



WASHINGTON METRORAIL SAFETY COMMISSION 2021 ANNUAL OPERATIONS REPORT



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LETTER FROM THE CEO

The Washington Metrorail Safety Commission (WMSC) had a very productive year that included expanding the WMSC's expertise and issuing important safety audits that identified areas that will help WMATA improve the Metrorail system.

The WMSC also conducted other critical oversight activities such as taking part in the National Transportation Safety Board (NTSB) investigation into the October 12, 2021, Blue Line train derailment and issuing orders to keep all 7000 Series railcars out of passenger service until the Washington Metropolitan Area Transit Authority (WMATA) develops an acceptable plan to safely return each car to service.

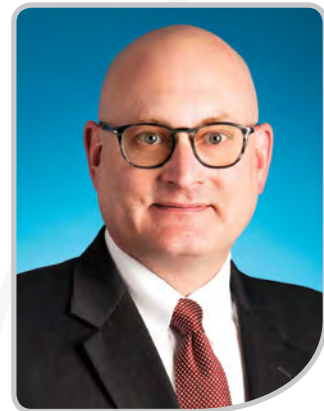
The WMSC continues to make substantial progress as we proactively work with WMATA to help continually improve the safety of the Metrorail system for riders, workers, first responders and others who depend on it.

For example, the WMSC's six audit reports issued in 2021, including our audit of Metrorail's fitness for duty programs and our audit of Metrorail's automatic train control and signaling programs, 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 Virginia, Maryland 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 especially 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 possible for everyone.

David Mayer, Chief Executive Officer



THE WMSC CONTINUES TO MAKE SUBSTANTIAL PROGRESS AS WE PROACTIVELY WORK WITH WMATA TO HELP CONTINUALLY IMPROVE THE SAFETY OF THE METRORAIL SYSTEM FOR RIDERS, WORKERS, FIRST RESPONDERS AND OTHERS WHO DEPEND ON IT.



**CHRISTOPHER HART**

(District of Columbia), Chair

Mr. Hart is chair of the Washington Metrorail Safety Commission. 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.

**MICHAEL J. RUSH**

(Commonwealth of Virginia)

Commissioner Rush 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.

**GREG HULL**

(Commonwealth of Virginia), Vice Chair

Greg Hull is vice chair of the Washington Metrorail Safety Commission. Commissioner Hull worked for many years as assistant vice president of the American Public Transportation Association (APTA). In this capacity he conducted hundreds of public transit safety reviews, audits, and investigations and was responsible for the management of APTA's programs for safety, operation support, security, and emergency management. Prior to joining APTA, Commissioner Hull held various senior management positions with Calgary Transit from 1979 to 1999. He also served as secretary to U.S. Mass Transit Sector Security Coordinating Council and chaired the European Commission's "SECURED Project" Advisory Board. Commissioner Hull is certified in system safety, system security and systems auditing and is a certified safety professional.

**ROBERT LAUBY**

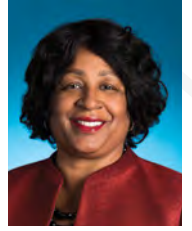
(Commonwealth of Virginia) – Alternate)

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.

**DEBRA FARRAR-DYKE**

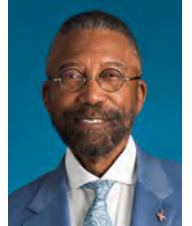
(State of Maryland), Secretary-Treasurer

Commissioner Farrar-Dyke is Secretary-Treasurer of the Washington Metrorail Safety Commission. 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**

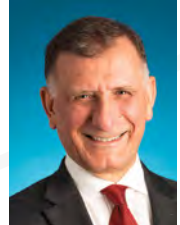
(District of Columbia)

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.

**SUHAIR AL KHATIB**

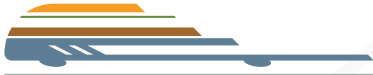
(State of Maryland)

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.



EXECUTIVE SUMMARY





EXECUTIVE SUMMARY

In 2021, the Washington Metrorail Safety Commission (WMSC) continued to identify Metrorail safety issues that the Washington Metropolitan Area Transit Authority (WMATA) is required to correct. The WMSC worked collaboratively with WMATA to ensure Metrorail's proper development and implementation of corrective action plans and other safety improvements. This work was accomplished while continuing to safeguard the health of WMSC staff, WMATA personnel and others as the COVID-19 pandemic continued.

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.

Through our extensive oversight work in 2021, the WMSC identified areas of positive practices at WMATA and areas where additional Metrorail safety improvements are required. This report provides an overview of the WMSC's programs, operations and finances in calendar year 2021. Additional detail is also available in the WMSC's separate Annual Report on the Safety of the WMATA Rail System in 2021.

The WMSC's priority is ensuring that WMATA fulfills its responsibility to continuously improve the safety of the Metrorail system for riders, workers and all others who depend on the system's proper maintenance and operations. This clearly defined mission guides the WMSC's safety oversight work.

During 2021, this work included frequent interactions with personnel at all levels of the Metrorail organization, more than 100 inspections, consistent oversight of processes such as safety certification and emergency management, safety event investigations, and the completion of six in-depth audit reports of Metrorail functional areas that each identified areas where Metrorail was not meeting its own written requirements, did not have adequate procedures, processes or requirements, or did not have adequate training, coordination and supervision. During the Automatic Train Control (ATC) audit for example, the WMSC

found that Metrorail was continuing efforts to return to Automatic Train Operations (ATO) without following its safety certification procedures that are designed to ensure hazards are proactively identified and mitigated.

The WMSC responded to the scene of the October 12 Blue Line train derailment between Rosslyn and Arlington Cemetery stations and remains an active party to the National Transportation Safety Board (NTSB) investigation. Based on the

accident investigation, special 7000 Series railcar inspections that followed the derailment, and the WMSC independently identifying that Metrorail put some 7000 Series railcars back into service that failed those special inspections, the WMSC took swift action through orders requiring Metrorail to remove all 7000 Series railcars from passenger service until Metrorail developed and implemented a plan to safely return each railcar

IN 2021, THE WASHINGTON METRORAIL SAFETY COMMISSION (WMSC) CONTINUED TO IDENTIFY METRORAIL SAFETY ISSUES THAT THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA) IS REQUIRED TO CORRECT.





to service. After WMATA and the WMSC worked through an iterative review process, the WMSC accepted Metrorail's return to service plan in December and Metrorail began implementing that plan to return some 7000 Series railcars to service. However, within two weeks, the WMSC's independent oversight identified that Metrorail was not following its own return to service plan that Metrorail had just proposed and the WMSC had just accepted. Specifically, Metrorail put cars into passenger service that did not meet the safety requirements specified by its plan. This required the WMSC to issue another order requiring WMATA to keep the railcars out of service until Metrorail developed a revised return to service plan with additional protections and internal oversight and revised inspection frequencies. The investigation into the derailment remains ongoing.

WITHIN TWO WEEKS, THE WMSC'S INDEPENDENT OVERSIGHT IDENTIFIED THAT METRORAIL WAS NOT FOLLOWING ITS OWN RETURN TO SERVICE PLAN THAT METRORAIL HAD JUST PROPOSED AND THE WMSC HAD JUST ACCEPTED. METRORAIL PUT CARS INTO PASSENGER SERVICE THAT DID NOT MEET THE SAFETY REQUIREMENTS SPECIFIED BY ITS PLAN.

The Commissioners adopted and published final investigation reports of 86 safety events in 2021, including investigations related to a runaway train, two pull-aparts of 6000 Series trains, and improper roadway worker protection (RWP) events. The investigation process identifies corrective actions to reduce the likelihood of these events recurring in the future. Metrorail is responsible for implementing these safety improvements. For example, the WMSC continues to monitor WMATA's progress regarding RWP on an ongoing basis as Metrorail updates its procedures and improves its training and supervisory oversight.

The WMSC also oversees WMATA's safety certification process which must be used, among other things, for the Silver Line Phase Two extension. WMATA can open the line to passengers only after the WMSC concurs that Metrorail has met the requirements of WMATA's Safety and Security Certification Program Plan (SSCPP). Metrorail's process is designed to identify and mitigate hazards to provide for the highest practicable level of safety. These commitments are one element of Metrorail's



Public Transportation Agency Safety Plan (PTASP). The PTASP, which Metrorail completed its first annual revision of as required in late 2021, requires a Safety Management System (SMS) approach that involves personnel at all levels and is focused on safety promotion, safety policy, safety assurance, and safety risk management. Full implementation of the PTASP is expected to take several years of continuous improvement.

Funding from the District of Columbia, Virginia, Maryland and federal grants is critical to the WMSC's important work overseeing Metrorail safety and allows the WMSC to function as a truly independent oversight agency. The WMSC's 2021 annual independent financial statement audit included an unmodified or "clean" audit opinion, which demonstrated the WMSC is using these funds responsibly.

FUNDING FROM THE DISTRICT OF COLUMBIA, VIRGINIA, MARYLAND AND FEDERAL GRANTS IS CRITICAL TO THE WMSC'S IMPORTANT WORK OVERSEEING METRORAIL SAFETY AND ALLOWS THE WMSC TO FUNCTION AS A TRULY INDEPENDENT OVERSIGHT AGENCY. THE WMSC'S 2021 ANNUAL INDEPENDENT FINANCIAL STATEMENT AUDIT INCLUDED AN UNMODIFIED OR "CLEAN" AUDIT OPINION.



2021



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, Maryland and Virginia 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.

Since certification, the WMSC has had the responsibility of 24/7 safety oversight of the Metrorail system. The WMSC carries out this important duty by conducting inspections, audits, and investigations, by overseeing Corrective Action

Plans, safety certification, emergency management, and through 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 conducts this work transparently through public meetings of the commissioners who guide the work of the WMSC staff and take actions such as adopting final safety event investigation reports. Maryland, Virginia 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](https://www.wmsc.gov).

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. Still, 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.

THE WMSC CARRIES OUT THIS IMPORTANT DUTY BY CONDUCTING INSPECTIONS, AUDITS, AND INVESTIGATIONS, BY OVERSEEING CORRECTIVE ACTION PLANS, SAFETY CERTIFICATION, EMERGENCY MANAGEMENT, AND THROUGH OTHER ACTIVITIES THAT HELP METRORAIL CONTINUOUSLY IMPROVE SAFETY.



Elected leaders, staff and others including the governors of Virginia and Maryland, Mayor of the District of Columbia, those in the Maryland and Virginia 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.

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.

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 2021 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](https://www.wmsc.gov).



**WMSC Staff
Organization Chart**



7000 Series Railcars

The WMSC is continuing our active involvement in the National Transportation Safety Board (NTSB) investigation into the October 12, 2021, derailment of a Blue Line train. The WMSC responded to the derailment and customer evacuation of a 7000 Series train between Rosslyn and Arlington Cemetery stations. The NTSB made a determination to lead the investigation. The WMSC became a party to the investigation as described in the WMSC Program Standard.

Metrorail leaders stated that all railcars that failed the special inspections following the derailment were removed from passenger service. However, the WMSC identified through our independent oversight on October 17, 2021, that Metrorail was operating two trains in passenger service with railcars that had failed these inspections (two railcars total that had failed). The WMSC informed Metrorail, and Metrorail removed those railcars from passenger service.



After the derailment, an examination of the derailed car, car 7200, showed that both wheels had moved outward on the axle that derailed. As a result, Metrorail conducted a special inspection of wheel back-to-back measurements of all 7000 series railcars. Twenty railcars failed that special inspection due to wheels that were too far apart on at least one axle.

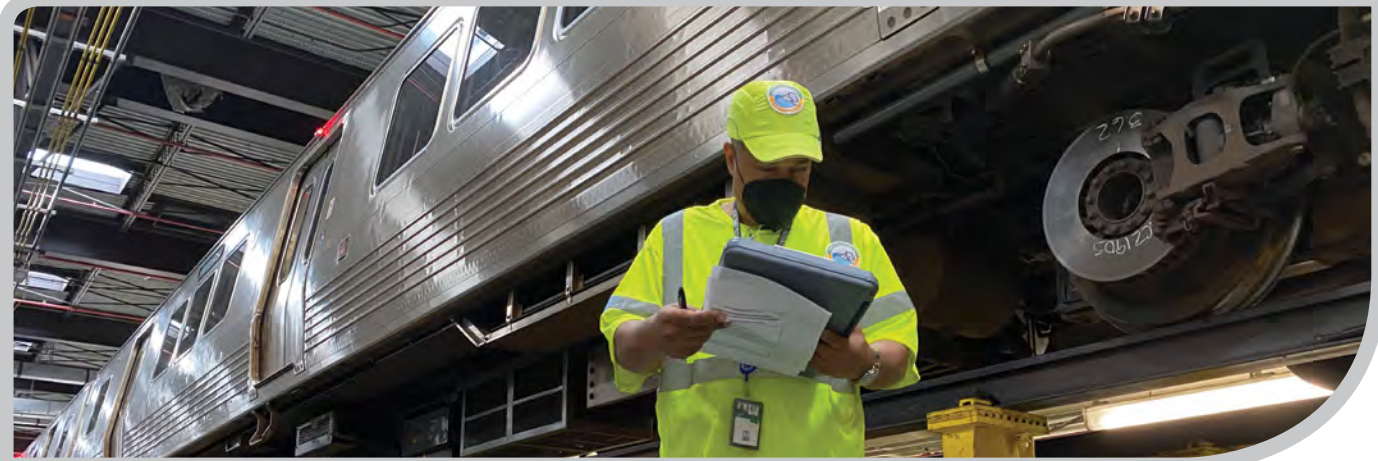
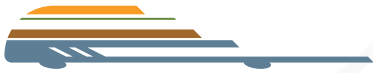
Metrorail had not disclosed any prior back-to-back measurement failures to the WMSC as part of the WMSC's frequent, regular interactions and questions about safety issues, or as part of the WMSC's Revenue Vehicle (Railcar) Audit, during which Metrorail provided an open engineering items list for the 7000 Series railcars that did not include this issue. However, the WMSC learned in the days following the derailment that Metrorail had previously identified 21 instances in the 12 months prior to the derailment in which the wheels on 7000 Series railcars were found to be too far apart during routine 90-day inspections, and Metrorail had identified similar back-to-back measurement failures dating back to 2017.

Shortly thereafter, on October 17, 2021, the WMSC ordered Metrorail to remove all 7000 Series railcars from passenger service until Metrorail developed and implemented a plan, under the WMSC's oversight, to safely return each 7000 Series railcar to service.

Metrorail gathered data and conducted an engineering test to support its return to service plan. The WMSC observed critical elements of the engineering test, and independently reviewed available data in addition to other information being gathered as part of the derailment investigation.

As Metrorail developed this plan, the WMSC continued frequent observations of critical parts of Metrorail's engineering test procedure, which WMATA discussed with the WMSC as part of Metrorail's return to service plan.

Following several review and feedback sessions with the WMSC, Metrorail submitted a revised return to service plan on December 11, 2021. On December 14, 2021, the WMSC accepted WMATA's



revised return to service plan, and the WMSC reminded Metrorail that it was required to follow its plan, which included specific procedures as well as requirements to keep the WMSC apprised of activities and data.

Metrorail's plan included, among other things, a new procedure for back-to-back measurements, new internal Metrorail checks on these measurements as part of the procedure, and training for all personnel carrying out the new procedure. The procedure specified that frontline technicians could only mark a wheelset as passing if the wheelset was both within the overall required dimensions, and the difference from the last measurement was less than 1/32 of an inch. This limitation ensured that if wheel movement on an axle was measured by frontline technicians, that car would be kept out of service, because the incremental gauge used by frontline technicians permits measurements down to 1/32 of an inch.

Metrorail also included in its plan steps to use a more accurate tool, called a dial gauge, when axles failed using the incremental gauge. In addition, if the measurement increased over two consecutive inspections, the procedure stated that the wheelset would be condemned.

More generally, Metrorail's plan increased the scheduled frequency of back-to-back measurements from every 90 days as part of other inspections, to every 7 days as a standalone inspection.

On December 17, 2021, Metrorail began a phased return of 7000 Series railcars to passenger service in accordance with its

WMSC OVERSIGHT IDENTIFIED THAT METRORAIL WAS NOT FOLLOWING ITS RETURN TO SERVICE PLAN AND THAT METRORAIL HAD PLACED RAILCARS INTO PASSENGER SERVICE THAT DID NOT MEET THE SAFETY REQUIREMENTS SPECIFIED IN ITS RETURN TO SERVICE PLAN.

plan, which provided for a metered release of railcars to demonstrate the plan could be executed safely and effectively.

On December 23, 2021, Metrorail communicated to the WMSC that it had decided to increase the back-to-back measurement frequency to daily rather than every 7 days.

The WMSC conducted oversight of Metrorail's implementation of the plan. This included observing inspections being conducted on the railcars overnight and reviewing documents and data that were provided to the WMSC or that the WMSC accessed directly in Metrorail systems.

On December 27, 2021, Metrorail made changes to the back-to-back procedures without communication to the WMSC. WMSC oversight identified that Metrorail was not following its return to service plan and that Metrorail had placed railcars into passenger service that did not meet the safety requirements specified in its return to service plan.

The WMSC identified that at least 5 of the 40 7000 Series railcars that were operating in passenger service had measured wheel movement of at least 1/32 of an inch. Under Metrorail's return to service plan, these railcars were not permitted to be in service.

The WMSC identified that Metrorail's changes would have discontinued use of the more accurate dial gauge and allowed railcars to pass inspection even if Metrorail had measured wheel movement on the axle. Metrorail's accepted plan did not allow any detected movement.



Metrorail had separately submitted a request and supporting documentation on December 21, 2021, related to the planned use of a digital dial gauge to conduct at least some back-to-back measurements. The WMSC acknowledged this request, and emphasized on December 22, 2021, that all governing procedures, protocol, instructions and training would need to be revised to reflect a change to a new tool, that training would need to be conducted, and that, as Metrorail's plan stated, no railcar would be released for passenger service without passing the required inspections. The entirety of this communication about the digital dial gauge was prior to the date of any signatures on Metrorail's back-to-back inspection procedure revision dated December 27, 2021, which was not coordinated with the WMSC as required and did not add any reference to the use of this digital dial gauge tool.

Compared to the procedure that the WMSC accepted on December 14, 2021, this "Revision 2" also completely removed

the use of the dial gauge, the more accurate measuring tool. "Revision 2" would have relied solely on use of the less accurate incremental gauge. This revision was not submitted to, or discussed with, the WMSC. Consequently, Metrorail did not follow its return to service plan.

AFTER THE WMSC ADVISED WMATA ON DECEMBER 29, 2021, THAT IT HAD RAILCARS OPERATING IN PASSENGER SERVICE THAT WERE NOT PERMITTED TO BE IN SERVICE UNDER METRORAIL'S RETURN TO SERVICE PLAN, METRORAIL REMOVED ALL 7000 SERIES RAILCARS FROM PASSENGER SERVICE.

After the WMSC advised WMATA on December 29, 2021, that it had railcars operating in passenger service that were not permitted to be in service under Metrorail's return to service plan, Metrorail removed all 7000 Series railcars from passenger service.

Shortly thereafter, the WMSC issued an order on December 29, 2021, keeping the 7000 Series railcars out of passenger service until Metrorail provides a revised return to service plan. This plan must meet the requirements of our orders, including specific additional protections and internal oversight, and revised inspection frequency and any other criteria based on all available data.

Audits and Other Findings

The WMSC completed six audit reports in 2021 and began work on three other audits that have been or will be published in 2022.

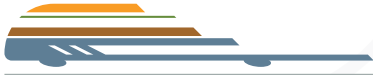
WMSC safety audits are based on information gathered through extensive reviews of documents, data, and recordings as well as in-depth interviews with Metrorail frontline and managerial personnel. After conducting audit interviews via video conference in 2020 as part of COVID-19-related health precautions, the WMSC determined this was a productive process that would continue so that each audit team is able to reach Metrorail personnel efficiently for these formal interviews who work at various locations across the system. WMSC audit teams continue physical on-site work such as inspections and observations of sampled locations and practices.



AUDITS



FINDINGS



The purpose of this audit work is to review Metrorail's policies and procedures and Metrorail's compliance with its policies, procedures or other requirements, and to identify 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 [WMSC.gov](https://www.wmsc.gov).

SSOAs are required to audit every aspect of a transit agency's PTASP every three years. Because the WMSC audits on a continuous basis by auditing specific functional areas separately over a three-year period, 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.

As outlined below, cumulatively, these audits 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.

FITNESS FOR DUTY PROGRAMS – August 31, 2021

This audit assessed Metrorail's fitness for duty responsibilities and programs such as fatigue and alertness management, medical and physical requirements, and medication, drug and alcohol programs.

The audit identified safety deficiencies in Metrorail's fitness for duty programs, including issues identified in previous audits and reviews that Metrorail has not yet addressed, which pose safety risks to customers and others who rely on or work in the Metrorail system. For example, the 11 findings demonstrate that Metrorail cannot reasonably ensure that its employees and contractors who are conducting safety sensitive duties are free from impairment that could cause incapacitation. Such impairment has contributed to accidents in other rail systems.

Metrorail is not conducting physical examinations required for safety sensitive employees by its policies, and Metrorail

does not track when these physicals are due to occur. This creates a risk that safety sensitive employees are operating trains with undiagnosed or untreated conditions such as diabetes, hypertension and obstructive sleep apnea that, when not properly managed, increase the risk of loss of consciousness. These conditions are treatable, but Metrorail is not following its written procedures and policies that require regular monitoring to mitigate this risk through the physical exam process and WMATA's fatigue management policy.

During this audit, WMATA withheld required information from the WMSC and did not provide information related to Metro Transit Police Department (MTPD) Officers as required by federal regulation, the WMSC Compact, and the WMSC Program Standard until the WMSC issued a notice of noncompliance to Metrorail.

As of May 1, 2022, all CAPS related to fitness for duty are open. The WMSC will continue to monitor progress on completion.

AUTOMATIC TRAIN CONTROL (ATC), SIGNALS AND SIGNAL MACHINES PLANNING, INSPECTION, MAINTENANCE AND TRAINING – May 12, 2021

This audit assessed Metrorail's Automatic Train Control (ATC) and signaling system inspection, maintenance, engineering and training practices, management structures, staffing, planning and governance. The ATC system provides critical safety protections for train movement and roadway workers.

The audit identified 16 findings, including that Metrorail has not adequately trained employees on safety procedures to ensure that all employees fully understand their roles with respect to safety and that Metrorail allows employees to use tools that have not gone through any safety review or approval process.





Other findings from the audit were that Metrorail has continued efforts to return to Automatic Train Operation without following its safety certification procedures and that WMATA is not conducting all inspections and maintenance required by its ATC manuals and ATC manuals have incorrect or incomplete information and outdated references.



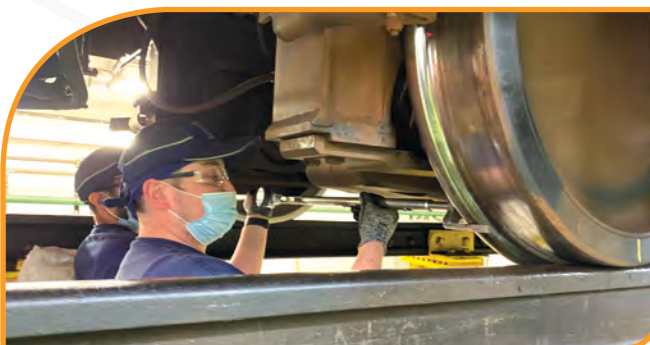
As of May 1, 2022, two CAPs related to the ATC Audit have been closed. The remaining 14 CAPs are scheduled for completion in 2022 and 2023.

REVENUE VEHICLE (RAILCAR) PROGRAM – September 14, 2021

This audit covered Metrorail's activities related to railcars, including regular maintenance and engineering as well as rehabilitation and overhauls.

The audit identified 12 findings, including that Metrorail did not follow its safety certification processes for the 6000 Series rehabilitation and overhaul project. Safety certification is designed to ensure that hazards are addressed or mitigated prior to a safety event, such as the two 6000 Series train pull-aparts that occurred in fall 2020 involving trains in passenger service.

The 7000 Series rehabilitation and subsystems overhaul program is being developed without full SAFE coordination, involvement or approval.



Metrorail also does not consistently follow a standard process to address wheels out-of-round, to prevent railcars with wheels out-of-round from operating, and to identify and address the root causes of wheels out-of-round.

As of May 1, 2022, one CAP related to the Railcar Audit has been completed and 13 remain open.

HIGH VOLTAGE AND TRACTION POWER PROGRAMS – October 27, 2021

This audit assessed Metrorail's high voltage and traction power systems and involved a broad review of engineering, inspection and maintenance programs, as well as upgrades and rehabilitation.

Among the eight findings, **the audit** found that Metrorail is not complying with its safety certification and approval requirements that are specified in its SSCPP before installing and placing traction power systems into service. As a result of this finding,



Metrorail must fully train personnel on the requirements of the SSCPP and must establish processes to ensure all aspects of the SSCPP are complied with, including as it relates to not placing systems into service without completed Temporary Use Notices (TUNs) or completion of the safety certification process.

The audit also found that Metrorail is not documenting, tracking and conducting all preventive maintenance inspections that are required by WMATA policy, manuals and instructions. As part of its corrective action plan, Metrorail must identify all preventative maintenance work that is required and ensure that all required preventive maintenance work is properly scheduled,



documented, tracked and conducted. Metrorail must identify any additional preventative maintenance work or inspections that are required to make up for work that was not completed and must assess whether the lack of maintenance requires any preventive maintenance to be conducted on a more frequent basis.

As of May 1, 2022, all twelve CAPs related to the High Voltage and Traction Power Audit remain open.

AUDIT OF ROADWAY MAINTENANCE MACHINE (RMM) INSPECTION, MAINTENANCE AND TRAINING –

March 9, 2021

This audit of Metrorail's Roadway Maintenance Machine (RMM) inspection, maintenance and training assessed Metrorail's programs related to all hi-rail or rail-bound machines other than shuttle wagons and track maintenance small equipment.

RMMs are vehicles that move on the rails but are not designed to carry customers. RMMs range from the basic, like flatcars used to carry tools, materials or equipment to a work site, to complex equipment such as the heavy-duty tamper used to maintain track geometry.

The audit found that Metrorail is not following and does not have effective safety certification and acceptance procedures for new RMMs. There is no Metrorail-wide safety certification procedure to implement the Safety and Security Certification Program Plan (SSCPP).

Additionally, Metrorail does not always follow safety certification or safety approval process requirements for modifications to existing RMMs. Metrorail is not following its engineering change procedures. Equipment operators are not fully trained on each type of vehicle they may be directed to operate. Some training has not included sufficient hands-on experience.



Required actions included Metrorail requiring sufficient, specific, specialized, standardized refresher training and recertification with each type of equipment at appropriate intervals, which may be more frequent if operators have not regularly used a specific type of equipment. Metrorail also had to develop a process to ensure equipment operators have frequent exposure to any equipment they may use. All aspects of this training and recertification must be documented.

All CAPs related to the RMM Audit are closed. The WMSC will continue to monitor the effectiveness of implemented CAPs through our regular inspection activities.



AUDIT OF ELEVATED STRUCTURES INSPECTION, MAINTENANCE AND REPAIR – January 25, 2021

This audit assessed Metrorail's programs related to bridges and other elevated structures throughout the Metrorail system with special emphasis on the Minnesota Ave Station aerial structure, the Yellow Line Charles R. Fenwick Bridge over the Potomac River, and the National Airport elevated structure.

The 12 findings from **the audit** included:

- Metrorail departments involved in structures inspections and maintenance operate in unacceptable silos, which creates safety risk.



- Metrorail does not have load ratings for its bridges and aerial structures.
- Metrorail has not clearly assigned responsibility for the Structural Inspection Manual and has not set a timeline for review of the manual.



This audit also included a repeat recommendation to Metrorail to assess the need to incorporate replacement or mitigation plans for rocker bearings on 10 structures into long-term capital projects on those bridges given the risk of failure in a seismic event. The Tri-State Oversight Committee issued a similar recommendation in 2010.

As of May 1, 2022, four CAPs related to the audit have been closed, with the remaining CAPs scheduled to be completed by the end of 2023.

Other Audit Work Started in 2021

EMERGENCY MANAGEMENT AND FIRE AND LIFE SAFETY AUDIT — February 22, 2022

This audit evaluated Metrorail's programs, procedures and equipment related to emergency management and fire and life safety. This audit includes physical assets such as standpipes and emergency egress paths or shafts as well as other critical aspects of emergency management such as emergency procedures and communication.

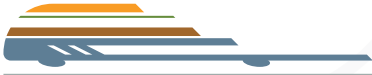
Work on this audit began in 2021. **The final audit** report was issued on February 22, 2022.

The 14 findings from this audit included:

- 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.
- 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.
- Metrorail's calls to public safety answering points (911 call centers) are inconsistent, incomplete and contribute to delayed or ineffective emergency response.
- Metrorail does not ensure that experts in fire and life safety are included in and have a documented role in Metrorail project development, planning, review and approvals, which contributes to hazards being introduced into the Metrorail system or hazards being allowed to continue to exist without adequate mitigation.

WMATA submitted the required proposed Corrective Actions Plans for findings in the audit on time.





SAFETY CERTIFICATION FINDING

On August 13, 2021, based on safety issues identified during work on several audits and additional inspection and oversight work conducted across the Metrorail system, the WMSC issued a finding that WMATA is not following safety certification process required by Metrorail policies and procedures.

For example, during a site visit while conducting work for the Emergency Management and Fire and Life Safety Audit, the WMSC observed a hazard of obstructed emergency egress due to the installation of columns in the path of the existing stairs to and from the emergency catwalk. The WMSC later identified that mitigations put in place in response to the WMSC raising this safety issue introduced an additional hazard. Specifically, project staff and Metrorail's safety certification team installed combustible wooden stairs using materials contrary to National Fire Protection Association (NFPA) 130 requirements in the tunnel despite the Fire Marshall's instruction that the stairs at minimum had to be made of fire treated wood. The WMSC identified and also required Metrorail to correct these safety issues.

Metrorail is now in the process of implementing a corrective action plan that includes clearly communicating requirements of, and taking active, recurring steps to ensure compliance with, its safety certification procedures and processes from the initiation of a project through completion, activation, final verification and acceptance.

Additionally, Metrorail must develop and implement a process to ensure that all relevant subject matter experts review and approve submittals or test reports and documentation such as Temporary Use Notices (TUNs) prior to the activation of the asset or system, and to ensure that required subject matter expert approvals are not bypassed.

AUDIT OF RAIL OPERATIONS — April 7, 2022

This audit evaluated rail operations and the personnel directly involved in railcar (Class 1 vehicle) movement both on mainline and in the 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.

Work on this audit began in 2021. The final audit report was issued on April 7, 2022.

The 14 findings from this audit included:

- 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.



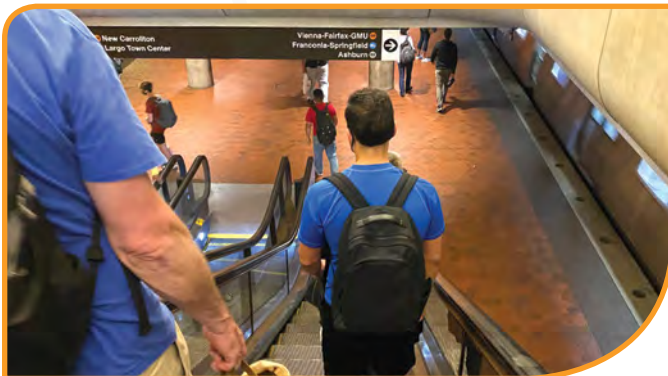
- Metrorail creates safety risk by not requiring and conducting territory familiarization and physical characteristics training, and not assessing knowledge of physical characteristics prior to assigning operations personnel work on a line, in a terminal or in a yard.

WMATA has submitted the required proposed Corrective Actions Plans for findings in the audit. Following review by the WMSC and revisions by Metrorail, the WMSC will approve these CAPs and monitor WMATA's implementation.

STATION MAINTENANCE, ELEVATOR AND ESCALATOR AUDIT

Work began in late 2021 on WMSC's audit of WMATA's station maintenance, elevators and escalators programs. Station maintenance includes ground maintenance, custodial services and station rehabilitation at Metrorail's 91 stations, while elevator and escalator programs include maintenance, engineering, special projects and capital improvement projects for WMATA's more than 300 elevators and 600 escalators.

The WMSC will issue a final audit report in spring 2022.



Future Audit Work

The WMSC's first triennial cycle of safety audits will conclude in 2022. This means that the WMSC will have audited all elements of Metrorail's PTASP and will then begin the next three-year cycle of audits.

The WMSC will continue to conduct these audits on an ongoing basis over a three-year period as specified in the WMSC Program Standard to provide for the appropriate depth of review in each area. The next three-year cycle will begin in June 2022 with track maintenance and training, which we last audited in 2019.

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 fully address the finding.

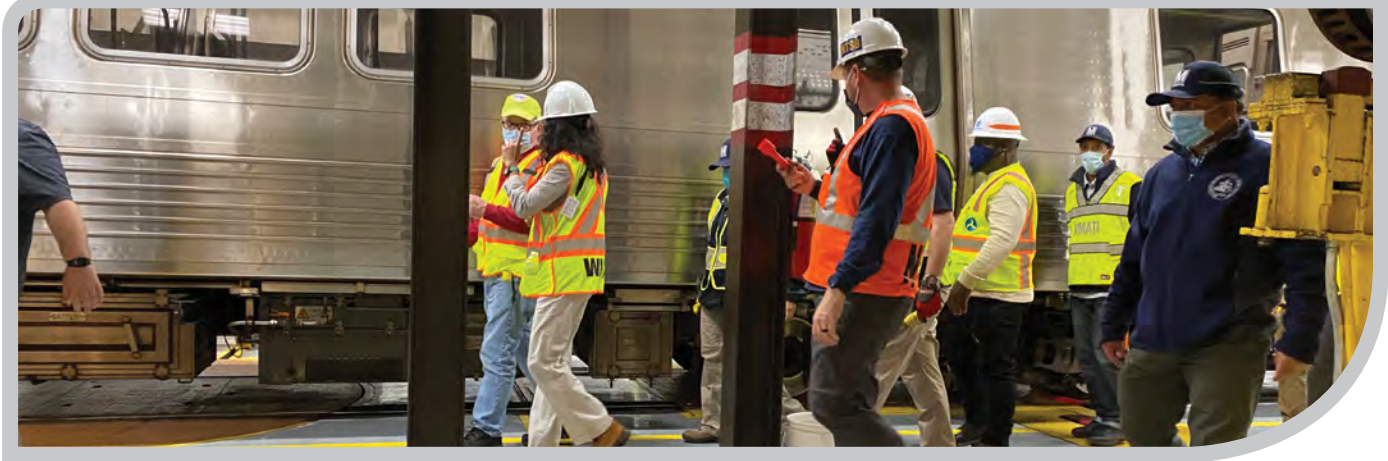
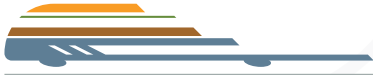
Some corrective action plans approved for implementation in 2021 address safety deficiencies in:

- Metrorail's intrusion detection warning systems that are designed to prevent a collision and stop train traffic in the event, for example, a freight or commuter rail train or work equipment operating in a common corridor with tracks parallel to the Metrorail tracks were to enter Metrorail's roadway
- Metrorail's radio communications systems in rail yards and shops
- Metrorail's lack of rules, control and oversight related to vehicle and switch movement in non-signalized (dark) territory
- Metrorail not consistently following its safety certification process, which leads to project activation and use without proper hazard identification and mitigation, putting Metrorail customers, personnel and first responders at risk

In addition to corrective action plans to address findings from WMSC audit reports, the WMSC also required Metrorail to develop four other corrective action plans in 2021.

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 40 CAPs in 2021. As of May 1, 2022, 99 CAPs are open.

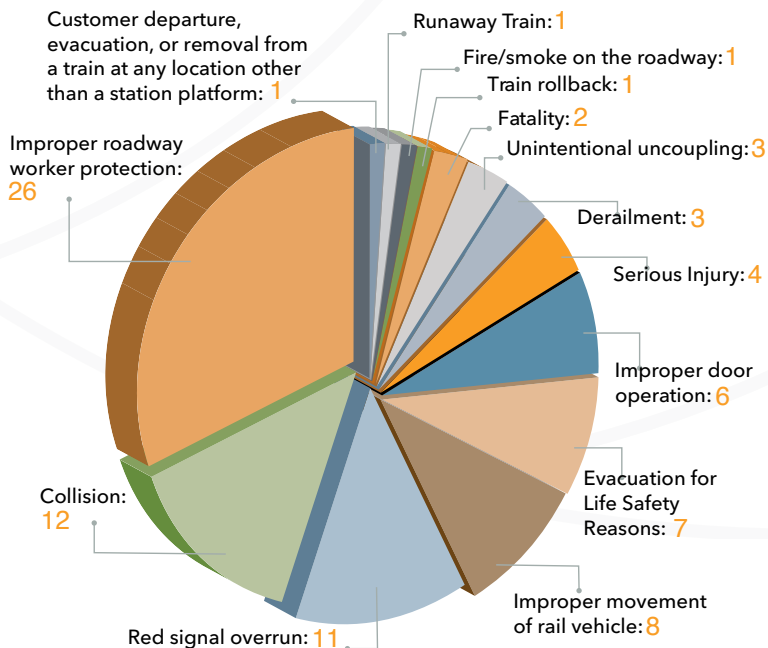
CAP closures show that WMATA is following through with its plans and commitments to improve identified deficiencies within the Metrorail system.



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

86 Final Investigation Reports by event type



OTHER NOTABLE SAFETY EVENTS IN 2021 INCLUDED A MARCH 26, 2021, RUNAWAY TRAIN EVENT THAT WAS ONLY IDENTIFIED DUE TO THE WMSC'S INDEPENDENT OVERSIGHT.

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

Overall, Metrorail reported 662 total safety events to the WMSC in 2021. The WMSC Program Standard defines events that are formally 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.

In 2021, the WMSC adopted 86 final safety event investigation reports. Complete final safety event investigation reports are available at [WMSC.gov/reports](https://wmsc.gov/reports).

The October 12, 2021, Blue Line train derailment described earlier in this report and the associated investigation led to the broadest effect on Metrorail riders of any event in 2021 and the first NTSB investigation of a Metrorail accident since the 2015 smoke accident near L'Enfant Plaza Station. The investigation remains ongoing. Investigations into all other 2021 events have been completed. Other notable safety events in 2021 included a March 26, 2021, runaway train event that was only identified due to the WMSC's independent oversight, and several investigations into improper roadway worker protection events.



MARCH 26, 2021 CUSTOMER EVACUATION AND RUNAWAY TRAIN

On **March 26, 2021**, a safety event near Rhode Island Ave Station occurred involving a customer evacuation and a runaway 7000 Series train that was only identified and investigated due to the WMSC's robust independent oversight.

After a prolonged period of unsuccessful troubleshooting of a disabled train near Rhode Island Ave Station, limited communication with riders, and delays in calling 911 for potential assistance with a controlled evacuation, two customers self-evacuated. Metrorail personnel notified the Rail Operations Control Center (ROCC) of the self-evacuation, but third rail power was not de-energized as required by Metrorail safety procedures. Third rail power was eventually de-energized and the other customers were safely walked-through another train back to the station platform.

Just after the evacuation was completed, inadequate communication, procedures and training led to the train rolling away on its own as Metrorail personnel prepared to move it using another train as a recovery train.

The WMSC's Program Standard and FTA regulation define a runaway train as a vehicle in motion that is not under the control of an operator regardless of whether the operator is physically on the vehicle at the time. In this case, the train rolled approximately 137 feet. The movement occurred after Office of Car Maintenance (CMNT) personnel cut out (removed brake application on) the final truck of the train. The car stopped after the rear truck was cut back in, approximately 31 seconds after the train movement began.

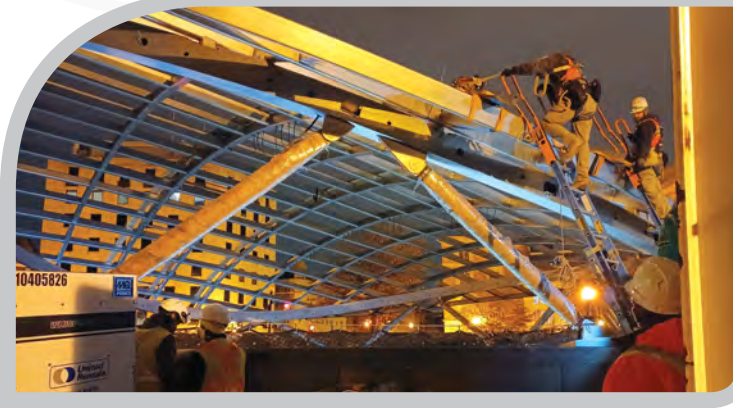
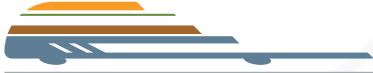
Metrorail as an organization did not identify or report this runaway train to the WMSC or to the FTA as required by the WMSC Program Standard and federal regulation. The WMSC identified this event through our independent oversight and access to Metrorail systems and data and required Metrorail to formally report the event to the WMSC and FTA. Due to the WMSC's oversight, this event was investigated, and corrective actions were identified to reduce the risk of a similar event in the future.

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. Improper roadway worker protection was the subject of 26 final safety event investigation reports adopted by WMSC Commissioners in 2021. Metrorail has committed to improving its RWP program as a result of these investigations and other oversight activities. Examples of these serious safety events and near misses include:

- On **January 18, 2021**, an Advance Mobile Flagger (AMF) assigned to advise Red Line train operators of track inspectors on Track 2 between Takoma Station and Fort Totten Station positioned themselves at the wrong end of the Takoma Station platform. A Train Operator was therefore not advised of work crews on the roadway and proceeded as if there were no workers on the tracks ahead, causing the work crew to have to move to a place of safety to avoid being struck.





- On **December 12, 2020**, a Traction Power Maintenance (TRPM) crew had to enter a Tie-breaker Station to avoid being hit by a maintenance vehicle (prime mover) near Fort Totten Station. A rail traffic controller granted foul time to the TRPM crew just before a shift turnover in the ROCC. While the crew was still on the roadway, a different controller who had taken over the desk gave permission to the equipment operator of the prime mover to move through the area where the work crew was under foul time protection, creating a near-miss event.
- On **April 9, 2021**, two improper RWP events occurred at Tenleytown Station. The first event occurred when an Office of Track and Structures (TRST) Roadway Worker in Charge (RWIC) was establishing a work zone and directed the Equipment Operator they were aboard a Prime Mover vehicle with to travel beyond the RWIC's working limits into another occupied work zone. This was the result of a miscommunication between the RWIC and the ROCC Rail Traffic Controller. The RWIC intended to use a hot stick to verify that third-rail power had been de-energized where personnel would be working, prior to them entering the roadway. The Rail Controller provided the RWIC with starting and ending chain markers and the RWIC understood that to mean they were required to hot stick and confirm that third-rail power was de-energized at both of those chain marker locations, one of which was outside working limits. However, the requirement was only that hot sticking be performed in an area anywhere within the given chain marker limits. (A chain marker is a survey marker used to identify specific locations along the roadway in a similar way that mile markers are used along a highway).

During the investigation into this improper movement and associated improper roadway worker protection, a separate improper roadway worker protection event that contributed to the event described above was discovered involving the Plant Maintenance (PLNT) crew in the work zone that the prime mover crew inadvertently entered. Investigators found that the crew in that work zone had not properly set up their work location with required shunts, lights and work mats to provide protection against improper movement into the work zone, which contributed to the encroachment event. Placement of the shunts would have indicated to the TRST RWIC and Equipment Operator that the area they were entering was occupied.

Metrorail is progressing its work on the short-term actions it committed to, including new Foul Time and Exclusive Track Occupancy procedures. Metrorail is also taking steps toward improvements to its RWP training program.

Metrorail has begun work on long-term actions, including an overall assessment of its RWP program and track access

guide. Metrorail's work includes comparisons of their current program to both Federal Railroad Administration (FRA) regulations and practices at other transit agencies.

The WMSC's consistent focus on the effectiveness of Metrorail's RWP program has also contributed to Metrorail increasing compliance checks on roadway worker protection.

These events and other issues identified through the WMSC's oversight activities demonstrate the importance of continuous safety improvement at Metrorail.





INSPECTIONS

In addition to audits and investigations, WMSC experts regularly inspect various aspects of the Metrorail system.

These inspections and related oversight work include in-person activities, 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.

Metrorail reduced the number of drills conducted in 2021 due to the public health emergency, but the WMSC closely monitored Metrorail's preparation for and operations during events such as July 4th 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 course of the event such as monitoring radio traffic and protocols.

The results of WMSC inspections are communicated to Metrorail to reinforce positive practices and to identify issues that may need to be corrected, and inspection reports are prepared and posted at [WMSC.gov](https://www.wmsc.gov). The WMSC's website contains more than 140 reports pertaining to inspections that were conducted in 2021.

For example, on December 2, 2021, the WMSC learned from Metrorail personnel that they identified several instances at Silver Line stations in which cables to fire protection system speakers appeared to have been intentionally disconnected or cut. These loudspeakers are an integral part of the fire alarm system, used to notify occupants, and in some cases, emergency first responders of an emergency.

The WMSC quickly communicated these hazards to WMATA and required Metrorail to take immediate action including, assessing the extent of that issue at other stations and putting a fire watch in place where applicable until repairs and reconnection was complete at each location.

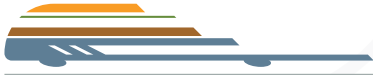
As a result of the WMSC's oversight work on these identified fire and life safety concerns, on December 15, 2021, Metrorail confirmed completion of a system-wide inspection in which 60 speakers were identified and repaired. Signage was placed in ancillary areas directing staff not to tamper with the systems and WMATA has taken additional remediation steps such as adding tamper-proof mounting and hardware and installing speaker cages in high-risk areas to prevent damage.

THE RESULTS OF WMSC INSPECTIONS ARE COMMUNICATED TO METRORAIL TO REINFORCE POSITIVE PRACTICES AND TO IDENTIFY ISSUES THAT MAY NEED TO BE CORRECTED.

While conducting site visits related to the fire protection system concerns, WMSC Inspectors identified seven additional fire and life safety concerns requiring

immediate mitigation at Metro Center Station on December 2, 2021, including improper storage of flammable liquids, overloaded electrical receptacles, blocked egress, trash removal and obstructed/expired eye wash stations. Metrorail responded to these concerns in a timely manner on December 6, 2021, and continues to address findings from our Emergency Management and Fire and Life Safety Audit through the corrective action plan process. The WMSC will continue to closely monitor WMATA's progress on implementing these CAPs and their effectiveness.





SAFETY CERTIFICATION OVERSIGHT & SILVER LINE PHASE 2

The WMSC continued oversight in 2021 of work on the Silver Line Phase 2 extension from Wiehle-Reston East Station through Dulles International Airport to Ashburn Station. In 2021, Metrorail and the Metropolitan Washington Airports Authority (MWAA) made progress toward completion. Metrorail and MWAA hope to complete the requirements to open the stations and rail yard for passenger service in 2022.

The WMSC conducted ongoing oversight of the safety certification process being carried out by Metrorail and MWAA under the requirements of Metrorail's Safety and Security Certification Program Plan (SSCPP) and the cooperative agreement between MWAA and WMATA. As of the end of 2021, there were paths to closure in place for each of the open items in the WMSC's Pre-Revenue Service Review (PRSR) Part 1, which focused on construction of the line. These included items that the WMSC identified in 2020 as part of our independent fire-life safety assessment.

THE WMSC CONDUCTED ONGOING OVERSIGHT OF THE SAFETY CERTIFICATION PROCESS BEING CARRIED OUT BY METRORAIL AND MWAA.

During 2022, the WMSC expects to prepare the remainder of its PRSR, focusing on Metrorail's preparedness to operate the line, including adequacy of staffing, training and testing.

The final stages of our work include ensuring that Metrorail has met its requirements to safely operate the extension, and that Metrorail has taken the other steps required by its SSCPP.

As part of the documentation required for the WMSC to concur that Metrorail has properly conducted its safety certification process, including any necessary safety mitigations or corrective actions, Metrorail will provide the WMSC with WMATA's Safety and Certification Verification Report (SSCVR) approved by the Safety Certification Review Committee (SCRC) which serves as Metrorail's documentation that it has identified and appropriately mitigated known hazards and that the project has followed other aspects of the design construction and implementation process,



evidence of that approval, and evidence that the Silver Line Phase 2 project has achieved certification by the Metro Chief Safety Officer. This certification is part of Metrorail's safety certification process, and is a requirement of the cooperative agreement between WMATA and MWAA.

WMSC concurrence is required before the line may open for passenger service. We continue to closely monitor Airports Authority and Metrorail progress.

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 PTASP is intended as a living document, subject to regular updates as part of continuous safety improvement. In 2021, Metrorail completed its first required annual revision of its PTASP, following initial adoption of a PTASP in 2020 to replace the former System Safety Program Plan (SSPP).

WMSC staff provided detailed feedback to Metrorail regarding its proposed 2021 revisions before Metrorail presented its revisions to its board of directors in October 2021. The WMSC Board considered and approved the revision on December 7, 2021.

The 2021 revisions to WMATA's PTASP included adjustments to planned SMS implementation timelines and tasks for the next two years and Safety Department organizational changes associated with these implementation 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 frontline 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.

The WMSC made three revisions to the Program Standard in 2021, including its first major revision to the program standard since the WMSC's certification in March 2019. This revision became effective on June 1, 2021, to make processes and requirements clearer for both the WMSC and WMATA. A delayed effective date was created to provide WMATA and the WMSC with ample time to adjust to these revisions.

FINANCIAL INDEPENDENCE

Funding from Virginia, Maryland 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 2021 ended June 30, 2021. The approved budget for the current fiscal year which began on July 1, 2021, is \$5.062 million, the majority of which covers staff costs such as salaries and benefits (see Appendix A for approved FY22 budget).

The fiscal year 2022 budget and jurisdictional contributions better reflect long-term expectations based on WMSC operational experience and the use in fiscal year 2021 of carryover funds from the years prior to the jurisdictions resuming direct state oversight of Metrorail through the WMSC.

In FY21, the FTA awarded a \$3.6 million grant through the federal fiscal year 2019 and 2020 safety oversight apportionments.

The WMSC notes the funding increase for State Safety Oversight (SSO) Programs included in the Bipartisan Infrastructure Law enacted in November 2021. These funds will help strengthen the WMSC's comprehensive safety oversight of Metrorail.





To be good financial stewards and to provide predictability for Maryland, Virginia and the District of Columbia, the WMSC utilizes five-year spending plans for FTA grant awards. Any amounts not covered by federal grants are divided equally among the jurisdictions.

The draft fiscal year 2023 budget and work plan was developed in fall 2021. A final budget is expected to be approved by the Commissioners in 2022 in accordance with the jurisdictional funding agreement.

The WMSC added a number of key positions in 2021 including Chief Financial Officer, Investigations Analyst, IT Program Manager, Rail Car Specialist, and Communications Specialist. As the WMSC regularly assesses its workload requirements, the WMSC may determine in the future that additional positions are needed.

The WMSC received another unmodified or clean financial statement audit opinion in 2021. Independent audit reports

covering previous fiscal years are available at [WMSC.gov](https://www.wmsc.gov). The WMSC is on firm footing heading into fiscal year 2023.

The WMSC continued to effectively carry out our Title VI plan regarding nondiscrimination and the WMSC's Disadvantaged Business Enterprise (DBE) program. For the most recent period ending December 1, 2021, the WMSC's DBE participation rate was 16.5%. The WMSC expects to complete regularly scheduled updates of our Title VI plan and DBE program as scheduled in 2022.

THE WMSC UTILIZES FIVE-YEAR SPENDING PLANS FOR FTA GRANT AWARDS.

The WMSC also received our first FTA Audit report, and we are implementing each improvement identified through adjustments

to our program documents as part of our own continuous improvement process.

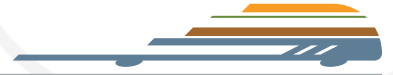
Continuing education, training and awareness

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 2021, 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 April 2022, eight WMSC staff members have now completed the PTSCTP program, four are making considerable progress towards completing the program as soon as 2022, and three other new employees have just begun certification courses. 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 other courses offered through the National Transportation Safety Board (NTSB) Training Center, Federal Emergency Management Agency (FEMA), and the Transportation Safety Institute, and participate in workshops and forums including the FTA's Joint State Safety Oversight and Rail Transit Agency Workshop.





Similarly, and 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.

In March 2022, the commissioners reelected Christopher Hart as Chair, Greg Hull as Vice Chair and Debra Farrar-Dyke as Secretary-Treasurer.

Transparency, Public Input and 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 and 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. The increased public access and transparency of the remote public meetings held in 2020 showed the value of continuing this format in 2021. 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.

For example, the WMSC's regular social media monitoring identified a rider's report that doors on a Red Line train had opened on the opposite side of the platform

at Rhode Island Ave Station on June 11, 2021. Metrorail had not identified that this event occurred. The WMSC informed Metrorail of the event and required that the event be properly reported and investigated in accordance with the WMSC Program Standard.

The WMSC reviews and appropriately addresses every safety concern that it receives. Our independent WMSC oversight and investigative work in cases like these demonstrates 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.

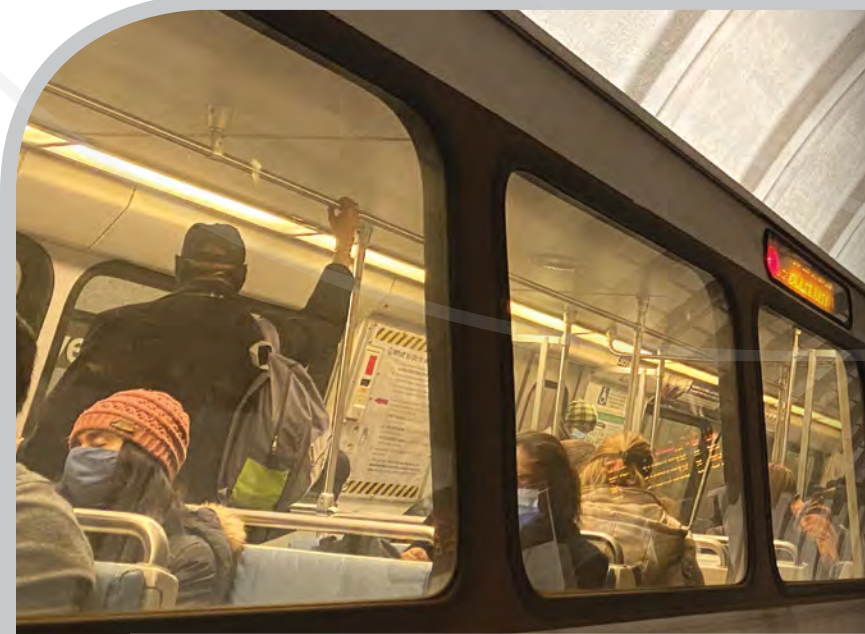


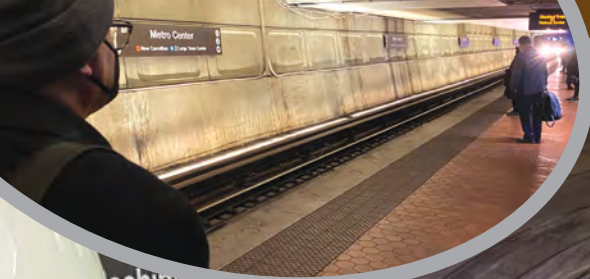
CONCLUSION

The WMSC continues its work to guide WMATA towards continuous safety improvement for the Metrorail system.

This work required dedication from the WMSC staff to ensure that WMSC safety oversight continued to improve in 2021 even in the face of continued challenges posed by COVID-19. The WMSC conducted major oversight work and in-depth investigations while maintaining all safety precautions.

The WMSC identified areas in which Metrorail made progress in 2021, but also areas like the railcar and fitness for duty programs that require substantial improvement and sustained attention. This demonstrates the safety journey that WMATA must remain committed to.





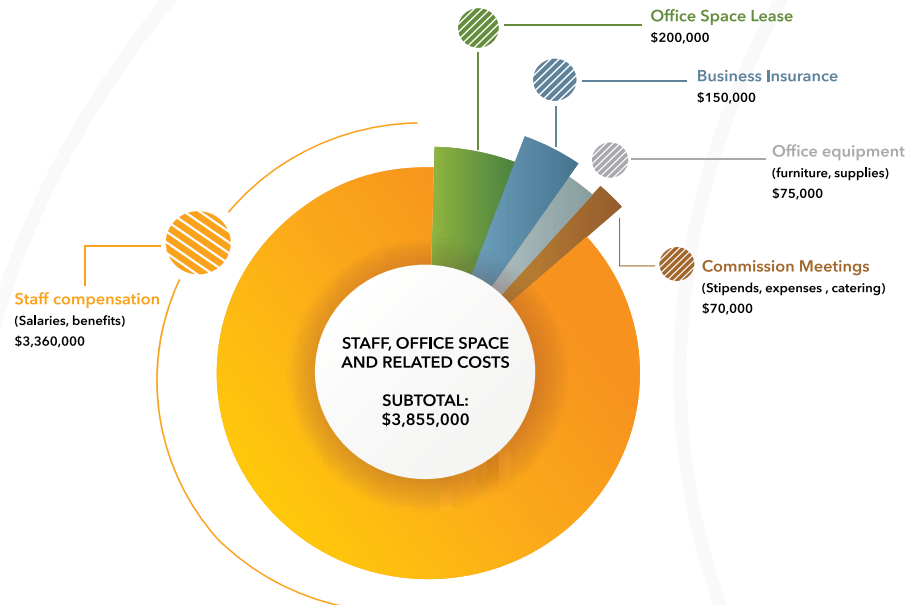
APPENDIX





WMSC FY2022 BUDGET:

STAFF, OFFICE SPACE AND RELATED COSTS – SUBTOTAL: \$3,855,000



● Staff compensation (salaries, benefits) – \$3,360,000

Cost reflects salary and benefits for 18 full-time employees along with a medical benefits factor of 33 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, catering) – \$70,000

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

● Office equipment (furniture, supplies) – \$75,000

Cost reflects furniture purchase/depreciation of office equipment (e.g., laptops, peripherals, monitors/screens for viewing technical drawing, plotters, and printers), office collaboration equipment, and office supplies.

● Office space lease – \$200,000

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

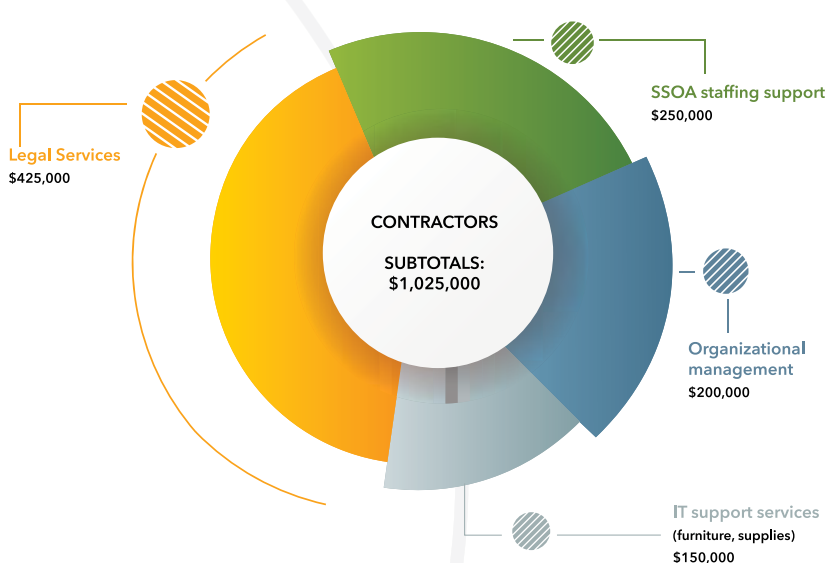
● Business Insurance – \$150,000

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





CONTRACTORS – SUBTOTALS: \$1,025,000



Legal Services – \$425,000

Cost reflects annual approximation of legal services bill. Legal services are necessary to address voluminous issues related to day-to-day business concerns and complex questions.

IT support services – \$150,000

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

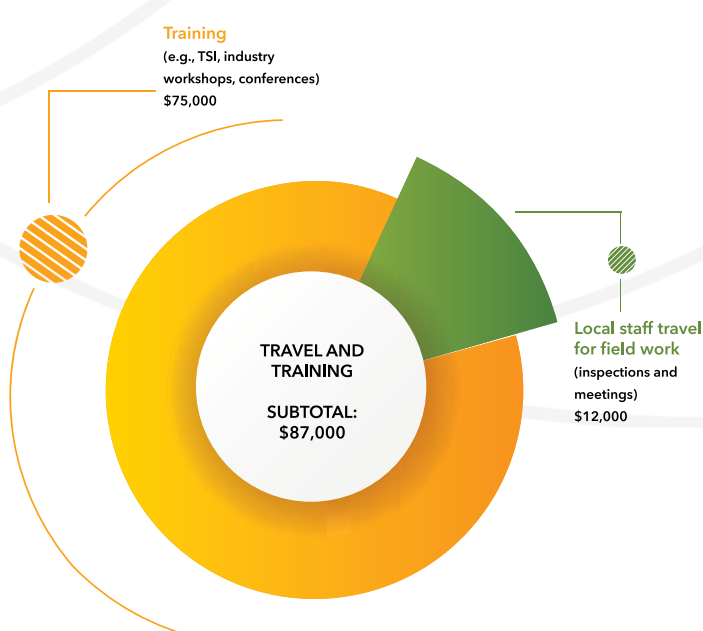
SSOA staffing support – \$250,000

Cost reflects additional 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.

Organizational management – \$200,000

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.

TRAVEL AND TRAINING – SUBTOTAL: \$87,000



Training (e.g., TSI, industry workshops, conferences) – \$75,000

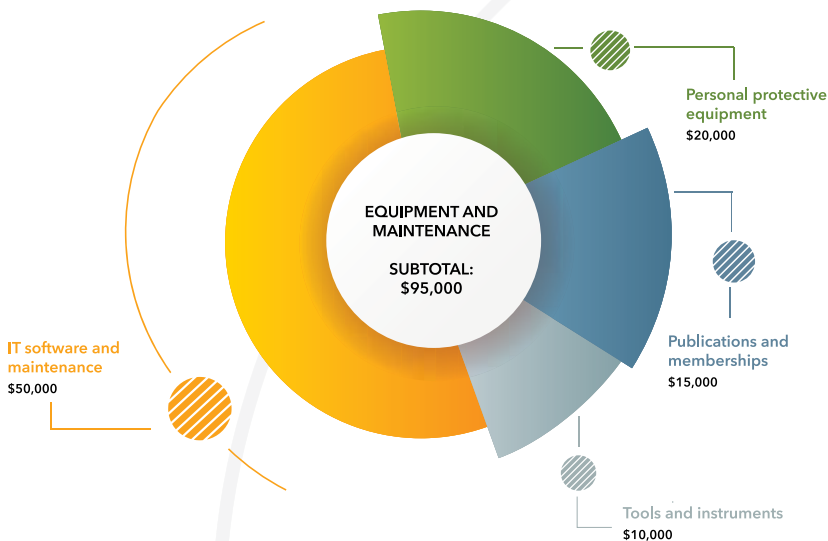
Cost reflects training for commissioners and staff to obtain required certifications, as well as training on oversight of drug and alcohol requirements, fatigue and human factors in transportation, accident investigations, investigation interview techniques, project management, and related topics. Training 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: \$95,000



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 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 – \$15,000

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

Personal protective equipment – \$20,000

Cost reflects purchase of weather-related personal protective equipment for most staff and special equipment for work in proximity to high voltage.

Tools and instruments – \$10,000

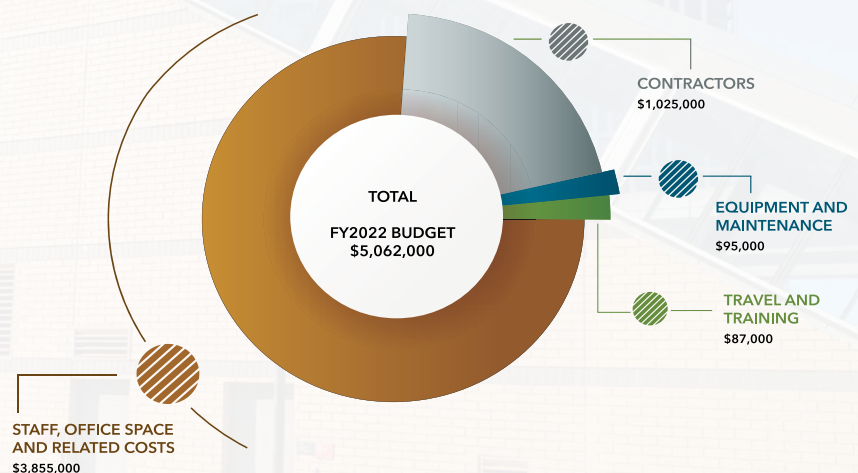
Cost reflects acquisition and testing of speed monitoring equipment, track measuring tools, cameras, and other electronic devices and specialized work equipment for individual SME's that are needed to conduct field inspection activities.

TOTAL FY2022 BUDGET – \$5,062,000

FY2022 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 FY22 budget with \$812,030.





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