

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Progress Report to Stakeholders

Keep Metro Safe, Reliable and Affordable — 2018-2021



MESSAGES FROM

Metro's Chairman, Board of Directors and Metro's General Manager and Chief Executive Officer

Metro's success is our region's success. From mobility to economic development, to creating jobs and employment centers, equity and access for all, Metro has moved our region forward and yielded dividends for decades.

As our Board developed operating and capital budgets for the coming fiscal year, we considered how Metro could lead the region forward in pandemic recovery. By continuing record levels of capital investment to make the system safer and more reliable, we are preparing to welcome back riders as they emerge from one of the most challenging times in a generation.

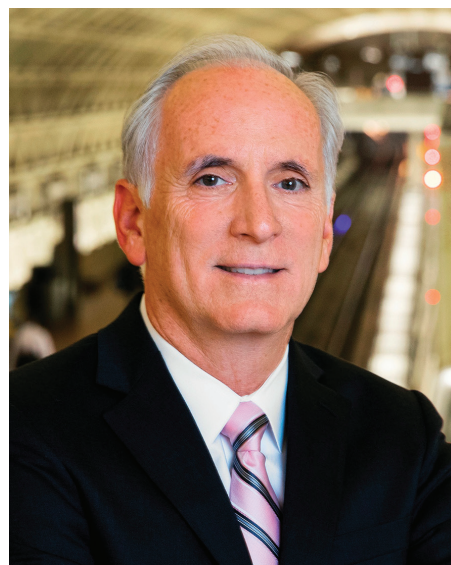
When we look back over the last three years, we can point to substantial progress in restoring tracks, platforms, stations and delivering new rolling stock. But we have years of investment before us to continue to reduce a legacy backlog, and maintain the system in a state of good repair to support the region's mobility needs. On behalf of the jurisdictions we represent, our Board remains committed to connecting the District, Virginia and Maryland with a transit system that provides safer, more reliable, and more equitable service for residents, workers, and visitors for years to come.



Five years ago, Metro struggled to provide basic levels of service following a prolonged period of underinvestment in the system. For decades, Metro was the only major U.S. transit system without a dedicated revenue source to protect its transit network. The maintenance backlog had grown too large to be solved by Metro alone. Predictably, these financial challenges contributed to conditions that marked safety failures, unreliable service, and sharp ridership declines.

In 2017, Metro's Board and jurisdictional leaders came together in an unprecedented way to put Metro on the right course, including historic dedicated funding legislation that supported Metro's get well plan. After intensive work to restore and rehabilitate basic systems began in 2018, riders started to return and public confidence grew. Then the world was struck by a pandemic, and Metro's workforce continued to deliver essential travel services, while we took advantage of low ridership to accelerate priority projects where the investments were needed most.

In the 36 months since dedicated funding became available to Metro, we have made important progress in rehabilitating our infrastructure, but so much more work lies ahead. As we mark the halfway point in the capital program funded by dedicated revenues, we recognize that every step we take to deliver better service is a credit to the region's elected and business leaders, stakeholders, advocates and customers who support Metro every day.



Overview

Following the successful conclusion of SafeTrack in 2017, state and local leaders in the national capital region came together in a historic act, committing dedicated revenue to fund WMATA's strategic plan to Keep Metro Safe, Reliable and Affordable (KMSRA). In March 2018, the dedicated funding legislation passed by the District of Columbia Council, Maryland, and Virginia provided \$500 million in annual funding, which can be leveraged through bonding to support a \$12.3 billion capital program over six years. The plan's ambitious goals included continuing work to address a backlog of neglected maintenance and upgrade projects needed to improve system safety and reliability.

Thanks to the leadership of the region's Congressional delegation, the federal capital commitment (PRIIA) has continued with the dedicated funding to provide vital support as a source of \$150 million in annual investment.

This report to WMATA's funding partners highlights systemic, substantial improvements to WMATA safety made possible by their efforts over three years, and sets forth priorities for the FY22-27 Capital Program.

Capital Improvements

The dedicated funding program made it possible for WMATA to develop an organization that could plan, design, implement, and monitor capital investments, as well as coordinate a program based on priority needs, work with operations on necessary outages, and communicate with the public about project impacts and progress. To scale up to support the program, WMATA created Strategic Planning and Program Management and Capital Delivery departments, as well as a special capital communications division of its Customer Service, Communications and Marketing Department. Together, these teams have increased investment more than double the years prior to the creation of the funding program, delivered critical projects on time and on budget, won awards for public education and engagement, and demonstrated through rider research results that customers approve of priority work and tolerate inconveniences to restore system safety.

What Customers See

Station Lighting

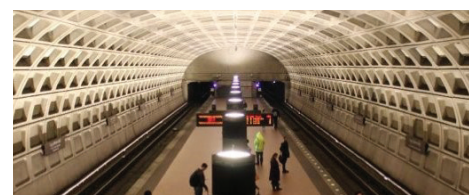
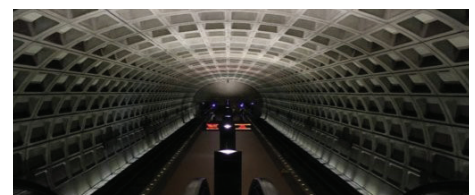
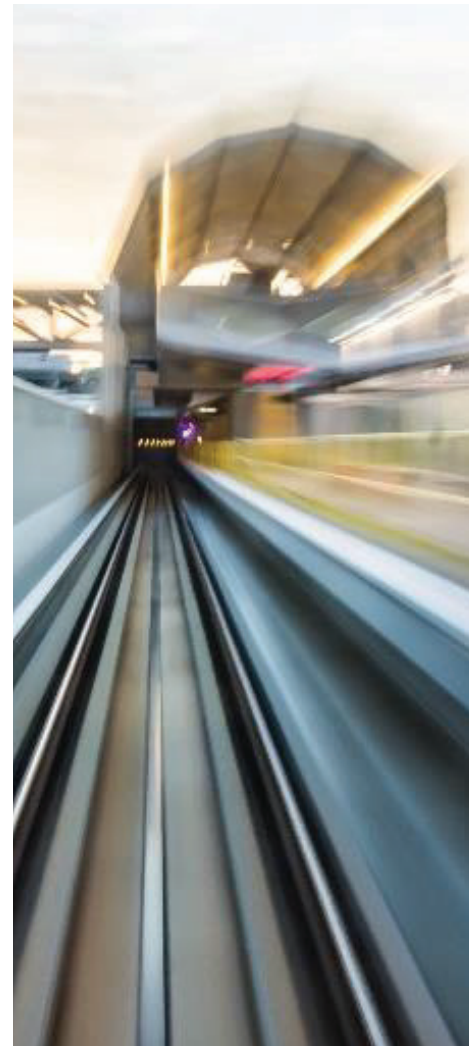
To improve security, safety, and visibility for customers, WMATA has been working to upgrade original 40-year-old lighting technology with LED lights that make stations ten times brighter on average. This was a response not only to customer concerns about trip hazards and security, but also the particular concern for people with disabilities, especially those with low vision.

Current contracts have upgraded underground platform level and recessed lighting including pylons, parapet, track bed and down lights. At above-ground stations, down lights, globe lights and canopy lights have been replaced. Re-lamping is ongoing in a number of station back rooms and the edge lighting systems have been replaced at 20 stations.

These upgrades also increase the lifespan of fixtures to more than 100,000 hours (11 years) and reduce maintenance. The program decreases energy consumption, providing an average of 60 percent energy savings per station.

Communications

In partnership with the nation's major wireless carriers, WMATA completed the installation of more than 400 miles of cabling and infrastructure throughout the Metro system, as well as the recent activation of full cell phone and free wi-fi service to all below ground stations and tunnels.



Foggy Bottom Station's old and new lighting



upgrades, the Authority also increased coverage and service reliability of its internal and regional public safety partner radio systems in the event of an emergency. Further radio system enhancements and upgrades are ongoing and expected to be completed in 2023.

Escalators

Metro escalators are the link that brings customers in and out of stations every day. In November 2019, WMATA completed an eight-year campaign that replaced 145 escalators and rehabilitated another 153 escalators to “like new” condition, replacing all the major components such as motors, steps, handrails and electrical systems. Last year, the Authority also began rehabilitating another 89 escalators throughout the system.

A new contract with KONE to replace 130 escalators will continue an aggressive, decade-long program to replace and restore the oldest and least reliable escalators in the system. The \$179 million, seven-year contract includes the installation of heavy duty, transit grade escalators at 32 stations beginning in May 2021. The new escalators will incorporate the latest safety features, including LED lighting. With this new contract, 517 of the system’s 617 escalators (84 percent) will be replaced or rehabilitated. Thanks to this program, 95 percent of escalators are available to customers every day on average.

Canopies over station entrances improve escalator reliability by protecting them from the weather. Metro has recently installed canopies at Van Ness-UDC, Metro Center, Cleveland Park, Dupont Circle (ongoing) among others.

Elevators

The rehabilitation program’s existing 10-year contract — scheduled to be completed in 2024 — has addressed 88 out of the 102 units contracted to date, which contributes to WMATA’s goal to rehabilitate elevators every 15 years. WMATA’s remote monitoring tracks the status of elevators and escalators in real time. In addition to monitoring technology, out-of-service reports are also made by station managers. A central call center dispatches technicians to address outages.

Today, 97 percent of Metro’s 275 elevator units are available to transport customers to stations and platforms every day on average.

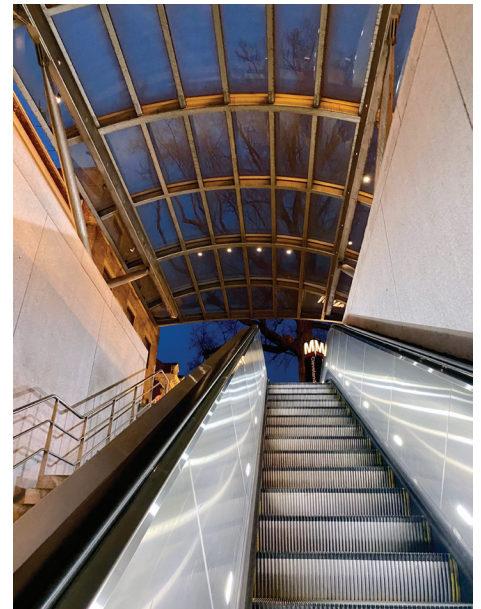
Rail Stations

In 2015, the station rehabilitation program was expanded to include updating the restrooms in several rail stations to improve safety for customers and employees. After four stations were addressed by in-house staff, a contractor was procured to rehabilitate 120 bathrooms at 40 stations. This fiscal year, another 34 restrooms at 12 stations are being updated. Stations where platform rehabilitations are performed also undergo restroom rehabilitations, taking advantage of station closures.

Platforms

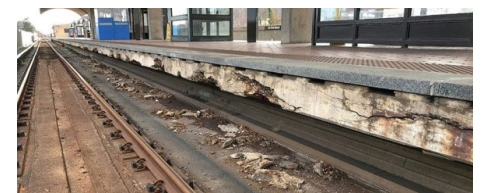
The Platform Improvement Program was WMATA’s first mega-project under the new Capital Investment Program, a priority to address structural deficiencies. As part of this program, WMATA is rebuilding deteriorated platforms at 20 outdoor Metrorail stations. The first 11 stations were completed from 2019-2020, with nine remaining stations scheduled for platform reconstruction through 2022.

As the station platforms are reconstructed, Metro is using the time to make improvements that enhance customer experience with a higher level of safety, accessibility and convenience. Key customer experience improvements include new slip-resistant tiles, brighter energy-efficient LED lighting, larger digital display screens, new stainless-steel platform shelters with charging ports and new surveillance systems.



Escalator canopy at Van Ness-UDC Metrorail Station

*Today, 95% of Metro’s
escalators and
97% of its elevator
units are available to
customers every day
on average.*



Van Dorn St Station’s platform,
before and after reconstruction

Bus Shelters

Procurement will begin in FY22 to construct new and safer bus shelters to replace deficient structures at large bus transfer locations owned by WMATA. The first phase will cover 33 shelters installed at Metro stations/bus loops.

MetroAccess

A new camera system allows continuous live video and audio recording on in-service vehicles. Previously, MetroAccess only had video clips triggered by driving actions like collisions, speeding, hard braking or a sudden swerve. The new system will enhance driver coaching and aid investigations. Future priorities include continued support of the MetroAccess Fleet Acquisition Plan, which focuses on more ramp-equipped and non-lift vehicles. These vehicles will decrease lift-related accidents and streamline preventive maintenance. The plan calls for these vehicles to comprise 40 percent of the MetroAccess fleet by the end of FY22. Metro is also accepting deliveries of 170 hybrid sedans for paratransit service which are more fuel efficient than existing vans.

What Customer's Don't See

Traction Power

Once a leading source of smoke/fire incidents, systems that power train service have been rehabilitated since 2018, with over 107,000 feet of electrical feeder cables replaced, as well as equipment upgrades at an additional 36 traction power sub-stations and tie breaker stations. Replacements and upgrades will continue on equipment and the system's cable plant through 2030 to enhance the service reliability, safety and capacity of the third-rail power system.

Traction Power Cable Meggering

One of the key improvements that arose from SafeTrack, high-voltage cables are periodically tested to identify cables that no longer maintain the ability to adequately insulate electrical current to reduce the risk of cable fires. Cables that fail are scheduled for replacement. Cables are tested seven years after initial installation and then every four years thereafter. The first 4-year cycle started in FY18 and is on target to be complete by end of FY21. As of January 31, 2021 the program is about 90 percent complete.

There have been no high voltage traction power cable fire incidents since FY18. This positive result is also attributed to other maintenance programs (elevating cables off ground, cable replacement and orange boot replacement), along with the testing program.

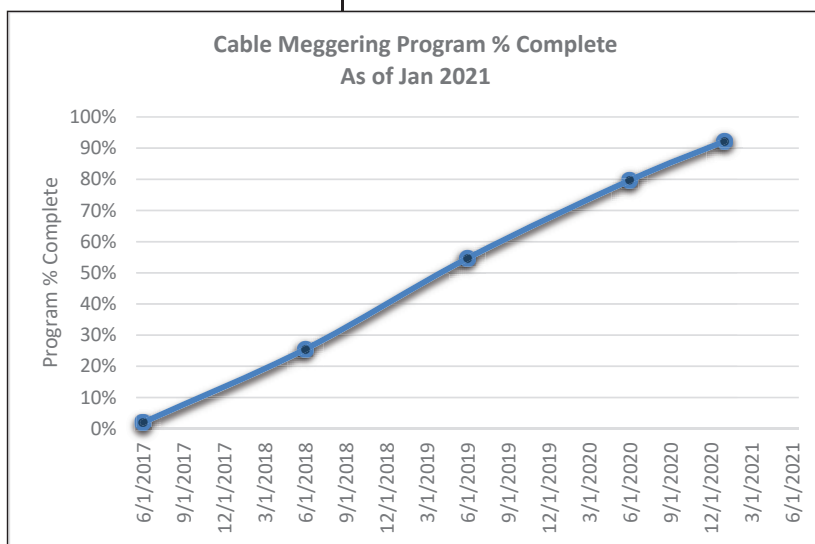
Next year, WMATA will start the second 4-year test cycle and compare test values run-over-run looking at number of cables that fail or nearly fail, considered against age of cables, location and environment, and other factors that could contribute to certain locations deteriorating faster than other locations to more effectively target testing and replacement locations.

Preventive Maintenance

WMATA's plan to keep Metro safe, reliable and affordable required the establishment of a first-ever preventive maintenance program to address system issues before they cause safety hazards or delays for rail passengers. Since 2018, the Authority made measurable progress in system operations, including a 60 percent decrease in train offloads and fires, and a 50 percent decrease in emergency track repairs.



A new bus shelter at Franconia-Springfield Station.



The replacement of orange boots contributed to improved traction power.

**TRAIN
OFFLOADS
AND FIRES**

60%

**EMERGENCY
TRACK REPAIRS**

50%

Track Bed Cleaning

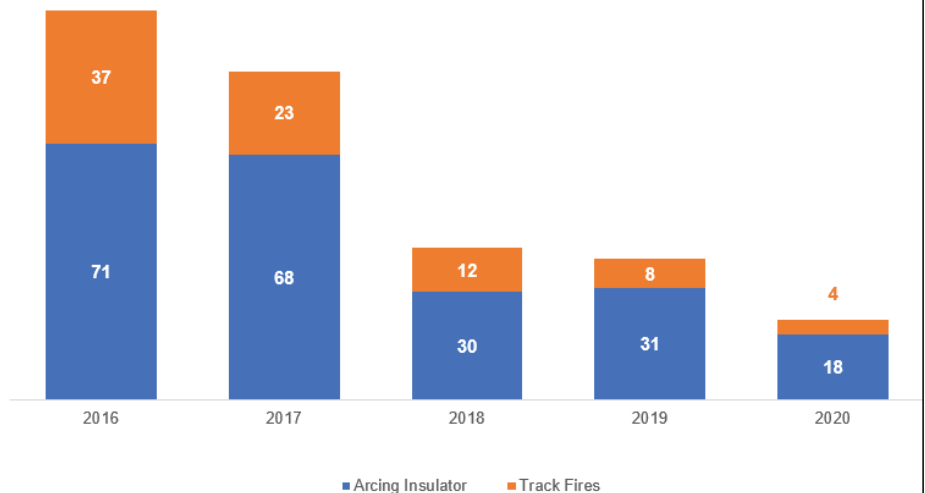
WMATA now cleans the underground portions of the system to reduce the risk of arcing insulators and other fire or smoke events, as well as cleaning in advance of stray current testing to improve the quality of the test results. The team has cleaned 200,438 linear feet so far this fiscal year, and is on track to complete its target for the end of the year. The track cleaning program has decreased wayside fire incidents significantly.

Insulator Cleaning and Replacement

Regular cleaning was instituted last year, and a 2-year cyclic insulator replacement program for the worst six locations in the system was launched. As a result, insulator fires dropped from 39 in fiscal year 2018 to five this year.

Last year, WMATA also started a thermoplastic insulator pilot to potentially replace fiberglass insulators dependent on study results. The study compares lab test results of the two types of insulators that have been installed in the same track bed location for the same amount of time, and will be evaluated at six (first test was in January 2021), 12, and 18 months.

Arcing Insulator and Track Fires 2016-2020



*Track fires include: fasteners, joints, ties and studs

Water Intrusion

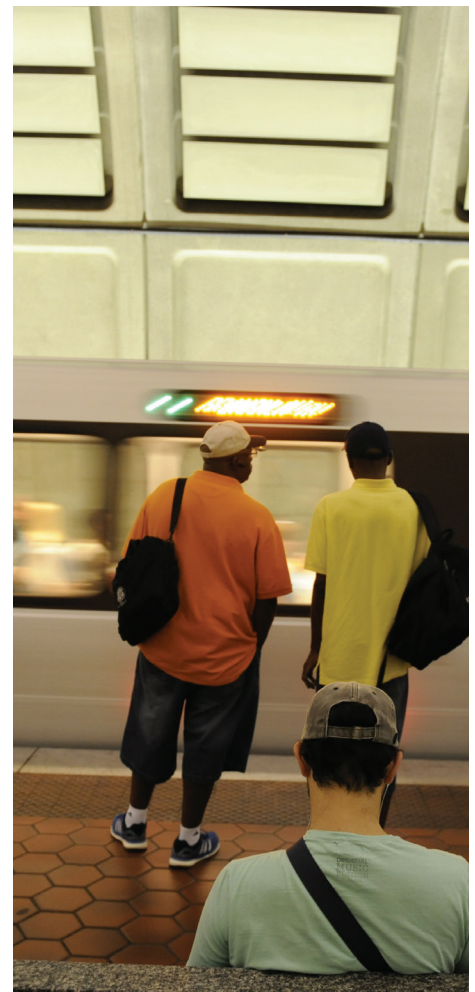
Fifty-one miles of Metro's 118-mile rail network are underground. A new leak mitigation strategy, positive side curtain grouting, was piloted on 1.5 miles of tunnel sections adjacent to Medical Center station to reduce uncontrolled water intrusion responsible for excessive track maintenance and premature life of track insulators. With the Medical Center Interlocking now operational, maintenance events greatly reduced, and the 3-year pilot project warranty period successfully achieved, WMATA will commence construction in 2022 on the next highest priority tunnel sections, between Forest Glen and Silver Spring stations, and between Tenleytown and Friendship Heights stations.

WMATA remains committed to removing water as well. Since 2018 rail system drainage pumping improvements include the replacement of 12 drainage pump stations (DPS) and over 1.5 miles of discharge piping. To date, WMATA has replaced or expanded 16 of 59 DPS systemwide and will complete 13 more by the end of 2023. These improvements have resulted in an approximately seven percent increase to the capacity of water removal resulting in the ability to pump out 1.8 million gallons of water per day, enough to fill the Lincoln Memorial reflecting pool (6,750,000 U.S. gallons) every four days.

Fire Life Safety — Tunnel Ventilation

The tunnel ventilation control system modernization program has replaced fan controls systems at 62 of 79 locations systemwide to enhance reliable remote operation. The remaining 17 control panels are scheduled for completion before the end of 2023.

To improve smoke removal from the tunnel system and stations during a tunnel fire event, WMATA is undertaking a pilot design/build construction project between Woodley Park and Cleveland Park stations to install additional fans capable of removing smoke utilizing directional controlled air movements that will be three times faster than the current system. This pilot will use existing tunnel ventilation shafts more efficiently to minimize smoke from entering stations.



Fire Life Safety — Standpipe

To meet current fire life safety regulations and codes, the Green Line tunnel system improvements continued with over 14 miles of dry standpipe replaced since 2018, resulting in an approximately 10 percent increase in the capacity of water flow with a 25 percent faster delivery rate. To date, WMATA has replaced 146 of 190 tunnel dry standpipe systems and will complete another 25 systems by the end of 2023.

Structural Repairs

The structural rehabilitation program is focused on 19 of the 148 elevated structures in the rail system prioritized by need to repair/replace deteriorated structural elements and extend the infrastructure life by 40-50 years. Included in the projects prioritized through 2025 are the Minnesota Avenue Aerial Structure between Stadium-Armory and Minnesota Ave stations, the Grosvenor Aerial Structure and the Orange/Silver Line Aerial Structure traversing the Capital Beltway. The initial construction contract containing 10 aerial structures and the Rockville Station Platform Canopy project was awarded in April 2021.

Bus garages

Safer and more reliable facilities are being constructed to support Metrobus. In 2019-2020 contracts were awarded to rebuild two of WMATA's oldest bus garages: Northern and Bladensburg bus divisions.

In addition to serving some of the busiest bus corridors in the District of Columbia, both bus divisions have historic significance for the region. Northern bus garage is designated as a Historic Landmark in the National Register of Historic Places. After both bus garages are reconstructed in 2025-2026, facilities will allow for safe and efficient bus circulation, provide modernized space with enhanced safety features for employees, and incorporate sustainable strategies, including solar arrays. Most importantly, both bus garages will be able to store, operate and maintain Metro's future Zero Emission Bus Fleet.

Facilities

WMATA employees were fortunate to be working remotely due to the pandemic in early 2020 when the Authority's headquarters building sustained damage from an electrical fire that totaled the two top floors.

Thankfully, that site is under a redevelopment agreement with Stonebridge and Rockefeller, which is expected to close in early 2023 after the Authority relocates to its new L'Enfant Plaza headquarters and regional offices. The DC headquarters site is part of a long-term ground lease. The building — which is more than 45 years old — has never undergone a major renovation, lacks fire suppression systems and does not meet current ADA standards. Some critical components of the plumbing, electrical, heat and air conditioning systems date back to the building's original construction and cannot remain in service much longer.

The site is part of an office consolidation plan that will save \$130 million over the next 20 years by reducing the number of office buildings from 10 to four, including a new headquarters and offices at L'Enfant Plaza, near Eisenhower Ave Metrorail Station and near New Carrollton Metrorail Station.



Artist rendering of Bladensburg Bus Division



Historic Northern Bus Garage



Metro's new headquarters, coming to L'Enfant Plaza

Elevator/Escalator Training Facility

The state-of-the-art training lab at WMATA's Carmen Turner Facility has a new addition to its existing escalator type: a new KONE escalator, which is one of the two leading types of escalators in the system. Other training equipment types in the training lab include traction and hydraulic elevators. This lab enhances the quality of training provided in a safe and controlled environment that mirrors the exact equipment types in the system. The training lab offers an environment where the region's first responders and WMATA personnel such as rail station managers, escalator/elevator mechanics, and apprentice program participants get hands-on training to keep equipment in service to customers.

Next Priorities

Priority projects in the years ahead include:

- Rehabilitation of the steel-lined tunnel and bridge between Pentagon and L'Enfant Plaza stations in 2022-2023.
- Deployment of projects where pilots are successful, including water infiltration and tunnel ventilation.
- Implementation of the system safety plan and the fatigue policy.
- Installation of new faregates and replacement of bus fareboxes.
- Delivery of 100 next generation paratransit vans.
- Procurement of the new 8000 series rail car to replace aging 2000- and 3000- series railcars that have been in service since the early 1980s. The new rail cars — to be built in the U.S. — will leverage the existing design of the 7000 series rail car which has proven the most reliable in the history of WMATA's fleet.

Major Capital Needs and Potential Future Investments

- Zero emission bus implementation
- Next generation signal system
- Eight car trains and increased rail frequency
- Station access and passenger circulation improvements
- Tunnel ventilation
- Blue/Orange/Silver Lines capacity and reliability

Conclusion

Since dedicated capital funding became available on July 1, 2018, WMATA has spent and obligated \$5 billion to make safety and reliability improvements which have put us on a path toward a state of good repair. This report reflects key areas that have been restored through investment, and key priority areas for the balance of the Capital Program.

While strategic investments are clearly working to reduce hazards, deliver more reliable service and decrease the Authority's backlog, WMATA continues to make structural and systemic changes, currently in the design and planning stages.

In addition to the tremendous support from Metro's Board, funding jurisdictions and congressional delegation, none of this progress would be possible without the men and women of Metro.

