

Washington Metrorail Safety Commission 2022 Annual Operations Report

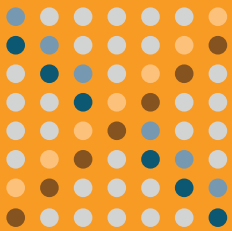




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LETTER FROM THE CEO

The Washington Metrorail Safety Commission (WMSC) had another very productive year that included issuing important safety audits and directives that identified areas that will help WMATA improve the Metrorail system, as we work to make the system safer for the public, employees, contractors, and first responders.

The WMSC also conducted other critical oversight activities such as continuing to take part in the National Transportation Safety Board (NTSB) investigation into the October 12, 2021, Blue Line train derailment, overseeing WMATA's Return to Service Plan for 7000 Series railcars, identifying discrepancies in the training of Train Operators, monitoring WMATA's work to update its Roadway Worker Protection program, and issuing orders regarding improper power restoration to provide for the safety of personnel on the roadway and regarding Metrorail's ineffective and insufficient automatic train control room inspection, maintenance and cleaning.

The WMSC's five audit reports issued in 2022, including our audit of Metrorail's emergency management and fire and life safety programs and our audit of Metrorail's rail operations, identified safety issues that Metrorail is now required to address through Corrective Action Plans (CAPs).

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 entrusting me and our dedicated team with such an important responsibility for the region and the nation's capital: ensuring WMATA is continually improving to make the Metrorail system as safe as reasonably practicable for everyone.

David Mayer, Chief Executive Officer



We work to make the system safer for the public, employees, contractors, and first responders.





COMMISSIONERS

CHRISTOPHER HART (District of Columbia) Chair

Mr. Hart is chair of the Washington Metrorail Safety Commission (re-elected March 2022). 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.



SUHAIR AL KHATIB (State of Maryland)

Commissioner Al Khatib is a KCI Practice Leader for Transit, with expertise in capital programs, maintenance and regulations. He previously worked at the Maryland Department of Transportation for more than 30 years, rising from a scheduling engineer on Baltimore's Light Rail to capital program manager for the Maryland Transportation Authority and deputy administrator and chief planning, program and engineering officer at the Maryland Transit Administration.



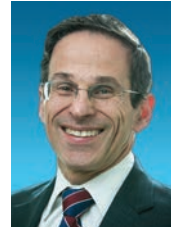
ROBERT BOBB (District of Columbia)

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.



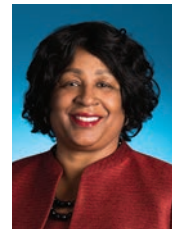
MICHAEL J. RUSH (Commonwealth of Virginia) Vice Chair

Commissioner Rush is Vice Chair of the Washington Metrorail Safety Commission (elected November 2022). He serves as Senior Vice President, Safety and Operations for the Association of American Railroads (AAR). He serves as the rail industry's liaison with regulatory bodies, including the U.S. Department of Transportation, the U.S. Department of Homeland Security, and the Environmental Protection Agency. Commissioner Rush oversees much of the rail industry's work on interchange standards, its Homeland Security plans, and environmental protection and safety programs. An expert in regulatory law, Mr. Rush has represented AAR in various regulatory agency and legislative activities, testifying at hearings and drafting comments, briefs, and Congressional testimony.



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

Commissioner Farrar-Dyke is Secretary-Treasurer of the Washington Metrorail Safety Commission (re-elected March 2022). She is a senior manager with over 30 years of successful, progressive leadership in 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 LAUBY (Commonwealth of Virginia - Alternate)

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.



EXECUTIVE SUMMARY





EXECUTIVE SUMMARY

In 2022, 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. Since assuming safety oversight of the Metrorail system in March 2019, the WMSC has worked with WMATA to ensure Metrorail's development and implementation of corrective action plans and other safety improvements.

As the state oversight agency (SSOA) for the Metrorail system, the WMSC carried out its important work through a robust safety oversight program that includes audits, inspections, safety event investigations, Corrective Action Plans (CAP) oversight, safety certification oversight, and emergency management oversight.

This report provides an overview of the WMSC's programs, operations, and finances in calendar year 2022. Additional detail is also available in the WMSC's separate Annual Report on the Safety of the WMATA Rail System in 2022.

The WMSC conducts oversight to ensure that WMATA fulfills its responsibilities to carry out its safety commitments and to continuously improve the safety of the Metrorail system for riders, workers and all others who depend on the system's maintenance and operations. 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.

Some of the WMSC's most notable work in 2022 included:

- Ongoing 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 Silver Line Phase 2. The WMSC's work identified hazards that Metrorail had not, ensured Metrorail developed plans to mitigate those hazards, and ensured that those hazards were mitigated before the extension opened for passenger service.
- Issuing orders regarding Metrorail's improper power restoration (prompted by investigations, inspections, corrective action plan oversight, and other oversight

activities) and regarding Metrorail's ineffective and insufficient Automatic Train Control Room inspection, maintenance and cleaning program (prompted by inspections, corrective action plan oversight and other oversight activities) to ensure that Metrorail carries out and appropriately establishes its safety commitments.

- Completing five in-depth audit reports, including completion of the WMSC's first three-year cycle of audits covering all elements of Metrorail's Public Transportation Agency Safety Plan (PTASP). Among other findings, the reports issued in 2022 identified that elements of Metrorail have a culture that accepts non-compliance with written operational rules, instructions, and manuals, that Metrorail was not meeting its safety training and certification requirements, that Metrorail

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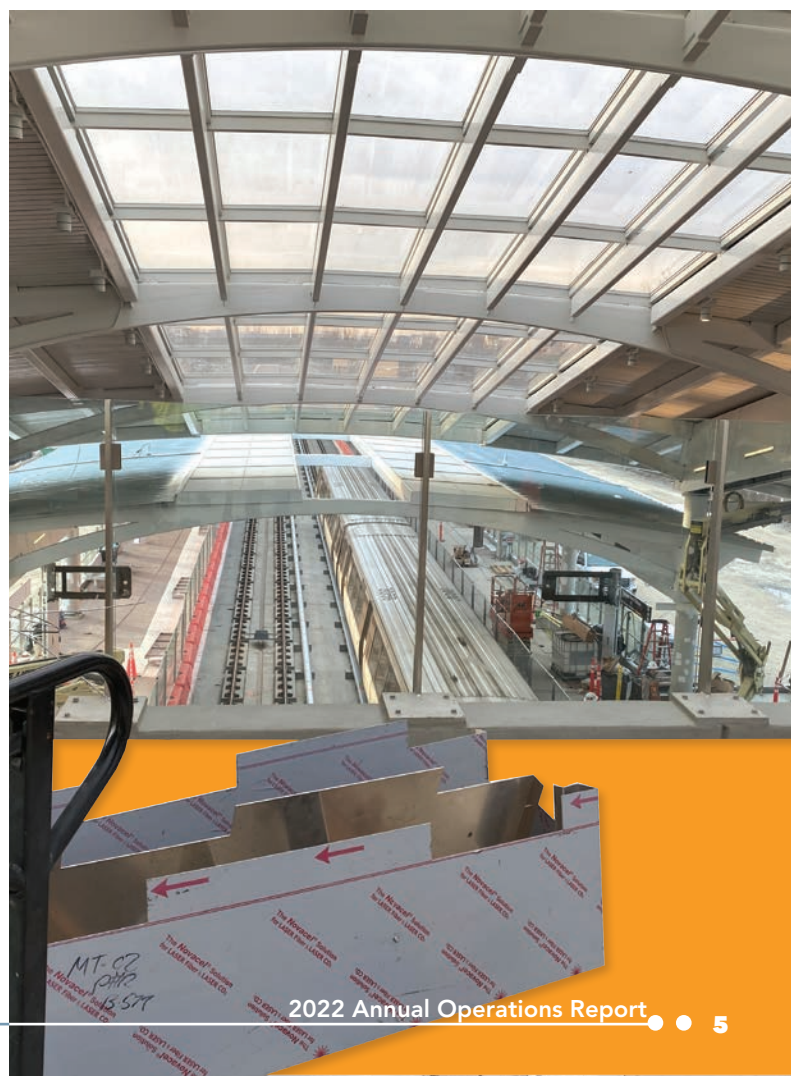
was not meeting emergency management requirements, and that Metrorail was not taking other steps necessary for the safety of riders, workers and first responders. The audits also identified positive practices. For example, the first report of the new triennial cycle, the Audit of Track Maintenance and Training, identified that Metrorail had implemented and sustained corrective actions to address most findings from the previous Track Audit issued in February 2020.

- ◆ The other reports issued in 2022 were:
 - ▶ Audit of Emergency Management and Fire and Life Safety Programs
 - ▶ Audit of Rail Operations
 - ▶ Audit of Station Maintenance, Elevators and Escalators
 - ▶ Audit of Communications Systems
- Conducting safety event investigations and adopting safety event investigation reports that provide for Metrorail to take actions to reduce the risk of recurrence. The WMSC adopted and published 55 final safety event investigation reports in 2022, and progressed work on other investigations into events that occurred in 2022. This included a July 30, 2022, Red Line smoke event where Metrorail utilized a train with passengers on board for a track inspection, where Metrorail did not identify the location of the smoke, and where Metrorail struggled to de-energize power cables, extending electrical arcing. Other events included roadway worker protection (RWP) safety issues such as train operators operating at excessive speeds past workers on the roadway, creating near misses of collisions. Metrorail is developing improvements to its RWP program.
- Extensive participation in the National Transportation Safety Board (NTSB) investigation into the October 12, 2021, Blue Line train derailment between Rosslyn and Arlington Cemetery stations.
- Providing oversight of Metrorail's revision to its Public Transportation Agency Safety Plan (PTASP), including updates to reflect improvements such as a joint labor-management safety committee.

The WMSC's work continued into 2023 on several areas, including oversight of Metrorail's 7000 Series return to service plan, of Metrorail's actions related to third rail power and train

control rooms, of Metrorail training practices, and of Metrorail's safety certification of projects such as the Potomac Yard Station and the potential initiation of Automatic Train Operation, which Metrorail has generally not used since 2009. 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 continued in 2022 to increase expertise and capacity in a targeted and responsible fashion. The WMSC completed Fiscal Year 2022 within budget of \$5,062,000 and developed the Fiscal Year 2023 budget of \$5,975,000 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 2022 annual independent financial statement audit included an unmodified or "clean" audit opinion, which demonstrates the WMSC is using these funds responsibly.



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 District of Columbia, Virginia and Maryland created the WMSC with the approval of Congress and the president through an interstate compact that became law in August 2017. After hiring an expert staff and conducting a thorough transition period with the Federal Transit Administration (FTA) oversight team that had direct oversight of Metrorail at the time, the WMSC's safety oversight program was certified in March 2019.

The WMSC's safety oversight work includes conducting inspections, audits, and investigations, overseeing Corrective Action Plans, safety certification, emergency management, and conducting other activities that help Metrorail continuously improve safety. Metrorail is required to comply with all WMSC directives, 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 endeavors to work with Metrorail to avoid or resolve safety issues in a collaborative manner whenever possible.

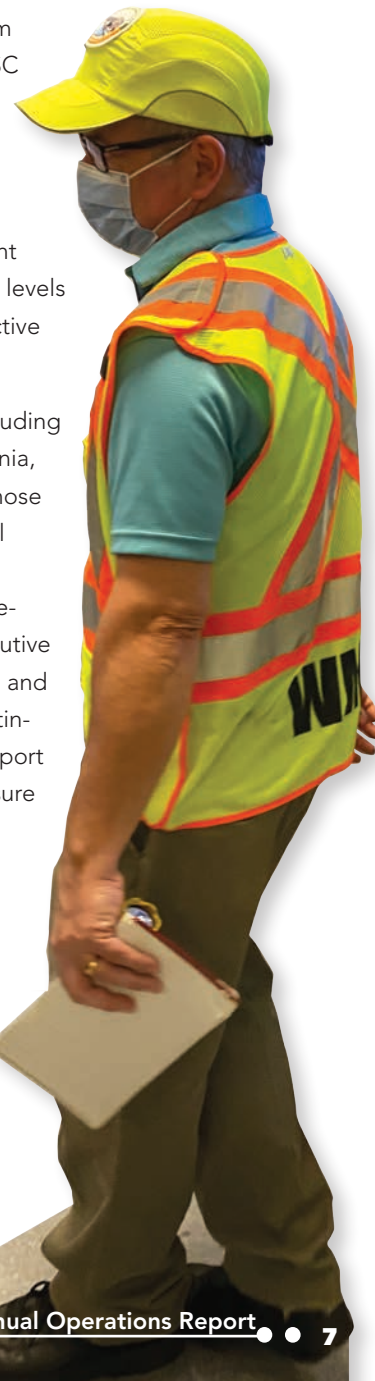
The WMSC conducts this work transparently through public meetings of the commissioners who guide the work of the WMSC staff and who take actions such as adopting final safety event investigation reports. Virginia, Maryland and the District of Columbia each appoint two commissioners and one alternate. 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, wmata.wmssc.gov.

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The WMSC's authority includes the ability, if necessary, to suspend service, to direct WMATA to suspend or remove individuals from safety sensitive positions, to remove equipment from service, and to issue fines. The WMSC endeavors to work with Metrorail to avoid or resolve safety issues in a collaborative manner whenever possible. To that end, the WMSC is responsive to and remains in constant communication with personnel at all levels of Metrorail to foster open and effective lines of communication.

Elected leaders, staff and others including the governors of Maryland and Virginia, Mayor of the District of Columbia, those in the Virginia and Maryland General Assemblies, D.C. Council, 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 all of those who ride or work on the Metrorail system.

Funding from the government 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



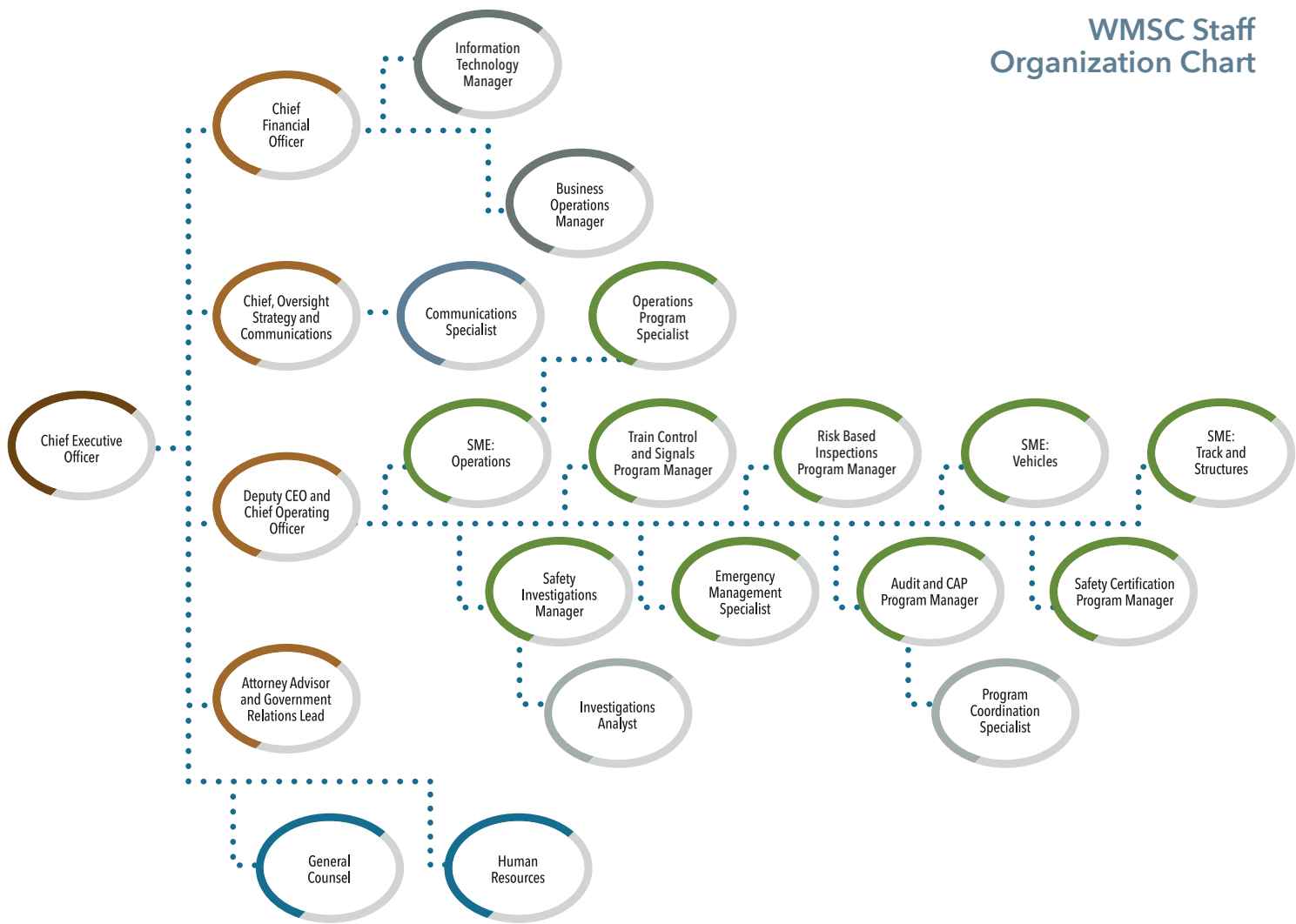


nation, this financial support permits the WMSC to continue to develop its staff and organization to ensure continuing robust safety oversight commensurate with the size, scale and complexity of the Metrorail system.

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 2022 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 wmsc.gov.



WMSC Staff Organization Chart





7000 SERIES RAILCARS

The WMSC's work in 2022 ensured that Metrorail developed and implemented 7000 Series railcar return to service plans that, based on the available safety data, provided for the safety of riders and workers. In several instances in which the WMSC identified safety process failures under Metrorail's return to service plan, or in which WMATA identified these failures and communicated them to the WMSC, full investigation and corrective action or mitigation only occurred at the WMSC's direction.

The WMSC's work in 2022 ensured that Metrorail developed and implemented 7000 Series railcar return to service plans that, based on the available safety data, provided for the safety of riders and workers.

The WMSC identified in December 2021 that Metrorail had placed 7000 Series railcars into passenger service that did not meet the inspection criteria specified by Metrorail's plan developed due to the WMSC's order issued following the October 12, 2021 Blue Line derailment. After the WMSC communicated this to Metrorail, Metrorail stated it would temporarily remove 7000 Series railcars from passenger service.

The WMSC followed up on that Metrorail commitment with an order issued later on December 29, 2021 requiring Metrorail to keep all 7000 Series railcars out of passenger service until Metrorail provided a revised return to service plan describing the specific additional protections and internal oversight Metrorail would carry out to ensure that any asset that fails a safety-critical inspection, the specific additional protections and internal oversight Metrorail will carry out to ensure that no alternative procedures or practices are introduced outside of the return to service plan; revised inspection frequency and any other criteria based on all available data; and the WMSC notified WMATA that the WMSC had no technical objection to the revised plan and Metrorail implementing such plan.

Following the December 29, 2021 order, Metrorail did not develop a revised return to service plan for several months.

Starting in approximately March 2022, Metrorail began to develop a proposed revision to its return to service plan. The WMSC continued daily interactions with Metrorail staff, and additional meetings regarding specific items that Metrorail requested discussion about. The WMSC provided iterative feedback on these items as part of the WMSC's ongoing collaborative approach.

The WMSC identified that Metrorail did not have the data to support, and had not completed safety certification of, elements of its initial plans, particularly elements Metrorail was drafting that were for potential phases beyond the initial return to service of an initial set of railcars.

On May 19, 2022, Metrorail submitted a revised return to service plan and the WMSC communicated that it had no technical objections to the safety plan. Ongoing communication and information sharing allowed the WMSC to provide its acceptance of Metrorail's 7000 Series Return to Service Plan the same day the revision was received. Metrorail committed to

following all aspects of its plan including frequent back-to-back inspections in Metrorail shops, careful control of the railcars, determining the required number of personnel across the Metrorail organization to execute this plan properly, training all these personnel, and the necessary IT changes to carry out this plan. The revised plan also laid out additional internal Metrorail protections and improved Metrorail procedures.

WMSC staff conducted observations of the various training activities geared towards training a critical number of rail car mechanics, supervisors, rail quality specialists, and rail operations personnel, and other WMATA personnel having responsibilities in carrying out the back-to-back manual inspections of 7000 series railcars, and in ensuring no 7000 series railcar is released for service unless it has met the carefully assembled inspection criteria to ensure no wheel migration has occurred.

As an example of the WMSC's oversight, on June 29, 2022, our review of documentation demonstrated that Metrorail was not following requirements of its plan that it had set to ensure safety. This included Metrorail not keeping up with data collection in its centralized maintenance management system as specified in its return to service plan to ensure that only railcars that had passed required inspections were put into passenger service. After the WMSC raised this issue, Metrorail briefly stopped using the 7000 Series railcars for passenger service to ensure that any railcars in passenger service met all of Metrorail's safety requirements.

On September 2, 2022, Metrorail provided a revised 7000 Series railcar return to service plan. The WMSC communicated that same day that we had no technical objections to this



revised plan. This version of the plan allowed for trains on the Yellow and Green lines where Metrorail had collected safety data, and on the Red Line with Metrorail committing to continued careful monitoring of tracks, vehicles and other systems. The revision included a metered increase in the number of trains in service. Metrorail did not utilize all 7000 Series trains it specified could be used daily for service under this plan. The WMSC continued to conduct oversight of Metrorail's implementation of its plan and communicated to Metrorail when the WMSC identified safety gaps.

The WMSC continued this clear, transparent communication with Metrorail based on available safety data such as known measurement exceedances on dozens of 7000 Series railcars and the lack of data at that time related to a subset of railcars with axles assembled using older specifications. Metrorail submitted plan revisions in late September and early October that were not based on that available safety data.

Metrorail eventually developed a Return to Service Plan revision submitted on October 25, 2022, that aligned with the available safety data and the WMSC provided our no technical objection that same day.

This plan provided the safety steps for Metrorail to operate all 7000 Series railcars in passenger service in all parts of the Metrorail system.

The WMSC continues to oversee Metrorail's implementation of the plan, and communicates issues as they are identified.

The WMSC continues to follow a data-driven approach and continues to emphasize to Metrorail WMATA's own commitments in its Public Transportation Agency Safety Plan and the safety management system laid out in that plan, which relies upon data to mitigate known hazards and risks.

Also related to the 7000 Series railcars, the WMSC is a party to the NTSB investigation into the October 12, 2021, derailment between Rosslyn and Arlington Cemetery stations. Throughout 2022, the WMSC team participated alongside NTSB personnel and the other parties in all aspects of the NTSB investigation.



SAFETY CERTIFICATION OVERSIGHT

Silver Line Phase 2

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 Metrorail safety certification committees and working groups.

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Silver Line Phase 2, extending the Metrorail system into Loudoun County, Va., is an example of a project that Metrorail focused significant safety certification efforts on in 2022.

The WMSC played an important role in ensuring that Metrorail effectively completed its safety certification process so that Silver Line Phase 2 could open, extending the Silver Line from Wiehle-Reston East through Dulles International Airport to Ashburn Station.

Our work identified hazards that Metrorail has since mitigated and ensured that Metrorail developed mitigations for hazards that it identified. Hazards and deficiencies identified by the WMSC include those related to fire and life safety, an inoperable public address system, high vegetation growing in and around tracks, and items related to wayside



and maintenance facilities. The WMSC also communicated to WMATA the need for analysis of emergency evacuation from a train consist in the case of an emergency or derailment on different track configurations present on the extension. This analysis and additional testing resulted in Metrorail developing and implementing a new design for its emergency egress boards that are used to provide stability for passengers evacuating a train onto the roadway. Other mitigations for identified hazards include permanent, long-term fixes, as well as interim mitigations Metrorail put in place to safely open the line until permanent mitigations are in place. The WMSC conducted its work on an ongoing basis over the years leading up to Metrorail completing its safety certification and opening the line to passengers. Due to the timing of the creation and certification of the WMSC's safety oversight program, the WMSC's oversight of work on Silver Line Phase 2 included safety certification activities related to the final stages of construction by the Metropolitan Washington Airports Authority (MWAA) and the operational preparations and activation by WMATA Metrorail. The WMSC's work included field observations, document and data review, and regular meetings with Metrorail and MWAA. We observed full scale emergency exercises, training activities, and other work at new facilities such as stations, mainline tracks and wayside facilities, and the new rail yard.

To complete work on the WMSC's concurrence that Metrorail had carried out its safety certification process, the WMSC conducted spot checks and reviewed Metrorail's documentation of issues WMATA identified and addressed.

Following the WMSC's concurrence on November 10, 2022, within hours of receiving Metrorail's outstanding documentation, Metrorail opened Phase 2 of the Silver Line on November 15, 2022.

The WMSC continues to oversee Metrorail's activities regarding Silver Line Phase 2, including Metrorail's compliance with the requirements of its interim safety mitigations put in place to open the line.

Automatic Train Operation and Automatic Door Operation

Metrorail is considering initiating the use of Automatic Train Operation, a specific system that Metrorail has not used in its current operating environment. Metrorail stopped utilizing Automatic Train Operation in 2009. Since that time, Metrorail has developed a Roadway Worker Protection program, has had changes to personnel and their experience, and has identified and, based on current manual operations, taken steps to mitigate new hazards and the associated risks.

Metrorail is also considering initiating automatic door operation, which is another system that requires functional communication among multiple subsystems on the wayside and railcars, and that requires coordination across Metrorail departments to initiate and maintain.

ATO is separate from Metrorail's long-term consideration of a modernized signaling system such as communications-based train control.





The WMSC has identified issues and communicated detailed questions for several years regarding Metrorail's work to consider initiating the use of ATO and Auto Doors. This includes information prior to and within the ATC Audit issued in May 2021, additional gaps in Metrorail's efforts including as it related to test plans and orders in 2021 and 2022, and specific safety questions the WMSC has continued to raise into 2023.

The WMSC continues to raise questions about timelines, testing sequence, technology upgrades and adjustments, rules and procedure reviews, training, roadway worker protection, and the preparedness of not just the physical systems but also the organization to effectively and safely operate what is a completely new system for most current Metrorail frontline employees.

Other Projects

The WMSC also continued in 2022 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, the 8000 Series Railcar Project, and the new Potomac Yard Station that opened in May 2023.

The new Potomac Yard Station is on the Blue and Yellow lines in Alexandria. The project also included new track and systems in this area between Ronald Reagan National Airport and Braddock Road stations.

In 2022, the WMSC concurred with Metrorail's temporary use notice for elements of the track and systems. This concurrence was required due to the project being one selected by the WMSC for in-depth safety certification review. Metrorail completed its safety certification work required to open the Potomac Yard Station to passengers on May 18, 2023, including the implementation of interim safety mitigations. The WMSC provided concurrence that Metrorail had completed its process, and Metrorail opened the station on May 19, 2023. As with the WMSC's other work, the WMSC's effective, ongoing, direct communication with individuals at all levels of



the Metrorail organization and with the relevant jurisdictional partners allowed for the WMSC to provide concurrence quickly after Metrorail completed its work.

AUDITS, DIRECTIVES AND OTHER FINDINGS

The WMSC completed five audit reports in 2022 and began work on two other audits to be published in 2023.

The purpose of this audit work is to review Metrorail's compliance with its policies, procedures and other requirements, and to identify other safety deficiencies. 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 publishing the final report at wmata.wmasc.gov.

In accordance with the WMSC Compact and federal regulation, the WMSC audits all aspects of Metrorail's Public

Transportation Agency Safety Plan over a three-year period. Because the WMSC audits on a continuous basis by auditing specific functional areas separately over that time to provide the required level of detailed review, there is always audit work in progress.

The WMSC schedules these audits in advance and provides that schedule to WMATA each time it is updated. The audit schedule may be adjusted based on issues identified through the WMSC's other oversight work.

In addition to extensive document and data review, audit work includes on-site inspections and observations and interviews with Metrorail personnel.

The WMSC has identified issues and communicated detailed questions for several years regarding Metrorail's work to consider initiating the use of ATO and Auto Doors.



The audits completed in 2022 demonstrate that while there have been substantive improvements, there are areas where Metrorail is not meeting its own written requirements, does not have adequate procedures, processes or requirements, and does not have adequate training, coordination and supervision.

Findings from these audits include that elements of Metrorail have a culture that accepts noncompliance with written operational rules, instructions, and manuals.

Audits

Emergency Management and Fire and Life Safety Programs – February 22, 2022

This audit assessed Metrorail's programs, procedures and equipment related to emergency management and fire and life safety.

The audit identified 14 findings and 5 recommendations, including that Metrorail does not consistently follow the incident command system (ICS) structure and has procedures that do not comply with National Incident Management System (NIMS)/ICS requirements such as the use of plain language. Further, Metrorail's training requirements are insufficient to prepare personnel to respond to and/or manage emergencies within the NIMS/ICS framework. These deficiencies have contributed to ineffective and improper emergency response and emergency management.

Other findings from the audit included:

- Metrorail created and implemented an "Incident Management Official" (IMO) position without documented training, responsibilities, communication or

coordination, and without adequate staffing to ensure other emergency management and preparedness activities were not interrupted.

- MTPD personnel routinely enter the roadway despite not having RWP qualifications required by Metrorail rules and procedures, exposing themselves and others to the risk of serious injury or death.

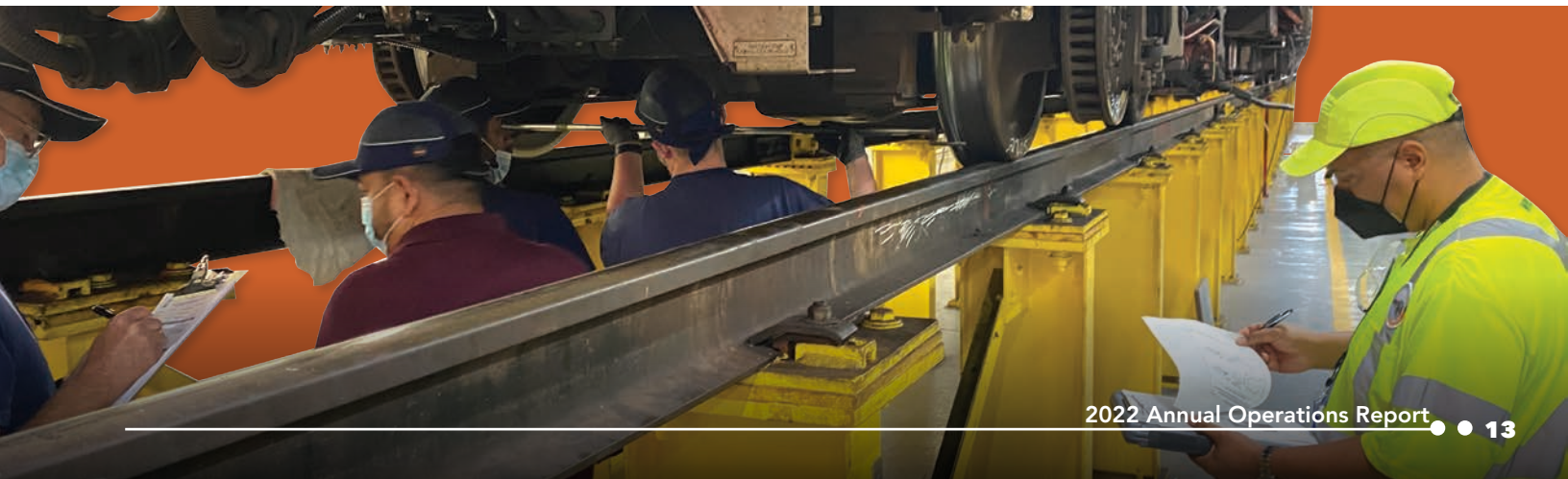
As of March 15, 2023, all CAPs related to this audit are open with scheduled dates for completion between April 2023 and April 2026.

Rail Operations – April 7, 2022

This audit assessed Metrorail's rail operations and the personnel directly involved in railcar (Class 1 vehicle) movements both on mainline and in rail yards, as well as station managers and station operations. This includes interlocking operators, train operators, station managers, rail supervisors, and other associated management, training and quality assurance personnel and practices.

The audit identified 14 findings and 4 recommendations, including:

- Elements of Metrorail have a culture that accepts noncompliance with written operational rules, instructions, and manuals.
- Metrorail does not effectively identify, track, communicate and address operational hazards as required by its Agency Safety Plan.
- Metrorail creates safety risks by not requiring and conducting territory familiarization and physical characteristics training, and not assessing





knowledge of physical characteristics prior to assigning operations personnel work on a line, in a terminal or in a yard.

- Metrorail has inadequate internal communication, coordination and processes to effectively manage change as required by its PTASP, the WMSC and the FTA.

As of March 15, 2023, 17 CAPs related to the Rail Operations Audit are open. They have scheduled completion dates into 2025.

Station Maintenance, Elevators and Escalators – May 25, 2022

This audit assessed Metrorail's station, elevator and escalator inspections, maintenance, operational practices and procedures and associated training.

The audit identified 9 findings, and 4 recommendations, including that Metrorail has not developed and implemented a comprehensive water intrusion and remediation program covering stations, elevators and escalators, which contributes to damage and deterioration of structures and other assets, to electrical hazards and to other safety risks.

Other findings from the audit included:

- Metrorail does not consistently communicate and follow its procedures governing change management and requiring interdepartmental coordination.
- Metrorail is not ensuring that ELES personnel work only on the specific types of equipment that they are trained to inspect, maintain, and repair.

As of March 15, 2023, one CAP related to the Stations Maintenance, Elevators and Escalators Audit has been closed. The remaining 12 CAPs are scheduled for completion in 2023 and 2024.

Communications Systems – September 29, 2022

This audit assessed Metrorail's communications systems, including radio communications and other related equipment, as well as associated maintenance, training and engineering.

Metrorail's communications systems, such as radios and radio infrastructure and public address systems, play a critical role in safe operations, emergency response, and numerous specific processes and procedures required to ensure the safety of Metrorail riders, workers and first responders.

The audit identified 9 findings and 2 recommendations, including that Metrorail does not have adequate supervisory oversight and safety promotion to ensure that approved preventative maintenance inspections (PMI) are properly completed to ensure the safety of the rail system.

Other findings included:

- Metrorail does not have sufficiently detailed instructions and procedures specifying how to inspect and maintain each communications asset. For some assets, there are no instructions or procedures at all.
- Metrorail is closing preventative maintenance work orders without correcting known deficiencies, which does not comply with its Systems Maintenance (SMNT) Maintenance Control Policy.

As of March 15, 2023, 9 CAPs related to the Communications Systems Audit are open, with scheduled completion dates in 2024 and 2025, and 2 CAPs are in development.

This report completed the WMSC's first triennial cycle of safety audits of Metrorail covering all elements of Metrorail's PTASP (for the period prior to the PTASP, the System Safety Program Plan (SSPP)). This is documented in the compendium of audit reports from this cycle.



Metrorail does not have sufficiently detailed instructions and procedures specifying how to inspect and maintain each communications asset.



Track Maintenance and Training – December 14, 2022

This audit assessed Metrorail's track inspection, maintenance, engineering, operational practices and procedures. Track maintenance includes components and physical assets such as running rails, fasteners, ballast, ties, floating slab, grout pads, yard switches, equipment used to maintain track (but this audit excluded roadway maintenance machines), and third rail.

The audit identified 8 findings, including that Metrorail's organizational structure prevents Metrorail from effectively ensuring that its track is maintained in a state of good repair as specified by Metrorail policies, procedures and standards.

Other findings included:

- Metrorail is not maintaining track infrastructure in rail yards in accordance with TRST-1000 requirements and related standards. This has introduced operational hazards.
- Metrorail is not meeting its training requirements and there are inconsistencies in on-the-job training documentation for TRST personnel.
- WMATA is not ensuring that personnel wear the proper personal protective equipment as required by its Hot Work Program Manual.

As of March 15, 2023, all CAPs related to the Track Maintenance and Training Audit are open or in development.

Internal Safety Review Program – January 4, 2023

This audit assessed Metrorail's Internal Safety Review audit practices and procedures and associated training.

Work on this audit was conducted in 2022, and the final report was published in January 2023.

The audit identified three findings, including that Metrorail 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.

Other findings from the audit:

- 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.
- Metrorail does not have a process for, and has not conducted or scheduled, a triennial internal safety review of its internal safety review program as required by the WMSC Program Standard.

As of March 15, 2023, all CAPs related to the Internal Safety Review Audit are open or in development.

Future Audit Work

The WMSC conducted preparations for and on-site activities for other audits beginning in late 2022 that continued into 2023.

Metrorail is not maintaining track infrastructure in rail yards in accordance with TRST-1000 requirements and related standards.

This included on-site reviews and personnel interviews for an audit of Metrorail's structures program, preparations for the Roadway Maintenance Machine Audit, and preliminary activities to prepare for an Automatic Train Control and Signaling Audit.

Directives and Other Findings

Automatic Train Control Rooms

On August 4, 2022 the WMSC issued an order requiring Metrorail to develop and implement a corrective action plan to address the WMSC's finding that Metrorail has an ineffective and insufficient inspection, maintenance and cleaning program for Automatic Train Control equipment, particularly including a lack of required tools, procedural compliance, and supervisory oversight for care of vital equipment housed in the train control rooms, and is not maintaining the structural integrity of these ancillary rooms.



During an inspection conducted as part of the WMSC's ongoing oversight activities, on March 28, 2022, the WMSC identified urgent safety concerns in the Friendship Heights Station Train Control Room (TCR).

Although Metrorail procedures require weekly cleaning of each train control room, the WMSC found the Friendship Heights Station Train Control Room and its equipment covered in dust and other debris. The deteriorating ceiling in this room, including exposed rusting rebar and other materials, appeared to be at least one source of this debris. This ceiling deterioration exposed the room to the floor above. The TCR also had water leaks, some of which were being caught by buckets placed by Metrorail personnel, and other evidence of water intrusion. Metrorail had placed plastic over some equipment at some point in the past due to water leaks onto the equipment, but that plastic sheeting had deteriorated and was not an effective permanent mitigation. Air conditioning duct work was also deteriorated.

The WMSC communicated these urgent safety concerns to Metrorail and required Metrorail to take immediate actions to address the safety concerns, including protecting the train control equipment, measuring air and environmental quality, cleaning the room and equipment, conducting preventive maintenance inspections in the room, identifying and addressing the source(s) of water intrusion, and addressing the ceiling deterioration in the room.

WMATA completed most of the initial required actions, however WMSC follow up demonstrated that Metrorail did not follow through on all safety commitments, including not continuing and completing special safety inspections of all TCRs and not beginning similar special inspections of other similar rooms.

Upon the WMSC raising concerns again, Metrorail stated that it would schedule and complete these special safety inspections and provided a planned schedule of inspections for the remaining TCRs that committed to resuming these inspections on August 9, 2022 and completing the special inspection of all TCRs (and reinspection of some TCRs inspected in April and May) by mid-September 2022. Metrorail also committed to later conducting these safety inspections of similar rooms such as Traction Power Substations and Communications Rooms. Metrorail stated that it had not taken any additional action to ensure inspections were conducted according to procedures and that safety issues are properly documented, communicated and resolved, despite the WMSC's inspections and records reviews and Metrorail's safety department initial special inspections identifying safety issues and problems that had not been addressed as required by Metrorail procedures.

The WMSC then issued the order requiring WMATA to document and complete ATC quarterly inspections for each train control room as specified in Metrorail's procedure, to resume, complete and document its special

safety inspections of each train control room as specified by the schedule submitted to the WMSC, and to develop a corrective action plan that included training ATC personnel to properly complete all inspections and maintenance and ensuring these activities are properly carried out.

Improper Power Restoration

WMSC investigation into several safety events and other issues that the WMSC identified through oversight activities from March to May 2022 led the WMSC to issue an order on May 17, 2022 regarding Metrorail's improper power restoration





and insufficient training and supervisory oversight. Metrorail was putting people at risk of serious injury or death due to the repeated bypassing of redundancies built into the process for safety, and insufficient available information to ensure continuous safety improvement.

WMATA implemented a new Power Desk in March 2022 despite concerns raised by WMATA frontline employees and communicated by the WMSC concerning procedures, training, and workload requirements.

Deviations from safety requirements occurred both prior to Metrorail's implementation of a new Power Desk and after Metrorail launched the new desk, which was intended to prevent these deviations. This included the initial circumstances identified by the WMSC in a May 12, 2020 finding, additional circumstances the WMSC identified beginning in January 2021 that circumvented interim safety procedures, and new circumstances the WMSC identified under the new Power Desk that launched in March 2022.

For example, on April 26, 2022, Metrorail skipped specific safety steps required by its safe power restoration procedures as Metrorail personnel in the field and in the Rail Operations Control Center (ROCC) were preparing to restore traction power to multiple locations for the start of passenger service. During this event, a tag was turned in before workers cleared the roadway. Power Desk personnel were working to restore power in at least 12 locations over a 17-minute span and restored power without the required confirmations.

During another safety event investigation, the WMSC identified confusion, ineffective checklists, missing records, and procedural noncompliance across departments, in addition to issues related to staffing, workload and fatigue related to the new Power Desk and power restoration procedures.

WMATA implemented a new Power Desk in March 2022 despite concerns raised by WMATA frontline employees and communicated by the WMSC concerning procedures, training, and workload requirements.



Despite these safety deficiencies, and the serious safety events that occurred, Metrorail submitted documentation to the WMSC on April 27, 2022, of a vote by the Safety Certification Review Committee (SCRC) approving a final Power Desk Safety Certification Verification Report (SSCVR) stating that Metrorail had properly carried out its safety certification for the Power Desk. Metrorail also submitted a CAP closure request for C-0037 on April 29, 2022, stating that they had successfully implemented corrective actions to prevent these very safety failures.

Based on the demonstrated safety issues, the WMSC denied

Metrorail's CAP closure request, required Metrorail to submit a revised corrective action plan that addressed the additional safety issues that the WMSC had identified, ordered Metrorail to restart and properly conduct its safety certification process, and ordered Metrorail to provide for the safety of personnel on the roadway

by reducing the number of work locations requiring power de-energization and energization to no more than 10 per shift per Power Desk Operations Desk until such time as Metrorail implemented specific interim safety mitigations.

The new corrective action plan is C-0212, which encompasses the items identified in the order and the outstanding items from C-0037.

C-0212 includes that Metrorail will make software system upgrades, comply with Metrorail's Fatigue, a Risk Management Policies, have a safety management system (SMS) implementation plan for Power Desk personnel, and restart and properly conduct its safety certification process. This CAP is due for completion in February 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.

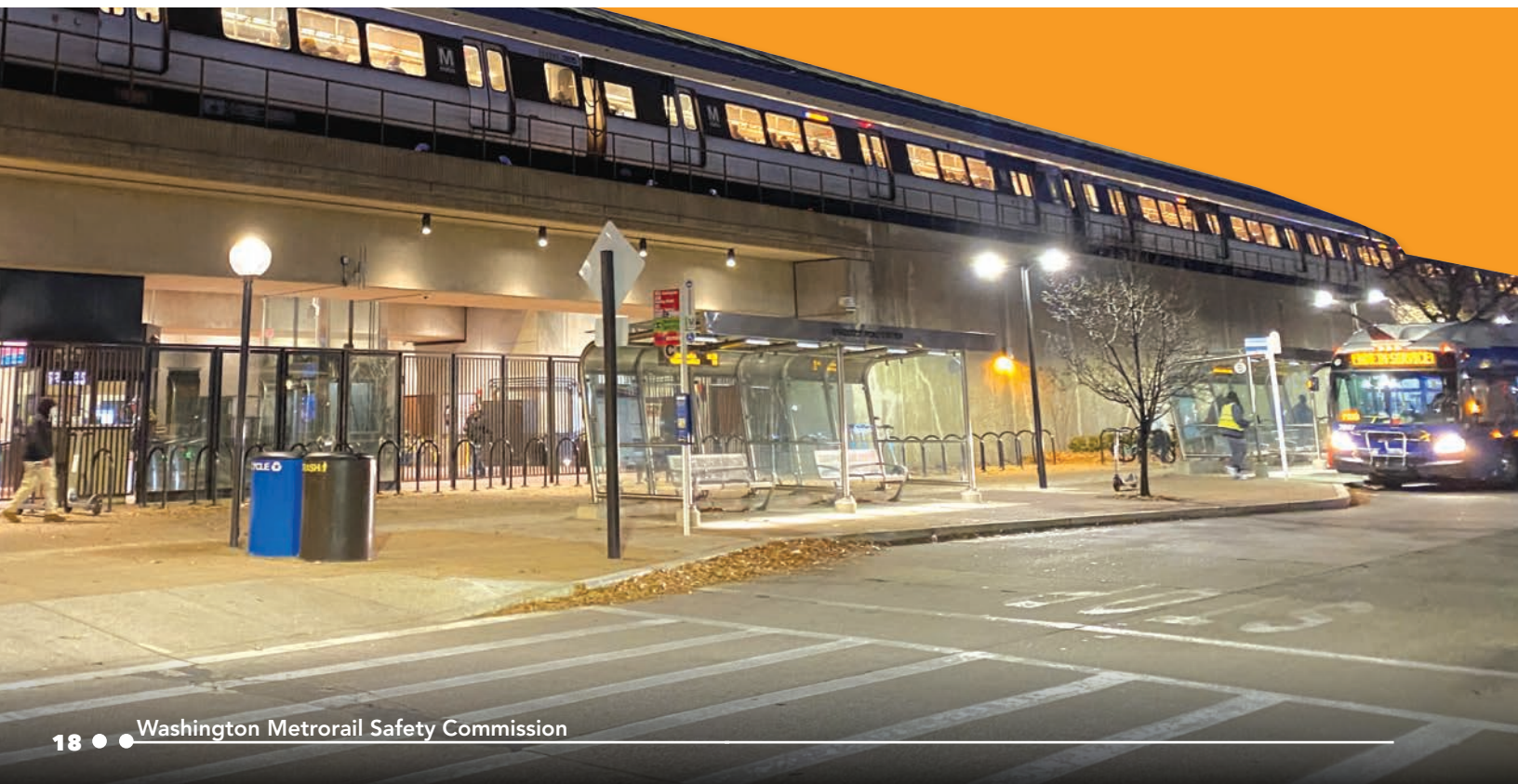
The WMSC approved 55 CAPs for closure in 2022, including those related to compliance, prioritization of corrective maintenance work required to keep the Metrorail system safe and in a state of good repair, and fatigue risk management.

CAPs C-0008-A and C-0008-B were created to address a finding the WMSC reissued in September 2019 (previous FTA finding), that Metrorail does not currently have an effective hours of service policy and required WMATA to develop such a policy as part of an overall fatigue management program. Under C-0008-A WMATA's Fatigue Management Policy/Instruction was revised and under C-0008-B those revisions were implemented. The revised policies included WMATA's Policy/Instruction 10.6, Fatigue Risk Management Policy and 10.7/1, Hours of Service Limitations for Prevention of Fatigue. This included a 12 hour per shift limit for ROCC Controllers. Implementation included training on new requirements and establishing performance measures to evaluate the new policy's impact on reducing fatigue risk.

Also related to the CAPs mentioned above is C-0055, that was created to address a finding from the WMSC's 2020 ROCC audit that WMATA does not always follow or clearly define its fatigue risk management procedures for the Rail Operations Control Center, including those limiting the length of controller

shifts. This CAP was approved for closure by the WMSC after WMATA submitted evidence that it conducted fatigue, schedule, and staffing level assessments, trained personnel on the related policies and showed compliance with those policies.

The WMSC continues oversight and monitoring activities even after CAPs have been closed. For example, the 2020 ROCC audit 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. Continuous monitoring of ROCC staffing levels by the WMSC found that in 2022 the ROCC was not maintaining the appropriate staffing levels. Metrorail has said it would require more than 60 certified rail traffic controllers to provide a fully professionalized control center environment. As of March 2023, Metrorail has fewer than the minimum 42 controllers WMATA stated were necessary to cover all required shifts. Metrorail also has mid-level managerial vacancies that it is in the process of filling in the control center. The WMSC has identified and raised this safety concern regarding inadequate staffing to Metrorail as part of other oversight activities, has increased the frequency of discussions with an expanded group of ROCC leadership, and has again elevated this safety issue to the Chief Safety Officer and General Manager.





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.

As mentioned earlier in this report, the WMSC rejected WMATA's request to close CAP C-0037 related to power restoration, after two extensions had been granted throughout the CAP process. In its request for closure Metrorail stated that they had successfully implemented corrective actions to prevent safety failures related to third rail power restoration, however WMSC oversight identified several safety events that demonstrated WMATA had not adhered to the safe power restoration process it developed. A revised CAP, C-0212, that includes a commitment by WMATA to upgrade system software and restart safety certification of its power desk, was submitted and approved by the WMSC and is scheduled for completion in February 2024. CAP C-0037 was superseded by CAP-0212 and was therefore closed.

In addition to developing 54 corrective action plans in 2022 to address findings from WMSC audit reports, WMATA developed 17 corrective action plans in response to WMSC audit recommendations. In 2022, the WMSC also required Metrorail to develop two other corrective action plans in response to findings discovered during other oversight activities concerning ATC Train Control Rooms and improper power restoration described above.

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 CAP including evidence of completion for WMSC review. The WMSC monitors implementation of the CAP and closes the CAP once WMATA has shown that it has been fully completed. The WMSC closed 55 CAPs in 2022. CAP closures show that WMATA is following through with its plans and commitments to improve identified deficiencies within the Metrorail system.

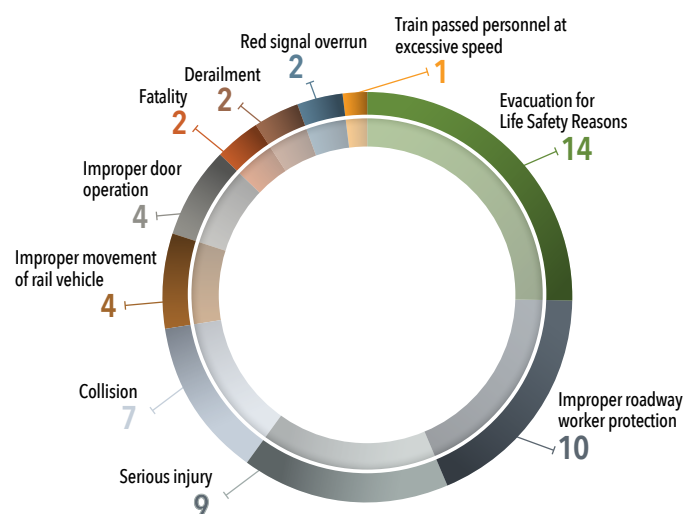
Even after CAPs are closed, the WMSC continues its oversight to ensure that the plans remain implemented and effective as intended, in accordance with WMATA's responsibility to maintain safety improvements long-term. Implementing and

completing a corrective action plan is a demonstration of continuous safety improvement, as each corrective action plan helps to make Metrorail safer.

Safety Event Investigations

The WMSC is responsible for investigations of safety events in the Metrorail system.

Final Investigation Reports Adopted in 2022 by event type



Overall, Metrorail reported 760 total safety events to the WMSC in 2022. The WMSC Program Standard defines events that are reportable to the WMSC as either an accident, incident, or occurrence. Investigations are required to be

conducted on events that may have broader safety implications, and the WMSC Program Standard requires that certain investigations be documented in a final report for WMSC adoption. These requirements are based on FTA regulations and WMSC operational experience.

Continuous monitoring of ROCC staffing levels by the WMSC found that in 2022 the ROCC was not maintaining the appropriate staffing levels.

The WMSC adopted 55 final investigation reports in 2022. Some of these reports related to safety events that occurred in 2021. Investigations into remaining safety events from 2022 will be completed in 2023. Notable safety events in 2022 included a December 6 red signal overrun event at Smithsonian Station that, due to the WMSC's independent oversight, led to the identification of Metrorail's non-compliance with its safety training requirements, and to Metrorail beginning to address these safety deficiencies.



Other investigations included improper roadway worker protection, evacuations for life safety reasons, and collisions, some of which are highlighted below. Complete final safety event investigation reports are available at [WMSC.gov/reports](https://wmsc.gov/reports).

December 6, 2022 Red Signal Overrun

A Rail Controller gave a Train Operator a permissive block to the end of the Smithsonian Station platform. The Train Operator did not recognize that they were at Smithsonian Station, and moved past the Red Signal after servicing the station, continuing on to Federal Triangle. This created the risk of a collision with workers, as the signal was red to protect a work crew in the interlocking.

Metrorail had just certified this train operator for the first time the week before this event. The apparent confusion for even a Train Operator that Metrorail had just released from training is another example of the need for improvements to Train Operator training and certification practices.

During the investigation into this event, the WMSC identified that Metrorail had certified the train operator even though the operator had not completed Metrorail’s training requirements. Metrorail requires train operator trainees to operate a train on mainline tracks with a training instructor for at least 8 hours without passengers on board before they are permitted to operate a train carrying passengers. This operator was assigned to operate with passengers despite having accumulated only 9 minutes of the required 8 hours.

The WMSC reviewed additional information related to other safety events, and conducted additional oversight activities that determined Metrorail was, for dozens of operators, not following its documented safety training requirements.

Metrorail confirmed that it had been bypassing its safety training processes and assigning train operators directly to operate trains in passenger service without the required training.

After the WMSC communicated this safety issue, Metrorail identified 54 train operators who were placed into passenger service without meeting Metrorail’s safety training requirements.

Metrorail confirmed that it had been bypassing its safety training processes and assigning train operators directly to operate trains in passenger service without the required training.



Metrorail subsequently provided this training.

This event also highlighted the importance of Metrorail addressing the safety issue of Metrorail’s lack of physical characteristics training. Metrorail had made no progress on this corrective action plan (C-0183) in the months since it was approved. After the WMSC escalated this issue, Metrorail submitted a revised schedule for action on a delayed basis. The WMSC will continue to monitor this CAP to determine if further action is required.

July 30, 2022 Evacuation for Life Safety Reasons

Metrorail evacuated riders from stations and Red Line trains and later had to make extensive repairs in the area between Woodley Park-Zoo/Adams Morgan and Dupont Circle stations due to electrical arcing from wall-mounted cables that began late on July 30, 2022 and continued for more than six hours into the following day, July 31, 2022.

The event demonstrated gaps in Metrorail’s emergency preparedness, incident response, and coordination processes and systems. These included Metrorail’s lack of a systemic approach to ensure timely understanding of the event as it unfolded that is necessary to ensure successful implementation of an effective, unified, and coordinated response.

Assumptions made that were contrary to available information, specifically repeated descriptions of the event as an arcing insulator, extended the duration and likely increased the severity of this event. In addition to the passenger train in the area of smoke during this event

and passengers evacuated from another train and Dupont Circle Station due to smoke that entered the station from the tunnel, the event caused significant damage, in part due to its duration, which led to an extended period required to make repairs.



Deficiencies in WMATA's response to the event included:

- Not correctly identifying the location of the fire alarm, which was in the tunnel, not the station
- Metrorail did not identify that the down track circuit and the fire alarm were related
- Contrary to Metrorail policy, a train with passengers aboard was used for an inspection
- Metrorail assumed the event was arcing insulator which prolonged the response, and led to greater damage
- ROCC's operational leader did not remain in their position as required
- Metrorail dispatched personnel responsible for non-third-rail power, who initially could not de-energize power

Due to the complexity and degree of deficiencies identified, the investigation into the incident continued through the remainder of 2022 and the subsequent investigation report was adopted by WMSC Commissioners in January 2023.

Improper Roadway Worker Protection Events

The WMSC has identified several safety concerns related to Metrorail's Roadway Worker Protection (RWP) program and the program's implementation, including repeated issues with performance, fatigue, training, and adherence to established procedures. In 2022, there were a total of 40 improper roadway worker protection safety events that were detected. Final investigation reports into those events that required them were adopted by the WMSC commissioners. These 40 events are an increase from the 32 improper RWP events reported in 2021. The increase was due in part to increased reporting and identification, including due to Metrorail's corrective actions to increase its operational safety oversight of personnel through additional field audits and observations.

These safety events and near misses include instances where trains passed workers on the roadway at excessive speeds (e.g., [W-0196](#)), improper Advanced Mobile Flagging protection (e.g., [W-0185](#) and [W-0184](#)), improperly accessing the roadway (e.g., [W-0182](#), [W0175](#), [W-0172](#)), and the improper issuance and acceptance of a "red tag" (e.g. [W-0174](#)).

Metrorail continues work to implement corrective action plans related to the WMSC's Roadway Worker Protection (RWP)

and Training Audit issued in June 2020 and the WMSC's Rail Operations Audit issued in April 2022, in addition to corrective actions identified by each investigation. Metrorail is in the process of a complete overhaul of its RWP Program. The WMSC is carefully monitoring changes Metrorail may make, while also continuing to oversee Metrorail's implementation of WMATA's current safety requirements.

Separately, Metrorail changed rules in November 2022 related to certain specific elements of roadway worker protection – changes intended to improve safety. Metrorail conducted a safety standdown on the new rules prior to implementation. However, the WMSC identified in January 2023 that Metrorail had continued to provide training and testing to personnel for several months based on the prior rules, which introduced safety risk. After the WMSC identified and communicated this issue, Metrorail took steps in a timely fashion to begin to correct it. Specifically, Metrorail responded as required, stopped utilizing outdated training, began to take steps toward providing current training to all relevant personnel including the more than 700 people Metrorail qualified on incorrect rules and procedures, and later provided updates on this progress.

These events and other issues identified through the WMSC's oversight activities are examples that demonstrate the importance of the WMSC's robust independent oversight to continuous safety improvement at Metrorail.





INSPECTIONS

WMSC experts regularly inspect various aspects of the Metrorail system.

These inspections and related oversight work include onsite activities such as 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 from frontline workers to the General Manager and Chief Safety Officer.

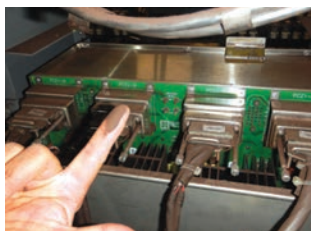
The work includes frequent interaction with frontline and supervisory personnel and inspections of track and structures, signaling equipment, traction power equipment, railcars, rail yards, elevators and escalators, and the Rail Operations Control Center. The WMSC also monitors Metrorail's emergency preparedness and emergency drills that are conducted in coordination with local, state and federal first responder agencies. WMSC personnel closely monitored Metrorail's preparation for and operations during special events as well as inclement weather events leading to Emergency Operations Center (EOC) activation. This included observing emergency operations center activity, understanding operations plans and contingencies, and conducting regular oversight activities during the event such as monitoring radio traffic and protocols.

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, which are conveyed to the relevant WMATA personnel responsible as well as to the Department of Safety. WMSC Inspectors prepare inspection reports that are posted at wmsc.gov. The WMSC's website contains more than 80 reports pertaining to inspections that were conducted in 2022.

Some particularly notable findings identified by the WMSC through routine inspection include:

Train Control Rooms (TCR)

An inspection on March 28, 2022 found the Friendship Heights Station TCR and its equipment covered in dust and other debris. This led to follow up inspections and other work, which led to the August 4, 2022 order described above regarding



Metrorail's ineffective and insufficient Automatic Train Control Room inspection, maintenance and cleaning program.

Train Operator Certification

Following the publication of the WMSC's audit of WMATA's Rail Operations on April 7, 2022, which included a finding that Metrorail is not effectively training and certifying train operators, the WMSC learned through routine inspection activities, and communicated to Metrorail leadership, that Metrorail had stopped train operator recertifications. More than 250 WMATA employees whose jobs require train operator certification were out of compliance. As a result, Metrorail's Board and Chief Safety Officer took action to have all operators with expired licenses recertified and the WMSC required Metrorail to submit revised corrective action plans to address Rail Operations Audit findings.

Through independent verification, including onsite observation, as well as review of WMATA document and data submissions, the WMSC verified that all staff requiring recertification had been certified by Metrorail by the end of September 2022. The WMSC continues to review training and certification records as part of regular oversight activities.

- Rail Traffic Controller Certification

The ROCC Director found discrepancies with recertification dates, while reviewing controller training records. This discovery was made as the Director was attempting to expedite plans to move controller certification and recertification into the ROCC under the recently hired Quality Assurance Manager.

The discrepancies prompted the ROCC Director to recertify every controller to ensure that each controller's recertification record is reliable and accurate.



Roadway Worker Protection

In the summer of 2022, the WMSC's inspections and related oversight activities identified that Metrorail had granted the highest level of Roadway Worker Protection qualification, Level 4, to individuals in the Safety Department's Office of Emergency Preparedness who did not meet Metrorail's written requirements for this qualification. The training and experience of individuals granted an RWP Level 4 qualification is particularly important because it permits an individual to act as a Roadway Worker In Charge, the person responsible for the safety and protection of all other individuals in the work group.

Metrorail told the WMSC in September 2022 that a waiver had been issued, however, WMATA was unable to provide such a waiver when requested by the WMSC. Metrorail had issued RWP Level 4 qualifications contrary to Metrorail safety rules and procedures. This includes Metrorail issuing those qualifications to individuals who had not previously had experience as RWP-qualified personnel.

Due to the WMSC's oversight and further data requests and review, Metrorail developed a permanent order that provided specific mitigations required before specific personnel are permitted to obtain a Level 4 qualification without meeting Metrorail's usual requirements, and a verification process that individuals meet the requirements of the order.

This is just one other example of the WMSC's safety oversight leading to safety improvements. In this case, that means ensuring that only trained and qualified Metrorail personnel are providing for the safety of first responders such as firefighters and police officers participating in familiarization walks along active Metrorail tracks with train movement.

Due to the WMSC's review of documents and data and, in this case, our persistence, Metrorail addressed the safety issue identified by the WMSC without the need for the WMSC to issue an order requiring it. Metrorail's safety management system, committed to by the WMATA Board and General Manager in WMATA's PTASP, requires Metrorail to identify and address these issues.

Metrorail told the WMSC that a waiver had been issued, however, WMATA was unable to provide such a waiver when requested by the WMSC.

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 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 second annual revision of its PTASP in 2022 as required.

WMSC staff provided detailed feedback to Metrorail regarding its proposed 2022 revisions before Metrorail presented its revisions to its board of directors. The WMSC Board considered and approved the revision on November 15, 2022.

The 2022 revisions to WMATA's PTASP included the incorporation of new regulatory requirements such as a joint labor-management safety committee, as well as adjustments to planned SMS implementation timelines and tasks. 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 front-line workers, along with providing proper feedback and protections for those reports.

The WMSC will continue to oversee implementation of the PTASP through 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.



As scheduled, the WMSC made its annual revision to the Program Standard in July 2022. 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 2022 ended June 30, 2022. The approved budget for fiscal year 2023, which began on July 1, 2022, is \$5.975 million, the majority of which covers staff costs such as salaries and benefits (see Appendix A for approved FY23 budget).

The WMSC added several key positions in 2022 including Program Specialist – Operations, Program Manager, Train Control & Signals, and Program Manager – Risk Based Inspections. 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.

In fiscal year 2022, the FTA awarded the WMSC a \$2.1 million grant through the federal fiscal year 2021 safety oversight apportionments.

To be good financial stewards and to provide predictability for Virginia, Maryland and the District of Columbia, 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.

The WMSC received another unmodified or clean financial statement audit opinion for fiscal year 2022. Independent audit reports covering previous fiscal years are available at wmata.com/wmsc.gov. The WMSC is on firm footing in fiscal year 2023 and heading into fiscal year 2024.

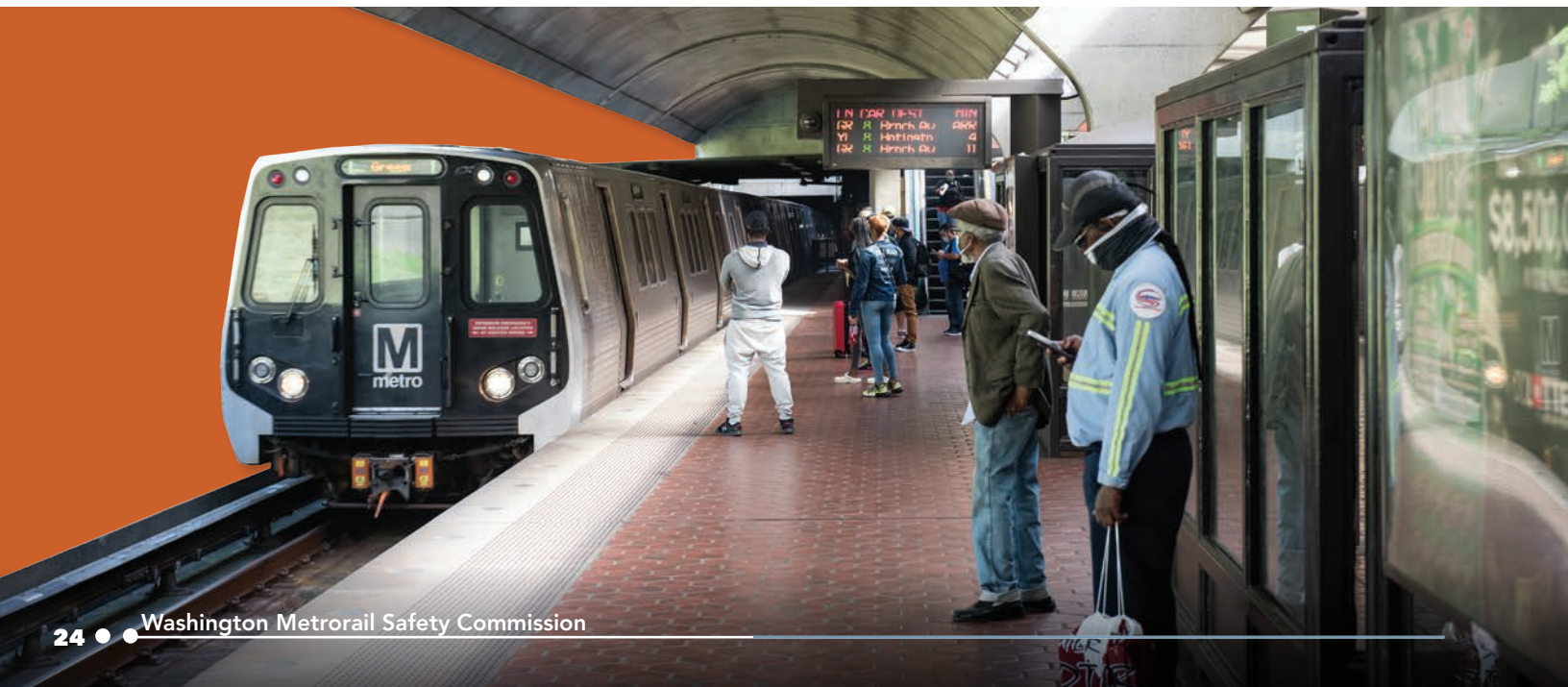
The draft fiscal year 2024 budget and work plan was developed in fall 2022. A final budget was approved by the Commissioners in spring 2023 in accordance with the jurisdictional funding agreement.

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, 2022, the WMSC's DBE participation rate was 5%. The WMSC completed regularly scheduled updates of our Title VI plan and DBE program in 2022.

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 2022, 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, 2023, nine WMSC staff members have completed the PTSCTP program, six are making considerable progress towards completing the program as soon as 2023, and one new employee has just begun certification courses. WMSC contractors performing relevant work also participate in this training program. Some WMSC personnel have also completed the training requirements for Transit Safety and 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.

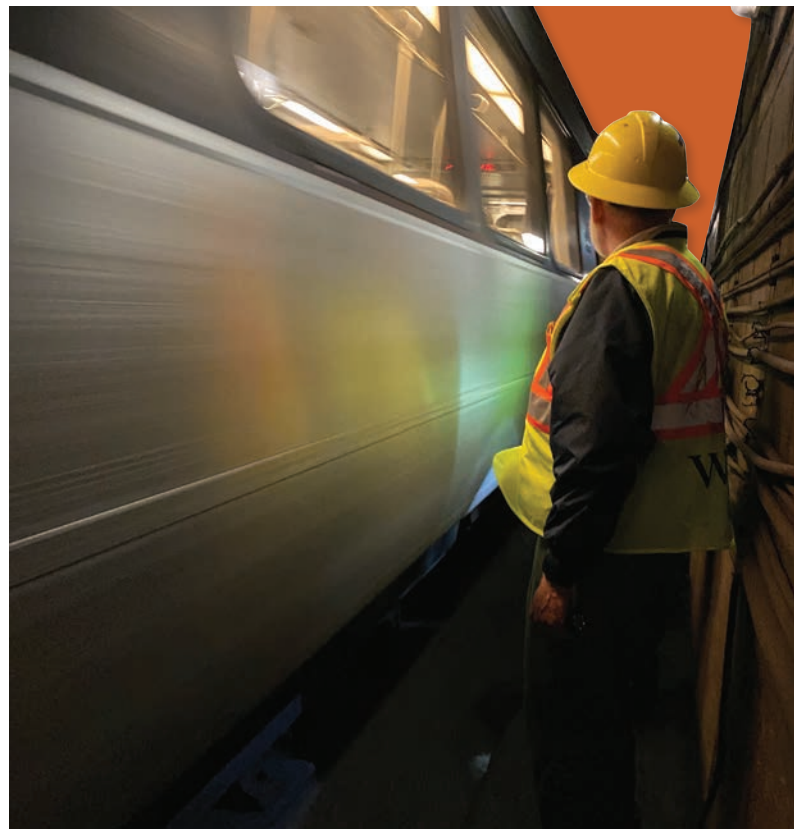
As required by the WMSC Compact, the WMSC commissioners appointed by Virginia, Maryland and the District of Columbia have expertise in transportation safety, transportation, engineering and public finance.

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 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 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), via [wmsc.gov](https://www.wmsc.gov) or via email at safetyconcern@wmsc.gov.

CONCLUSION

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

This work required significant dedication from the WMSC staff to ensure that WMSC safety oversight of the expanding Metrorail system continued to improve in 2022. The WMSC identified areas in which Metrorail made progress in 2022, but also areas like Metrorail's culture of noncompliance with written safety rules and procedures, roadway worker protection, and Metrorail's emergency management and fire and life safety programs that require substantial improvement and sustained attention. This demonstrates the safety journey that WMATA must remain committed to which the WMSC will continue to oversee as the designated state safety oversight agency for Metrorail.

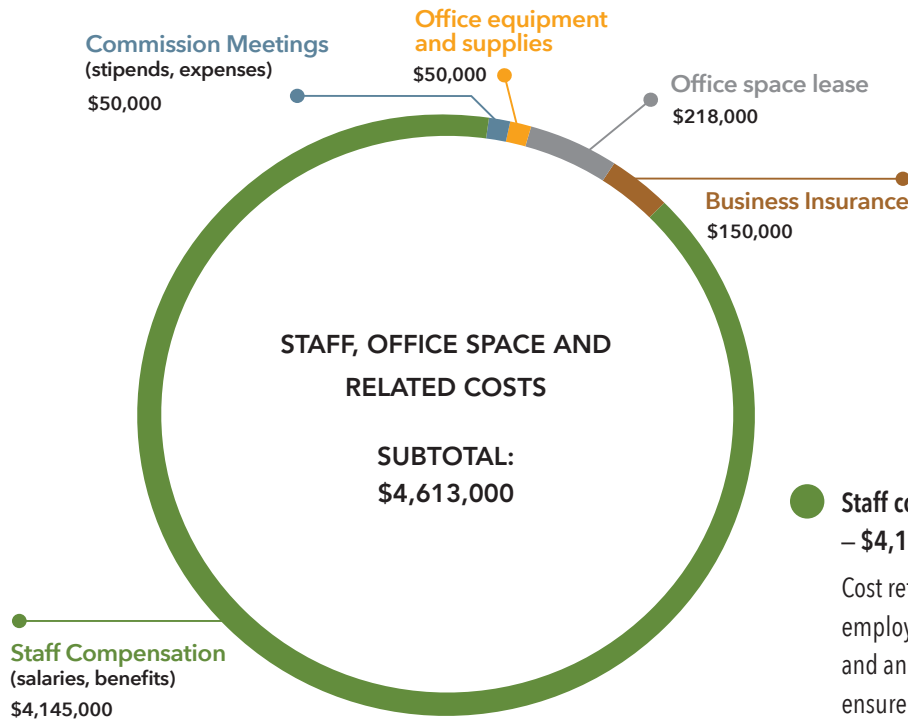
APPENDIX





WMSC FY2023 BUDGET:

STAFF, OFFICE SPACE AND RELATED COSTS – SUBTOTAL: \$4,613,000



● Staff compensation (salaries, benefits) – \$4,145,000

Cost reflects salary and benefits for 23 full-time employees along with a benefits factor of 21.5 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) – \$50,000

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

● Office equipment and supplies – \$50,000

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

● Office space lease – \$218,000

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

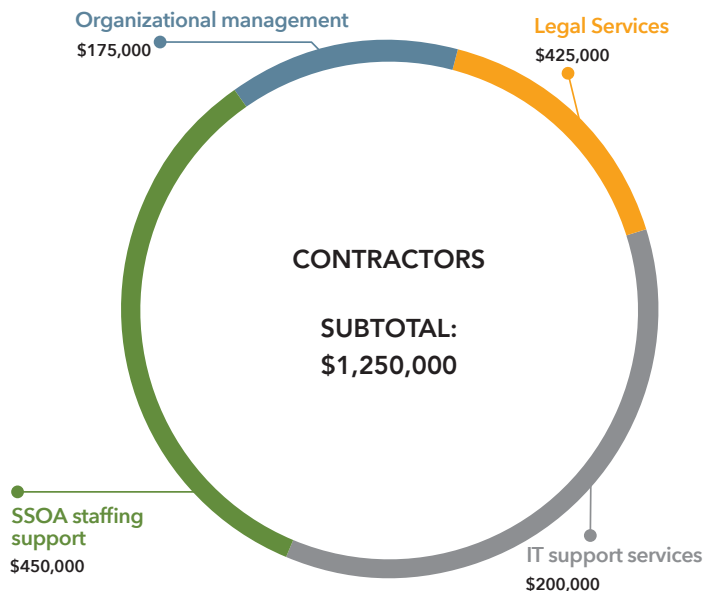
● Business Insurance – \$150,000

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





CONTRACTORS – SUBTOTAL: \$1,250,000



Legal Services – \$425,000

Cost reflects annual outsourced General Counsel and legal services. Legal services are necessary to address voluminous issues related to day-to-day business concerns and complex questions.

Organizational management – \$175,000

Cost reflects outside contract support for human resources and employee benefits management support, accounting, procurement, graphics design, and annual external financial audit. Cost reflects the need to have outside support as the WMSC is the only state safety oversight agency not housed in another state agency, and, as such, many of these functions must be contracted out to ensure efficiencies and save the cost of hiring full-time personnel.

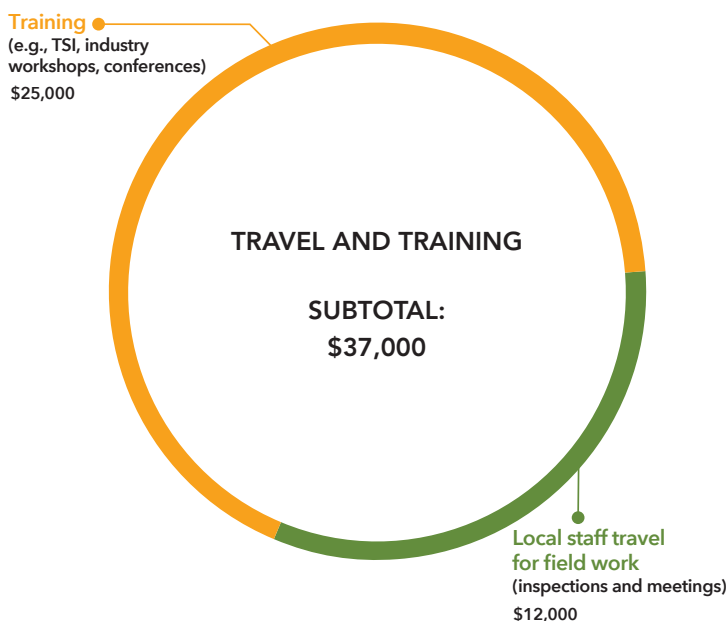
IT support services – \$200,000

Cost reflects support for general IT services, including laptop configuration and maintenance, website maintenance, email domain management, computer security, and disaster recovery planning.

SSOA staffing support – \$450,000

Cost reflects contracted staffing support for non-permanent personnel necessary to provide specialized, uniquely focused technical expertise, staffing augmentation when resignations and retirements occur, and staffing augmentation for special large-scale audits and high-profile investigations.

TRAVEL AND TRAINING – SUBTOTAL: \$37,000



Training (e.g., TSI, industry workshops, conferences) – \$25,000

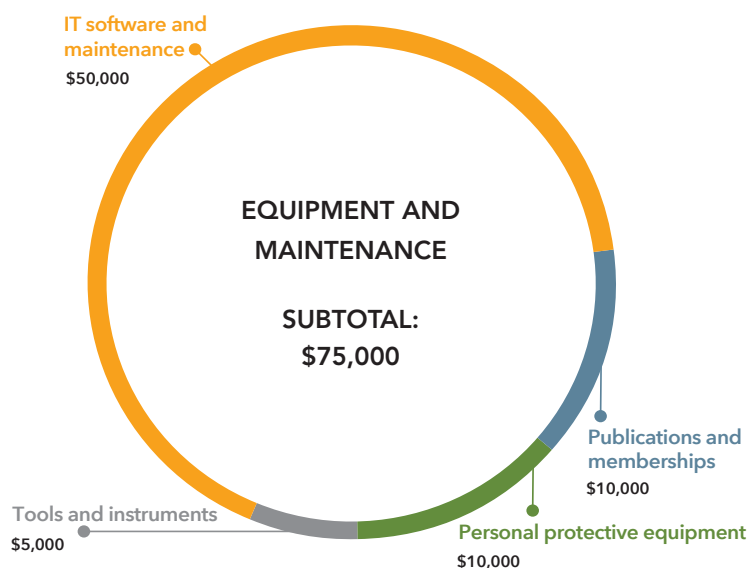
Cost reflects training for commissioners and staff to obtain required certifications, as well as training on oversight of drug and alcohol requirements, fatigue and human factors in transportation, accident investigations, investigation interview techniques, project management, and related topics. Training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

Local staff travel for field work (inspections and meetings) – \$12,000

Cost reflects reimbursement for travel associated with field work in the National Capital Region. Throughout Northern Virginia, the District of Columbia and Montgomery and Prince George's Counties using the GSA schedule for mileage reimbursement rates.



EQUIPMENT AND MAINTENANCE – SUBTOTAL: \$75,000



IT software and maintenance – \$50,000

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

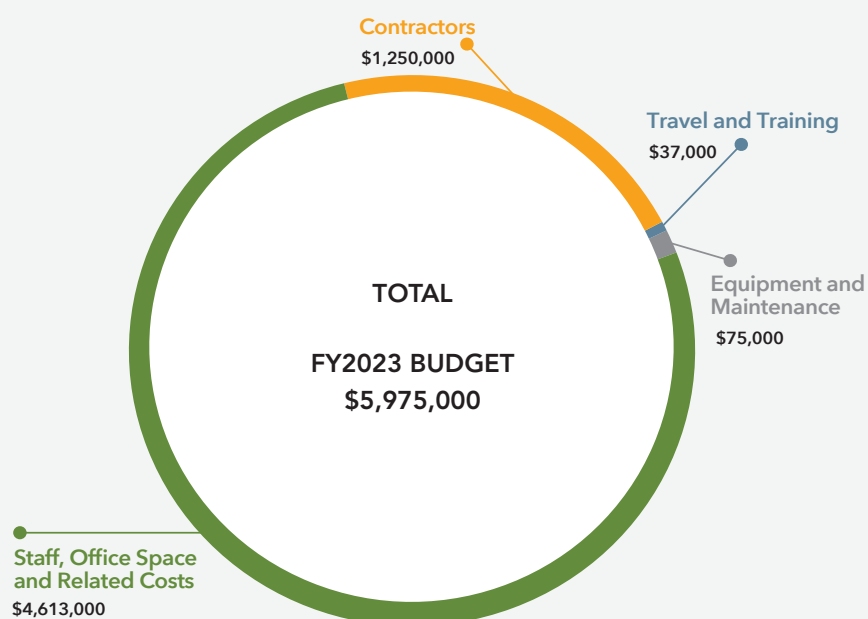
Cost reflects maintaining staff professional licenses and memberships, purchases of various industry technical publications and subscriptions, and WMSC organizational membership.

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.



TOTAL FY2023 BUDGET – \$5,975,000

FY2023 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.

After federal grants and carryover funds, each jurisdiction supported the FY23 budget with \$1,197,466.



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