-of-way, and replace fence in some locations.	\$12,240	Project	Project Initiation	✓
Automatic Train Control (ATC) Mainline and Railyard Signal Rehabilitation		10482	Rehabilitate signals on the mainline and at railyards to improve visibility for train operators. The project includes new paint, signage, clear lens, and lighting.	\$32,050	Project	Implementation	✓
Automatic Train Control (ATC) Marker Coil Replacement		10483	Replace worn out marker coils to support automatic train control (ATC). Marker coils are arranged to identify distance to a station platform.	\$2,550	Project	Development and Evaluation	✓
Automatic Train Control (ATC) Relay Testing Program		10485	Conduct systemwide inspection and test of relays supporting automatic train control (ATC).	\$1,160	Project	Implementation	✓
Automatic Train Control (ATC) Train Control Room (TCR) Power Supply Replacement		10492	Replace the Volts of Direct Current (VDC) equipment that provides power to the automatic train control (ATC) throughout the rail system.	\$4,500	Project	Project Development	✓



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Remote Terminal Unit (RTU) Replacement Project		10830	Replace Remote Terminal Units (RTUs) in Train Control Rooms (TCRs), signal communication rooms, and power rooms as they reach the end of their lifecycle with new technology that allows the remote monitoring of equipment.	\$45,350	Project	Development and Evaluation	✓
Switch Machine Power Supply Replacement		10524	Install electrical infrastructure to power new switch machines that are compatible with an automatic train control (ATC) system.	\$2,040	Project	Not Started	✓
Automatic Train Control (ATC) Next Generation Feasibility Study		10473	Conduct a feasibility study and alternatives analysis to determine preferred future integration solution of railcar operations using replacement signal system.	\$1,041	Study	Development and Evaluation	✓
Automatic Train Control (ATC) Next Generation Implementation		10474	Install a prototype and systemwide rail operations infrastructure to support replacement signal system throughout the entire revenue system.	\$1,295,427	Concept	Project Initiation	✓
Functional Area: Bus Garages and Transit Centers							
Army Navy Drive Transit Center Construction		10220	Construct a new eight-bay bus transit center on land owned by the United States Department of Defense (DoD) to serve as the terminal station for extended Metroway express bus service. The design for the transit center has been completed.	\$7,000	Project	Not Started	
Blue Plains and Shepherd Parkway Roadway Improvements		10673	Widening of roadways and expansion of intersections to accommodate the bus traffic outside of Shepard Parkway bus garage.	\$0	Concept	Project Initiation	



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Bus Garage Replacement - Bladensburg		10579	Demolition and replacement of Bladensburg Bus Garage, with a modern operations and maintenance facility to support Metrobus state of good repair.	\$216,640	Project	Project Development	✓
Bus Garage Replacement - Northern		10577	Demolition and replacement of Northern Bus Garage, with a modern operations and maintenance facility to support Metrobus state of good repair.	\$233,618	Project	Project Development	✓
Dynamometer Replacement		10338	Replace the four dynamometers at the Carmen Turner Facility (CTF). Dynamometers test engine/transmission performance and durability before installation.	\$2,328	Project	Development and Evaluation	✓
Four Mile Run Bus Facility Rehabilitation		10131	Rehabilitate interior and exterior elements of the bus facility to restore and maintain a state of good repair. Identify solutions to achieve operational requirements to meet short-term fleet capacity needs due to other bus facility rehabilitation projects.	\$18,600	Project	Development and Evaluation	✓
Historic Bus Terminal Rehabilitation		10239	Design and rehabilitate three historic bus terminals: Calvert, Chevy Chase, and Colorado. This will ensure terminals are in a state of good repair. All three facilities are obsolete and in failing condition.	\$5,210	Project	Project Development	✓
Landover Bus Facility Rehabilitation Study		10200	Analyze needs and develop solutions to rehabilitate mechanical and security elements of the bus facility not addressed under previous facility improvements.	\$300	Study	Development and Evaluation	✓
Restroom and Breakroom Construction and Rehabilitation Program		10225	Rehabilitate or construct employee restrooms and breakrooms at stations to provide operators with adequate facilities.	\$1,238	Project	Development and Evaluation	



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Shepherd Parkway Bus Facility Compressed Natural Gas (CNG) Station Construction		10555	Design and construction of Compressed Natural Gas (CNG) equipment at the Shepherd Parkway Bus Facility.	\$8,340	Project	Project Development	✓
Western Bus Garage Replacement Study		10578	Analyze needs and replacement alternatives for Western Bus Garage in Friendship Heights, Washington, DC.	\$250	Study	Development and Evaluation	✓
Western Bus Garage Replacement		10850	Construct the to-be-identified replacement option for Western Bus Garage currently located in Friendship Heights, Washington, DC.	\$248,000	Concept	Project Initiation	
Montgomery Division Bus Facility Improvement Study		10108	Analyze all interior and exterior structural, mechanical, and electrical elements of the bus facility to identify which components require rehabilitation. Identify solutions to achieve environmental requirements and to meet short-term fleet capacity needs due to other bus facility rehabilitation projects.	\$1,030	Study	Development and Evaluation	✓
Montgomery Division Bus Facility Improvement Implementation		10831	Implement improvements to the Montgomery Division bus facility.	\$23,500	Project	Not Started	✓
Functional Area: Bus Vehicles, Maintenance, and Bus Stops							
Bus Fleet Plan Update		10802	Update strategic bus fleet plan to guide and instruct investments in vehicle fleet and facilities based upon ridership, changing regional needs, and to optimize service.	\$1,500	Study	Development and Evaluation	✓



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Bus Loop Canopy Installation Study		10091	Analyze the potential to install weatherproof canopy structures at bus loops at multiple Metrorail stations.	\$500	Study	Development and Evaluation	
Bus Operators Commercial Driver License (CDL) Training Facility Study		10675	Identify improvements at Landover Station Commercial Driver License (CDL) training facility and assess alternatives to include a potential permanent facility for on-going bus operator CDL training.	\$200	Study	Development and Evaluation	✓
Metrobus Shelter Replacement		10088	Replace deficient Metrobus shelters with new shelters to provide customers with protection from weather, customer information, and other amenities.	\$26,660	Project	Project Development	✓
Service Vehicle Fleet Plan		10804	Create strategic service vehicle (non-revenue) fleet plan to guide and instruct fleet-wide investments.	\$750	Study	Development and Evaluation	✓
Traffic Signal Prioritization (TSP) Equipment Installation		10089	Install traffic signal prioritization (TSP) equipment on board Metrobuses and work with local jurisdictions to install TSP equipment at intersections along the Priority Corridor Network (PCN).	\$17,597	Project	Development and Evaluation	
Washington Hospital Bus Loop Improvement		10774	Upgrade existing Washington Hospital bus loop to address ease of entry and improve traffic flow.	\$0	Concept	Development and Evaluation	
Electric Bus Acquisition and Evaluation		10038	Purchase electric buses and evaluate potential transition of the fleet to zero emissions technology. Results of pilot will inform, guide, and direct Metro's strategic approach to the future bus fleet and supporting equipment and infrastructure.	\$9,325	Pilot	Project Initiation	✓



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Electric Bus Post-Pilot Implementation		10829	Purchase of approximately 100 electric buses annually to transition the current Metrobus fleet to an electric fleet.	\$160,000	Concept	Development and Evaluation	
Systemwide Bus Stop Accessibility Study		10101	Perform a systemwide bus stop survey to evaluate if Metrobus bus stops meet Americans with Disability Act (ADA) accessibility requirements. Survey will include plans and prioritization for proposed improvements at deficient facilities.	\$550	Study	Development and Evaluation	✓
Systemwide Bus Stop Accessibility Implementation		10818	Implement results from Systemwide Bus Stop Accessibility Survey Study to remedy deficiencies at identified bus stops to meet Americans with Disability Act (ADA) requirements.	\$3,450	Concept	Development and Evaluation	✓
Functional Area: Communications							
Communications Field Office Relocation		10506	Relocate the Mt Vernon Square field office personnel to a new office location and renovate the Navy Yard and Fort Totten field offices.	\$0	Concept	Project Initiation	
Customer Information Electronic Display Signs (CIEDS)		10219	Purchase, install, and maintain new customer information electronic display signs (CIEDS) to improve customer information at Metrobus stops and key transit centers.	\$22,223	Project	Development and Evaluation	✓
Fire Control Infrastructure Upgrades		10144	Upgrade fire control life safety infrastructure in accordance with required codes.	\$33,998	Project	Project Initiation	✓



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Intercom Replacement		10656	Implement an internet protocol (IP)-based intercom systemwide in rail stations.	\$39,337	Project	Implementation	✓
Mobile Customer App		10718	Upgrade a mobile application for customers covering all aspects of Metro, including fare payment, travel alerts, journey planning, customer self-service, safety/security information, and facility wayfinding.	\$6,000	Concept	Project Initiation	
New Digital Information Content Management System		10542	Create a Content Management System (CMS) for the Metrorail Passenger Information Display System (PIDS) that combines train prediction software, real-time digital displays outside of stations, and an integrated mobile application that leverages data.	\$11,978	Project	Project Initiation	✓
Non-Revenue Facility Fire Alarm Upgrade Study		10211	Evaluate alternatives to upgrade fire alarm systems in non-revenue facilities.	\$5,191	Study	Development and Evaluation	✓
Passenger Information Displays (PIDs) System Upgrade and Installation		10053	Upgrade and replace existing Passenger Information Displays (PIDs) at Metrorail stations across the system.	\$31,200	Project	Project Initiation	✓
Public Address (PA) System Upgrades		10111	Install new public address (PA) speakers at mezzanines and platforms of all Metrorail stations to restore the PA systems into a state of good repair.	\$56,000	Project	Project Development	✓
Radio Infrastructure Replacement and Band Relocation		10558	Replace the existing Metro Comprehensive Radio Communications System (CRCS) infrastructure to upgrade radio and wireless service in Metro's underground system.	\$385,579	Project	Implementation	✓



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Real Time Passenger Information Software Updates		10137	Passenger Information Display System (PIDS) software updates and system integration, including system implementation at new Metrorail stations (Potomac Yard and Dulles Phase II).	\$32,800	Project	Development and Evaluation	✓
System Wayfinding Upgrade		10717	Create a systemwide wayfinding action plan that articulates the correct mix of digital and physical signage for Metrorail, Metrobus, MetroAccess and all other associated signage. Upgrade or replace current physical signage and add new physical and digital signage as recommended by the action plan.	\$169,000	Concept	Project Initiation	
Trip Planner Upgrade		10719	Update trip planning tool that can be embedded on Metro's website, mobile applications, and third-party-hosted sites.	\$3,000	Concept	Project Initiation	
Smoke Detection System Study		10715	Assess the replacement of outdated fire alarm systems to improve reliability and performance.	\$1,500	Study	Development and Evaluation	✓
Smoke Detection System Full Implementation		10714	Following successful completion of pilot, implement smoke detection system across vent and fan shafts systemwide.	\$67,240	Project	Not Started	✓
Fiber Optic Cable Strategy Study		10865	Study to determine strategy for fiber installation to connect various Metro facilities.	\$750	Study	Development and Evaluation	✓
Fiber Optic Cable Installation for Train Control Rooms		10510	Design and pilot fiber optic cable installation to support automatic train control (ATC) equipment in place of copper cable technology at initial segments.	\$62,143	Project	Development and Evaluation	✓



APPENDIX A: Capital Investments by Functional Area






Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Ancillary Support Room Communication Infrastructure Upgrades		10224	Install new supervisory control and data acquisition (SCADA) control system that supports remote management at Metrorail support room locations systemwide and will connect support rooms to appropriate Metrorail Operations Control Centers.	\$52,036	Project	Not Started	✓
Emergency Trip Station (ETS) System Fiber Optic Cable Installation		10017	Replacement of systemwide fiber optic cabling infrastructure to support emergency trip stations (ETS) system, which can deactivate power to a segment of rail.	\$72,403	Project	Implementation	✓
Emergency Trip Station (ETS) System Replacement and Upgrades		10374	Replace elements of the emergency trip station (ETS) system, which can deactivate power to a segment of rail, including the emergency phone box enclosure, blue LED lights, circuitry, and remote monitoring equipment at traction power substations (TPSS) and tie breaker stations (TBS).	\$58,998	Project	Development and Evaluation	✓
Functional Area: Facilities - Administrative							
HVAC and Building Automation Systems (BAS) Replacement Study		10198	Analyze potential equipment specifications to replace rooftop HVAC units and replace Building Automation Systems (BAS) at multiple facilities.	\$500	Study	Development and Evaluation	
Revenue Collection Facility Improvements		10710	Assess, upgrade or replace structures, equipment, and systems, as needed, in the high security facility where Metro processes cash revenue.	\$10,896	Project	Project Development	✓
HVAC Safety Improvements Study		10288	Provide a safe work platform for completing preventive and corrective maintenance to the HVAC mechanical systems.	\$100	Study	Development and Evaluation	✓



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Supply Chain Modernization		10119	Initial phase of multi-year project to modernize the supply chain for logistics, warehousing, planning, and ordering of inventory.	\$35,513	Project	Project Development	✓
Administrative Facility Rehabilitation Project		10442	Renovate office space, replace roof, add new windows and relocate employees through co-locating aligned business units at the Telegraph Road office.	\$13,500	Project	Development and Evaluation	✓
Warehouse Security Systems Improvement		10406	Install an electric access control system and cameras at warehouse storerooms and cages to manage access and improve security.	\$250	Project	Development and Evaluation	✓
Warehouse Storage Unit Maintenance, Replacement, and Procurement		10147	Maintain and upgrade warehouse vertical material storage units.	\$10,731	Project	Project Development	✓
Carmen Turner Facility (CTF) Building Renovation and Employee Garage Construction Study		10033	Assess renovation options for the Carmen Turner Facility (CTF) to improve efficiency and use of building space, and evaluate possible new employee parking garage.	\$500	Study	Development and Evaluation	✓
Carmen Turner Facility (CTF) Building Renovation and Employee Garage Construction		10740	Renovate office and training space at the Carmen Turner Facility (CTF) and construct a new parking garage.	\$50,000	Concept	Project Initiation	
Track and Structures Systems Maintenance (TSSM) Building Renovation Study		10680	As part of the office consolidation plan, assess renovation needs for track and structures systems maintenance building.	\$200	Study	Development and Evaluation	✓



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Track and Structures Systems Maintenance (TSSM) Building Renovation		10775	Renovate the Track and Structures Systems Maintenance (TSSM) building, as part of the office consolidation plan.	\$10,000	Concept	Development and Evaluation	
Pavement and Stormwater Management at 3421 Pennsy Drive Study		10887	Study which will develop an approach to replace the existing gravel parking lot at 3421 Pennsy Drive with concrete pavement and stormwater pretreatment structures.	\$500	Study	Needs Identification	✓
Pavement and Stormwater Management at 3421 Pennsy Drive		10244	Replace gravel parking lot with concrete pavement and stormwater pretreatment structures and install underground utilities to convey stormwater runoff to pretreatment structures.	\$5,175	Project	Project Initiation	✓
Security Operations Control Center (SOCC) Electrical Substation Upgrades		10436	Construct new substation to facilitate switch of incoming electrical service provider.	\$17,500	Concept	Project Initiation	✓
Headquarters Construction - District of Columbia		10677	Office consolidation - reconstruct office building at 300 7th Street SW near L'Enfant Plaza Metrorail station in the District of Columbia.	\$209,820	Project	Implementation	✓
Headquarters Replacement - District of Columbia Strategy		10009	Coordinate program management and advisory services (e.g., planning and advisory, external legal, real estate advisory, office advisory, overhead, etc.) related to the consolidation of office space currently spread across 10 buildings in the Washington Metropolitan region into seven strategic locations, including the relocation of employees.	\$12,414	Project	Implementation	✓
Headquarters Construction - Maryland		10681	Office consolidation - construct a new office building near New Carrollton Metrorail station in Prince George's County, Maryland.	\$229,924	Project	Project Development	✓



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Headquarters Construction - Maryland Strategy		10885	Coordinate program management and advisory services (e.g., planning and advisory, external legal, real estate advisory, office advisory, overhead, etc.) related to the consolidation of office space currently spread across 10 buildings in the Washington Metropolitan region into seven strategic locations, including the relocation of employees.	\$9,000	Project	Implementation	✓
Headquarters Construction - Virginia		10678	Office consolidation - construct a new office building near Eisenhower Avenue Metrorail station in Alexandria, Virginia.	\$288,343	Project	Implementation	✓
Headquarters Construction - Virginia Strategy		10886	Coordinate program management and advisory services (e.g., planning and advisory, external legal, real estate advisory, office advisory, overhead, etc.) related to the consolidation of office space currently spread across 10 buildings in the Washington Metropolitan region into seven strategic locations, including the relocation of employees.	\$11,000	Project	Implementation	✓
New Data Center IT Infrastructure and Equipment		10178	As part of Metro's office consolidation initiative, a new data center will be constructed to replace the existing data center at the Jackson Graham building that is being vacated.	\$111,387	Project	Development and Evaluation	✓
Functional Area: Facilities - Rail Yards							
Emergency Fuel Shut Off Relocation		10050	Relocate emergency shut-off buttons at vehicle fueling stations to meet code requirements.	\$650	Project	Project Development	✓
Greenbelt Railyard Flood Hardening Study		10511	Install water damage prevention measures at the Greenbelt railyard.	\$1,500	Study	Development and Evaluation	✓



APPENDIX A: Capital Investments by Functional Area

Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Greenbelt Railyard Rehabilitation Program		10687	Rehabilitate deteriorated and obsolete equipment and facilities assets at the Greenbelt Railyard facility.	\$20,000	Project	Development and Evaluation	✓
New Carrollton Railyard Optimization		10836	Design and construction of improvements to the New Carrollton Railyard to optimize operations, add railcar storage tracks, and construct new railyard tower.	\$92,761	Project	Project Development	✓
New Hampshire Avenue Ground Water Treatment		10851	Remediation of ground water table at and around the intersection of Georgia Avenue and New Hampshire Avenue.	\$4,000	Project	Project Development	✓
Pollution Prevention at Track Fueling Areas		10166	Modify railyard equipment fueling areas to contain fuel spills and comply with environmental regulations.	\$9,954	Project	Project Development	✓
Railcar Heavy Repair and Overhaul Facility		10445	Construct a new facility for railcar heavy repair and overhaul (HRO) to relieve crowding in other railcar maintenance and storage facilities and to provide an adequate facility to support maintenance to Metro's fleet.	\$601,201	Project	Development and Evaluation	✓
Railcar Rooftop Access Platforms		10356	Construct and install railcar rooftop access platforms at Alexandria, Brentwood, Shady Grove, Branch Avenue, and Greenbelt railyards to allow safe and efficient maintenance of HVAC on the 7000 series railcars.	\$15,138	Project	Implementation	✓
Railcar Wash Rehabilitation at Railyards		10259	Rehabilitate railcar washes at Glenmont, Branch Ave., Greenbelt, New Carrollton, Brentwood, West Falls Church, Alexandria, and Shady Grove railyards to meet the goal of washing up to 900 railcars per day.	\$16,315	Project	Development and Evaluation	✓



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Shady Grove Railyard Bridge Crane Study		10197	Evaluate the need for acquiring a 25-ton crane to be installed at Shady Grove railyard.	\$100	Study	Development and Evaluation	
Systemwide Railyard Rehabilitation		10011	Replace and/or upgrade electrical, mechanical, and environmental equipment to meet current codes, replace deteriorated and obsolete equipment and facilities and reduce disruption to critical daily operations at railyards.	\$237,522	Project	Implementation	✓
Railyard Rehabilitation and Optimization Study		10686	Comprehensive assessment of railyards through a review of all facilities and components to determine if improvements would improve safety, efficiency and maintenance and storage capacity.	\$2,500	Study	Development and Evaluation	✓
Railyard Optimization		10776	Upgrade and optimize existing railyard infrastructure and equipment: including facilities, civil, mechanical, architectural, electrical, automatic train control (ATC), fire-life safety, communications, security, site grounds landscaping, real estate development, yard expansions and shops.	\$488,001	Concept	Development and Evaluation	
Relocation of Metro Warehouse (MSF) Study		10845	Study to assess the business case for relocating the Metro Supply Facility (MSF) warehouse facility due to impacts from the new Heavy Repair and Overhaul (HRO) facility construction near the Carmen Turner facility.	\$250	Study	Development and Evaluation	
Relocation of Metro Warehouse (MSF)		10846	Potential purchase or construction of a new Metro warehouse facility.	\$0	Concept	Development and Evaluation	



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Functional Area: High Voltage Power							
Automate Metrorail Track Heaters		10448	Install track heater control modules to reduce unnecessary run time for third rail heaters.	\$0	Concept	Project Initiation	
Emergency Trip Button for Traction Power Substations (TPSS) and Tie Breaker Stations (TBS)		10415	Project to design and install 400 emergency trip buttons at each traction power substation (TPSS) and tie breaker station (TBS) exit.	\$0	Concept	Needs Identification	
Generator System Replacement		10043	Survey and life-cycle replacement of permanent generators located in the Rail System to provide power resiliency.	\$7,000	Project	Project Initiation	✓
Rail Power Infrastructure Upgrades		10008	A program to upgrade power infrastructure to increase electrical capacity to support 8-car train service across all Metro lines.	\$462,242	Project	Implementation	✓
Railyard to Mainline Power Isolation System Upgrades		10319	Upgrade and replace power isolation system components at each railyard to maintain the electrification of railyards during mainline power outages. Isolation systems include, but are not limited to, isolation switches, traction power cables, secondary cables, and isolation joints.	\$11,924	Project	Not Started	✓
Rosslyn Traction Power Substation (TPSS) Collapsed Cable Tray Redesign		10535	Redesign and construct power infrastructure and maintenance access points at the Rosslyn traction power substation (TPSS).	\$8,020	Project	Project Development	✓



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Silver Line (McLean to Wiehle-Reston East) Tagging Relay Pilot		10537	Design, install, and evaluate the remote operation equipment for electrical circuits (tagging relays) at three locations on the Silver Line.	\$3,229	Pilot	Development and Evaluation	
Systemwide Remote Control Electrical Circuit Equipment		10039	Upgrade traction power substations (TPSS) and tie breaker stations (TBS) with tagging relays to remotely cut electrical power to segments of the track to improve safety and operational efficiency.	\$43,382	Concept	Project Initiation	
Traction Power Substation (TPSS) - Transformer Controls		10403	Install controls at traction power substations (TPSS) to de-energize the facility when it is not in use.	\$505	Project	Project Development	
Braking Energy Recovery Project Pilot		10751	Install electrical devices on the Blue Line to pilot the conversion of excess braking energy into useful electricity.	\$792	Pilot	Development and Evaluation	
Braking Energy Recovery Installation Systemwide		10798	Following completion of pilot, install regenerative braking technology systems and infrastructure to capture excess braking energy to be converted to useful electricity systemwide.	\$9,295	Concept	Development and Evaluation	
Functional Area: Information Technology							
Arbitration Module/Database Study		10860	Evaluation of needs and options for a potential arbitration module or database.	\$250	Study	Development and Evaluation	



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Asset Configuration Management (ACM) Software Replacement		10056	Implement in-house asset configuration manager for railcar configuration management.	\$1,555	Project	Project Development	
Building Automation System (BAS) and Asset Management System (Maximo) Integration Pilot		10417	Develop improvements to interface Metro's Building Automation System (BAS) with the existing Computerized Management System to enable more efficient operation and maintenance procedures.	\$0	Concept	Project Initiation	
Bus and Rail Scheduling System Improvements		10184	Replace bus scheduling system and upgrade rail scheduling system, so that both modes are scheduled in the same software package.	\$9,332	Project	Project Development	✓
Bus Operations Support Software Improvements		10810	Software improvements and upgrades for bus initiatives, including licensing and technical support for bus systems.	\$8,565	Concept	Project Initiation	
Bus Stop Beacon Technology Deployment		10358	Acquire and develop a Bluetooth beacon system, which is a wayfinding technology, at Metrobus bus stops.	\$1,700	Project	Not Started	
Case Management System Study		10861	Study to evaluate WMATA's needs for tracking the life cycle of cases, including storage and retrieval of documents associated with cases.	\$250	Study	Development and Evaluation	
Customer Relationship Management (CRM) Software Upgrades		10148	Implement new features and upgrade interfaces for existing Customer Relationship Management (CRM) software.	\$1,831	Project	Project Development	



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Digitization / Archiving / Evidence Preservation Study		10862	Study to evaluate the needs and proposed options for WMATA information records storage.	\$250	Study	Development and Evaluation	
Electronic Closeout Documents Management Software		10847	Develop and implement software package to manage and store project closeout documentation to improve configuration management.	\$3,000	Concept	Not Started	
Employee Engagement Evaluation Tool Study		10864	Analyze WMATA's needs and identify potential software solutions to improve employee engagement survey process.	\$250	Study	Development and Evaluation	
Enterprise Asset Management Software (Maximo) Mobile Implementation		10310	Provide a platform to support Metro's mobile enterprise asset management software on mobile devices.	\$1,800	Project	Not Started	
Enterprise Records Management (ERM) Search Screen Migration		10383	Migrate Enterprise Records Management (ERM) search screens to new software to consolidate operational maintenance and improve user experience.	\$500	Project	Not Started	
Enterprise Resource Planning (ERP) Software Upgrade		10121	Upgrade existing system to implement new modules and simplify processes for financial and human capital management applications.	\$25,550	Project	Project Development	✓
ePerformance & eCompensation Project		10873	Implementation of new modules in Metro's enterprise management system to electronically enter, track, and manage all employee performance management and compensation activities.	\$3,725	Project	Implementation	✓



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
High Availability Enterprise Content Management Platform (Documentum)		10384	Install a dedicated content server at the secondary data center for data to facilitate seamless data access for users in the event of a disaster recovery (DR) incident.	\$461	Project	Project Development	
Human Resources Information Digitization (Documentum) Phase 2		10323	Induct sections of Human Resources Information Management (HRIM) data into Metro's digitization software and design electronic scanning workflows to automatically upload data to avoid the use of paper records.	\$14,588	Project	Not Started	
IT Enterprise Testing Capability Support Sustainment		10212	Oversee enterprise testing efforts for Metro enterprise applications.	\$31,324	Project	Implementation	✓
Labor Relations Document Storage and Case Tracking Solution Study		10859	Study to identify a solution(s) to track and store arbitration actions, including litigation, documentation, and evidence.	\$0	Study	Development and Evaluation	
Metro Access Control System (OneBadge) Implementation		10167	Improve Metro's access control systems for non-revenue facilities.	\$3,394	Project	Implementation	✓
Metro Transit Police Technology System Improvements		10809	Purchase and/or deployment of new technology solutions to improve operational efficiency of the Metro Transit Police Department.	\$7,976	Concept	Project Initiation	
Paratransit Technology Scheduling System		10667	Implement new scheduling platform to improve efficiency of routing and scheduling for paratransit rides and to potentially reduce operational expenses.	\$4,500	Project	Development and Evaluation	



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Police Dispatch and Records Management		10880	Updates and upgrades to Metro's Computer Aided Dispatch (CAD) and Records Management System (RMS) which is used to manage resources, responses, all dispatching activities, and organize and maintain this information.	\$2,500	Project	Implementation	✓
Product Lifecycle Software Migration		10722	WMATA's current product lifecycle management (PLM) software product will be decommissioned and its functionality will be incorporated into other applications to standardize asset condition tracking systemwide.	\$3,000	Project	Project Initiation	✓
Project Management and Reporting Tool		10328	Software tool upgrade to enable Metro to track capital programs from inception and planning through execution across the capital portfolio.	\$1,225	Concept	Project Initiation	
Rail Operations Control System (ROCS) Innovation Lab		10246	Construct lab to provide the Rail Operations Control System (ROCS) the ability to develop and engineer new ideas to better support Metrorail needs.	\$0	Concept	Project Initiation	
Role-Based Access Control		10877	Creation and modification of software to automatically change the employee access to software applications and/or programs based on employee roles.	\$3,000	Project	Needs Identification	✓
Safety Equipment Inspection Tracking System Purchase		10349	Acquire a separate inspection tracking system for safety equipment.	\$100	Concept	Not Started	
Timecard Software Integration and Analysis		10097	Implement new automated time and attendance system for Metro employees.	\$38,873	Project	Implementation	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Virtual Desktop Infrastructure (VDI) Workforce Transformation Project		10733	Build IT infrastructure to allow employees to work securely anywhere, any time, from any device with the same desktop experience.	\$0	Project	Development and Evaluation	
Expand Web Application Support Sustainment		10833	Expand operational support and maintenance for SmarTrip and other applications.	\$14,000	Concept	Project Initiation	
Web Applications Upgrades		10549	Undertake major web application upgrades for SmarTrip and other applications used for Metrorail planning purposes.	\$21,218	Project	Development and Evaluation	
Enterprise Resource Planning (ERP) Software Integration and Replacement Study		10028	Assess the existing suite of enterprise resource planning (ERP) systems to provide a roadmap of alternatives to replace the current system.	\$16,000	Study	Development and Evaluation	✓
Enterprise Resource Planning (ERP) Software Purchase and Installation		10037	Implement a newly selected Enterprise Resource Planning (ERP) system after the conclusion of a study and business case analysis of requirements and alternatives to improve functions related to technology, services, and human resources.	\$250,000	Concept	Project Initiation	✓
MetroDocs Pilot		10713	Initiative to modernize document management at WMATA and improve the quality, accuracy, and access to policies, procedures, and other important documents for all Metro employees.	\$1,200	Pilot	Development and Evaluation	
MetroDocs Implementation		10815	Following evaluation of a pilot, implement modernized administrative document management system at Metro.	\$12,019	Concept	Development and Evaluation	



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Enterprise Data Management and Decision Support Systems Study		10018	Establish a roadmap to build a decision support system technology platform for a limited solution to house data in a single integrated IT system; allowing for customized reporting, advanced analytical and sharing capabilities.	\$250	Study	Development and Evaluation	
Enterprise Data Management and Decision Support Systems Pilot		10824	Following study results, implement pilot of decision support system technology platform to house data in a single integrated system.	\$5,500	Pilot	Development and Evaluation	
Enterprise Data Management and Decision Support Systems		10759	Acquisition of decision support system technology platform to house data in a single integrated system that will allow for customized reporting, and advanced analytical and sharing capabilities.	\$170,600	Concept	Development and Evaluation	
Metro Employee Mobile Application (MEMA) Pilot		10825	Pilot to provide Metro's workforce with a daily connection to their work, focusing on the workforce without a traditional desk.	\$2,235	Pilot	Development and Evaluation	
Metro Employee Mobile Application (MEMA)		10711	Based on pilot results, implement the application to provide the entire Metro workforce with the daily, need-to-know connection to their work, focusing on employees without a traditional desk.	\$12,285	Project	Not Started	
Occupational Health and Wellness Department (OHAW) New Software Study		10826	Identify new software systems and enhancements to support the Occupational Health and Wellness (OHAW) Department by automating processes and allowing for better tracking and reporting.	\$2,129	Study	Development and Evaluation	
Occupational Health and Wellness Department (OHAW) New Software Implementation		10168	Based on study results, implement software system improvements to support the Occupational Health and Wellness (OHAW) Department.	\$4,550	Project	Not Started	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Rail Operations Control Center (OCC) Software Improvement Study		10827	Identify IT support needs to deploy and integrate Advanced Information Management (AIM) software for assets used by the Rail Operations Control Center (ROCC).	\$500	Study	Development and Evaluation	
Rail Operations Control Center (OCC) Software Replacement		10814	Based on study results and recommendations, deploy and integrate software used by the Rail Operations Control Center (ROCC) to replace the current system.	\$60,000	Concept	Project Initiation	
Easement and Utility Inventory Management Program Study		10238	Locate and record location of each utility that runs along the tracks system-wide in a 3D model and update/create easement documents that are not already accessible.	\$250	Study	Development and Evaluation	
Aerial Mapping of Metro Surface and Ancillary Facilities		10326	Provide aerial mapping services to map Metrorail corridors and Metro properties.	\$2,700	Project	Not Started	
Comprehensive 3D Model and Database of Metro Structural and Legal Assets		10265	Project supports a comprehensive master database and 3D model of above and below grade structures and legal assets for a subsurface risk reduction and asset protection program.	\$3,000	Project	Not Started	
Geographic Information System (GIS) Software Upgrade Study		10209	Research alternatives or replacements to Metro's sole and authoritative repository for maps and spatial information, including safety incidents, transit stops, routes, and asset locations.	\$250	Study	Development and Evaluation	
Metrorail Station View		10279	Obtain spherical imagery of each Metrorail station and compile it for publishing into Street View to ease customer navigation experience at stations.	\$4,512	Project	Implementation	



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Survey Control Database		10343	Reconcile Metro's survey data points in a new geographic information system (GIS) database.	\$3,050	Project	Development and Evaluation	
3D Track Alignment Database Design and Integration		10468	Develop a master database of 3D track alignments to improve the workflow of inspection and design of maintenance projects.	\$0	Concept	Project Initiation	
Functional Area: Low Voltage Power							
Above-ground Station Lighting Installation		10047	Install above-ground LED lighting at stations to improve illumination, safety and security while improving energy efficiency, and lighting reliability.	\$47,803	Project	Project Development	✓
Energy Monitoring and Smart Metering Software and System		10385	Install smart meters in Metro facilities and on specific assets to analyze and manage usage using Enterprise Energy Monitoring Software (EEMS).	\$868	Project	Implementation	✓
Interior and Exterior Lighting Fixtures and Controls Upgrades - Non-Revenue Facilities		10382	Install LED lighting system for bus, rail, and business support facilities and upgrade lighting system.	\$3,110	Project	Implementation	✓
Light Replacement Program - Station Pathway, Bus Loop, and Site		10010	Install LED fixtures to replace current lighting infrastructure leading up to bus loops and parking facilities at station exteriors.	\$60,772	Project	Ongoing Program	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Lighting and Infrastructure Upgrades Study		10112	Replace station interior and exterior lighting with LED fixtures that have occupancy based controls.	\$1,799	Study	Development and Evaluation	✓
Passenger Station AC Power Room Programmable Logic Control (PLC) Upgrade		10191	Upgrade out-of-date programmable logic control (PLC) panels at Metrorail station power rooms systemwide. PLC panels allow for the efficient use and remote monitoring of electrical power.	\$2,841	Project	Project Development	✓
Platform Level LED Lighting Replacement		10512	Replace platform level lighting with new light-emitting diode (LED) systems on platforms at all underground stations.	\$99,577	Project	Implementation	✓
Rewire Power Feeds for Passenger Stations		10177	Rewire traction power substations in coordination with utility companies to feed passenger stations.	\$6,194	Project	Development and Evaluation	✓
Station Platform Edge Lighting Replacement		10062	Install new lighting along platform edges at stations across the system.	\$63,656	Project	Project Development	✓
Systemwide Replacement of AC Power Rooms Uninterruptible Power Supply Units (UPS)		10260	Replace uninterruptible power supply (UPS) units at AC power rooms to maintain rail and communication power during utility service disruptions.	\$19,404	Project	Implementation	✓
Tunnel Light Improvements		10095	Replace tunnel lights and fixtures with LED lamps instead of fluorescents. These improvements will provide a safe environment for employees and create a more efficient operational environment.	\$10,221	Project	Implementation	✓



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Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Underground Station Lighting and Ceiling Tile Installation		10048	Install underground LED lighting at stations to improve illumination, safety and security while improving energy efficiency and lighting reliability.	\$101,846	Project	Project Development	✓
Utility Isolation Switches Installation		10142	Install utility isolation switches in coordination with local electrical providers.	\$9,999	Project	Development and Evaluation	✓
Security Operations Control Center (SOCC) Electrical Substation Upgrades Study		10139	Assess and design a new substation to facilitate switching incoming electrical service providers.	\$250	Study	Development and Evaluation	✓
Functional Area: MetroAccess							
MetroAccess Fleet Plan Update		10801	Update strategic paratransit (MetroAccess) fleet plan to guide and instruct fleet-wide and facility investments based upon ridership, changing regional needs, and to optimize service.	\$750	Study	Development and Evaluation	✓
Transit Accessibility Office Safety and Security Improvements		10665	Improve security by way of badge access and delimited entry/exit points to the customer facing and project office space within the Transit Accessibility Center.	\$100	Project	Project Development	✓
Functional Area: MTPD							
Metro Police Department Vehicle Access Barriers		10645	Based on recommendations from the Office of the Inspector General, install physical protection barriers at Metro Police Department facilities.	\$1,300	Project	Development and Evaluation	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Metro Transit Police Department (MTPD) District III Substation Construction		10257	Renovate existing child care facility at Morgan Boulevard station to serve as a police substation with administrative office workspace, locker rooms, break room, gym, interview rooms, and other workspaces.	\$4,826	Project	Development and Evaluation	✓
Metro Transit Police Department (MTPD) Technology Needs Study		10151	Analyze Metro Transit Police Department's (MTPD) program needs for modernizing their law enforcement toolset.	\$330	Study	Development and Evaluation	
MTPD Chemical, Biological, Radiological and Nuclear (CBRN) Security Update and Replacement		10206	Technical updates and lifecycle replacement for the Metro Transit Police Department (MTPD) Chemical, Biological, Radiological and Nuclear (CBRN) program.	\$1,700	Project	Project Initiation	✓
Consolidated Police Training Facility Study		10835	Perform a business case and alternatives analysis for a potential consolidated training facility for Metro Transit Police Department (MTPD).	\$250	Study	Development and Evaluation	✓
Consolidated Police Training Facility Construction		10805	Build a consolidated training facility for Metro Transit Police Department (MTPD).	\$0	Concept	Project Initiation	
Replacement of K9 Training Facilities		10233	Replace the existing K9 Training Facilities near Branch Avenue and include Metro Transit Police Department (MTPD) administrative office space, locker rooms, a break room and other necessary workspaces to support K9 training.	\$5,580	Concept	Project Initiation	



APPENDIX A: Capital Investments by Functional Area







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Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Functional Area: Parking							
Grosvenor-Strathmore Parking Garage Joint Development		10189	Replace surface parking lot at Grosvenor-Strathmore Parking Garage with approximately 400 garage spaces.	\$17,127	Project	Implementation	✓
Huntington Metrorail Station South Parking Garage Replacement		10274	Demolish and replace the structurally deteriorated Huntington South parking garage.	\$33,427	Project	Not Started	
Huntington Station Joint Development		10883	Supports creation of joint development at Huntington Station.	\$1,300	Project	Project Initiation	✓
New Carrollton Parking Garage		10879	Rebuild the older of two customer parking garages at the New Carrollton Metrorail station.	\$50,000	Project	Project Initiation	
New Carrollton Station Joint Development Project		10188	Construct new bus, paratransit, Kiss & Ride, and parking facilities and widen roadways at New Carrollton Metrorail station to accommodate increased traffic from nearby development projects.	\$12,560	Project	Project Development	✓
Parking Technology Upgrade Study		10202	Evaluate new technology for maximizing parking revenue.	\$200	Study	Not Started	✓



APPENDIX A: Capital Investments by Functional Area



Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Additional Employee Parking Study		10351	Analyze employee parking demand and identify potential solutions at three railyards - New Carrollton, Shady Grove, and West Falls Church.	\$250	Study	Development and Evaluation	✓
Additional Employee Parking Construction		10821	Based on study results, convert designated locations at New Carrollton, Shady Grove, and West Falls Church railyards into additional employee parking.	\$0	Concept	Project Initiation	
Functional Area: Planning and Development							
Blue, Orange, and Silver Line Corridor Improvements Study		10444	Perform capacity and reliability alternatives analysis for the Blue, Orange, and Silver Lines to address crowding and capacity issues at Metrorail stations in the East-West corridor.	\$3,822	Study	Development and Evaluation	✓
Bus Network Redesign Study		10651	Reexamining the regional network and assessing redeployment of bus resources.	\$4,000	Study	Development and Evaluation	✓
Bus-Oriented Development (BOD) Study		10408	Perform a land use/density gap analysis along three to five bus corridors and develop an action plan for bus-oriented development (BOD) along those corridors.	\$300	Study	Development and Evaluation	✓
Digital Customer Experience Strategy		10507	Develop a digital customer experience strategy.	\$800	Study	Project Development	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Economic and Environmental Impact Study		10648	Complete updated study to analyze high capacity transit and the benefits of Metro to the metropolitan region.	\$500	Study	Development and Evaluation	✓
Future Capital Investment Needs Study Program		10858	A program to perform business case analysis, studies, and alternative analysis on Metro's identified capital investment needs to determine the most effective and efficient investment required. Includes future year set-aside for emerging and future needs.	\$120,000	Study	Development and Evaluation	✓
Real-Time Bus and Rail Data Feed Development		10431	Improvements to General Transit Feed Specifications (GTFS) real-time data feeds for bus and rail service.	\$1,100	Project	Development and Evaluation	✓
Ridership Forecast Study - Research and Update		10655	Update to existing study on the future of rail and bus ridership to inform Metro's strategic planning.	\$800	Study	Development and Evaluation	✓
System Preservation		10867	Future priority system preservation needs.	\$312,931	Project	Not Started	✓
Transit System Investment Plan Study		10652	Preparation for a long-range investment plan for the Metro transit system based on growth and demand. The last Board-adopted plan was in 1998.	\$3,000	Study	Development and Evaluation	✓
Update System for Transit-Oriented Development Planning		10367	Migrate data from obsolete Capital Needs Early Warning System (CNEWS) tool to new SMART TOD tool and develop new tool to inform future transit-oriented development planning.	\$460	Project	Implementation	✓



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Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Capital Fund for Bus Priority Study		10843	Assess potential incentive measures to jurisdictions to advance bus priority measures like bus lanes and transit signal priority.	\$500	Study	Development and Evaluation	✓
Capital Fund for Bus Priority		10650	Provide funding support to regional jurisdictions to advance bus priority measures like bus lanes and transit signal priority.	\$32,000	Project	Project Initiation	
Functional Area: Rail Vehicles							
Railcar Acquisition - 8000 Series		10002	Acquisition, manufacture, and delivery of new 8000 series railcars to replace 2000 and 3000 series railcars that are beyond their useful life. Further options for future railcar fleet expansion are funded in another project.	\$937,879	Project	Project Development	✓
8000 Series Procurement Options Evaluation		10799	Analyze need for potential Metrorail fleet expansion.	\$250	Study	Development and Evaluation	✓
8000 Series Railcars Options Execution		10800	Pending outcome of study and future evaluation, purchase and commissioning of new 8000 series railcars to advance Metrorail fleet expansion and potentially replace, rather than overhaul, 6000 series railcars at mid-life.	\$1,168,450	Project	Development and Evaluation	
8000 Series Railcar Support		10040	Obtain engineering and consulting services to support the design, acquisition, inspection, testing, commissioning, and warranty support of the 8000 series railcars.	\$172,500	Project	Implementation	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Railcar Replacement - 7000 Series Acquisition		10566	Acquire 7000 series railcars to replace 1000, 4000, and 5000 series railcars.	\$1,545,550	Project	Implementation	✓
Stop and Proceed Operating Mode Update for 6000 Series Railcars		10664	Software update to prevent red signal overruns and inadvertent entry into Stop and Proceed operating modes by 6000 series railcars.	\$2,141	Project	Implementation	✓
2000 and 3000 Series Railcar Scheduled Rehabilitation		10102	Overhaul all major subsystems of the 2000 and 3000 series railcars including, but not limited to, propulsion, brake, door, and coupler systems to improve railcar safety and maintain a state of good repair. Program includes customer enhancements, e.g., LED lighting, and resilient flooring and seats to sustain the railcars until they are replaced.	\$35,565	Project	Implementation	✓
2000/3000 Series Railcar Removal and Disposal		10661	Project supports the removal and disposal of decommissioned railcars.	\$1,000	Project	Not Started	✓
Rail Fleet Plan Update		10803	Update strategic rail fleet plan to guide and instruct fleet-wide, facility, and system investments based upon ridership, changing regional needs, and to optimize service.	\$1,500	Study	Development and Evaluation	✓
Railcar Training Simulators		10684	Provide training simulators to model work crews, other operational conditions, and possible adverse conditions that may be present during railcar operations.	\$4,814	Project	Project Development	✓
Converter Function Module (CFM) Upgrade		10663	Software upgrade to modify the ventilation scheme and duty cycle of railcar converter function modules, including updates to corresponding documentation and training.	\$1,709	Project	Implementation	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Precision Station Stopping (PSS)		10662	Automation of railcar stopping at stations to consistently align railcar consist to platform for both eight-car and six-car consists.	\$3,141	Project	Implementation	✓
Track Maintenance Equipment - Ballast Car Acquisition		10307	Acquire ballast cars to move and distribute ballast stone along the tracks to secure rail track.	\$1,950	Project	Development and Evaluation	✓
Track Maintenance Equipment - Ballast Regulator Acquisition		10364	Acquire a replacement ballast regulator that is used to clear the track of heavy gravel and other materials that may damage trains on the track.	\$1,041	Project	Development and Evaluation	✓
Track Maintenance Equipment - Drain Cleaner Vehicle Acquisition		10324	Design, manufacturing and delivery of a drain cleaning prime mover.	\$3,200	Project	Needs Identification	✓
Track Maintenance Equipment - Flat Cars Acquisition		10229	Acquire approximately 40 new flat cars, which are used and necessary for track maintenance and rehabilitation work.	\$12,800	Project	Development and Evaluation	✓
Track Maintenance Equipment - Locomotive Prime Mover Replacement		10149	Acquire 18 locomotive prime movers. Fourteen (14) to replace aging units and 4 additional units to support maintenance and capital projects.	\$28,800	Project	Development and Evaluation	✓
Track Maintenance Equipment - Locomotives Acquisition		10127	Acquire six locomotives to tow track maintenance equipment such as the rail train and the tunnel vacuum.	\$30,961	Project	Development and Evaluation	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Track Maintenance Equipment - Multi-Function Flat Cars Acquisition		10251	Acquire multi-functional flat cars to perform activities such as third rail, de-icing, tunnel washing and traction gel application.	\$12,097	Project	Development and Evaluation	✓
Track Maintenance Equipment - Structural Maintenance Vehicle (Down and Under Prime Mover)		10269	Acquire a structural maintenance vehicle for repairs underneath aerial structures, including training, manuals, and spare components.	\$5,800	Project	Not Started	
Track Maintenance Equipment - Track Inspection Vision System Technology and Equipment		10294	Acquire new track vision system technologies.	\$12,427	Project	Project Development	✓
Track Maintenance Equipment - Tunnel Vacuum Train Acquisition		10096	Acquire new tunnel vacuum trains, including training and spare parts.	\$28,669	Project	Development and Evaluation	
Tunnel Vacuum Infrastructure at Railyard		10828	Construction of rail storage tracks, a section of elevated track, access roads and "dumping stations" at railyards to enable Vacuum Trains (trains with large vacuum systems mounted on railcars) to dump debris collected from the railway directly into trucks for removal.	\$15,225	Project	Not Started	
Track Maintenance Equipment Vehicle Fleet Plan		10840	Inventory and evaluate needs for track maintenance equipment and maintenance facilities.	\$250	Study	Not Started	✓
Track Maintenance Equipment - Additional Ultrasonic Testing Equipment for Rail Inspection		10331	Acquire ultrasonic testing equipment for track inspection.	\$8,926	Project	Needs Identification	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Functional Area: Revenue Collection							
Bus Revenue Cash Vault Replacement		10454	Replace aging bus revenue equipment, including cash vaults and mobile bins, to continue the secure and reliable processing of revenue.	\$1,320	Project	Project Development	✓
Fare Collection Software System Update		10064	Develop, design, test and implement the software system to support WMATA fare collection modernization.	\$49,000	Project	Project Initiation	✓
Metrorail Faregate People Counter		10443	Design, procure and install people-counting technology on Metrorail station faregates.	\$1,100	Project	Implementation	✓
Mobile Fare Payment		10153	Develop software to support the implementation of Metro's new mobile fare payment platform.	\$19,948	Project	Implementation	✓
Point of Sale Fare Purchasing System Redesign		10453	Redesign existing Compact Point of Sale (CPOS) system with a new solution to better serve customers through local merchants.	\$2,900	Project	Project Initiation	✓
Systemwide Fare Vending Machine Replacement		10430	Replace aging and obsolete fare vending machines systemwide with more user-friendly machines.	\$28,000	Project	Project Initiation	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Systemwide Faregate Replacement		10433	Replacement of faregates systemwide to improve the customer experience, mitigate fare evasion, deliver improved system operation and reduced maintenance.	\$56,490	Project	Implementation	✓
Systemwide Faregate Replacement Software Integration		10875	Integration of Metro's current fare payment technology system with the new faregates being installed by the faregate replacement project (#10433).	\$23,700	Project	Implementation	✓
Farebox Hardware Acquisition and Replacement		10450	Complete the system engineering tasks, software development, user acceptance testing and validations associated with replacement bus farebox acquisition.	\$8,029	Project	Implementation	✓
Systemwide Farebox Replacement		10451	Replace aging fareboxes on MetroBus fleet with a system that integrates with other onboard systems such as Automatic Vehicle Location (AVL).	\$34,040	Project	Project Initiation	✓
Functional Area: Silver Line							
Silver Line Phase 2 Art In Transit		10598	Implement WMATA's Arts in Transit Program by designing, fabricating and installing art pieces at Silver Line Phase 2 Silver Line stations.	\$1,495	CRB	Implementation	✓
Silver Line Phase 2 Automatic Fare Collection		10599	Acquire and install Automatic Fare Collection (AFC) equipment for Silver Line Phase 2 stations.	\$13,164	CRB	Implementation	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Silver Line Phase 2 Non-Revenue Vehicles and Equipment		10600	Acquire non-revenue vehicles, equipment and furniture for Silver Line Phase 2 facilities.	\$9,181	CRB	Implementation	✓
Silver Line Phase 2 Operations Start-Up and Testing		10605	Support for the operations activation and testing of the Silver Line Phase 2 expansion.	\$11,509	CRB	Implementation	✓
Silver Line Phase 2 Program Oversight		10601	Project supports the program oversight costs associated with the Silver Line Phase 2 efforts.	\$1,526	CRB	Not Started	✓
Silver Line Phase 2 Rail Operations Control Center Integration		10603	Acquire and install all databases, hardware, firmware, software, workstations, consoles, computer equipment, and furniture, at the Rail Operations Control Center (ROCC).	\$10,014	CRB	Implementation	✓
Silver Line Phase 2 Signage and Graphics		10602	Support the Silver Line Phase 2 expansion, integration, testing and activation to the existing Rail Operations Control Center (ROCC).	\$14,021	CRB	Implementation	✓
Silver Line Phase 2 WMATA Technical and Construction Oversight		10604	Oversight, design review, and general program support for Phase 2 of the Silver Line expansion.	\$42,913	CRB	Implementation	✓
Silver Line Phase 1 Railcars Acquisition		10572	Design, acquire, test and commission sixty-four 7000 Series Railcars for the Silver Line Phase 1.	\$199,863	CRB	Implementation	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Silver Line Phase 2 Railcars Acquisition		10574	Design, acquire, test, and commission sixty-four 7000 Series Railcars for the Silver Line Phase 2.	\$193,803	CRB	Implementation	✓
Functional Area: Stations							
Advertising Digital Displays		10868	Installation of additional digital advertising displays to maximize advertising revenue.	\$30,288	Project	Implementation	✓
Architectural Erosion and Drainage Plan Study		10190	Design architectural plan to prevent erosion and increase drainage at three stations.	\$450	Study	Project Development	✓
Bethesda Metrorail Station Purple Line Improvements		10620	Reconfigure the Bethesda Metrorail station to accommodate Purple Line access. Costs are to be determined.	TBD	CRB	Not Started	✓
Columbia Heights Metrorail Station Study		10692	Identify station improvements and assess feasibility of options to relieve congestion and improve accessibility.	\$1,000	Study	Development and Evaluation	✓
Court House Metrorail Station Second Elevator Study		10123	Project development to build two new elevators in the same vicinity as the existing elevator.	\$193	CRB	Development and Evaluation	



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Customer Amenities Upgrade		10726	Upgrade stations based on customer surveys and needs assessments. Improvements include: additional digital information screens, customer service buttons to call boxes, USB chargers, options for heating/cooling outdoor portions of stations.	\$52,130	Project	Not Started	
Design and Purchase of Retail Merchandising Units		10881	Supports the design and construction of merchandising units to be leased to third-party vendors for commercial operations at Metrorail stations. Units will be constructed at locations identified by Metro.	\$15,000	Project	Needs Identification	
Elevator and Escalator Structural Rehabilitation Study		10852	Analyze the need for structural rehabilitation for elevator and escalator infrastructure systemwide.	\$50	Study	Development and Evaluation	✓
Vertical Transportation Safety Improvements		10318	Evaluate elevator recall fire alarm functions in Metrorail stations to ensure fire code adherence.	\$600	Concept	Project Initiation	✓
Escalator Canopies Installation - Phase 4		10100	Upgrade and replace escalator canopies at eight Metrorail stations.	\$21,977	Project	Implementation	✓
Federal Triangle Metrorail Station Study		10693	Identify station improvements and assess feasibility of options to relieve congestion and improve accessibility.	\$1,000	Study	Development and Evaluation	✓
Gallery Place-Chinatown Metrorail Station Passageway Construction		10807	Upgrade platforms and excavate pedestrian tunnel at the Gallery Place-Chinatown Metrorail station to improve pedestrian customer flow.	\$93,250	Concept	Project Initiation	



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Huntington Metrorail Station Additional Entrance		10735	Construct an additional pedestrian entrance to Huntington Metrorail station to improve ADA access and station circulation.	\$118,459	Project	Project Development	✓
Installation of Tunnel Fan Control Panels		10538	Replace Generation 1 tunnel fan control panels with upgraded panels. Generation 2 panels incorporate new computer technology and integrated ethernet connectivity, which will replace the current data transmission system (DTS).	\$7,628	Project	Implementation	✓
Metrorail Station Emergency Gates Replacement		10263	Replace Metrorail station emergency gates.	\$9,535	Project	Project Development	✓
Metrorail Station Entrance Gates Replacement		10301	Remove and replace deteriorated entrance gates at Metrorail stations.	\$2,560	Concept	Project Initiation	✓
Metrorail Station Passenger Circulation Improvements		10841	Implement improvements to Metrorail stations to improve passenger circulation and to address potential safety concerns. Specific future investments to be determined through development and evaluation program.	\$500,000	Concept	Project Initiation	
Navy Yard Metrorail Station New South Entrance Study		10081	Produce an engineering feasibility study for a potential new south entrance, developing and evaluating conceptual design options to improve capacity at the station.	\$1,000	CRB	Development and Evaluation	✓
New Carrollton Metrorail Station Employee Facility Improvements		10297	Reconstruct an awning and construct a restroom for operator use at New Carrollton Metrorail station.	\$2,210	Concept	Project Initiation	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
New Carrollton Metrorail Station Parking and Bus Bay Reconfiguration for Purple Line Right of Way		10623	Reconfigure parking and bus bays at the New Carrollton Metrorail station in anticipation of the Purple Line right of way and Station. Costs are to be determined.	TBD	CRB	Implementation	✓
New Potomac Yard Metrorail Station		10619	Design and construction of a new Metrorail Station between the Ronald Reagan Washington National Airport and Braddock Road Stations along the existing Blue and Yellow Lines.	\$290,408	CRB	Implementation	✓
Purple Line: Silver Spring Station and New Entrance/Mezzanine		10625	Construct an aerial structure over the Metrorail Red Line and CSX tracks at the Silver Spring Metrorail station, and construct a new entrance/mezzanine to the Paul S. Sarbanes Transit Center. Costs are to be determined.	TBD	CRB	Implementation	
Rhode Island Avenue Metrorail Station Platform Rehabilitation		10134	Rehabilitate Rhode Island Avenue Metrorail station platform to ensure compliance with ADA requirements and provide a safe platform for customers.	\$28,686	Project	Not Started	✓
Shady Grove Metrorail Station New South Entrance Study		10074	Analyze a proposed new entrance to Shady Grove Metrorail station that includes developing and evaluating conceptual design options.	\$2,307	Study	Development and Evaluation	✓
Station Area Conceptual Site Planning for Joint Development		10649	Evaluate site design needs for future joint development with focus on balancing bus access and circulation needs with transit oriented development around Metrorail station properties.	\$700	Study	Development and Evaluation	
Station Platform Tile Assessment		10872	Assessment of the condition and analysis of replacement/rehabilitation alternatives for station platform and mezzanine tiles.	\$500	Study	Development and Evaluation	✓



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Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Stations Platform Rehabilitation - Phase 2		10708	Rehabilitation and repair of platforms at multiple outdoor stations (4) along Orange Line in Virginia to address potentially unsafe and deteriorating platform conditions.	\$357,600	Project	Project Development	✓
Stations Platform Rehabilitation - Phase 3		10709	Rehabilitation and repair of platforms at multiple stations along Blue and Yellow Lines in Virginia and Blue and Orange Lines in Maryland to address potentially unsafe and deteriorating platform conditions.	\$368,750	Project	Development and Evaluation	✓
Stations Platform Rehabilitation - Phase 4		10857	Rehabilitation and repair of platforms at West Hyattsville, Prince George's Plaza, College Park-University of Maryland, and Greenbelt Metrorail stations along the Green Line in Maryland to address potentially unsafe and deteriorating platform conditions.	\$247,000	Project	Not Started	
Union Station Entrance Improvements		10576	A construction project to address passenger congestion at Union Station by relocating the First Street NE entrance, adding stairs and faregates, and relocating fare card vending machines.	\$6,491	CRB	Project Development	✓
Waterfront Metrorail Station Improvement Study		10691	Identify station improvements and assess feasibility of options to relieve congestion and improve accessibility.	\$1,000	Study	Development and Evaluation	✓
West Falls Church Land Development		10878	Development of 24 acres of Metro owned land at West Falls Church Metrorail station to gain ridership benefits from proposed adjacent development.	\$10,000	Concept	Needs Identification	
Water Leak Mitigation - Systemwide Water Intrusion Remediation Study		10312	Conduct systemwide survey and inspection for water intrusion, coordinate with the existing utilities, and design the necessary rehabilitation solutions.	\$1,250	Study	Development and Evaluation	✓



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Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Water Leak Mitigation - Systemwide Water Intrusion Remediation		10820	Program to implement necessary repairs and improvements to mitigate water intrusion in Metrorail stations and ancillary rooms.	\$659,250	Project	Not Started	✓
Emergency Exit Rehabilitation Project Study		10317	Inspect, evaluate and design alternatives for emergency exits that may require replacement.	\$100	Study	Development and Evaluation	✓
Emergency Exit Rehabilitation Project		10757	Replace emergency exits and access hatches at multiple stations.	\$0	Concept	Project Initiation	
Floating Concrete Slab Study and Alternatives Analysis		10464	Replace displaced floating slabs with shorter length floating slabs that are easier to maintain.	\$3,150	Study	Development and Evaluation	
Floating Slab Pilot		10855	Conduct a pilot to replace floating concrete slab between Benning Road Station and Capitol Heights Station, pilot will test a new modular design.	\$20,000	Pilot	Development and Evaluation	
Floating Slab Full Implementation		10856	Replacement of floating concrete slab track structure systemwide.	\$100,000	Concept	Development and Evaluation	
Rail Station Commercialization Program		10767	Perform Metrorail station improvements to maximize non-fare revenue such as preparing for retail vendor areas, upgrading to digital displays, and improving signage and wayfinding as well as other customer amenities (bicycle parking, bike share/scooter, share/car share and seating).	\$2,516	Concept	Development and Evaluation	



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Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Systemwide Flood Resiliency Infrastructure Upgrades Assessment		10562	Assess areas vulnerable to flooding across the entire Metro system.	\$9,950	Study	Development and Evaluation	✓
Systemwide Flood Resiliency Infrastructure Upgrades Implementation		10866	Implement systemwide flood resiliency infrastructure upgrades.	\$60,000	Project	Not Started	
Metrorail Emergency Egress Upgrades		10306	Add egress, lighting and signage to emergency evacuation routes that are not currently clearly identified and are in need of improvement.	\$10,000	Project	Development and Evaluation	✓
Crystal City Metrorail Station New East Entrance		10848	Review and technical service provided to Arlington County for the construction of a new east entrance to the Crystal City Metrorail station at 18th Street South and Crystal Drive. The construction of the entrance is expected to be managed by Arlington County.	\$250	CRB	Project Development	✓
Station Bicycle-Pedestrian Access Improvements Study		10069	Rehabilitate or construct new exterior pedestrian and bicycle facilities at stations across the system.	\$500	Study	Development and Evaluation	✓
New Carrollton Metrorail Station Improvement Study		10070	Analyze potential improvements to the existing entrance at New Carrollton Metrorail station that includes developing and evaluating conceptual design options.	\$251	Study	Development and Evaluation	✓
New Carrollton Metrorail Station Improvements		10738	Improvements to the existing entrance at the New Carrollton Metrorail station to increase capacity and accessibility, and improve egress at the station.	\$25,000	Concept	Development and Evaluation	



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Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Foggy Bottom Metrorail Station Improvement		10849	Improve Foggy Bottom Metrorail station entrance for customer safety and access.	\$3,500	Project	Project Development	✓
Station Platform Canopy Repair and Rehabilitation Study		10174	Identify needs to restore and maintain state of good repair of outdoor platform canopies at above ground stations.	\$250	Study	Development and Evaluation	✓
Station Platform Canopy Repair and Rehabilitation		10819	Implement structural repairs to damaged or leaking station canopies at above ground stations.	\$9,000	Concept	Project Initiation	✓
Ventilation Improvements - Red Line Pilot		10339	Perform a pilot and evaluation to rehabilitate ventilation shaft components on the Red Line between Woodley Park through Van Ness Metrorail Stations.	\$26,500	Pilot	Project Initiation	✓
Ventilation Improvements - Systemwide		10340	Rehabilitate ventilation shaft components following pilot evaluation including, but not limited to: structural, electrical, lighting, fans, communications, equipment, ladders, steps, smoke detectors, alarms, and information technology infrastructure systemwide.	\$529,536	Concept	Development and Evaluation	
Ventilation Improvements Support		10545	Project to update WMATA tunnel ventilation improvement efforts. Project to include PM support, overall design tasks and project supports to advance program.	\$37,501	Project	Development and Evaluation	✓



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Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Functional Area: Structures							
Aerial Bridge Sealing		10755	Program to support sealing activities to maintain bridge structure integrity.	\$12,500	Project	Not Started	✓
Aerial Structure Rehabilitation		10882	Project supports future aerial structural improvement projects.	\$150,000	Concept	Project Initiation	
Cheverly Aerial Structures Repair		10161	Rehabilitate anchor bolts, bearings, bolts, abutments, and decks on Cheverly Metrorail Station aerial structure.	\$14,675	Project	Project Development	✓
Farragut North Metrorail Station Vent Shaft Grate Replacement		10241	Rehabilitate ventilation shaft grates for corrosion and wear near Farragut North Metrorail station.	\$957	Project	Implementation	✓
Greenbelt Metrorail Station Outer Loop Ramp Bridge Rehabilitation		10305	Inspect, design, and implement a solution for the broken anchor bolts at three bearings on the beltway outer loop ramp bridge at Greenbelt Metrorail station.	\$2,335	Project	Project Development	✓
Greenbelt Metrorail Station Inner Loop Bridge Repair		10341	Repair the bridge bearings, expansion joints, wing walls, approach slabs, and erosion on the inner loop ramp bridge at the Greenbelt Station.	\$7,100	Concept	Project Initiation	✓



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Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Grosvenor-Strathmore Aerial Structure Improvements		10170	Perform pier cap retrofit and grout pad rehabilitation to the Grosvenor-Strathmore Metrorail Station aerial structures. This retrofit construction will extend the useful life of the pier caps by 75 years.	\$13,000	Project	Project Development	✓
Huntington Station Bridge Rehabilitation		10334	Rehabilitate Huntington Station bridge back to a state of good repair, to include replacement expansion joints, grout pads and correcting deck drainage issues.	\$2,600	Project	Not Started	✓
King Street Station Bridge Repair		10432	Inspect and rehabilitate the King Street Metrorail station bridge.	\$1,600	Project	Project Initiation	✓
Minnesota Avenue Aerial Structure Repair		10133	Rehabilitate Minnesota Avenue bridge structure to a state of good repair.	\$15,250	Project	Project Development	✓
New Carrollton Amtrak Station Bridge Gutter Repair Study		10296	Develop project to replace and improve the gutter system between the New Carrollton Metrorail station and the Amtrak station.	\$200	Study	Development and Evaluation	✓
Orange Line 495 Aerial Structure Rehabilitation		10236	Rehabilitate the Orange Line I-495 aerial structure to correct identified fatigue cracks in critical membrane and anchor rods.	\$9,200	Project	Project Development	✓
Orange, Blue, and Silver Line Junction Pocket Track Upgrade		10685	Construction of a westward extension of the existing pocket track and upgrade of the switches, plus any necessary sub-structure improvements.	\$54,823	Project	Project Development	✓



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Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Pedestrian Bridge Rehabilitation		10853	Rehabilitate current pedestrian bridges at Metrorail stations.	\$6,000	Project	Project Initiation	✓
Potomac River Bridge Rehabilitation		10230	Rehabilitate Yellow Line Potomac River Bridge between L'Enfant Plaza and Pentagon to include bearing, expansion joints, and drains.	\$3,000	Project	Not Started	✓
Segmental Bridge Rehabilitation		10854	Rehabilitate segmental bridges systemwide based on asset condition priority.	\$17,750	Project	Project Development	✓
Vent Shaft Relocation Study - Wilson Boulevard		10141	Study to examine relocating the opening for ventilation shaft from Wilson Boulevard into adjacent sidewalks or other non-roadway locations.	\$645	Study	Development and Evaluation	✓
Yellow Line Portal Tunnel Remediation Study		10844	Conduct a study to assess potential repairs to the steel lining at the Yellow Line portal tunnel south of L'Enfant Plaza Metrorail station.	\$7,937	Study	Development and Evaluation	✓
Yellow Line Portal Tunnel Remediation		10842	Pending study and evaluation of alternatives, perform repairs to the steel lining at the Yellow Line portal tunnel between L'Enfant Plaza and Pentagon Metrorail stations.	\$400,000	Concept	Development and Evaluation	✓



APPENDIX A: Capital Investments by Functional Area




Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Functional Area: Track							
Chain Marker Signage within Platform Limits		10316	Install and update chain marker signs to improve location awareness within Metrorail station platforms.	\$1,530	Concept	Development and Evaluation	✓
Double Crossover Redesign and Construction		10457	Replace double crossovers at Morgan Boulevard and Largo Town Center with WMATA standard crossings.	\$3,650	Project	Project Development	✓
Strategic Work Planning System		10466	Design and acquire new system to plan, schedule, finalize and execute all Metro track and facilities work.	\$1,000	Project	Project Development	
Mid-Line Interlocking Improvement Study		10459	Conduct study to identify potential improvements to the mid-line interlocking system.	\$500	Study	Development and Evaluation	✓
Mid-Line Interlocking Improvements		10764	Implement improvements to the mid-line interlocking system.	\$0	Concept	Development and Evaluation	
Third Rail (Electrified Rail) Modernization Study		10461	Design new third rail infrastructure to reduce maintenance costs and response time.	\$390	Study	Development and Evaluation	



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Project Name	Theme	Project #	Description	Total Est. Cost (\$000s)	Type	Current Phase	In CIP
Third Rail (Electrified Rail) Modernization		10765	Install a new third rail infrastructure to reduce maintenance costs and address and improve insulation and conductivity issues.	\$61,500	Concept	Development and Evaluation	
Wayside Worker Protection Expanded Pilot		10705	Wireless system designed to protect workers on or near tracks (wayside) and alert train operators of the workers' presence.	\$11,480	Pilot	Development and Evaluation	✓
Wayside Worker Protection Systemwide Implementation		10834	Subject to results of pilot and evaluation of alternatives, install a wireless system designed to protect workers on or near tracks (wayside) and that will alert workers of an approaching train and alert train operators of the presence of wayside workers.	\$80,000	Concept	Development and Evaluation	



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Capital Programs							
Functional Area: Automatic Train Control							
Automatic Train Control (ATC) Corrective Maintenance		10789	Rehabilitate automatic train control (ATC) equipment.	\$380	Program	Ongoing Program	✓
Automatic Train Control (ATC) Engineering Modification Instructions (EMI) Development and Implementation Program		10475	Develop and implement engineering modified instructions (EMI), which are documentation of changes to the original design, for the automatic train control (ATC) system to address mandates or system issues.	\$2,489	Program	Ongoing Program	✓
Automatic Train Control (ATC) High Current Bond Replacement Program		10477	Replace electrical bonds across the system to facilitate extra power and capacity.	\$1,146	Program	Ongoing Program	✓
Automatic Train Control (ATC) Interlocking Rehabilitation Program		10480	Rehabilitate interlocking systemwide to support automatic train control (ATC) implementation. An interlocking is an arrangement of interconnected signal apparatus that prevents conflicting movements of rail vehicles.	\$2,036	Program	Ongoing Program	✓
Automatic Train Control (ATC) Room Rehabilitation Program		10495	Replace equipment in train control rooms (TCR) that has reached the end of useful life with self-monitoring equipment and rehabilitate the structural integrity of TCRs impacted by water damage.	\$12,788	Program	Ongoing Program	✓
Automatic Train Control (ATC) Switch Machine Replacement Program		10501	Replace all railyard switch machines and at select mainline interlockings systemwide to support automatic train control (ATC).	\$5,090	Program	Ongoing Program	✓



APPENDIX A: Capital Investments by Functional Area

Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Automatic Train Control (ATC) Track Circuit Cable Replacement Program		10494	Replace track circuit cables for automatic train control (ATC).	\$5,090	Program	Ongoing Program	✓
Train Control Cable Insulation Testing Program		10527	Perform recurring testing of all train control cables to ensure proper electrical insulation.	\$1,069	Program	Ongoing Program	✓
Functional Area: Bus Garages and Transit Centers							
Metrobus Onboard Location Equipment and Software Replacement		10413	Replace outdated automatic vehicle location (AVL) equipment on board all buses as well as licensing and other backend improvements.	\$7,167	Program	Ongoing Program	✓
Functional Area: Bus Vehicles, Maintenance, and Bus Stops							
Bus Acquisition Program		10004	Acquisition, replacement, and maintenance program for standard 30-foot and 40-foot buses and the longer articulated buses to maintain an average fleet age of approximately 7.5 years in accordance with the Metrobus Fleet Management Plan.	\$76,548	Program	Ongoing Program	✓
Bus Maintenance and Support Equipment Replacement Program		10086	Replace maintenance equipment that is past its useful life with new equipment to service bus vehicles.	\$2,500	Program	Ongoing Program	✓
Bus Preventive Maintenance Program		10007	Inspect and service buses and bus components to preserve and extend functionality of the vehicle.	\$1,000	Program	Ongoing Program	✓

Proposed Program

*For Programs, the number represented is an average of annual costs from FY21 through FY30 where available.

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Infrastructure, Systems & Support Facilities









Customer Experience



Vehicles

APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Bus Rehabilitation Program		10005	A rehabilitation and maintenance program to overhaul up to 100 buses annually to ensure optimal fleet reliability, service quality, efficiency, and passenger comfort.	\$47,846	Program	Ongoing Program	✓
Bus Vehicle Corrective Maintenance Program		10783	Replace worn out bus components that can no longer be overhauled to bring the vehicle back into service.	\$20,026	Program	Ongoing Program	✓
Metrobus Closed-Circuit Television (CCTV) Replacement Program		10103	Replace Metrobus closed-circuit television (CCTV) camera systems on-board all Metrobus vehicles to restore and maintain a state of good repair on a lifecycle basis.	\$9,200	Program	Ongoing Program	✓
Metrobus System Map and Signage Updates		10093	Sustain, replace, or update bus shelter maps and signage across the system to ensure maps and signage are up-to-date and reflect current service.	\$1,200	Program	Ongoing Program	✓
Service Vehicle Replacement Program		10023	Replace service vehicles that are past their useful life.	\$6,500	Program	Ongoing Program	✓
Functional Area: Communications							
Capital Program Communications and Outreach		10156	Communications support for Metro's capital improvement projects.	\$500	Program	Ongoing Program	✓



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Electronic Safety and Security System (ESS)		10075	Upgrade and or install closed circuit television (CCTV) and emergency phones and security equipment at WMATA facilities and railyards. Program will improve safety and security for customers and employees.	\$7,981	Program	Ongoing Program	✓
Passenger Information Display Systems (PIDS) Software Sustainment		10124	Passenger Information Display System (PIDS) preservation, including operations support and systems maintenance.	\$2,442	Program	Ongoing Program	✓
Radio Corrective Maintenance		10788	Project supports ongoing corrective maintenance activities associated with the existing Metro Comprehensive Radio Communication System (CRCS) state of good repair.	\$480	Program	Ongoing Program	✓
Functional Area: Facilities - Administrative							
Comprehensive Stormwater Systems Construction, Maintenance, and Rehabilitation Program		10290	Program to design, construct, rehabilitate and maintain stormwater systems at Metro facilities.	\$580	Program	Ongoing Program	✓
Emergency Construction Support		10565	Supports emergency construction across the system.	\$1,000	Program	Ongoing Program	✓
Environmental Compliance Program		10286	Design and construct environmental projects for compliance with regulatory requirements and proactively address deficiencies.	\$2,000	Program	Ongoing Program	✓



APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
General Engineering Support		10564	General engineering support services for the development of architectural/engineering concept designs to help define capital projects needed to resolve priority operational and maintenance problems.	\$2,540	Program	Ongoing Program	✓
Ongoing Interior Architecture and Furniture System Upgrades		10122	Program for facilities restoration and improvement projects, including furnishings, and for updating the facility database.	\$2,300	Program	Ongoing Program	✓
Roof Rehabilitation and Replacement		10067	Roof rehabilitation or replacement, as needed, at all Metro locations. Project includes preparation of assessment report, sampling, removal, and installation of new roofing system.	\$5,366	Program	Ongoing Program	✓
Underground Storage Tank Replacement		10082	Replacement and rehabilitation of underground storage tanks and associated monitoring systems to comply with environmental regulations.	\$3,067	Program	Ongoing Program	✓
Functional Area: Facilities - Rail Yards							
Railyard Shop Equipment Rehabilitation Program		10688	Rehabilitate equipment, including lifts, cranes (overhead and jib), drop tables, hoists, and wheel truing machines at all railyard shops.	\$1,125	Program	Not Started	✓
Functional Area: High Voltage Power							
Rail Power System Rehabilitation Program		10012	Rehabilitation of system-wide traction power substation (TPSS) and tie breaker station (TBS) locations.	\$31,056	Program	Ongoing Program	✓



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Traction Power Corrective Maintenance		10791	Program supports ongoing corrective maintenance activities associated with traction power state of good repair.	\$764	Program	Ongoing Program	✓
Functional Area: Information Technology							
Applied Planning Intelligence (API) and Data Analysis Support Platform		10213	Program to support big data analyses and research.	\$875	Program	Ongoing Program	✓
Asset Management Software Sustainment		10046	Application and security patches for all critical systems and components. The project will keep asset management applications current with vendor supported software versions and migrate databases from old infrastructure to current software platforms.	\$3,512	Program	Ongoing Program	✓
Bus Operations Software Sustainment		10832	Support and maintenance of Metro's bus operations software.	\$1,030	Program	Ongoing Program	✓
Computing Infrastructure Inventory and Replacement Sustainment		10109	Rehabilitate or replace outdated computing infrastructure and improve the capacity of the computing environment.	\$4,640	Program	Ongoing Program	✓
Contract Lifecycle Management Electronic Repository Sustainment		10106	Maintain and customize contract lifecycle management (CLM) system to add features to better the procurement process.	\$1,475	Program	Ongoing Program	✓



APPENDIX A: Capital Investments by Functional Area

Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Cybersecurity Sustainment		10252	Project provides for application security, mobile device security monitoring tools, Wi-Fi intrusion prevention systems and data leakage prevention tools to improve Metro's cybersecurity technology defenses.	\$200	Program	Ongoing Program	✓
Data Governance and Business Intelligence Sustainment		10556	Implement business intelligence reporting and analytics capabilities from various Metro enterprise data sources.	\$800	Program	Ongoing Program	✓
Computing Device Replacement Program		10732	Replace Metro's computing devices (desktops, laptops, tablets) used by staff on a lifecycle basis.	\$5,472	Program	Ongoing Program	✓
Enterprise Asset Systems and Information Management Improvement Initiative		10084	Develop and implement a program to collect accurate asset information across departments using a sustainable method that meets service, cost, safety, and regulatory requirements for transit asset management.	\$2,100	Program	Ongoing Program	✓
Enterprise Integration IT Infrastructure Program		10060	Develop an enterprise-level system architecture design to integrate various software platforms.	\$4,558	Program	Ongoing Program	✓
Enterprise Learning Management (ELM) Sustainment		10874	Support and maintenance of the Enterprise Learning Management software system used by Metro employees, managers, instructors, and administrators to manage learning throughout the entire Metro organization.	\$1,000	Program	Ongoing Program	✓
Enterprise Resource Planning (ERP) Software Testing Sustainment		10163	This effort will establish common standards, procedures, and tools for executing WMATA ERP systems. It will also establish uniform test environments across WMATA to support processes for HR, payroll, funds management, contracts life cycle management, and financial systems.	\$990	Program	Ongoing Program	✓

Proposed Program *For Programs, the number represented is an average of annual costs from FY21 through FY30 where available.

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Infrastructure, Systems & Support Facilities










Customer Experience



Vehicles

APPENDIX A: Capital Investments by Functional Area

Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
ERP Finance and Supply Chain Software System Sustainment		10110	Improve and reconcile financial and supply chain systems. Scope of project includes asset management improvement, funds management sustainment, procure-to-pay, and support for monthly and yearly close activities and improvements.	\$600	Program	Ongoing Program	✓
ERP Human Capital Management (HCM) Software Sustainment		10099	Maintain and improve the human capital management (HCM) software to manage and automate human resource functions.	\$2,080	Program	Ongoing Program	✓
Financial Planning Software Sustainment		10812	Support and maintenance for financial planning software used to support budget planning activities.	\$960	Program	Ongoing Program	✓
Geographic Information System (GIS) System Sustainment		10552	Maintain and improve current Metro's Geographic Information Systems (GIS) and applications while designing, developing and delivering new GIS portal and location-based dashboard with full enterprise capabilities.	\$1,200	Program	Ongoing Program	✓
IT Enterprise Testing Sustainment		10741	Enterprise testing team to support information technology (IT) development using standardized lifecycle management and industry best practices.	\$600	Program	Ongoing Program	✓
IT Quality Assurance (QA) Sustainment		10261	Improve IT processes and frameworks related to Metro departments including human resources, procurement, and finance.	\$1,600	Program	Ongoing Program	✓
IT Web-Based Collaborative Platform Sustainment		10743	Support team for a web-based collaborative platform on-premises and as part of Office 365 online services.	\$480	Program	Ongoing Program	✓

Proposed Program

*For Programs, the number represented is an average of annual costs from FY21 through FY30 where available.

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Infrastructure, Systems & Support Facilities










Customer Experience



Vehicles

APPENDIX A: Capital Investments by Functional Area

Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Metro Access Control System (OneBadge) Sustainment		10208	Sustain enterprise-wide efforts to maintain basic system operations for access control software and supporting systems for the physical security of Metro facilities.	\$460	Program	Ongoing Program	✓
Metro Facility Communications Systems Sustainment		10126	Perform ongoing communications systems preservation and upgrades at Metro facilities.	\$4,500	Program	Ongoing Program	✓
Metro Transit Police Technology System Sustainment		10135	Sustain and improve Metro Transit Police (MTPD) technology systems, including camera and monitoring systems.	\$860	Program	Ongoing Program	✓
Metro Website Sustainment		10281	Overhaul the WMATA.com site with a new platform and user interface.	\$880	Program	Ongoing Program	✓
Occupational Health and Wellness Department (OHAW) Software Sustainment		10130	Provide IT support services for the Occupational Health and Wellness (OHAW) Department and link department system with other key Metro systems.	\$400	Program	Not Started	✓
Rail Operations Control Center (OCC) Software System Sustainment		10136	Support and maintenance for Rail Operations Control Center (OCC) software.	\$2,377	Program	Ongoing Program	✓
Rail Performance Monitoring (RPM) System Sustainment		10270	Provide user support, database maintenance, user administration, system patching and electronic turnover administration for preserving the Rail Performance Management (RPM) system.	\$1,134	Program	Ongoing Program	✓

Proposed Program

*For Programs, the number represented is an average of annual costs from FY21 through FY30 where available.

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Infrastructure, Systems & Support Facilities









Customer Experience



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APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Safety Department Technology Program Sustainment		10155	Support for safety department's technological needs, including support software and system architecture.	\$1,120	Program	Ongoing Program	✓
Timecard Software Sustainment		10813	Support and maintenance of Metro's time-card software system.	\$1,511	Program	Not Started	✓
Web Applications Support Sustainment		10550	Operational support and maintenance improvements for SmarTrip and other applications.	\$2,500	Program	Ongoing Program	✓
Functional Area: Low Voltage Power							
AC Power Room Rehabilitation Program		10031	Upgrade of obsolete major electrical and mechanical equipment that are at the end of their useful life. These equipment include medium and low voltage switchgears, transformers, uninterruptible power supplies (UPS), electrical panels, fans, fiber, lighting, and cables.	\$23,430	Program	Ongoing Program	✓
Low Voltage Power Corrective Maintenance		10790	Program supports ongoing corrective maintenance activities associated with the low voltage power system state of good repair.	\$100	Program	Ongoing Program	✓
Functional Area: MetroAccess							
MetroAccess Fleet Acquisition Program		10013	Replace vehicles in the paratransit fleet (MetroAccess) on a lifecycle basis, consistent with the MetroAccess Fleet Plan.	\$12,000	Program	Ongoing Program	✓



APPENDIX A: Capital Investments by Functional Area

Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Functional Area: MTPD							
Threat and Vulnerability Assessment (TVA) Remediation		10727	Implement specific actions recommended by the tri-annual comprehensive Threat and Vulnerability Assessment (TVA) of Metro's properties and right of way.	\$1,000	Program	Ongoing Program	✓
Functional Area: Parking							
Parking Facility Preventive Maintenance Program		10526	Conduct regular preventive and on-going maintenance for WMATA-owned parking facilities to reduce premature deterioration.	\$6,500	Program	Ongoing Program	✓
Parking Garage Rehabilitation		10027	Rehabilitate systemwide parking facilities; to include maintenance, structural repairs, and mid-life updates that ensure a state of good repair.	\$4,500	Program	Ongoing Program	✓
Surface Parking Lots Rehabilitation Program		10078	Rehabilitate parking facilities and connecting roadway to return facilities to a state of good repair.	\$4,180	Program	Ongoing Program	✓
Systemwide Bicycle-Pedestrian Infrastructure Upgrades		10113	Upgrade bicycle and pedestrian infrastructure across the system to ensure safe and secure pedestrian and bicycle access.	\$1,500	Program	Ongoing Program	✓
Functional Area: Planning and Development							
Accounting Capital Program Support		10796	Capital program accounting support.	\$750	Program	Ongoing Program	✓

Proposed Program *For Programs, the number represented is an average of annual costs from FY21 through FY30 where available.

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Infrastructure, Systems & Support Facilities







Customer Experience



Vehicles

APPENDIX A: Capital Investments by Functional Area

Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Capital Program Development Support		10792	Capital program planning and development.	\$10,780	Program	Ongoing Program	✓
Capital Program Financial Support		10795	Financial support services for the capital program.	\$3,100	Program	Ongoing Program	✓
Design, Engineering, and Construction Capital Management Support		10793	Capital project management support for Capital Delivery.	\$11,420	Program	Ongoing Program	✓
Environmental Sustainability Lab		10337	Develops and pilots projects to reduce consumption of energy and water, and to reduce waste.	\$1,000	Program	Ongoing Program	✓
Metrobus Planning Program		10182	Perform a broad range of Metrobus planning studies necessary to sustain the network of services and facilities. Efforts focus on service plans, customer information, facilities management, bus stop accessibility, transit operations, traffic management and service delivery.	\$1,250	Program	Ongoing Program	✓
Procurement Program Support		10797	Staff support for capital program procurement activity.	\$1,100	Program	Ongoing Program	✓
Project Development Program - DC		10626	Funding for development of station circulation improvements, station access, joint development, and other planning activities in Washington, DC with the jurisdiction.	\$1,000	CRB	Ongoing Program	✓

Proposed Program

*For Programs, the number represented is an average of annual costs from FY21 through FY30 where available.

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Infrastructure, Systems & Support Facilities









Customer Experience



Vehicles

APPENDIX A: Capital Investments by Functional Area







Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Project Development Program - MD		10628	This program is supported by the State of Maryland to facilitate the planning and designing of transit oriented development and other projects that are of priority interest to the State of Maryland.	\$1,000	CRB	Ongoing Program	✓
Project Development Program - VA		10627	Funding for development of station circulation improvements, station access, joint development and other planning activities in the Commonwealth Virginia with the jurisdiction.	\$1,000	CRB	Ongoing Program	✓
Trace Model Platform Data Processing Services		10396	Purchase five years of data processing services to continue refinement of the trace model platform to improve passenger movement data.	\$129	Program	Ongoing Program	✓
Functional Area: Rail Vehicles							
7000 Series Railcar Scheduled Rehabilitation		10024	Overhaul all major subsystems of the 7000 series railcars including, but not limited to, propulsion, brake, door, and coupler systems to improve railcar safety and maintain a state of good repair. Program includes improvements for customers, e.g., LED lighting, and resilient flooring and seats.	\$37,102	Program	Ongoing Program	✓
Railcar Rehabilitation - 6000 Series		10058	Overhaul of 6000 series railcars to increase reliability and improve condition.	\$13,466	Program	Ongoing Program	✓
Railcar Rehabilitation Program Support		10554	Support scheduled overhaul of railcar fleet, to include PM support, design tasks, development of engineering modifications, and overall program support.	\$2,038	Program	Ongoing Program	✓



APPENDIX A: Capital Investments by Functional Area








Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Railcar Engineering Services		10530	Conduct professional engineering and technical services to develop rehabilitation, repair, and maintenance processes for railcars.	\$2,200	Program	Ongoing Program	✓
Railcar Preventive Maintenance		10559	Provide preventive maintenance of the railcar fleet.	\$59,000	Program	Ongoing Program	✓
Railcar Corrective Maintenance		10785	Project supports ongoing corrective maintenance activities associated with railcar state of good repair.	\$3,397	Program	Ongoing Program	✓
Track Maintenance Equipment - Roadway Maintenance Machines (RMM) Engineering Support Services		10250	Engineering to support the acquisition and commissioning of new Roadway Maintenance Machine (RMM) equipment.	\$870	Program	Ongoing Program	✓
Track Maintenance Equipment Replacement		10094	Replace heavy-duty track maintenance equipment to perform track rehabilitation and maintenance work.	\$1,814	Program	Needs Identification	✓
Functional Area: Stations							
Drainage Pump Stations (DPS) Rehabilitation Program		10563	Replace and improve drainage pumping stations that have reached end of useful life or are underperforming.	\$3,493	Program	Ongoing Program	✓



APPENDIX A: Capital Investments by Functional Area

Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Elevator Rehabilitation Program		10021	Rehabilitate elevators at Metrorail stations across the system to improve performance and availability.	\$8,650	Program	Ongoing Program	✓
Escalator and Elevator Overhaul		10393	Rehabilitate or replace escalator and elevator components based on Metro's asset management criteria.	\$6,567	Program	Ongoing Program	✓
Escalator Corrective Maintenance Program		10786	Program supports ongoing corrective maintenance activities associated with escalator state of good repair.	\$2,642	Program	Ongoing Program	✓
Escalator Rehabilitation Program		10026	Rehabilitate escalators at Metrorail stations, including the replacement of internal escalator components and upgrading associated lighting.	\$14,945	Program	Ongoing Program	✓
Escalator Replacement		10325	Replace escalators structural trusses, mechanical, and electrical escalator components.	\$30,745	Program	Ongoing Program	✓
Sewage Ejector Replacement		10055	Replace sewer ejectors systemwide that have reached end of useful life.	\$4,456	Program	Ongoing Program	✓
Standpipe Replacement Program		10568	Replace dry standpipes throughout the system that have reached the end of their useful life or need to be replaced based on asset condition.	\$6,475	Program	Ongoing Program	✓

Proposed Program

*For Programs, the number represented is an average of annual costs from FY21 through FY30 where available.

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Infrastructure, Systems & Support Facilities









Customer Experience



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APPENDIX A: Capital Investments by Functional Area




Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Station Cooling Systems Upgrade		10020	Replace chillers and station air conditioner units to upgrade systems as they approach their end of useful life.	\$12,174	Program	Ongoing Program	✓
Station Corrective Maintenance Program		10787	Program supports ongoing corrective maintenance activities associated with station state of good repair.	\$8,136	Program	Ongoing Program	✓
Station Rehabilitation Program		10001	Rehabilitate wide variety of station structures, fixtures, buildings, and amenities; to include but not limited to restroom restoration, staff locker room refurbishment, and customer-facing furnishings.	\$12,186	Program	Ongoing Program	✓
Vertical Circulation Improvements		10870	In conjunction with the escalator rehabilitation program (#10026), install additional stairs to improve passenger circulation.	\$1,000	Program	Ongoing Program	✓
Functional Area: Structures							
Structural Inspections - Aerials and Facilities		10061	Perform and maintain inspection activities and preventative maintenance on aerial structures systemwide.	\$1,500	Program	Not Started	✓
Water Leak Mitigation - Rail Tunnels		10066	Prioritize and perform water leak mitigation repairs on Metrorail tunnels throughout the system.	\$8,025	Program	Ongoing Program	✓



APPENDIX A: Capital Investments by Functional Area

Total Cost FY2020 - FY2030

Program Name	Theme	Project #	Description	Av. Yrly. Est. Cost (\$000s)*	Type	Current Phase	In CIP
Functional Area: Track							
Track Corrective Maintenance		10784	Program supports ongoing corrective maintenance activities associated with track state of good repair.	\$495	Program	Ongoing Program	✓
Track Rehabilitation Program		10003	Rehabilitate railroad track and infrastructure including rehabilitation and replacement of track components and assets.	\$89,520	Program	Ongoing Program	✓
Functional Area: Treasury							
Capital Program Financing		10557	Availability fees and interest expense for Metro's short-term line of credit used for capital program expenditures.	\$1,000	Program	Ongoing Program	✓





Appendices B - G.

Available Online Only

Appendix B: Current Project Phase (Online Only)

Appendix C: Theme (Online Only)

Appendix D: Project Name (Online Only)

Appendix E: CIP Crosswalk (Online Only)

Appendix F: Project Number (Online Only)

Appendix G: Jurisdictional Projects & Reimbursable Investments (Online Only)



Appendix H.

Glossary

Definitions

10-Year Capital Plan. A multi-year capital plan that includes all proposed unconstrained capital initiatives (projects and programs) and focuses on safety and reliability improvements, system rebuilding, system capacity expansion and performance of the transit network and services.

Six-year Capital Improvement Program (CIP). List of projects and programs, adopted by the WMATA Board of Directors, including applicable selection or ranking requirements that advance strategic objectives identified in the CIP. The CIP is collectively managed to achieve strategic enterprise objectives such as reaching a state of good repair. The CIP covers a six-year period and is updated on an annual basis with submission of the Capital Budget.

Americans with Disabilities Act (ADA). Refers to federal civil rights legislation passed in 1990 that requires public transportation services to be accessible to, and usable by, persons with disabilities.

Anticipated Funding Source. Various categories of funds to be used to pay for the capital projects and capital programs covered in the Capital Budget or projected for use in the CIP.

Approved Budget. The revenue and expenditure plan approved by the WMATA Board of Directors for a specific one year period starting on July 1.

Back2Good. A train reliability program that cuts rail car delays by replacing old and unreliable cars in the fleet. Under this program, Metro will provide credits to customers who experience a delay of 10 minutes or more during rush hour service.

Backlog. Scheduled capital investment postponed or put off until a later time; equivalent to FTA's definition of backlog.

Capital Asset. Assets of a material value and having a useful life of more than one year. Includes equipment, rolling stock, infrastructure, and facilities for use in public transportation and owned or leased by a recipient or sub-recipient of federal financial assistance. Also known as fixed assets.

Capital Budget. Annual capital budget adopted by the WMATA Board of Directors. The Capital Budget lists capital initiatives (projects and programs) presented and adopted by the Board that are planned to have expenditures in the upcoming fiscal year.

Capital Need. Represents a capital request to rehabilitate, replace, or add a group of assets to the system. Each capital need consists of a group of similar or interdependent assets.

Capital Needs Forecast (CNF). Documentation of Metro's unconstrained 10-year capital investment needs, including Metro's unconstrained infrastructure, vehicle, facility, technology and system capacity investment needs over an immediate to 10-year horizon. The CNF identifies needs categorized by major infrastructure component.

Capital Needs Inventory. A financially unconstrained prioritized plan of capital needs that documents Metro's infrastructure, vehicle, facility, technology and system capacity investment needs over an immediate to 10-year horizon and provides input to the development of the Six-Year CIP.

Capital Program Strategy. Establishes the vision behind the high-level strategy and goals for capital investments. It will outline Metro's priorities and outcomes of what we expect the capital program to achieve.

Closeout. This phase includes the completion of administrative actions and final contractual requirements including drawings, specifications, samples, as-builts, design files, settlement of claims, and updated asset inventory record. Also known as "Project Phase 6."

Concept. A capital initiative idea that has not been fully explored or developed into a project definition.

Customer Satisfaction Driver. Bus, Rail, and Metro Access customer satisfaction. Metrics tracked include: key factors based on customer surveys.

Development and Evaluation (D&E). A phase of capital project within planning timeline when SPPM and project sponsor develop project information to support go/no-go decision. Also known as "Project Phase 2".

Execution. Includes project development, implementation, operations activation and closeout phases of the project lifecycle.

Facilities. Buildings (excluding stations), major shops, storage yards, central control, and equipment necessary for operating the system.

Fire/Life Safety/Regulatory Driver. Customer and employee injuries (hazards) and/or on regulatory compliance actions. Addressing major regulatory requirements. Metrics tracked include: number/type of hazard(s) addressed, Corrective Action Plan (CAP) number.

Functional Area. A grouping of investments based on the primary asset involved.

Implementation. A phase of a capital project within project execution timeline when a project sponsor

implements the project. Also known as "Project Phase 4."

Infrastructure Availability. Percentage of track available for customer travel during operating hours.

Key Performance Indicators (KPI). Measure long term progress in the strategic areas of safety, security, service reliability and customer satisfaction and are linked to projects that will be tracked and publicly reported on a regular basis.

Metro. The Washington Metropolitan Area Transit Authority.

MetroAccess. The operating unit of Metro that offers service for eligible people with disabilities who are unable to use regular accessible Metrorail, Metrobus and local bus service (fixed route). Federal civil rights legislation passed in 1990 that requires public transportation services to be accessible to, and usable by, persons with disabilities.

Metrobus. The operating unit of Metro that provides regional and non-regional bus services.

Metrorail On-Time Performance. Percentage of customer journeys completed on time.

Metrorail. The operating unit of Metro that provides heavy rail service (subway, aerial and surface) and 91 passenger stations.

Modernization. Needs that represent one of the following:

- New functions that do not replace existing assets
- Increased passenger circulation

Needs Identification. A phase of capital project within planning timeline when a project sponsor identifies needs to be addressed with capital funds. Also known as "Project Phase 0."

Operational Impact Driver. Preventive and corrective maintenance, utility needs, contracts, materials/parts/supplies, training, or asset operations.

Metrics tracked include: major recurring operational categories.

Operations Activation. This phase includes end user approval, hand-off including technical documents and manuals, training, warranty kick-off and certificate of occupancy/useful operations. Also known as “Project Phase 5.”

Outcome. Intended result of a capital investment.

Paratransit. Refers to scheduled service for people who cannot use regular fixed route bus service. MetroAccess uses vans and sedans to provide this service in the Washington Metropolitan area.

Passenger Rail Investment and Improvement Act (PRIIA). Legislation that provides capital funding from the federal government used to address needed safety improvements including track repairs, track control systems, new rail cars, and escalator repairs.

Pay-Go Funding. Expenditure-based budget.

Pilot. A WMATA effort that is initiated as an experiment or test before introducing a system-wide capital initiative. A pilot may, but does not have to, lead to a project or program that will be considered for funding in the CIP development process.

Planning. Includes project initiation and development and evaluation phases of the project lifecycle.

Program. An ongoing multi-year reinvestment and/or preventive maintenance activity with no defined start or end date.

Program Support. Type of investment that consists of additional staff to assist with development, execution or oversight of capital projects.

Project Number. Unique identification number for a capital investment.

Project Initiation. Occurs once the need for the project is confirmed, commitment is made to

advance the project, and capital program investment is recommended to be included in the capital program. The Project Initiation phase may require the completion and evaluation of a business justification or alternatives analysis before an implementation decision is made. Also known as “Project Phase 1.”

Project Phase. Term used to indicate the progress of a project, characterized by completion of specific milestones or presentation of required documents.

Project Development. A phase of capital project within project execution timeline when a project sponsor readies the project for implementation. Also known as “Project Phase 3”.

Project. A capital project has a definable beginning and end involving expenditures and funding for the creation, acquisition, repair, rehabilitation, replacement, modernization, improvement, or expansion of assets.

Railcar Reliability. The number of miles traveled before a railcar experiences a failure, measured by Mean Distance Between Delays (MDBD). MDBD includes those failures that had an impact on customer on-time performance.

Rehabilitation. Act of restoring an asset to its original state or a condition close to its original state.

Reimbursable Investment. Unique services, programs and projects for which separate funding is provided by a jurisdiction or third-party entity. Metro is reimbursed on a dollar-for-dollar basis to provide the arranged services.

Reliability Driver. Asset reliability and measure asset performance improvement. Metrics tracked include: key factors based on asset performance metrics.

Replacement. Removing or discarding an asset for which rehabilitation is not feasible and constructing, purchasing or procuring a new asset that provides the same or similar functions as the discarded asset.

Ridership Driver. Rail and bus ridership. Metrics tracked include: key factors based on the short-term ridership model.

SafeTrack. An accelerated track work plan to address safety recommendations and rehabilitate the Metrorail system to improve safety and reliability.

State of Good Repair (FTA/MAP-21 Final Rule, July 2016).

The condition in which an asset is able to operate at a full level of performance. Three objective standards define “full level of performance:”

- The asset is able to perform its manufactured design function.
- The asset’s life-cycle investment needs have been met or recovered, including all scheduled maintenance, rehabilitation and replacements.
- The use of the asset in its current condition does not pose a known unacceptable safety risk.

Strategic Drivers. Primary goals of the organization used to assign priorities to proposed capital investments and allow for better tracking and reporting measures.

Study. A detailed investigation, business justification or alternatives analysis resulting in a recommendation regarding the best course of action(s).

Supplemental Driver. Additional goals of the organization used to assign priorities to proposed capital investments and allow for better tracking and reporting measures.

Total Project Cost (TPC). Estimate that includes all expenditures of a project from inception to completion.

Useful Life. Estimated lifespan of a capital asset, during which it can be expected to contribute to operations.

Vehicles. Includes both revenue vehicles (rail cars, buses, and vans) and non-revenue vehicles.

WMATA. The acronym used for Washington Metropolitan Area Transit Authority serving the Washington Metropolitan area which consists of Washington, DC, suburban Maryland (Montgomery County and Prince George’s County) and Northern Virginia counties of Arlington and Fairfax and the cities of Alexandria, Fairfax and Falls Church. Also known as Metro.

Acronyms

ADA. American Disabilities Act

ATC. Automatic Train Control

CIEDS. Customer Information Electronic Display Sign

CNF. Capital Needs Forecast

D&E. Development and Evaluation

ERP. Enterprise Resource Planning

FY. Fiscal Year

ITS. Intelligent Transportation System

KPI. Key Performance Indicator

PA. Public Address

PIDS. Passenger Information Display System

PRIIA. Passenger Rail Investment and Improvement Act

ROM. Rough Order of Magnitude

SGR. State of Good Repair

TPC. Total Project Cost

WMATA. Washington Metropolitan Area Transit Authority



