



2023 ANNUAL OPERATIONS REPORT

TABLE OF CONTENTS

Letter from the Washington Metrorail Safety Commission CEO	1
Commissioners	2
Executive Summary	3
Introduction	6
2021 Blue Line Derailment	8
7000 Series Railcar Return to Service	8
Safety Certification Oversight	9
Audits, Directives and Other Findings	10
Corrective Action Plans	17
Inspections	20
Public Transportation Agency Safety Plan (PTASP)	21
Financial Independence	22
Continuing Education, Training and Awareness	23
Transparency, Public Input and External Safety Concerns	24
Conclusion	24
Appendix: WMSC Staff Organization Chart and WMSC FY2024 Budget	25

All photographs used in this document are property of the Washington Metrorail Safety Commission.

Design: HWDS and Associates

LETTER FROM THE CEO

The Washington Metrorail Safety Commission (WMSC) conducted critical oversight of the WMATA Rail System in 2023, leading to meaningful safety benefits for riders, workers, and others. This oversight work included issuing and developing safety audits and directives that help ensure WMATA improves the safety of the Metrorail system for the public, employees, contractors, and first responders.

This work included:

- Overseeing Metrorail's Return to Service Plan for 7000 Series railcars
- Continuing work as a party to the National Transportation Safety Board (NTSB) investigation into the October 12, 2021, Blue Line train derailment
- Identifying Metrorail's noncompliance with its requirements for training and certification of Train Operators
- Monitoring Metrorail's work to improve its Roadway Worker Protection program

The WMSC's three audit reports issued in 2023, including our audit of Metrorail's Roadway Maintenance Machines program and our audit of Metrorail's structures program, identified safety issues that Metrorail is now required to address through Corrective Action Plans (CAPs). The WMSC also conducted significant work on audits of four other Metrorail functional areas in 2023 and has issued or will issue reports on those areas in 2024. The reports to be published in 2024 relate to Automatic Train Control and Signals, Power Systems, Railcars, and Roadway Worker Protection.

As the independent agency that oversees Metrorail safety with the support of direct funding from Maryland, Virginia, and the District of Columbia and related federal grants, our streamlined and efficient team also handles finances and other aspects of our operations.

I would like to thank the commissioners for their continuous guidance and support, entrusting me and our dedicated team with such an important responsibility for the region and the nation's capital: ensuring Metrorail is continually improving to make the Metrorail system as safe as reasonably practicable for everyone.



David Mayer, Chief Executive Officer



COMMISSIONERS

CHRISTOPHER HART (District of Columbia), Chair

Mr. Hart is chair of the Washington Metrorail Safety Commission (re-elected March 2024). Chair Hart earned a Bachelor of Science in Engineering and a Master of Science in Engineering from Princeton University and a Juris Doctor from Harvard Law School. Chairman Hart has extensive experience working in transportation and specifically with transportation safety issues in both the public and private sectors. He served as an attorney for the Air Transport Association of America, as an associate attorney for the law firms Peabody, Rivlin, Lambert, and Meyers and Dickstein, Shapiro and Morin, and as a managing partner for the law firm Hart & Chavers. He also served as Deputy Administrator of the National Highway Traffic Administration and as Assistant Administrator of System Safety and Deputy Director of the Air Traffic Safety Oversight Service at the Federal Aviation Administration. Chairman Hart served two terms as a member of the National Transportation Safety Board (NTSB) from 1990 to 1993 and 2009 to 2018. He served as chairman of the NTSB from 2014 to 2017.



ROBERT LAUBY (Commonwealth of Virginia), Vice Chair

Mr. Lauby is the former Associate Administrator for Railroad Safety and Chief Safety Officer for the Federal Railroad Administration and is currently an independent consultant with RCL Rail Safety Consulting, LLC. He is a licensed mechanical engineer with more than 40 years of railroad and rail transit experience involving safety, security, accident investigation, and engineering. Mr. Lauby's career included positions at the National Transportation Safety Board, Knorr Brake Corporation (a railroad and rail transit brake supplier), and Conrail. He has led safety regulation initiatives and safety oversight programs, has been involved in the development of passenger rail safety standards, and has conducted railroad and rail transit accident investigations worldwide.



DEBRA FARRAR-DYKE (State of Maryland), Secretary-Treasurer

Commissioner Farrar-Dyke is Secretary-Treasurer of the Washington Metrorail Safety Commission (re-elected March 2024). She is a senior manager with over 30 years of successful, progressive leadership and transportation and procurement management. Commissioner Farrar-Dyke is also a Commissioner on the Maryland Transportation Commission. Previously she was responsible for the Disadvantaged Business and Small Business Programs at the Washington Metropolitan Area Transit Authority. She also led oversight of operating and capital budgets preparation and implementation at Metro.



ROBERT BOBB (District of Columbia)

Commissioner Bobb earned a Bachelor of Arts and Political Science from Grambling State University and a Master of Science degree in Business from Western Michigan University. He went on to earn a Certificate for Senior Executives in State and Local Governments from Harvard University's John F. Kennedy School of Government. Commissioner Bobb is known as a turnaround specialist. He stepped in as emergency financial manager of Detroit Public Schools. He also served as city administrator for the District of Columbia, among his many accomplishments.



KATHRYN O'LEARY HIGGINS (State of Maryland - Alternate)

Kathryn (Kitty) O'Leary Higgins is a former member of the National Transportation Safety Board. In addition to her work as a member of the NTSB, she served as Deputy Secretary of the U.S. Department of Labor and Chief of Staff to the Secretary of Labor, Vice Chair of the Presidential Commission on U.S. Coast Guard Roles and Missions, Acting Chair of the National Endowment for the Arts, and Vice President for Public Policy for the National Trust for Historic Preservation. Ms. Higgins previously served in various roles on White House staffs where she worked closely with the federal transportation agencies. She is the President of the Higgins Company, a government relations firm. Ms. Higgins holds a Bachelor of Science degree from the University of Nebraska.



CHRISTOPHER CONKLIN (State of Maryland)

Commissioner Christopher Conklin serves as the Director of the Montgomery County Department of Transportation (MCDOT), and previously served as deputy director for Transportation Policy. He has guided the implementation of new transit services and worked to advance pedestrian safety and bicycle infrastructure projects. Prior to joining MCDOT, Conklin spent 23 years at the planning, engineering and environmental firm VHB, where he was managing director for the National Capital Region. Mr. Conklin holds a Bachelor of Civil Engineering from the Georgia Institute of Technology and two master's degrees in transportation and technology policy from the Massachusetts Institute of Technology. He is a licensed professional engineer in Maryland.



DEVIN C. ROUSE (Commonwealth of Virginia)

Commissioner Rouse is the former Executive Officer of the Federal Railroad Administration's (FRA) Office of Railroad Systems, Technology and Innovation, and the former director of the Passenger Rail Division within the FRA's Office of Railroad Safety. He previously served on the board of directors of the Washington Metropolitan Area Transit Authority, as well as FRA's Railroad Safety Board, and chaired the Railroad Safety Advisory Committee's Passenger Safety Working Group and Engineering Task Force. He has served as a subject matter expert in areas related to passenger rail safety, passenger rail equipment, Positive Train Control and emerging technologies, high-speed rail, and the development and construction of new railroads. Mr. Rouse is the owner of DCRail Advisory, providing services to passenger railroads, public transit agencies, and railroad industry executives. He holds a master's degree in Civil and Transportation Engineering, and a bachelor's degree in Mechanical Engineering from Virginia Tech. Mr. Rouse is a registered Professional Engineer in Virginia.



JENNIFER DEBRUHL (Commonwealth of Virginia - Alternate)

Jennifer DeBruhl is the Director of the Virginia Department of Rail and Public Transportation, and previously served as DRPT's Chief of Public Transportation. She also serves as a member of other boards including serving as chair of the Virginia Passenger Rail Authority (VPRRA) board that manages administrative and fiduciary responsibilities for Virginia's state-supported intercity rail services. Ms. DeBruhl's previous experience in public service to the transportation community includes roles at the Virginia Department of Transportation (VDOT) and Federal Highway Administration (FHWA). Ms. DeBruhl has an undergraduate degree in Urban Studies, a master's degree in Urban and Regional Planning, and a Certificate in Public Management, all from Virginia Commonwealth University. She is a member of the American Institute of Certified Planners, Leadership APTA Class of 2018, Chair of the APTA State Affairs Committee and member of the Board of Directors, Vice Chair of the AASHTO Multi-state Transit Technical Assistance Program Steering Committee, and is a certified Project Management Professional.





EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

In 2023, the Washington Metrorail Safety Commission (WMSC) identified areas of safety progress that Metrorail has made under the WMSC's oversight, but also identified and communicated new or recurring Metrorail safety issues that the Washington Metropolitan Area Transit Authority (WMATA) is required to correct. The WMSC continuously works with WMATA to ensure Metrorail's development and implementation of corrective action plans and other safety improvements.

As the state safety oversight agency (SSOA) for the Metrorail system, the WMSC carries out its vital work through a comprehensive state safety oversight program that includes audits, inspections, safety event investigations, Corrective Action Plan (CAP) oversight, safety certification oversight, and emergency management oversight. The WMSC conducts oversight to ensure that Metrorail fulfills its commitment to continuously improve the safety of the Metrorail system.

This report provides an overview of the WMSC's programs, operations, and finances in calendar year 2023.

Additional details are also available in the WMSC's separate Annual Report on the Safety of the WMATA Rail System in 2023, which is also available at [WMSC.gov](https://www.wmsc.gov).

Some of the WMSC's most notable safety oversight work in 2023 included:

- Serving as a party to the NTSB-led investigation into an October 12, 2021, Blue Line train derailment which led to our issuance of an order in January 2024 requiring

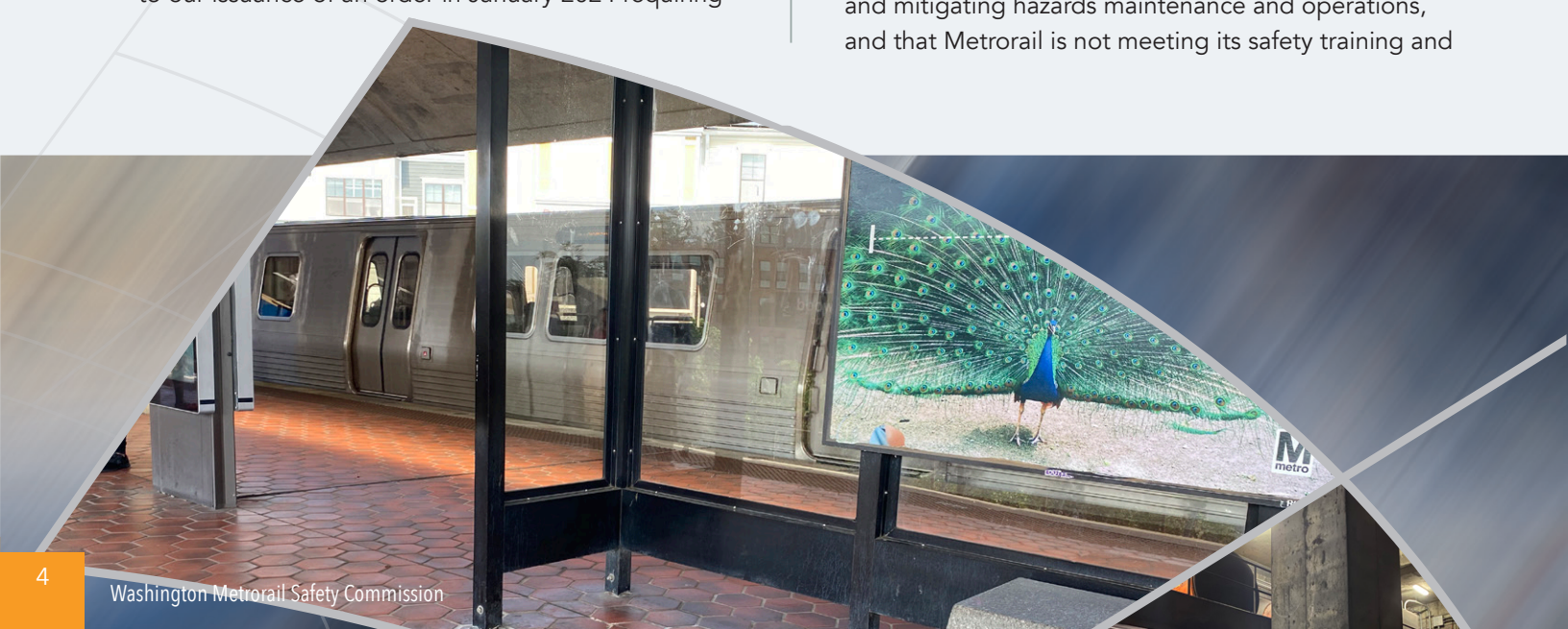
Metrorail to develop a corrective action plan to address NTSB safety recommendation R-23-28.

- Identifying the use of outdated Roadway Worker Protection (RWP) Program training materials. The WMSC required Metrorail to update training materials to reflect current safety rules and to qualify the 754 employees who were found to have been qualified on the outdated material using current materials.
- Identifying through investigative work and records review that Metrorail was assigning personnel to operate trains who had not met Metrorail safety requirements. This led to the issuance of our February 2024 order requiring Metrorail to address noncompliance with its train operator certification requirements.

The WMSC conducts oversight to ensure that Metrorail fulfills its commitment to continuously improve the safety of the Metrorail system.

- Continuing oversight of Metrorail's 7000 Series return to service plans to ensure that Metrorail carried out its requirements and developed and implemented plans safely, following a data-driven approach.
- Overseeing Metrorail's completion of the safety certification steps required to identify and mitigate hazards to provide for a safe opening of Potomac Yard Station.

- Issuing three in-depth audit reports and conducting work on four additional safety audits to be released in 2024. Among other findings, the reports issued in 2023 identified that Metrorail is not carrying out safety risk management, safety assurance and safety promotion in some areas, that Metrorail is not effectively tracking and mitigating hazards maintenance and operations, and that Metrorail is not meeting its safety training and



certification requirements. The audits also identified positive practices. This includes Metrorail carrying out important structural rehabilitation work on the Yellow Line to improve the integrity of the Metrorail system and Metrorail identifying and taking steps to address brake beam failures.

◆ The audit reports **issued** in 2023 were:

- Audit of Roadway Maintenance Machines Program
- Audit of Structures Program
- Audit of Internal Safety Review Program

◆ Audit work was also conducted for the following programs in 2023, with final audit reports to be issued in 2024:

- Roadway Worker Protection (RWP)
- Revenue Vehicles (Railcar)
- Automatic Train Control (ATC) and Signals
- Power Systems

- Overseeing safety event investigations and adopting safety event investigation reports that specify Metrorail actions to reduce the risk of recurrence. The WMSC adopted 56 **final safety event investigation reports** in 2023 and progressed work on other investigations into events that occurred in 2023. Issues identified during these investigations that require corrective action are usually addressed through the Recommended Corrective Action (RCA) process. For example, following an evacuation for life safety event at Dupont Circle Station (**W-0195**) due to electrical arcing from wall-mounted cables, Metrorail created and implemented 13 RCAs, including those relating to visual inspection of electrical infrastructure and communication cable repair.
- Providing concurrence with Metrorail's Temporary Use Notice and to Metrorail activating Automatic Door Operation on the Red Line in late 2023, following Metrorail's completion of the required safety mitigations and other steps as part of its safety certification process. Due to the WMSC's oversight, Metrorail in summer 2023 began to change its approach to match Metrorail's safety certification requirements and industry practices for systems engineering. Due to these improvements driven

Due to the WMSC's oversight, Metrorail in summer 2023 began to change its approach to match Metrorail's safety certification requirements and industry practices for systems engineering.

by the WMSC, Metrorail developed its first concept of operations for its Automatic Door Operation system, and began work on similar engineering requirements for its Automatic Train Operation system.

- Providing oversight of Metrorail's revision to its Public Transportation Agency Safety Plan (PTASP), including updates to reflect Metrorail's commitment to improvements regarding voluntary safety reporting, its safety committees, and better incorporating those committees into its overall safety management process. This oversight also included the WMSC ensuring that revisions met the new requirements of the Infrastructure Investment and Jobs Act.

The WMSC's work continued into 2024

on several areas including oversight of Metrorail's 7000 Series return to service plan, Metrorail's actions related to train control rooms, Metrorail train operator certification practices, and Metrorail's safety certification of Automatic Train Operation, Automatic Door Operation and the Automatic Wayside Inspection System. Metrorail's safety certification process requires Metrorail to identify and mitigate hazards to provide for the highest practicable level of safety before introducing a new asset or system into service.

Fiscally, the WMSC operated within budget, and delivered effective oversight for the region. The WMSC continued in 2023 to strategically increase expertise and capacity to support our work. The WMSC completed Fiscal Year 2023 within budget of \$5,975,000 and developed the Fiscal Year 2024 budget of \$6,711,000 in accordance with the jurisdictional funding agreement among the District of Columbia, Maryland and Virginia. The WMSC's budget incorporates federal grants and local funds, making funding from the District of Columbia, Maryland, Virginia, and federal grants critical to the WMSC's important work overseeing Metrorail safety. This investment allows the WMSC to function as an effective independent oversight agency. The WMSC's FY 2023 annual independent financial statement audit included an unmodified or "clean" audit opinion, which demonstrates the WMSC is using these funds responsibly in accordance with the WMSC's requirements.

INTRODUCTION



INTRODUCTION

The Washington Metrorail Safety Commission (WMSC) is the State Safety Oversight Agency (SSOA) for the Washington Metropolitan Area Transit Authority's (WMATA) Metrorail system.

The WMSC was created in 2017 by the District of Columbia, Virginia and Maryland with the approval of Congress and the president through an interstate compact (P.L. 115-54), which provides the WMSC's oversight and enforcement authority. After the appointment of commissioners, hiring of staff, program development, and transition activities with the Federal Transit Administration, the WMSC's safety oversight program was certified in 2019.

The WMSC's safety oversight work includes conducting inspections, audits, and safety event investigations on the WMATA Rail System, overseeing Metrorail Corrective Action Plan development and implementation, overseeing Metrorail's safety certification and emergency management practices, and conducting other activities that help drive Metrorail toward continuous safety improvement. The WMSC carries out this work by focusing on facts and data gathered from Metrorail systems and personnel at all levels of the Metrorail organization. These frequent interactions continue the rapport WMSC personnel have built with frontline personnel, supervisors, and managers.

Metrorail is required to comply with all WMSC orders, to implement Corrective Action Plans (CAPs) to address WMSC findings, to provide timely access to all information required by the WMSC, and to otherwise follow all requirements set by the WMSC in the WMSC State Safety Oversight Program Standard.

The WMSC conducts this work transparently through public meetings of the commissioners who guide the work of the WMSC staff and who take actions such as adopting the WMSC Program Standard, approving Metrorail's revisions to its Public Transportation Agency Safety Plan (PTASP), and adopting final safety event investigation reports. Virginia, Maryland and the District of Columbia each appoint two commissioners and one alternate. Appointees are required to have backgrounds in transit safety, transportation, engineering or public finance. Each WMSC audit report, investigation report and inspection report is posted publicly on the commission's website, wmsc.gov.



Elected leaders, staff, and others including the governors of Virginia and Maryland, the Mayor of the District of Columbia, those in the D.C. Council, the Maryland and Virginia General Assemblies, local and regional bodies, U.S. House of Representatives, U.S. Senate, federal executive branch agencies, and state, regional and local bodies have provided and continued to provide the fundamental support necessary for the WMSC to help ensure continuous safety improvement for the safety of riders, workers and all others who depend on the WMATA Rail System's safe maintenance and operations.

Funding from the governments of Virginia, Maryland and the District of Columbia, along with federal grants from the FTA, enable the independent operations of the WMSC.

As the only standalone state safety oversight agency in the nation, this financial support permits the WMSC to continue to develop its staff and organization to ensure continuing robust safety oversight commensurate with the size, scale and complexity of the Metrorail system.

To help guide continued progress towards making Metrorail the safest possible system, and as required by the WMSC Compact, this report and the separate WMSC Annual Report on the Safety of the WMATA Rail System in 2023 are provided to the Administrator of the Federal Transit Administration, the Governor of Virginia, the Governor of Maryland, the Mayor of the District of

Columbia, the Chairman of the D.C. Council, the President of the Virginia Senate, the Speaker of the Virginia House of Delegates, the President of the Maryland Senate, the Speaker of the Maryland House of Delegates, WMATA's General Manager and each member of the WMATA Board. The reports are also available to the public and published at wmata.gov.

2021 BLUE LINE DERAILMENT

The WMSC continued active oversight work in 2023 related to Metrorail's 7000 Series railcars and the National Transportation Safety Board (NTSB) investigation into the October 12, 2021, derailment of a Blue Line train between Rosslyn and Arlington Cemetery stations.

On January 4, 2024, the NTSB released its final report on the investigation (dated December 2023).

In Rail Investigation Report RIR-23-15, the NTSB determined that the probable cause of the derailment was an out-of-specification wheelset that caused a wheel to depart the rail at a turnout; the wheelset was out of specification because the wheelset's design allowed the wheels to migrate outward and eventually exceed the maximum permitted back-to-back measurement.

Based on issues identified following the derailment and as part of other WMSC oversight activities, the WMSC required Metrorail to address several safety issues. These included the WMSC requiring Metrorail to:

- Develop and implement data-driven plans for the safe return to service of each 7000 Series railcar
- Address emergency preparedness and response deficiencies
- Improve its Agency Safety Plan
- Address findings and corrective action plans related to safety promotion, safety assurance, and safety risk management
- Improve compliance with safety certification requirements
- Use available safety data to proactively identify and mitigate negative safety trends

When the NTSB released its report in January 2024, it issued a safety recommendation to WMATA to implement processes and resources to expand the role of trend analysis in identifying and mitigating safety risks (R-23-28) and to the WMSC to develop and implement a program to support and monitor the Washington Metropolitan Area Transit Authority's use of trend analysis within its safety management system (R-23-29).



Based on issues identified following the derailment and as part of other WMSC oversight activities, the WMSC required Metrorail to address several safety issues.

When the NTSB issues a safety recommendation to Metrorail, the WMSC Program Standard and federal regulation provide that the WMSC will determine whether a Metrorail corrective action plan is required. The WMSC determined that a CAP was required and issued an order on January 17, 2024, requiring Metrorail to develop and carry out a corrective action plan to address NTSB safety recommendation R-23-28. Issuance of this order is part of the WMSC's implementation of NTSB safety recommendation R-23-29.

WMSC commissioners voted to adopt the NTSB accident investigation report on January 23, 2024.

7000 SERIES RAILCAR RETURN TO SERVICE

The WMSC issued an [order](#) in October 2021 requiring Metrorail to remove 7000 Series railcars from service and to ensure that each 7000 Series railcar was safely returned to service. The WMSC oversaw Metrorail's development of its return to service plans by ensuring that they were based on safety data. After Metrorail developed the first version of such plan, the WMSC identified that Metrorail was not following that plan, and had again placed 7000 Series railcars into passenger service that did not meet its safety requirements. The WMSC issued a subsequent [order](#) in December 2021 requiring Metrorail to implement additional controls.

The WMSC continued to oversee Metrorail's development of its return to service plans in 2022 and 2023 by ensuring that the plans were based on safety data.

In 2023, Metrorail developed additional revisions to these plans that continue to use improved measurement tools and practices, improved internal oversight, and improved data collection. These practices are successfully detecting wheel migration on railcar axles so that cars demonstrating such migration can be removed from service. In mid-2023, Metrorail developed a wheelset replacement program that includes improved wheelset assembly specifications to better align with industry standards for railcars of the size and weight of the 7000 Series.

Metrorail subsequently began to build replacement wheelsets under the new specifications. These specifications include a higher interference fit and press tonnage than Metrorail's previous wheelset specifications.

Based on the successful testing of these wheelsets, Metrorail plans to move from inspections every 30 days of back-to-back and journal bearing gaps on 7000 Series railcars built under previous specifications to inspections every 60 days.

Metrorail is continuing to identify evidence of wheel migration on the railcars that have not yet been modified. As these wheelsets are identified they are removed from service until the wheelset design changes to better match industry standards can be implemented. The WMSC is continuing to review data related to these wheelsets.

Metrorail continues to work on other elements related to the investigation, such as potential restraining rail and rail frog design changes.

SAFETY CERTIFICATION OVERSIGHT

Metrorail's safety certification process is a critical element of Metrorail's safety management system.

Consistently identifying hazards and mitigating the likelihood and severity of those hazards in a systematic way as documented in Metrorail's policy and procedures is what provides for the overall safety of the Metrorail system.

The WMSC oversees Metrorail's safety certification through field observations, document and data review, and regular meetings with Metrorail, as well as by observing the discussions by Metrorail safety certification committees and working groups.

The WMSC Program Standard provides for the WMSC to select specific projects for in-depth review. The WMSC uses these projects as a sample to conduct more detailed oversight of Metrorail's safety certification process. Projects selected for in-depth review require Metrorail to receive WMSC concurrence that it has properly carried out its safety certification process prior to utilizing or operating a system or asset in passenger service. Some of the projects the WMSC has selected for this level of review that were completed or had ongoing work in 2023 include the safety certification of the Potomac Yard Station, the 8000 Series railcars, and Metrorail's return to both Automatic Door Operations (ADO), Automatic Train Control (ATO) and Automatic Wayside Inspection System (AWIS).

• Potomac Yard Station

The WMSC conducted its work to oversee Metrorail's safety certification process for the Potomac Yard Station on an ongoing basis in the years leading up to its completion. Potomac Yard is a station that Metrorail constructed between two existing stations on the Blue and Yellow lines in Alexandria, Virginia. The project included associated new track and systems. The WMSC's oversight work included field observations, document and data review, and regular meetings with Metrorail. Through these oversight activities the WMSC identified issues throughout the project and communicated them to Metrorail as the issues were identified so that Metrorail could address the safety issues.

Our continuous oversight throughout the project and our assessment of Metrorail's progress against its certifiable items list allowed the WMSC to concur that Metrorail



carried out the requirements of its safety certification process. On May 19, 2023, Metrorail opened the Potomac Yard Station.

- **Automatic Train Control (ATO) and Automatic Door Operations (ADO)**

Automatic Train Operation refers to the automated movement of a train under the supervision of the operator and is a subsystem of the Automatic Train Control System, which provides critical safety protections for train movement and roadway workers. These include functions such as safe train separation, prevention of overspeed derailments, fail safe train detection, interlocking rules enforcement, hazard response and work zone protection.

Metrorail stopped using ATO after the 2009 Red Line crash. After the crash, Metrorail installed new track circuit modules, new railcars were delivered, and there was personnel turnover. After many years, Metrorail began work to initiate ATO. The WMSC assessed this work in the ATC Audit issued in 2021, required subsequent corrective action plans, and conducted ongoing oversight of Metrorail's safety certification. In August 2022, the WMSC issued an order related to train control rooms (TCRs) and selected Metrorail's Automatic Train Operation and Automatic Door Operation project for in-depth safety certification review. The WMSC continued to conduct oversight, and continued consistent communication with Metrorail.

In summer 2023, after the WMSC expressed additional concerns regarding the lack of systems engineering approach and Metrorail not following industry best practices, Metrorail began to adjust its approach toward meeting those requirements of Metrorail's Safety and Security Certification Program Plan (SSCPP), project-specific Safety and Security Certification Plan (SSCP), and industry practices.

This led to Metrorail progressing Automatic Door Operation (ADO) in fall 2023, including the use of ADO in passenger service on the Red Line. Automatic Door Operation is separate from Automatic Train Operation. Metrorail is operating in ADO on the Red Line using a setting where the doors open automatically on the correct side when a train properly berths in a station, and the train operator then manually closes the doors by pressing the door close button when boarding is complete.

In the final days of December 2023, Metrorail developed a preliminary draft of a Concept of Operations for Automatic Train Operations. Further development will allow for the progression of industry standard systems engineering practices that would be necessary to safely utilize Automatic Train Operation. The WMSC appreciates Metrorail's adjustments due to the WMSC's oversight that provided Metrorail with the opportunity to meet its safety certification requirements. The WMSC continued to oversee Metrorail's process into 2024.

Other Projects

The WMSC also continued in 2023 to oversee Metrorail's safety certification of other projects.

This includes oversight of projects that require the WMSC's concurrence prior to activation such as the possible use of an Automated Wayside Inspection System for railcars. Metrorail has initially focused on the use of back-to-back measurement capabilities; however, the system has other uses Metrorail may consider enabling in the future, including as it relates to detecting

wheel defects and measuring wheel profiles. Metrorail currently has plans to put into service six of these systems throughout the Metrorail System at sites near the following stations: Greenbelt, Shady Grove, Fort Totten, Potomac Yard, East Falls Church and Branch Ave.

The WMSC also regularly observes the activities of Metrorail's 8000 Series railcar safety certification working group and has selected the 8000 Series railcar project for in-depth review.

AUDITS, DIRECTIVES AND OTHER FINDINGS

The WMSC issued three safety audits in 2023 and conducted work on four other safety audits to be published in 2024. The WMSC's audit schedule ensures there is always audit work in progress such as preparation, data review, on-site activities, or report development. Each of the reports mentioned below are part of the WMSC's second cycle of audits. In accordance with the WMSC Compact, federal regulation, and the WMSC Program Standard, the WMSC audits each element of Metrorail's Agency Safety Plan through in-depth functional area audits that are conducted over three-year cycles.

The WMSC issued three safety audits in 2023 and conducted work on four other safety audits to be published in 2024.

The work on each audit includes detailed interviews, extensive document and data reviews, and, typically, relevant observations of personnel, activities, and conditions across various parts of the WMATA Rail System, which may include both public and non-public areas.

The purpose of this audit work is to review Metrorail's policies and procedures, to review Metrorail's compliance with its policies, procedures, standards, or other requirements, and to identify opportunities for safety improvement.

Drafts of each audit report are provided to WMATA for a 30-day technical review, and the WMSC incorporates any subsequent information provided in that review, as appropriate, prior to issuing a final report to WMATA and subsequently publishing the final report at wmata.wmasc.gov.

The audits completed in 2023 demonstrate that while there have been substantive improvements, there are areas where Metrorail is not meeting its own written requirements. Some deficiencies identified through audit work include those related to inadequate training, coordination, supervision, procedures, processes or requirements. These audits also identified issues with Metrorail's hazard tracking and mitigation practices.

AUDITS

Internal Safety Review Program – January 4, 2023

SCOPE: This audit assessed Metrorail's audit practices and procedures, and associated training, for purposes of compliance with applicable Metrorail plans and policies, regulations, and industry best practices.

This audit identified positive practices in Metrorail's effective internal safety review program that contribute to safety improvement. Metrorail's internal safety reviews effectively identify safety issues in Metrorail processes, procedures, implementation, and training.

The audit identified three findings, including:

- Findings from the internal safety review program are not yet systematically incorporated into Metrorail's Safety Management System (SMS) as specified in Metrorail's PTASP.
- Metrorail has not yet implemented training requirements in system safety, hazard management and SMS training for personnel responsible for internal safety reviews as required by the WMSC Program Standard.

All CAPs related to this audit are open. Metrorail has begun implementation, and has submitted relevant interim actionable items. The scheduled final completion dates for these CAPs are between August and October 2024.

Structures Program – July 25, 2023

SCOPE: This audit assessed Metrorail's structure inspections, maintenance, and engineering practices and procedures, and associated training for purposes of compliance with applicable plans, policies, regulations, and industry best practices. The WMSC focused primarily on the above objectives in relation to tunnels and ancillary rooms and structures-related capital projects such as the Yellow Line Tunnel and Bridge Rehabilitation Project, as well as closed corrective action plans that were issued as part of the Audit of Elevated Structures, Inspection, Maintenance and Repair issued in January 2021. An assessment of those closed CAPs found that Metrorail is maintaining the associated safety improvements



implemented as part of the corrective action plans by providing training on updated procedures and implementing training and certification/recertification standards for structural inspectors.

Examples of positive practices identified included:

- WMATA is beginning to provide improved training to structural repairers, starting with a fence repair class that, at the time of this audit, had been provided to 92% of structural repairers.
- Metrorail was carrying out important structural rehabilitation work on the Yellow Line to improve the integrity of the Metrorail system.

The audit identified two findings:

- Metrorail is not carrying out the safety risk management, safety assurance and safety promotion for the structures program required by Metrorail's Agency Safety Plan to ensure safe and effective structural engineering, maintenance, and operation.
- Metrorail's Structures Maintenance and Inspections department has not formalized and documented its on-the-job training process for structural inspection.

As of March 15, 2024, all CAPs related to this audit are open. Metrorail has begun implementation, and has submitted relevant interim actionable items. The scheduled final completion dates for these CAPs are in September 2024 and April 2025.

Roadway Maintenance Machines (RMM) Program – October 18, 2023

SCOPE: This audit assessed inspection, maintenance, and engineering practices and procedures, and associated training for purposes of compliance with applicable plans, policies, regulations, and industry best practices. This audit also assessed closed corrective action plans that were issued as part of the Roadway Maintenance Machine Audit that was issued on March 9, 2021, such as those related to RMM operations.

This audit identified positive practices such as Metrorail's identification of and steps to address brake beam failures, improvements to contractor vehicle inspections, and progress toward datalogging for RMMs.

The audit identified four findings, including:

- Metrorail does not ensure the use of adequate fall protection when working on or around RMMs.

- Metrorail is not effectively tracking and mitigating hazards related to RMM maintenance and operations in accordance with its PTASP.

As of March 15, 2024, all CAPs related to this audit are open with scheduled dates for completion between September 2024 and December 2025.

Automatic Train Control (ATC) and Signals Program – January 18, 2024

Work on this audit was conducted in 2023. The final report was issued in January 2024.

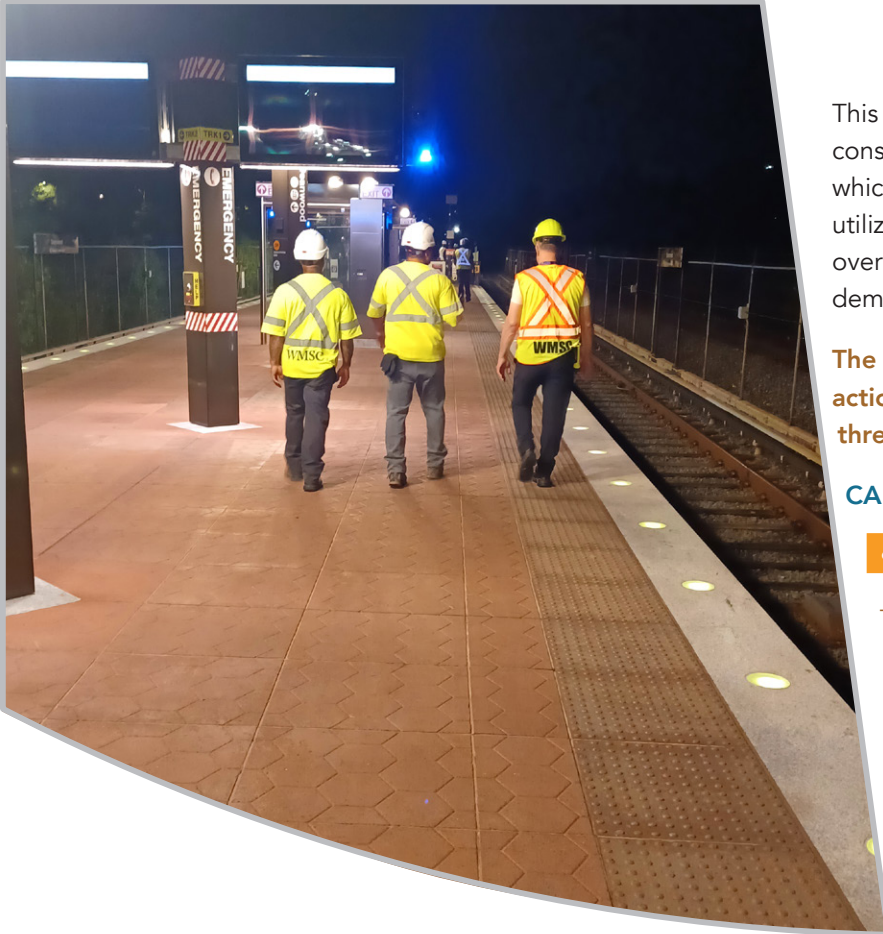
SCOPE: This audit assessed automatic train control and signaling facilities, equipment, systems, and software on both mainline and in yards such as but not limited to remote terminal units (RTU); train control rooms (TCR) and constituent parts; communication lines, devices, and any associated cabling; and the Advanced Information Management (AIM) system (but excluding how the Rail Operations Control Center (now called the MICC) uses the information typically provided by AIM). The audit demonstrates that Metrorail has implemented some improvements since the previous WMSC audit and the WMSC's August 4, 2022, Train Control Room maintenance and cleaning order, but the audit also demonstrates that Metrorail is not carrying out some key safety commitments.

Examples of positive practices identified included:

- Following the WMSC's August 2022 Train Control Room order and finding, Metrorail has improved conditions in some Train Control Rooms.
- Metrorail has developed and begun offering refresher training for AA, A, and B ATC mechanics.

The audit identified five findings and three recommendations, including:

- Metrorail ATC Maintenance personnel do not have a uniform understanding of Metrorail procedures, which leads to inadequate completion of safety tasks, such as inspections and handling of vital systems, that are required to ensure that track circuits and other elements of the ATC system function properly as required to prevent train collisions and to provide other designed safety protections.



This audit identified positive practices such as Metrorail's consolidation of Preventive Maintenance Instructions (PMIs) which has made it easier for personnel to understand and utilize the correct procedure, and effective supervisory oversight and safety promotion related to personal safety demonstrated during observation of onsite work.

The audit identified three existing corrective action plans that required modifications and three findings, including:

CAPs Requiring Modification:

• C-0154

- **2021 finding:** Traction Power Maintenance employees do not get all required information and training to maintain equipment that they are directed to work on, and there is no process in place to ensure that personnel are trained on specific equipment prior to working on that equipment.
- During this audit, the WMSC found that Metrorail is not adequately training personnel on new power equipment that personnel are being assigned to work on. The previous CAP deliverables addressed "training" but did not account for updates to those trainings that would capture new equipment.
- Modifications to the existing CAP included establishing a process to set and document training requirements for each new type of equipment, and to develop and implement a process to ensure that personnel are only assigned to work on equipment that they have been fully and properly trained to work on.

• C-0155

- **2021 finding:** Metrorail is not effectively identifying, tracking and mitigating hazards related to high voltage and traction power.
- During this audit, the WMSC found that the CAP being implemented only applied to high voltage personnel (Power department since been combined to include low voltage and low voltage personnel). The WMSC identified that the safety management system awareness training for high voltage personnel did not result in personnel becoming familiar with hazard identification and hazard management.
- Modifications to the existing CAP included training to ensure all Power personnel are familiar with

- Metrorail does not review, analyze, and act upon available safety data about the health and functionality of the Automatic Train Control system and subsystems as required by Metrorail's Agency Safety Plan. Therefore, Metrorail's ATC Engineering cannot reliably or proactively determine whether or not the ATC system and subsystems are or will be functioning as designed to provide for the safety of riders, workers and all others who depend on the WMATA Rail System's safe maintenance and operations.
- Metrorail is putting its personnel at risk due to health hazards such as damaged and repositioned materials marked as containing asbestos that are not being identified and managed as required by its Agency Safety Plan.

As of March 15, 2024, all CAPs related to this audit are open.

Power Systems Programs – February 7, 2024

Work on this audit was conducted in 2023. The final report was issued in February 2024.

SCOPE: This audit assessed Metrorail's power systems, both those that Metrorail designates as high-voltage and those that Metrorail designates as low-voltage. This includes all aspects from the utility connection through and including the wayside cables that connect to the third rail, as well as the negative return system.

hazard identification and hazard management, and the addition of actionable items that demonstrate that training was effective and demonstrates that the Safety Management System (SMS) was implemented as specified in WMATA's Agency Safety Plan and Power department manuals.

• C-0157

- **2021 finding:** The latest as-built schematics are not available in each traction power facility, as required by the TRPM-1000 and Metrorail preventive maintenance instructions.
- During this audit, the WMSC found that Metrorail is identifying locations with missing or outdated as-built schematics through inspection, however, only some inspections submitted to the WMSC listed corresponding work orders to address those deficiencies.
- Metrorail has submitted a CAP modification to include full review of all rooms, recording of the necessary as-built schematics, printing the necessary materials, and posting at the rooms.

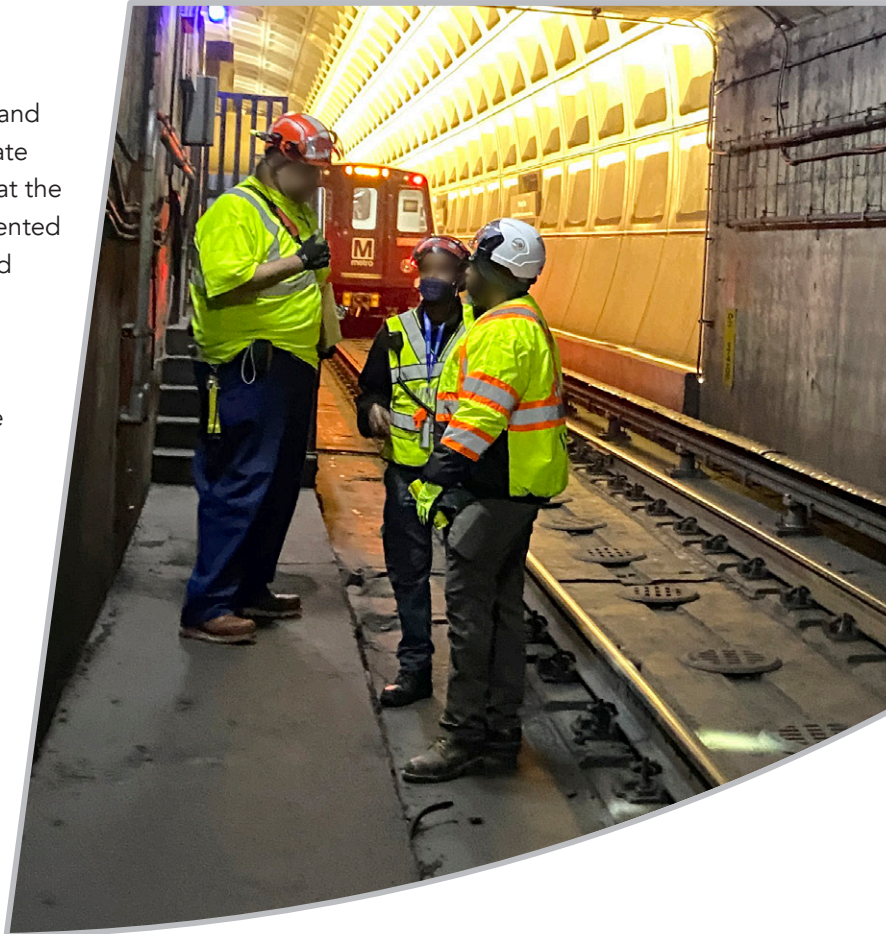
Findings:

- Metrorail is not consistently identifying, addressing, and preventing water intrusion in power rooms.
- Metrorail is not ensuring that adequate egress paths and signage are maintained for Power facilities.
- Metrorail Office of Power personnel are performing maintenance work using torque wrenches that are out of calibration. (Finding resolved prior to issuance of final audit report).
 - Metrorail's timely action to address this finding during the auditing process led to the finding being closed prior to the issuance of the audit report. The coordination between the WMSC and Metrorail from identification to effective mitigation is an example of the impact of the WMSC's oversight and of Metrorail's ability to act on the issues the WMSC communicates during the auditing process.

As of March 15, 2024, all remaining CAPs related to this audit are open.

Revenue Vehicle (Railcar) Program – May 21, 2024

Work on this audit was conducted in 2023. The final report was published in May 2024.



SCOPE: This audit assessed Metrorail's maintenance and engineering practices related to railcars, those vehicles designed to carry customers (Metrorail also refers to these as Class 1 vehicles). The audit also included associated shop equipment such as railcar movers.

Examples of positive practices identified included:

- Under the WMSC's orders related to the safe return to service of each 7000 Series railcar, Metrorail developed a digital indicator gauge along with associated procedures for performing accurate back-to-back measurements. Digital indicator gauges and calibration blocks have been manufactured and are being used, and have successfully detected railcars with wheelsets beyond Metrorail's safety requirements, allowing those wheelsets to be removed from service.
- Under the WMSC's oversight, Metrorail has made upgrades to its Vehicle-Track Interaction systems in place on some 7000 Series railcars to resume system functionality by upgrading 3G cellular communication systems to 4G systems. As part of Metrorail's return to service plan, Metrorail is now analyzing Vehicle Track Interaction (VTI) data on a regular basis, leading to actions to improve safety in the system.

The audit identified seven findings and three recommendations. The eight findings included:

- Metrorail is not carrying out railcar maintenance and inspection tasks as specified by its procedures.
- Metrorail is training railcar personnel on outdated procedures.
- Metrorail is not meeting life-safety and occupational safety and health requirements in railcar maintenance facilities.

All CAPs related to this audit are in development.

Other Audit Work Started in 2023

Roadway Worker Protection (RWP) Audit

The WMSC prepared for and conducted on-site activities for a safety audit of Metrorail's Roadway Worker Protection (RWP) program beginning in late 2023 and the exit conference was held in early 2024.

SCOPE: This audit assessed Metrorail's safety protections for roadway workers, to include related rules, practices, procedures, policies, training, and internal oversight, as well as Metrorail's processes for developing and adopting revisions or updates.

The report will be issued in 2024. After issuance, it will be available at [WMSC.gov](https://www.wmsc.gov).

Future audit work

The WMSC is continuing its second triennial audit cycle in 2024 with audits of several Metrorail programs including those related to rail operations, fitness for duty and occupational health, and emergency management and fire and life safety.

DIRECTIVES AND OTHER FINDINGS

Train Operator Certification

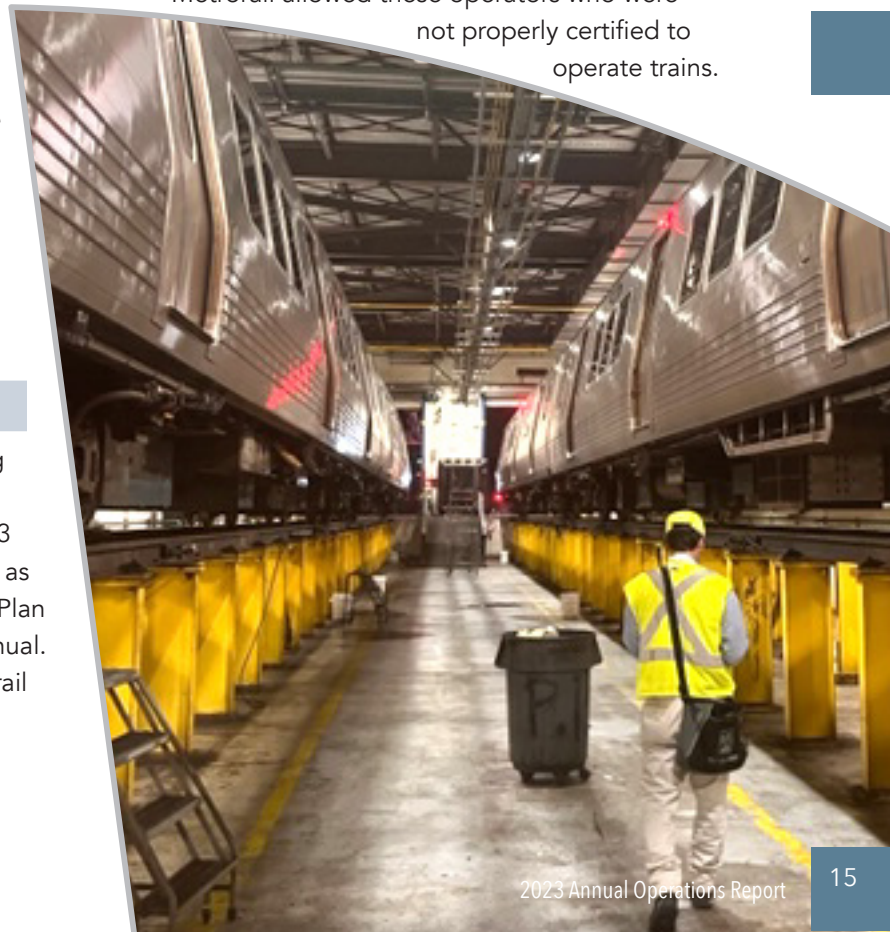
The WMSC issued an **order** in February 2024 regarding Metrorail's noncompliance with its train operator certification requirements. The WMSC identified in 2023 that Metrorail was not following its certification process as provided for in its Public Transportation Agency Safety Plan (PTASP) and Performance Standardization Program Manual. The WMSC communicated these deficiencies to Metrorail on multiple occasions in 2023, and in 2024. However, Metrorail allowed personnel who were not properly certified to continue to operate trains.

The WMSC reviewed current 2023 train operator certification records for railcar maintenance road mechanics, who are required by Metrorail to maintain this certification due to their responsibilities, which include operating trains. Our review found deficiencies and omissions in the train operator certification process. The WMSC reviewed certification records for train operators, including records for newly certified operators and for train operators who were recertified (this recertification process includes all personnel in positions that require train operator certification such as train operators, rail supervisors and interlocking operators). The WMSC identified that Metrorail was not following its train operator certification procedures and requirements that Metrorail designed to ensure that train operators have the required skills to safely operate trains.

Following the WMSC's continuous communication to Metrorail regarding these issues, Metrorail had begun to develop plans for future, long-term improvement, but had not taken steps to address the current use of operators who were not properly certified in accordance with Metrorail's safety requirements.

Metrorail was not consistently and reliably following the safety training requirements of its Public Transportation Agency Safety Plan (PTASP) and Performance Standardization Program that Metrorail has developed to provide for the safety of Metrorail riders and personnel.

Metrorail allowed these operators who were not properly certified to operate trains.



The order required Metrorail to complete a review of the certification records of each current Metrorail employee designated as having a current train operator certification, identify those employees whose records do not support such a certification within 30 days, schedule and properly conduct full certification exams for each of those active employees identified as not having the required certification records within 90 days, and to develop and implement corrective action plans to address two systemic issues:

1. Metrorail is not performing its train operator certification activities reliably and consistently in accordance with its safety requirements specified in its Agency Safety Plan and the associated Performance Standardization Program Manual.
2. Metrorail is not conducting retraining of personnel who do not pass certification exams as required by its Performance Standardization Program Manual, and is not consistently retesting these personnel as specified in its safety procedures.

Metrorail developed proposed corrective action plans for approval by the WMSC to address the identified deficiencies.

NTSB Safety Recommendation R-23-28

As mentioned earlier in the report, on January 17, 2024, the WMSC took action on National Transportation Safety Board Safety Recommendation R-23-28 by issuing an **order** requiring Metrorail to develop a corrective action plan to implement processes and resources to expand the role of trend analysis in identifying and mitigating safety risks. This recommendation was the result of the NTSB's investigation into the October 2021 derailment of a 7000 Series train on the Blue Line. The WMSC had already required other actions of Metrorail that related to the investigation.

In response to the WMSC's January 17, 2024, order, Metrorail submitted four corrective actions plans that, after Metrorail incorporated feedback from the WMSC, the WMSC approved for implementation. The WMSC communicated these actions to the NTSB as part of the WMSC's response to Safety Recommendation R-23-29 to the WMSC to oversee Metrorail's improved use of trend analysis. As with every CAP, the WMSC will continue to monitor Metrorail's progress through completion and even after implementation through regular oversight activities.

Automatic Train Control Rooms

The WMSC continues to closely monitor WMATA's progress regarding our **August 4, 2022** order regarding Metrorail's ineffective and insufficient Automatic Train Control (ATC) Train Control Room inspection, maintenance and cleaning program.

The order required WMATA to document and complete ATC quarterly inspections for each train control room as specified in the procedure and resume, complete and document its special safety inspections of each train control room as specified by the initial schedule submitted to the WMSC. Minimum corrective actions include training ATC personnel to properly complete all inspections and maintenance and ensuring these activities are properly carried out.

Our most recent ATC audit conducted in 2023 demonstrated that the issues previously identified that lead to the 2022 order still persist. The WMSC found that Metrorail is putting its personnel at risk due to health hazards such as damaged and repositioned materials marked as containing asbestos that are not being identified and managed as required by its Agency Safety Plan. During other onsite observations, WMSC personnel saw significant dust buildup, an improperly placed air



filter, and rooms that were not being properly cooled to maintain the intended temperature.

Roadway Worker Protection Qualification

The WMSC operations oversight team identified that Metrorail was training and qualifying personnel on outdated Roadway Worker Protection rules. This training is required by Metrorail policy to ensure personnel are up to date on the safety rules that keep them safe on and around the roadway. Our team gathered information, verified these issues on site, and communicated the details of this safety issue to Metrorail. Metrorail stopped conducting the outdated classes and replaced them with updated instruction and testing. Our team conducted on-site confirmation work and observed training being conducted with up-to-date materials.

Improper Power Restoration

On May 17, 2022, the WMSC issued an **order** regarding Metrorail's improper power restoration and insufficient training and supervisory oversight. The WMSC found that Metrorail was putting people at risk of serious injury or death due to the repeated bypassing of redundancies built into the power restoration process for safety, and insufficient available information to ensure continuous safety improvement.

The WMSC continues to monitor WMATA's implementation of CAP C-0212, which builds upon a previous CAP (C-0037), created to address the **2020 WMSC finding** that third rail power restoration is routinely rushed by ROCC management with focus on restoring train service rather than a focus on following safety procedures. CAP C-0212 is scheduled for completion in August 2024.

CORRECTIVE ACTION PLANS

After the WMSC issues findings, Metrorail must develop and implement Corrective Action Plans (CAPs) to resolve the issues and reduce the risk of future safety events.

Metrorail submits proposed CAPs to the WMSC for review so the WMSC can ensure that the plans, when fully and properly implemented, will address the finding. In the event any adjustments to the plans are needed, Metrorail submits proposed modifications to the WMSC for review and approval. The WMSC can also require modifications, such as those that were initiated due to the Power Systems

Audit work conducted in 2023.

In 2023, WMATA developed and the WMSC approved for implementation a total of 29 corrective action plans: 24 corrective action plans to address findings, 4 corrective action plans in response to recommendations from WMSC audit reports, and 1 corrective action plan in response to a 2022 order regarding Metrorail's ATC Room Inspection, Maintenance and Cleaning Program.

In 2023, the WMSC approved 55 CAPs for closure, including those related to life-safety issues, training, document control, and fitness for duty, based on Metrorail demonstrating that it had completed implementation of these safety improvements.

The WMSC approved additional CAPs for implementation in 2024, resulting from findings from 2023 audit work on reports that were published in early 2024, and continues to oversee the development of CAPs resulting from the Revenue Vehicle audit.

CAP C-0123 was created to address the 2021 Audit of Fitness for Duty Programs finding that not all safety sensitive employee positions have fully documented and up to date physical and medical requirements. Under this CAP WMATA updated all job descriptions and documented

The WMSC operations oversight team identified that Metrorail was training and qualifying personnel on outdated Roadway Worker Protection rules.



processes including identifying physical requirements for each position. Also related to the Fitness for Duty Audit, CAP C-0125 addressed the finding that Metrorail does not have written criteria for post-incident drug and alcohol testing and does not consistently implement post-event testing. WMATA created an Incidental Testing Matrix on safety-related events requiring post-accident/incident testing and associated guidance and a process that provides real-time accident information to WMATA's Office of Occupational Health and Wellness to ensure the appropriate type of test is administered. At the time of this report, the WMSC had begun work on an audit of Metrorail's fitness for duty and occupational health programs as part of the WMSC's second triennial audit cycle.

In our 2020 audit of Metrorail's Rail Operations Control Center (now the Metrorail Command and Communications Center or MICC), the WMSC found that Metrorail does not record all critical ROCC communications, limiting the lessons that can be learned from safety events. CAP C-0051, created to address this finding, was closed after Metrorail submitted evidence and the WMSC verified through onsite observation that recording devices and updated software were installed to fill identified gaps. These technologies were incorporated in the design of the MICC, which opened for operation in October 2023.

Ongoing Oversight

The WMSC continues oversight and monitoring activities throughout the life of the CAP and even after CAPs have been closed. For example, CAP C-0171 was created to address the 2022 emergency management and fire life safety audit finding that emergency equipment in station medical cabinets was expired and covered in dirt. There is no inspection procedure or responsible party assigned to inspect and maintain this safety equipment. Assessments carried out as part of Metrorail's implementation of the corrective actions the WMSC required of Metrorail found that the dirt and dust in these cabinets and on similar emergency equipment included elevated levels of lead, posing a risk to

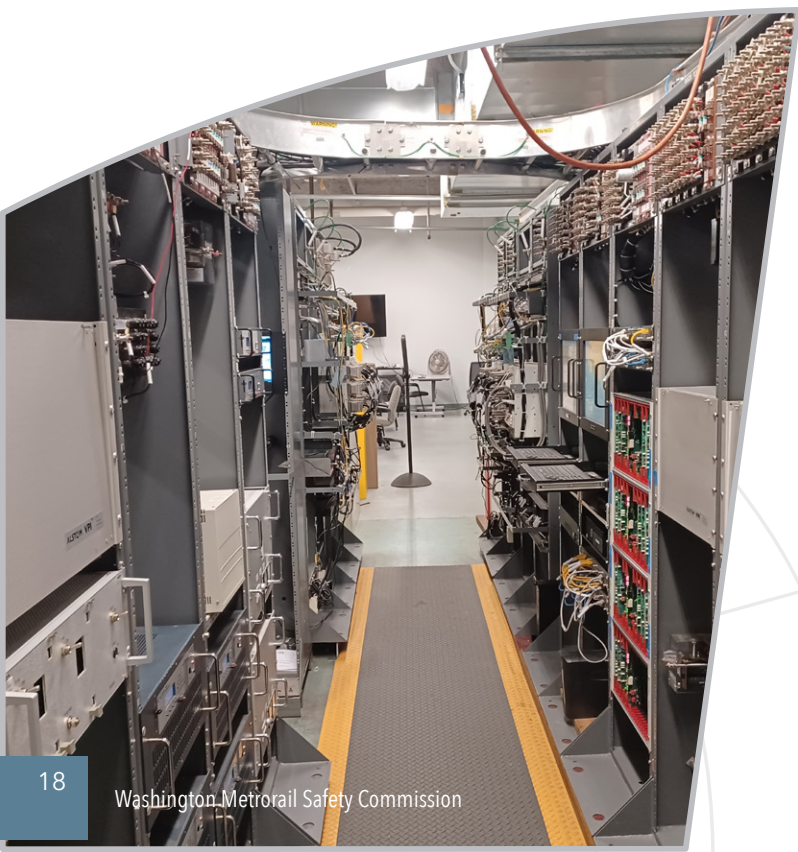
WMATA personnel and emergency first responders. The WMSC continues to closely monitor WMATA's progress on addressing this hazard.

Rail Traffic Controller Staffing

In 2023, Metrorail remained below the staffing levels it has determined are required to operate a fully professionalized control center. Continuous monitoring of ROCC staffing levels by the WMSC found in 2023 that although Metrorail has made progress due to the WMSC's 2020 audit, Metrorail is not meeting its identified staffing requirements for rail traffic controllers. Metrorail has determined that it would require more than 61 certified rail traffic controllers to provide a fully professionalized control center environment. In January 2024, Metrorail reported having 44 rail traffic controllers. At that time, Metrorail had 8 trainees, and other individuals who were expected to start training this spring. Metrorail is making adjustments to its current pilot training course that 4 trainees are participating in, and expects to use the improved course for the next training class. Metrorail also has vacancies in supervisory positions for the rail controllers that it is working to fill. The WMSC remains focused on Metrorail meeting its staffing requirements to provide for the safest operation of the rail system.

We appreciate Metrorail's ongoing effort to maintain its recruitment efforts established due to CAPs C-0055, C-0056, C-0057 to address WMSC findings from the 2020 rail operations control center audit. We remain focused on Metrorail meeting its staffing requirements to provide for the safest operation of the rail system.

The WMSC continues oversight and monitoring activities throughout the life of the CAP and even after CAPs have been closed.



The 2020 ROCC audit mentioned above also found that a high rate of staff turnover in the Rail Operations Control Center contributes to staffing challenges and a lack of positive institutional knowledge that can contribute to safety challenges. The CAP to address this deficiency, C-0057, was closed after WMATA demonstrated that it created and implemented an exit interview process and conducted a retention assessment to identify ways to retain personnel.

Rail Operations CAPs

Examples of CAPs related to rail operations that Metrorail is implementing to improve safety include C-0183 and C-0189. These are in addition to those under development to address the WMSC's train operator certification order, and other CAPs such as C-0188 that have recently been closed. CAP C-0183 addresses the finding that Metrorail created safety risks by not requiring and conducting territory familiarization and physical characteristic training and not assessing knowledge of physical characteristics prior to assigning operations personnel work on a line, in a terminal or in a yard. CAP C-0188 was created to address the finding that Metrorail does not have documented criteria to determine student proficiency in practical demonstrations of safety critical operational tasks. This CAP was approved for closure by the WMSC after Metrorail submitted evidence of the development of the Student Proficiency Training Matrix, which included 29 safety-critical operational tasks to be assessed, training on use of the matrix in evaluating performance, and training record verifying instructors received the training. Open CAP C-0189 was created to address the finding that Metrorail does not ensure personnel serving as on-the job training instructors, including those personnel described as line platform instructors (LPIs), are effective and have specific training and direction on what to teach and how to assess their assigned students.

Submittal Verification

Once the WMSC approves a CAP for implementation, Metrorail must carry out the plan. When the plan is complete, Metrorail submits a detailed request to close the corrective action plan including evidence of completion for WMSC review. The WMSC monitors implementation of the corrective action plan and closes the corrective action plan once WMATA has shown that it has been fully completed. Corrective action plan closures show that WMATA is following through with its plans and commitments to improve identified deficiencies within the Metrorail system.

When Metrorail submits requests for CAP closure, the WMSC reviews supporting documentation provided by WMATA and conducts oversight activities to ensure that each aspect of the CAP has been carried out and addresses the finding it was created to remedy.

In some instances, the WMSC's oversight activities conducted to verify implementation of a CAP lead to rejection of Metrorail's request for closure. For example, during onsite verification activities related to CAP C-0170, WMSC personnel determined that reports from Department of Safety inspections of Fire Life Safety (FLS) assets had not been tracked and addressed, including items identified at Morgan Boulevard Station more than a year earlier that had not been resolved and that did not have work order numbers associated with them for further tracking or correction. Therefore, the WMSC required Metrorail to provide two additional months of complete FLS Asset SAFE Inspection Tool Reports as documentation and evidence of implementation.

The WMSC conducted another verification inspection, this time by reviewing Metrorail's maintenance management system (Maximo) data. This review of work orders demonstrated that identified fire-life safety issues were still not being fully tracked and addressed. Therefore, the WMSC declined closure and directed Metrorail to provide a modification request for the CAP with new actionable items, which the WMSC reviewed and approved for implementation. The new action items include updating the Fire Life Safety (FLS) Asset Inspection Procedure and six



additional months of FLS Asset Inspection Tool reporting. These eight action items (1 revised, 7 new) have scheduled dates of completion between August 2024 and April 2025.

CAP Modification

In some cases, as provided for in the WMSC Program Standard, Section 9.C.4, CAP Modifications, the WMSC may identify existing corrective action plans that require modifications. For example, as mentioned earlier in the report, during the course of the power programs audit, issued in February 2024, the WMSC identified deficiencies closely related to open corrective action plans (C-0154, C-0155, C-0157) created to address 2021 Audit of High Voltage and Traction Power findings, and determined they could be addressed through the CAP modification process. Metrorail developed revised corrective action plans, and the WMSC approved those corrective action plans for implementation.

The WMSC continues its oversight to ensure that the plans remain implemented and effective as intended, in accordance with WMATA's responsibility to maintain safety improvements long-term. Implementing and completing a corrective action plan is a demonstration of continuous safety improvement, as each corrective action plan helps to make Metrorail safer.

A full list of CAPs WMATA is working to complete can be found on our website at wmata.gov/wmsc.

INSPECTIONS

WMSC experts regularly inspect various aspects of the Metrorail system.

These inspections and related oversight work lead to improved safety and include onsite activities such as training observations, walking the Metrorail right of way, riding trains or maintenance vehicles, observing activities in rail yards and maintenance facilities, data and document analysis, communications monitoring and review, video review, and frequent discussions with Metrorail personnel.

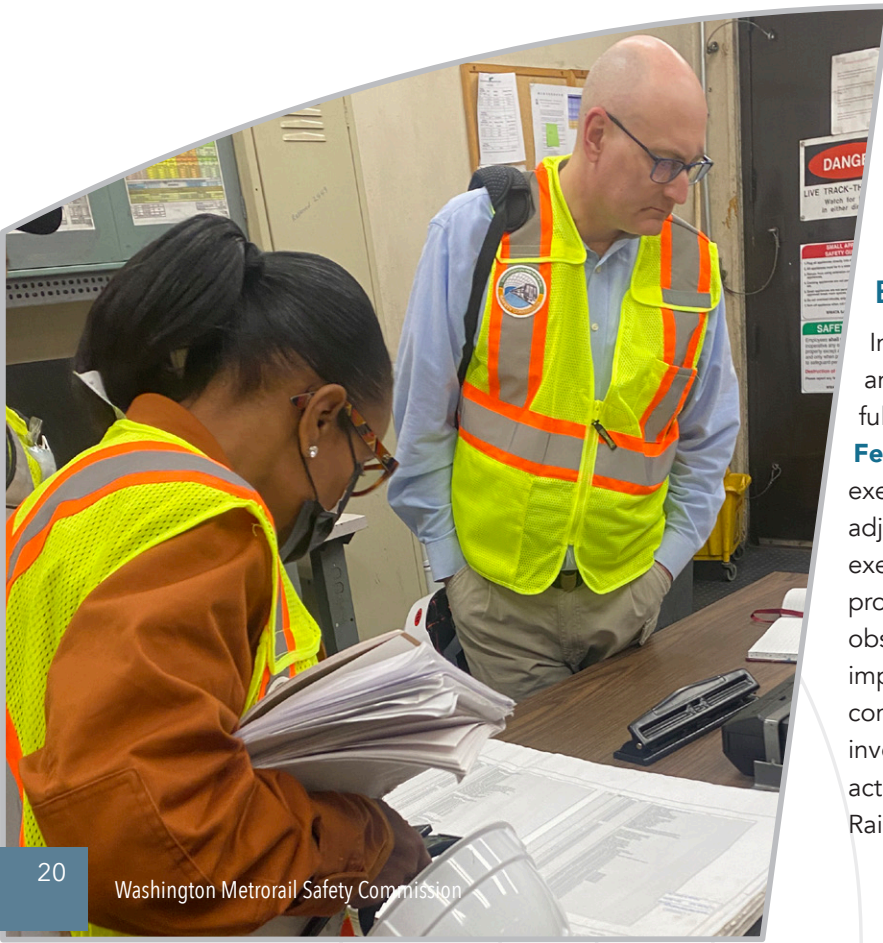
The work includes frequent interaction with frontline and supervisory personnel and inspections of track and structures, signaling equipment, traction power equipment, railcars, rail yards, elevators and escalators, and the Metro Integrated Command and Communications Center (MICC).

In 2023, some examples of safety concerns WMSC inspections identified included a near-miss collision due to improper RWP during an emergency exercise, training on outdated RWP safety rules, and a potential hazard related to limited visibility for roadway workers and a newly obstructed safety walk. As a result of these inspections and our regular communication with Metrorail, these deficiencies were mitigated in a timely manner and led to safety improvements.

At the conclusion of each inspection, a written summary is provided or an oral debrief occurs. This serves to articulate any concerns, defects, or non-compliance issues. WMSC Inspectors prepare inspection reports that are posted at wmata.gov/wmsc. The WMSC's website contains more than 91 reports pertaining to inspections that were conducted in 2023.

Emergency Exercises

In 2023, WMSC personnel observed full-scale emergency and tabletop exercises hosted by Metrorail, including a full-scale emergency exercise at Wheaton Station on **February 26, 2023**. A Rail Supervisor who was part of the exercise reported on the radio that they entered the adjacent active passenger track (which was not part of the exercise). There was no real-world roadway worker protection in place on that track. WMSC staff observing the exercise identified this possible improper roadway worker protection and communicated it to Metrorail personnel. Further investigation determined that the Rail Supervisor had actually entered Track 1 at the direction of the exercise Rail Traffic Controller without required protection



in place. In addition to the improper roadway worker protection, the WMSC observed that Metrorail did not properly control the area of the exercise. A passenger was able to enter the station and access the platform where the exercise was taking place, despite the station being closed with trains bypassing via single-tracking. Following the investigation, Metrorail made improvements to exercise radio communication, scene control and emergency exercise instructions. The WMSC observed a subsequent exercise, which was carried out carefully and correctly as it related to roadway worker protection.

Training on Outdated Safety Rules

The WMSC conducted risk-based inspections of Roadway Worker Protection training, outside of the audit work mentioned earlier, and found outdated training material in classrooms at the Carmen Turner Facility on January 9, 2023. This inspection was prompted by a concern raised to the WMSC by WMATA personnel. On January 13, 2023, the WMSC required WMATA to stop computer-based training for RWP until materials were current, and required Metrorail to properly qualify all personnel on current safety rules and procedures. A subsequent inspection on January 23, 2023 demonstrated that Metrorail had removed the outdated materials as required. Due to the WMSC's oversight, Metrorail properly trained and qualified each affected person on current rules and procedures.

Yellow Line Bridge Hotspot

WMSC oversight identified safety concerns for roadway workers and other individuals on the right of way in portions of the Yellow Line tunnel between L'Enfant Plaza Station and the bridge over the Potomac River. These safety concerns include limited visibility for roadway workers of oncoming trains, and obstructed safety walks that are used by riders during some emergency evacuations and by Metrorail personnel to reach stranded trains and for other purposes.

The WMSC directed Metrorail to designate the area as a hot spot until Metrorail assessed the area and determined its proper roadway worker protection program designation. Metrorail complied with that direction and issued a Critical Safety Directive that met the requirement to designate the area as a hot spot requiring foul time protection.

The WMSC followed up on this issue with Metrorail over the following months, observed a Metrorail field assessment, and monitored Metrorail's subsequent actions to assess and implement permanent mitigations.

On September 16, 2023, Metrorail implemented Permanent Order (PO) 23-25, designating areas on Track 1 and Track 2 as "hot spots" requiring foul time or greater protection for wayside personnel to safely traverse.

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN (PTASP)

As required by the WMSC Program Standard and Federal Transit Administration (FTA) regulations, WMATA's Public Transportation Agency Safety Plan (PTASP) includes Metrorail's commitment to and process for implementation of a safety management system (SMS). This is a proactive, data driven approach to safety management emphasizing continuous improvement through commitments from each member of the organization.

The Public Transportation Agency Safety Plan is intended as a living document, subject to regular updates as part of continuous safety improvement. Metrorail completed the third annual revision of its PTASP in 2023 as required.

WMSC staff provided detailed feedback to Metrorail regarding its proposed 2023 revisions before Metrorail's Accountable Executive, the General Manager, signed the revised PTASP and WMATA presented its revisions to its Board of Directors. Following WMATA Board of Directors approval, Metrorail transmitted the PTASP to the WMSC. The WMSC Board considered and approved the PTASP revision on October 24, 2023. Metrorail made the changes effective December 31, 2023.



The 2023 revisions to WMATA's PTASP included organizational changes, including moving multiple departments to report to different executive leaders. In the revision, Metrorail committed to continuing to improve its safety committees and to better incorporating them into its overall safety management process. The WMSC ensured that Metrorail incorporated the requirements of the Infrastructure Investment and Jobs Act, including that Metrorail maintain a Pandemic Response Plan that meets the requirements for 49 U.S.C § 5329 (d)(1)(D). The revision also includes updates to reflect the ongoing development of the WMSC's risk-based inspection program, prompted in part by the FTA's Special Directives issued in October 2022 as required by federal law to the WMSC and other SSOAs.

The WMSC assessed this revision in accordance with WMSC processes utilizing an FTA-recommended checklist and the WMSC's experience and expertise. The WMSC is focused on ensuring that Metrorail is proactive, acts on, tracks and investigates hazards and risks as required by the SMS approach, and allows easy reporting of concerns from frontline workers, along with providing proper feedback and protections for those reports.

Metrorail's other documented policies and procedures are also implemented under this high-level document. Overseeing and verifying Metrorail's implementation of these documented safety commitments is a basic element of the WMSC Program Standard, and a basic responsibility specified in the WMSC Compact. If the WMSC identifies that Metrorail is not following its safety requirements, we take the necessary action to require Metrorail to correct that safety issue.

The WMSC will continue to oversee implementation of the PTASP through our regular oversight work including inspections, audits, and investigations.

Program Standard

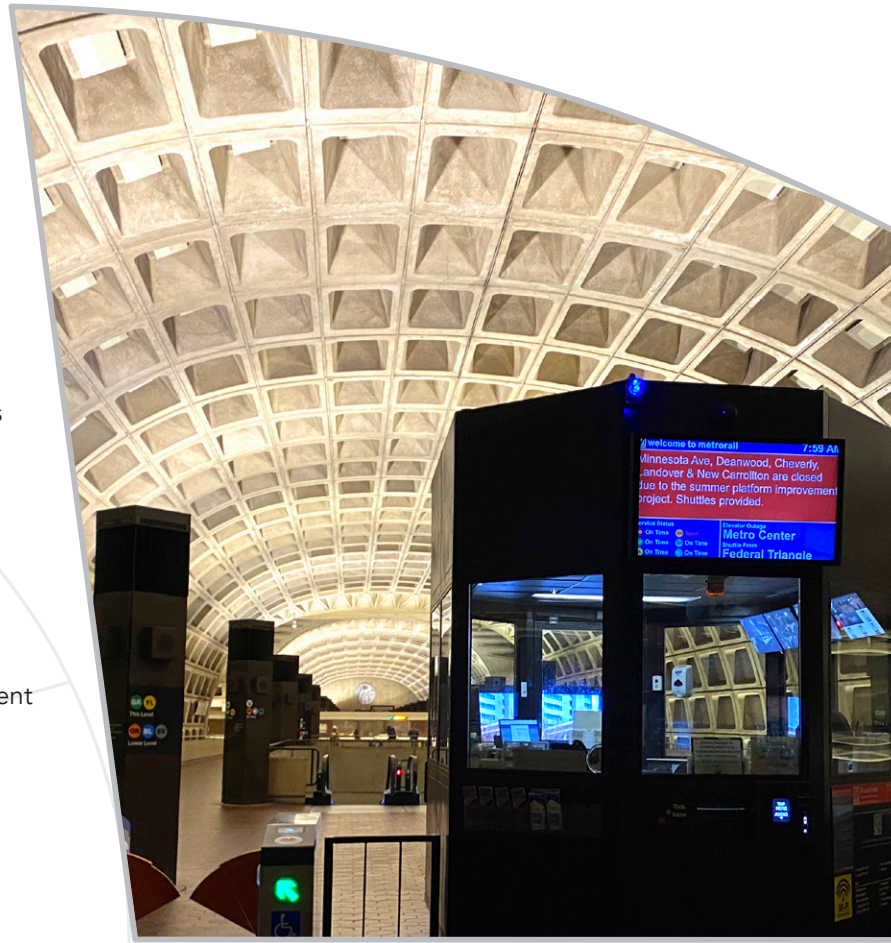
The WMSC regularly examines ways to continually improve its oversight work, including through updates to the Program Standard, the document that establishes the requirements and expectations for WMATA's interactions with the WMSC.

The WMSC made its annual revision to the Program Standard in August 2023, with an effective date in September 2023. The revision incorporated new requirements under H.R.3684 – Infrastructure Investment and Jobs Act.

FINANCIAL INDEPENDENCE

Funding from Maryland, Virginia, and the District of Columbia, along with federal grants from the FTA, enable fully independent operations of the WMSC. The WMSC is meeting all budgeting and financial reporting requirements. Fiscal year 2023 **ended June 30, 2023**, with the WMSC operating within its **approved budget**. The approved budget for **fiscal year 2024**, which began on July 1, 2023, is \$6.711 million, the majority of which covers staff costs such as salaries and benefits (see Appendix B for approved FY24 budget).

To be good financial stewards and to provide predictability for the District of Columbia, Virginia, and Maryland, the WMSC utilizes five-year spending plans for FTA grant awards. Any amounts in a particular year not covered by FTA grant awards are divided equally among the three jurisdictions. In fiscal year 2023, the FTA awarded the WMSC a \$4.456 million grant through the federal fiscal year 2022 safety oversight apportionments. The WMSC is spreading these funds over a 5-year period, as it does for each other federal award, so that the WMSC maintains all active FTA awards and maximizes the benefits of this federal funding for effective safety oversight and for the responsible use of available local and federal funds.



Expanding Oversight Capacity

As the WMSC regularly assesses its workload requirements in accordance with the WMSC Program Standard, the WMSC determines the need for any additional positions or services based on the size, complexity and oversight needs of the WMATA Metrorail system.

The WMSC added several key positions in 2023 including:

- Audit and Corrective Actions Plan Specialist
- Program Specialist – Train Control & Signals
- Program Specialist – Rail Systems, Maintenance, and Practices
- General Counsel

Continuing Clean Financial Audits

The WMSC received another unmodified (“clean”) financial statement audit opinion for fiscal year 2023. The report, and the similar reports covering previous fiscal years are available at wmsc.gov.

The draft fiscal year 2025 budget and work plan was developed in fall 2023. A final fiscal year 2025 budget was approved by the Commissioners in May 2024 in accordance with the jurisdictional funding agreement.

The WMSC is on firm footing in fiscal year 2024 and heading into fiscal year 2025.

Title VI

The WMSC continued to effectively carry out our Title VI plan regarding nondiscrimination and to carry out the WMSC’s Disadvantaged Business Enterprise (DBE) program. For the period ending September 30, 2023, the WMSC’s DBE participation rate was 2.3%. The WMSC’s reporting period runs from October 1, 2022, through September 30, 2025. The WMSC completed regularly scheduled updates of our Title VI plan and DBE program in 2023.

CONTINUING EDUCATION, TRAINING AND AWARENESS

Safety requires constant learning and the incorporation of new information to drive incremental improvements to safety performance.

WMSC staff are meeting all requirements to demonstrate that they are qualified to perform their functions based on appropriate training. Over the course of 2023, staff made progress towards training credentials required by FTA regulation, which includes individual progress on the Public Transportation Safety Certification Training Program (PTSCTP). As of March 15, 2024, 11 WMSC staff members have completed the PTSCTP program (three completed this program in 2023), and five staff members are making considerable progress towards

completing the program as soon as 2024. WMSC contractors performing relevant work also participate in this training program. Some WMSC personnel have also completed the training requirements for Transit Safety and

The WMSC received another unmodified (“clean”) financial statement audit opinion for fiscal year 2023.



Security Program (TSSP) certification. Completion of this training program indicates that the individual has a broad-based knowledge of the safety and security principles applicable to transit system safety, operations and management.

WMSC staff also participate in workshops and forums including the FTA's Joint State Safety Oversight and Rail Transit Agency Workshop, and have other training and experience related to their responsibilities.

As required by the WMSC Compact, the WMSC commissioners appointed by and the District of Columbia, Virginia and Maryland have expertise in transportation safety, transportation, engineering and public finance.

WMSC's other robust information sharing methods such as social media and [WMSC.gov](https://www.wmsc.gov), these public meetings continued to allow substantial public awareness of the WMSC's safety oversight work. As part of video streaming of these meetings, the WMSC provides closed captioning to further increase accessibility.

The WMSC reviews and appropriately addresses every safety concern that it receives.

The WMSC also receives input and information about safety concerns through our website, social media and email. The WMSC reviews and appropriately addresses every safety concern that it receives, demonstrating the importance and the effectiveness of the WMSC interacting directly with riders, people, data, and documentation throughout all levels and all departments of Metrorail to ensure

that safety events, hazards and other issues are properly identified, and, most importantly, to ensure that Metrorail identifies mitigations that can help prevent similar issues in the future.

The WMSC encourages Metrorail employees and contractors to report any safety concerns to WMATA's safety hotline, and encourages employees, contractors and members of the public to continue to report safety concerns to us at the WMSC via phone, via social media ([@MetrorailSafety](https://twitter.com/MetrorailSafety)), via [wmsc.gov](https://www.wmsc.gov) or via email at safetyconcern@wmsc.gov.

TRANSPARENCY, PUBLIC INPUT AND EXTERNAL SAFETY CONCERNS

The WMSC is committed to transparency and inclusive public participation in carrying out every aspect of its program. For example, in addition to safety concerns identified by WMSC inspections, audits or investigations, the WMSC solicits, receives, and responds to safety concerns submitted by members of the public.

The WMSC provides an opportunity for public comments at each of our public meetings. In conjunction with the

CONCLUSION

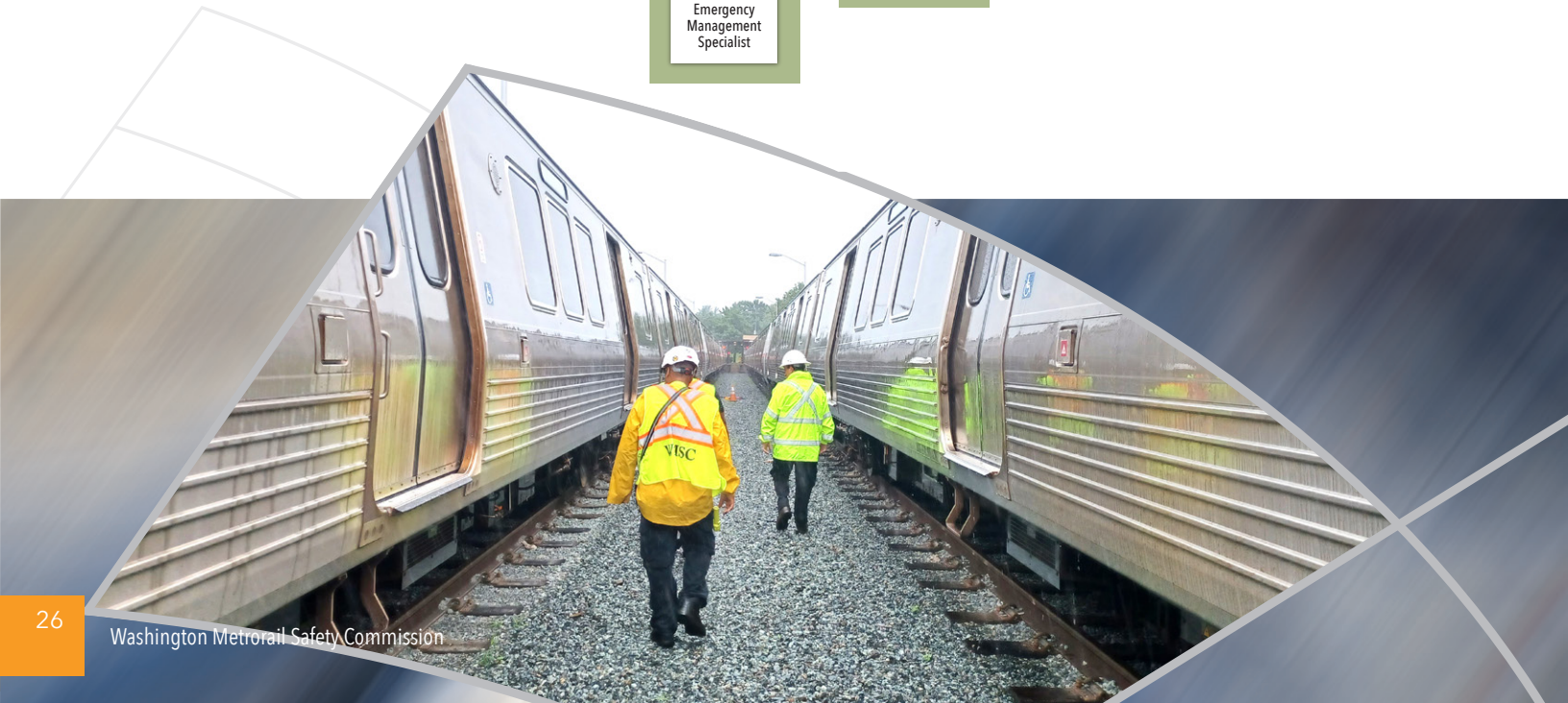
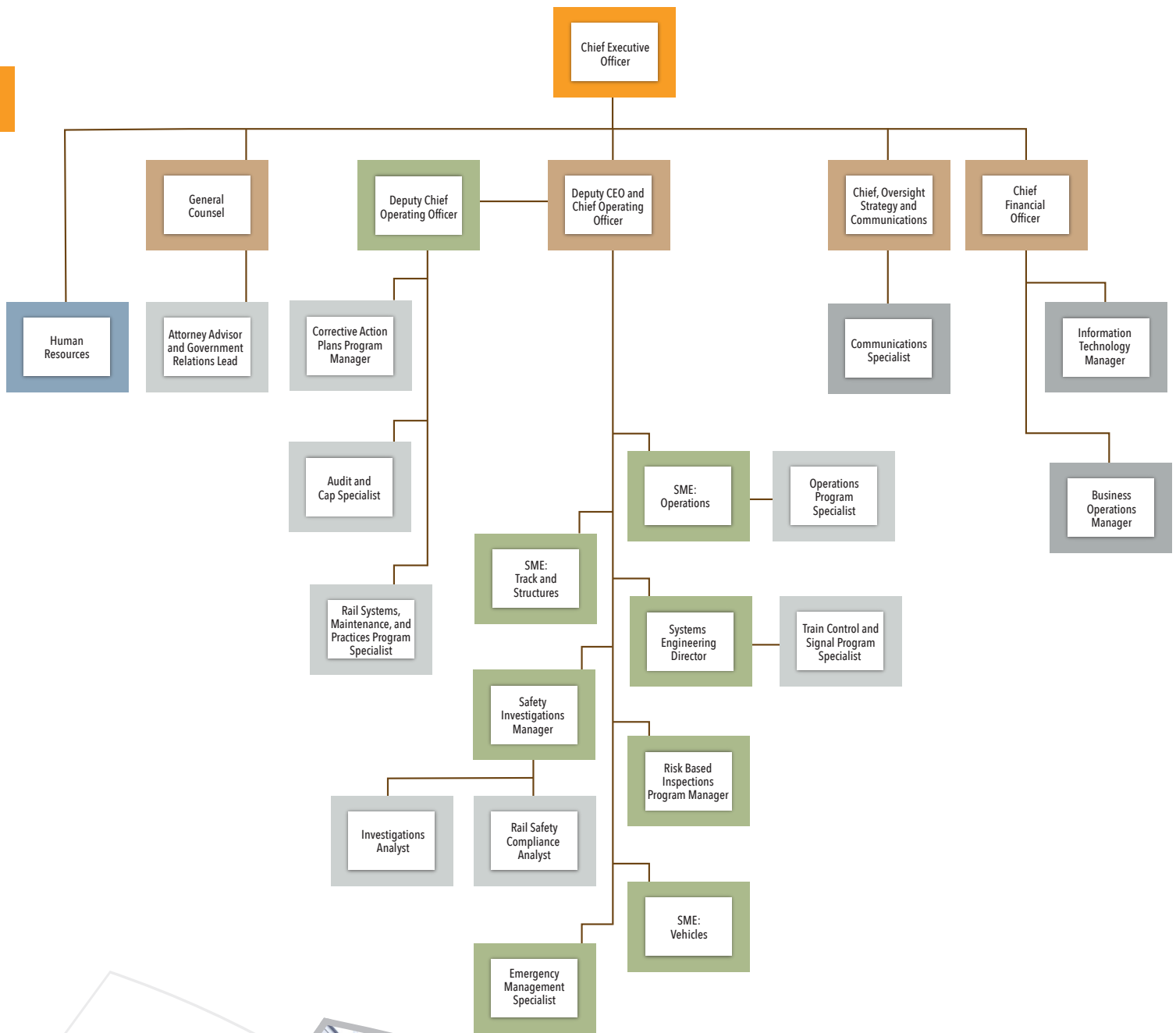
The WMSC continues to guide WMATA towards continuous safety improvement for the Metrorail system through a fact based and data-driven approach.

This work required diligence from the WMSC staff to ensure that WMSC safety oversight of the Metrorail system continued to improve in 2023. The WMSC identified areas in which Metrorail made progress in 2023, but also areas like Metrorail's culture of noncompliance with written safety rules and procedures, and deficiencies in certification programs that require improvement and sustained attention to prevent practical drift once those improvements are implemented. Metrorail must remain committed to this never-ending journey toward a safer transit system. The WMSC will continue to oversee this work, and take action when necessary.

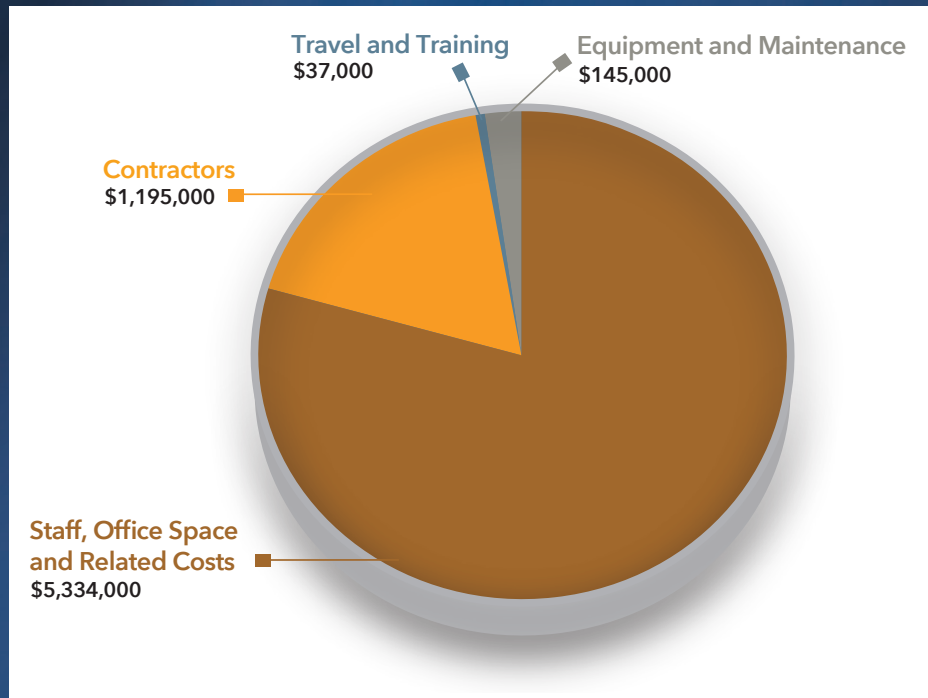


APPENDIX

WMSC STAFF ORGANIZATION CHART



WMSC FY2024 BUDGET:

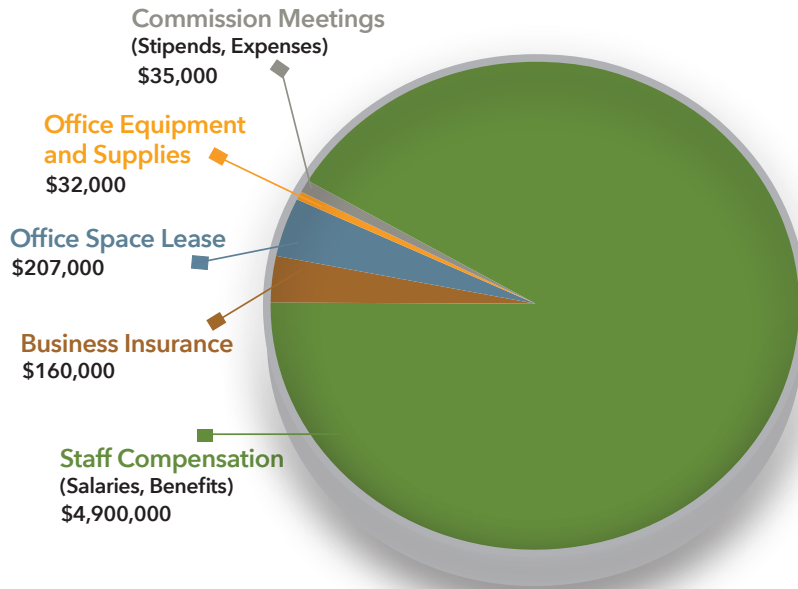


**TOTAL
FY2024
BUDGET -
\$6,711,000**

FY2024 FUNDING SOURCES

The WMSC is funded by federal grants, carryover funds, and the equal support of the District of Columbia, state of Maryland and Commonwealth of Virginia.

STAFF, OFFICE SPACE AND RELATED COSTS - SUBTOTAL: \$5,334,000



STAFF, OFFICE SPACE AND RELATED COSTS - SUBTOTAL: \$5,334,000

Office Space Lease - \$207,000

Cost reflects annual lease of office space, access control, and operating expenses.

Business Insurance - \$160,000

Cost reflects annual premiums for cybersecurity, liability, property, and acts and omissions insurance policies.

Staff Compensation (salaries, benefits) - \$4,900,000

Cost reflects salary and benefits for 25 full-time employees along with a benefits factor of 22.5 percent and annual performance and market adjustments to ensure retention of core staff. Staff numbers reflect personnel and organizational manpower necessary to ensure the WMSC can carry out its mission and maintain the level of effort required by the FTA's certification.

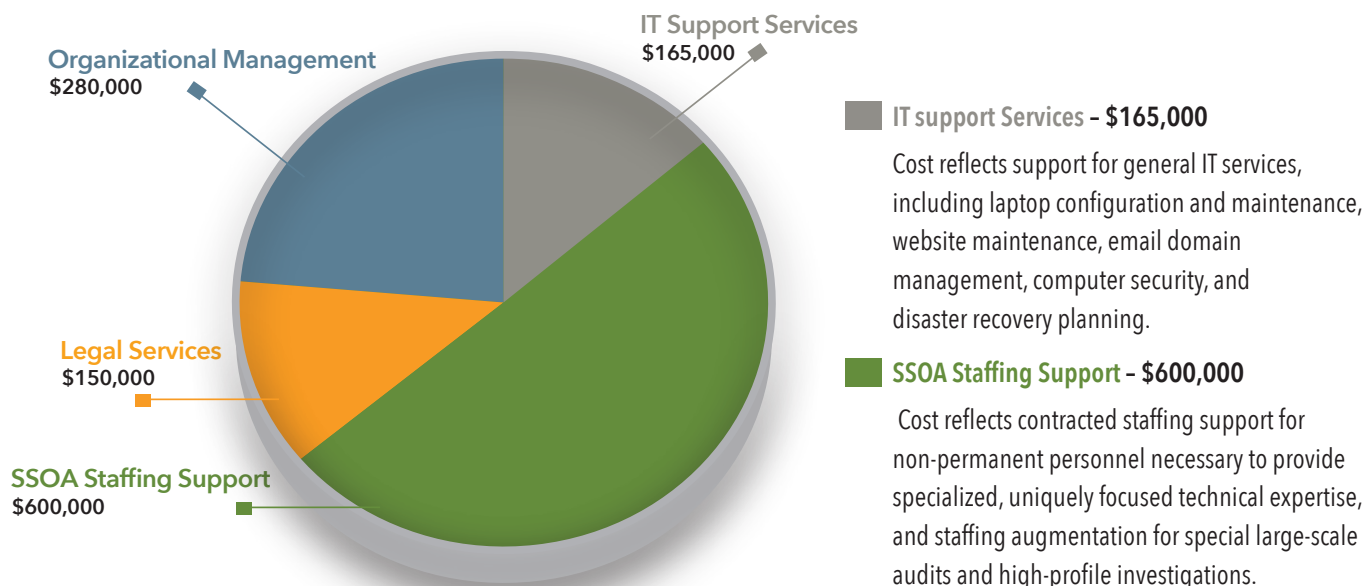
Commission Meetings (stipends, expenses) - \$35,000

Cost reflects statutorily obligated stipends and travel expenses, fees, meeting space, and meeting materials.

Office Equipment and Supplies - \$32,000

Purchase and depreciation of office equipment (e.g. laptops, monitors, and printers), office collaboration equipment, and office supplies.

CONTRACTORS - SUBTOTAL: \$1,195,000



CONTRACTORS - SUBTOTAL: \$1,195,000

Legal Services - \$150,000

Cost reflects annual outsourced legal services. Legal services are necessary to address issues related to business concerns and complex questions.

Organizational Management - \$280,000

Cost reflects outside contract support for human resources and employee benefits management support, accounting, procurement, graphic design, and annual external financial audit.

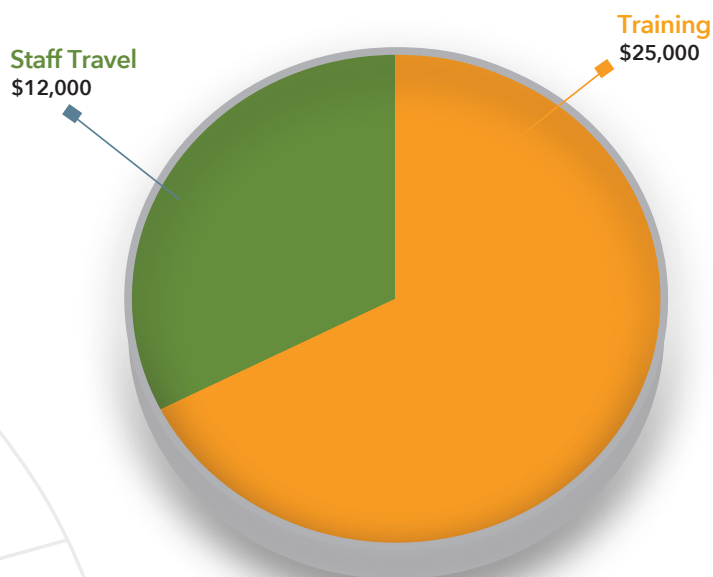
TRAVEL AND TRAINING - SUBTOTAL: \$37,000

Training - \$25,000

Cost reflects training for commissioners and staff to obtain required certifications, as well as training on oversight of drug and alcohol requirements, fatigue and human factors in transportation, accident investigations, investigation interview techniques, project management, and related topics. Training is offered through DOT, FTA, NTSB and other entities.

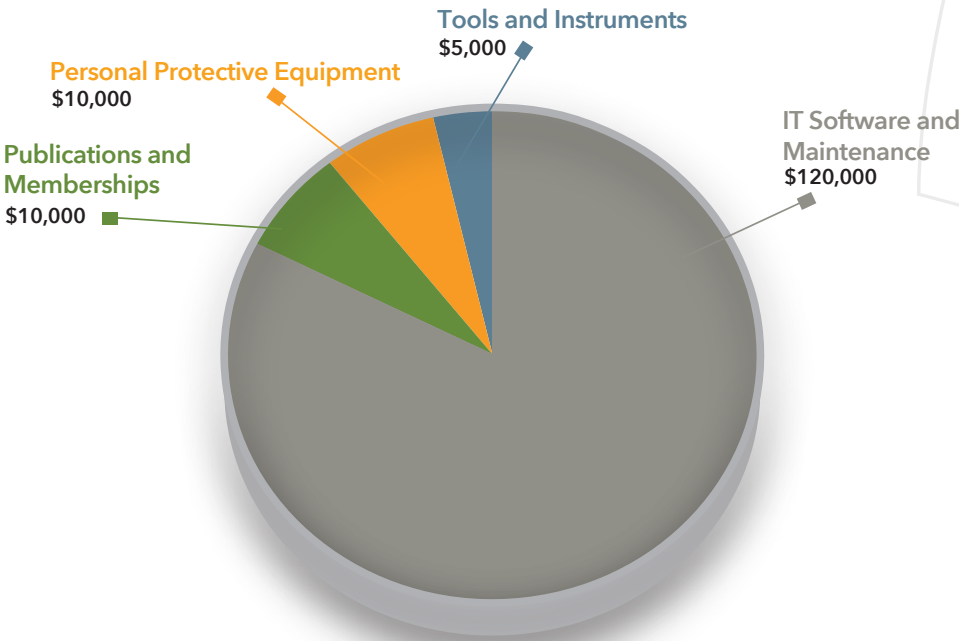
Staff Travel - \$12,000

Cost reflects reimbursement for travel associated with field work, inspections, and meetings in the National Capital Region.



TRAVEL AND TRAINING - SUBTOTAL: \$37,000

EQUIPMENT AND MAINTENANCE - SUBTOTAL: \$145,000



EQUIPMENT AND MAINTENANCE - SUBTOTAL: \$145,000

IT Software and Maintenance - \$120,000

Cost reflects acquisition and maintenance, support, and licensing fees for software and data systems to support WMSC’s mission and IT infrastructure. This includes legal databases, media monitoring, office productivity and other related software, and website domain renewal. Cost also includes office internet and telephone services.

Publications and Memberships - \$10,000

Cost reflects maintaining staff professional licenses and memberships, purchases of various industry technical publications and subscriptions, and WMSC organizational membership.

Personal Protective Equipment - \$10,000

Cost reflects purchase of weather-related personal protective equipment required for staff to work safely in the rail system.

Tools and Instruments - \$5,000

Cost reflects acquisition and testing of speed monitoring equipment, track measuring tools, cameras, and other electronic devices and specialized work equipment that are needed to conduct field inspection activities.





750 First St. NE
Ste. 900
Washington, D.C.
20002
202-384-1520
www.wmsc.gov

