



Safety and Operations Committee

Board Information Item IV-B

January 13, 2022

**Safety Management System
Path Forward**

Washington Metropolitan Area Transit Authority

Board Action/Information Summary

☐ Action ☒ Information

MEAD Number:
202332

Resolution:
☐ Yes ☒ No

TITLE:

Metro Safety Management System (SMS) Path Forward

PRESENTATION SUMMARY:

This presentation provides a progress update on the strategy for developing and implementing Metro's Safety Management System (SMS) in accordance with the Agency Safety Plan (ASP) that was approved by the Board of Directors and Washington Metrorail Safety Commission (WMSC).

PURPOSE:

To keep Metro leadership informed and engaged on the strategy and progress associated with implementing SMS.

DESCRIPTION:

WSP assists with the revision of the Metro Safety Rules and Procedures Handbook (MSRPH), a part of the SMS strategy. In addition, **MITRE** is a federally-funded non-profit that specializes in applying data sciences to advance Safety in the transportation industry.

Key Highlights:

- A mature SMS is based on four components: Safety Policy; Safety Risk Management; Safety Assurance; and Safety Promotion.
- The ASP has been updated to reflect the progress made, account for lessons learned, and refresh the path forward.
- The SMS Strategic Roadmap, which was introduced to the Board in February and used to report SMS progress in July, has been incorporated into the ASP.

Background and History:

In 2016, the Federal Transit Administration (FTA) published 49 CFR Part 670 *Public Transportation Safety Program* which states, "The FTA has adopted the principles and methods of Safety Management Systems (SMS) as the basis for enhancing the safety of public transportation in the United States." SMS is a collaborative approach that brings management and labor together to build on

the transit industry's existing safety foundation. SMS continuously improves how safety risks are proactively identified, assessed, and mitigated with action taken before an accident or incident occurs.

In July of 2018, the FTA published 49 CFR Part 673 *Public Transportation Agency Safety Plan*. Transit operators that receive federal funds (under the FTA's Urbanized Area Formula Grants) are required to develop ASPs that specify how SMS will be implemented over the course of a multi-year period. The original compliance deadline for ASP submissions was December 31, 2020 and updates are required annually. The annual update of the ASP was recently completed. Metro's ASP was approved by the Executive Management Team (EMT), Board of Directors, WMSC Commissioners, and self-certified with the FTA in compliance with the annual deadline. SMS development and implementation in accordance with the ASP continues.

Discussion:

Strategy Summary:

Metro's vision is to become the transit industry leader in safety. To realize this vision, Metro's mission is to develop and implement a world class SMS. Metro has developed a Strategic Roadmap, which is organized based on the four components of SMS (Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion). The SMS Strategic Roadmap highlights the top priorities established to accomplish this mission. The ASP describes how those priorities will be achieved. The following summarizes the progress made in CY2021 and next steps envisioned for CY2022:

Safety Policy

2021 Accomplishments: Metro's ASP was self-certified with the FTA in December of 2021 in compliance with the deadline required by 49 CFR Part 673 *Public Transportation Agency Safety Plan*. An SMS Project Manager has been hired to lead development of the tactical action plans required to ensure a formalized, deliberate approach is taken toward achieving the milestones reflected on the SMS Strategic Roadmap. Additionally, a third-party consultant completed an organizational study of the Department of Safety & Environmental Management (SAFE) to assess the Department's future organizational needs to support Metro's SMS.

2022 Next Steps: Metro's Safety Policy stands as part of the ASP. Going forward, the Policy will reside as part of Metro's Policy/Instruction Manual (PIM) and will be actively promoted to increase awareness and ensure accessibility. Following the completion of SAFE's organizational study, the reorganization started with the objective of positioning the Department with resources for long-term success by July of 2022. Additionally, as Metro's IT Governance Board continues to mature, SAFE intends to partner with the Chief Operating Officer (COO) and IT to develop a framework for evaluating the safety implications of new technologies under consideration.

Safety Risk Management

2021 Accomplishments: As part of developing the ASP, Safety Risk Coordinators were designated from each Metro Department. The Rail Operations Control Center (ROCC) hired a dedicated Safety Risk Coordinator to perform this function with assistance from SAFE. The ROCC SMS Program Manager has partnered with leadership from SAFE to pilot the implementation of the Safety Risk Management process, which represents the core of SMS implementation. Based on the results, implementation expanded to Supply Chain Management (SCM), which completed baseline implementation in December. Additionally, after benchmarking against the railroad industry, the SAFE Department established the Operating Practices team, among the first of its kind in the transit industry. The Operating Practices team manages the Rail Safety Standards Committee and leads the effort to overhaul Metro's Safety Rules and Procedures Handbook. The SAFE Department also established a partnership with MITRE, a federally funded, non-profit organization that specializes in applying data sciences to advance safety in the transportation industry.

2022 Next Steps: Implementation of the Safety Risk Management process will continue to expand across the COO with the next group (Facilities, Systems, and Vertical Transportation Maintenance – FSVT) slated to get started this month. As part of their responsibility to overhaul the Metro Safety Rules and Procedures Handbook, the Operating Practices team is refreshing Metro's Roadway Worker Protection (RWP) program. A multi-year strategy for this effort was presented to the WMSC in December with no technical objections (details provided below). Additionally, the future Office of Emergency Preparedness will continue to work closely with the Metro Transit Police Department (MTPD) to develop the Risk/Threat Analysis Program. According to the Department of Transportation, "safety" means freedom from unintentional harm, whereas "security" means freedom from intentional harm. The Safety Risk Management Process and Risk/Threat Analysis Program will complement each other to ensure the overall safety and security of our customers, employees, and assets.

Safety Assurance

2021 Accomplishments: SAFE has prioritized reinforcing the Safety Investigations Team by appointing a Director of Safety Investigations and adding new safety investigators. The investigation process has been improved to include the procurement of industry-leading fatigue modeling software endorsed by the Federal Railroad Administration and implementation of a robust methodology that emphasizes root cause analysis to drive corrective and preventive actions that effectively mitigate the risk of incident recurrence. Additionally, SAFE established the Mission Assurance Coordinator function within the ROCC. The Mission Assurance Coordinator is focused on assuring that when an incident occurs, the required processes, procedures, and coordination takes place in compliance with standard operating procedures.

2022 Next Steps: The Office of Emergency Management will complete its

transformation to the Office of Emergency Preparedness to lead implementation of the emergency management cycle across Metro with an emphasis on prevention, preparedness, response, recovery and mitigation of emergencies. SAFE will continue to invest in the Safety Investigations team to ensure that all modes receive the same investigative rigor and thoroughness in response to accidents and incidents. Additionally, a Director of Operations Safety Oversight has joined the team to develop a Safety Assurance capability that verifies compliance with risk mitigations. The results of this safety oversight will be incorporated into the Safety Risk Management process, which in turn informs priorities for safety oversight – creating a systematic approach that is designed to continuously improve.

Safety Promotion

2021 Accomplishments: SAFE partnered with the ROCC to apply Just Culture principles, resulting in the development of a conduct review process. The process emphasizes fairness, use of positive and constructive language, and acknowledgement of intent rather than consequence, with a goal of improving operational efficiency and equipping managers with the tools to make consistent and fair decisions. Additionally, ROCC personnel completed instructor-led SMS training, which featured how to submit safety concerns and make a “Good-Faith Challenge,” both of which are effective when a culture exists where employees feel comfortable to speak up. SAFE has also partnered with other program offices to leverage employee communications using platforms such as MetroVoices to promote progress on implementing SMS and related activities. A Safety Promotions Manager was hired to develop and lead the overall strategy for engaging the workforce and public on the safety transformation taking place at Metro.

2022 Next Steps: As the SMS continues to mature, a robust strategy that encompasses Just Culture, employee engagement, training, and communication will be critical to shaping the culture required to ensure its long-term success. Led by the Safety Promotions Manager, this strategy includes capitalizing on Metro’s partnership with MITRE to conduct a Safety Culture Survey. The results will enable SAFE to establish Metro’s safety culture baseline. As the safety promotion strategy is implemented, progress toward advancing Metro’s culture will be measured against the baseline. Additionally, the Safety Promotions Manager will also work closely with Customer Service, Communications and Marketing (CSCM) to increase communications, engaging both the workforce and public on the efforts we are taking to continuously improve safety at Metro. The development and implementation of a world class SMS is a multi-year journey and SAFE would like every stakeholder to feel like they are coming along for the ride.

Focus: Roadway Worker Protection Program

In response to the rising trend in RWP violations, a strategy has been developed that is composed of immediate, short-term, mid-term, and long-term actions that ultimately result in the overhaul of Metro’s RWP Program. The

Director of Operating Practices (SAFE) has hired two additional Operating Practices Specialists with industry subject matter expertise that will be dedicated to leading the implementation of this strategy.

Immediate Actions:

- Increased Oversight – The Operations Safety Oversight Team performs targeted oversight to ensure work crews are in compliance with RWP requirements. These checks are performed every day with the results reported every morning on the daily operations call. There have been over 300 checks performed with 24 non-compliant conditions detected and corrected before work started.
- Safety Alert Published –A Safety Alert was distributed emphasizing the responsibilities associated with being a Roadway Worker In Charge (RWIC) to include reference procedural requirements and highlighting how to contact SAFE if help is needed.
- RWP Stand-Down Conducted – In partnership with the Training team, a stand-down was conducted with over 95% of the workforce that addresses RWP performance trends, foul time usage, process improvements, and promotes use of the voluntary safety reporting program.
- Increased Supervision of Foul Time – An additional check was added to the foul time procedure by requiring a ROCC supervisor to review and approve the granting of Foul Time. This ensures the Rail Traffic Controller has the proper protections in place prior to issuance.

Short-Term Actions (Next 90 Days):

- Improve Procedures – SAFE will work with ROCC Leadership to make the granting of Foul Time and Exclusive Track Occupancy separate procedures consistent with Railroad Industry Best Practices.
- Refresh Job Safety Briefing – The briefing template will be revised to compel the RWIC to critical assess the work and surrounding areas by requiring open-ended questions to be answered vs. simply checking blocks off on a checklist style punch list.
- Formalize Requirements for Joint Occupancy (Piggyback) Crews – A method of documenting joint occupancy will be established using railroad industry best practices. This formalizes the RWIC's awareness and reinforces their responsibility for all crews within their work area.
- Release Request For Information (RFI) – The RFI process will be completed to determine what options exist on the market related to development of RWP training and proven methods of training for adult-learners.

Mid-Term Actions (90 Days to 12 Months):

- Conduct Overall RWP Assessment – The current RWP practices will be assessed against the Federal Railroad Administration's (FRA) 49 CFR Part 214 Sub-part C (Roadway Worker Protection) and industry best practices to identify gaps and opportunities for improvement.
- Refresh Track Access Guide – Need vs. Speed track charts will be developed and integrated into Track Access Guide to ensure proper sight distance is utilized when working under traffic with Watchmen/Lookout.
- Establish Hot Spot Review Cycle – Hot Spots are areas that require Foul Time protection due to assessed conditions (such as impeded line of sight). A sub-committee of the Rail Safety Standards Committee will be established to develop a strategy for reviewing Hot Spots on a recurring basis to determine if there are additional actions that can be taken to mitigate known risks.
- Contract for RWP Training Development – The procurement for development of an RWP Training Program will be completed that is in alignment with railroad industry best practices.
- Release RFI on RWP Technology – The RFI process will be completed to determine what options exist on the market related to new technologies that help mitigate the risks associated with working on the roadway.

Long-Term Actions (>12 Months):

- Establish Metrorail Timetable – A centralized location will be established for employees to obtain specific information about track characteristics, chain markers, maximum authorized speeds, and related information consistent with railroad industry best practices.
- Release new RWP Manual – The overhaul of Metro's RWP manual will be completed to include ensuring that effected departments have updated their processes and procedures to align with the new standard.
- Conduct RWP Training – Sequenced with the timing of the new RWP manual, new RWP training will be conducted to ensure employees receiving training on the new safety standard and associated processes and procedures.
- Incorporate Technology – Technologies that further reduce the risks associated with working on the roadway will be evaluated. Any technology selected will be integrated into the new standards, processes, procedures, and training.

FUNDING IMPACT:

Initiatives to implement the SMS are included in the Board-approved budget.	
Project Manager:	Theresa Impastato
Project Department/Office:	Safety and Environmental Management

TIMELINE:

Previous Actions	July 2021 – SMS Roadmap Against Plan - Safety Risk Management Focus
Anticipated actions after presentation	February 2022 – SMS Roadmap Status: Voluntary Safety Reporting Program

Metro Safety Management System *Path Forward*

Safety and Operations Committee
January 13, 2022



SMS Strategy Summary

■ Vision

- Metro becomes the transit industry leader in safety

■ Mission

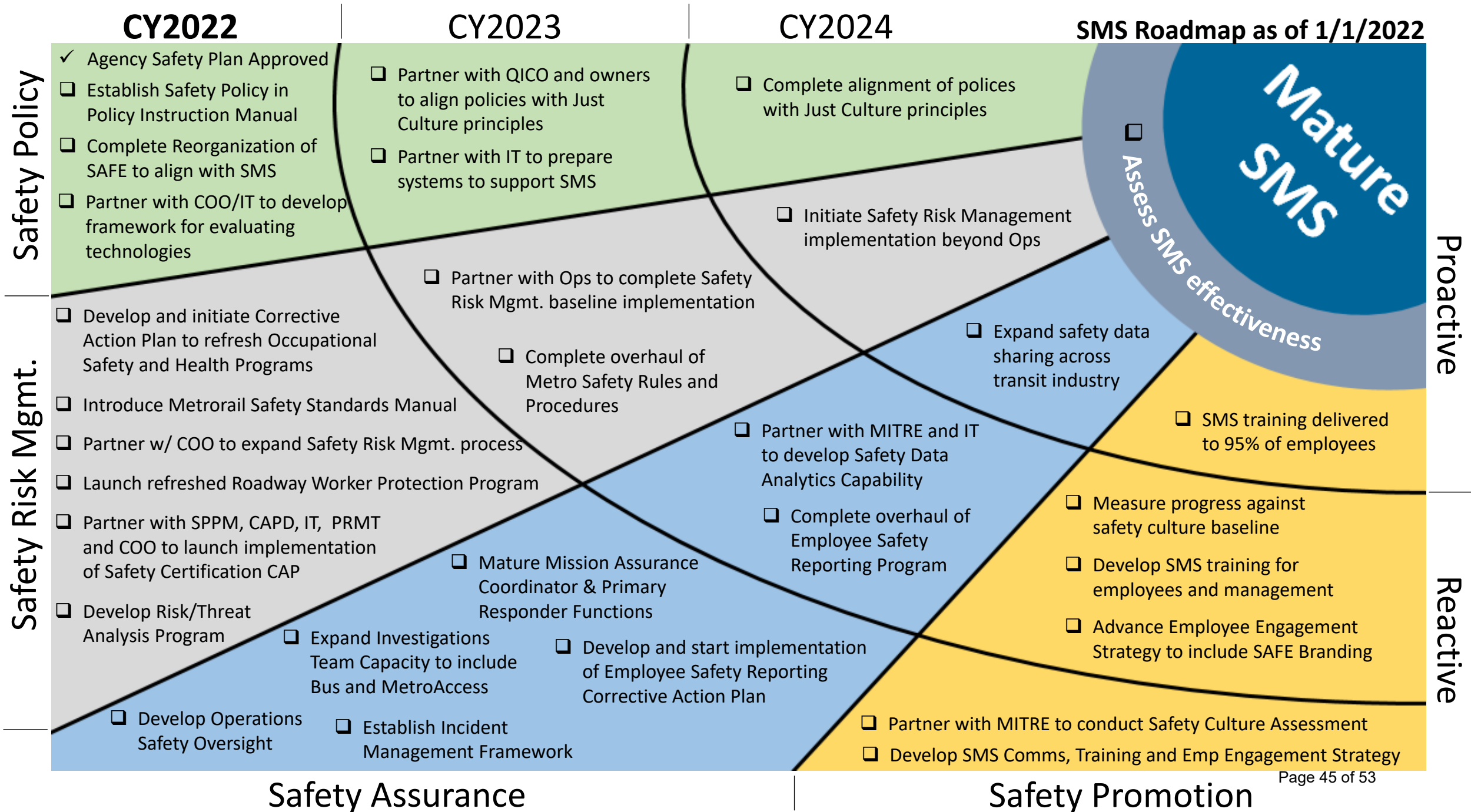
- Develop and implement a world class SMS

■ Roadmap

- Sets the strategic priorities for accomplishing the mission

■ Plan

- Agency Safety Plan describes how those priorities will be achieved



2021 Accomplishments

- ✓ Agency Safety Plan Approved
- ✓ Organizational Study Completed
- ✓ SMS Project Manager Hired

2022 Next Steps

- ❑ Publish and Promote Safety Policy
- ❑ Complete SAFE Dept. Reorganization
- ❑ Develop Framework for Evaluating Technologies with COO and IT



2021 Accomplishments

- ✓ Safety Risk Management Pilot Completed
- ✓ Operating Practices Team Established
- ✓ Partnership with MITRE

2022 Next Steps

- ❑ Expand Safety Risk Management Rollout
- ❑ Launch refresh of Roadway Worker Protection Program
- ❑ Develop Intentional Risk/Threat Analysis Program

ROCC Safety Management System - Our Process

Step 1: Identify Risks

ROCC Personnel submit potential risks to the ROCC or WMATA system via the electronic ROCC Risk Submission Form.

Step 2: Assess Risk

ROCC SMS Program Manager reviews submissions, gathers necessary data, and facilitates risk assessment with necessary subject matter experts and the ROCC Local Safety Committee.

Step 3: Current Risk Profile

Once assessed, the risk is included in the current risk profile of the ROCC (visible on the ROCC SMS Dashboard) to prioritize the risk.

	Severity	Frequency	Impact	Priority
Problem A	10	20	50	40
Problem B	15	25	55	45
Problem C	12	22	52	42
Problem D	18	28	58	48

	1	2	3	4
1	1	2	3	4
2	2	3	4	5
3	3	4	5	6
4	4	5	6	7

Step 4: Mitigate Risks

ROCC SMS Program Manager, necessary subject matter experts, and the ROCC Local Safety Committee develop integrated mitigation plans. Mitigation plans are implemented and reviewed for completeness by the ROCC SMS Program Manager.

Elimination

Substitution

Engineering Controls

Administrative Controls

↑
Most Effective
↓
Least Effective

- Physically remove the risk
- Avoid the risk
- Improve conditions to reduce risk
- Improve how people work to reduce risk
- Protect against exposure

Step 5: Future Risk Profile

As mitigations are completed, the Local Safety Committee reviews risk ratings, raising or lowering, as appropriate. Additional mitigations are developed, if needed

	1	2	3	4
1	1	2	3	4
2	2	3	4	5
3	3	4	5	6
4	4	5	6	7

	1	2	3	4
1	1	2	3	4
2	2	3	4	5
3	3	4	5	6
4	4	5	6	7

Safety Assurance Results

	1	2	3	4
1	1	2	3	4
2	2	3	4	5
3	3	4	5	6
4	4	5	6	7

	1	2	3	4
1	1	2	3	4
2	2	3	4	5
3	3	4	5	6
4	4	5	6	7

Current State Profile

Future State Profile

Risk Mitigations

Step 6: Verification of Effectiveness

Mitigations are evaluated for effectiveness via internal ROCC assessments, data analysis, and other means. Additional mitigations are developed, if needed.

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Roadway Worker Protection Strategy

Immediate Actions (Now)

- Increased Safety Oversight
- Safety Alert Published
- RWP Stand-Down Conducted
- Increased Supervision of Foul Time

Short-Term Actions (<90 Days)

- Improve and separate Foul Time and Exclusive Track Occupancy procedures
- Refresh Job Safety Briefing Template
- Formalize Joint Occupancy Documentation
- Release RWP Training Request for Information

Roadway Worker Protection Strategy

Mid-Term Actions (90 Days-12 mos.)

- Conduct overall RWP assessment
- Refresh Track Access Guide
- Establish Hot Spot Review Cycle
- Contract for RWP Training Development
- Release Technology Request for Information

Long-Term Actions (>12 mos.)

- Establish Metrorail Timetable
- Release new RWP manual
- Conduct RWP Training
- Incorporate Technology

2021 Accomplishments

- ✓ Augmented Investigations Team
- ✓ Investigation Process Improved
- ✓ Mission Assurance Coordinator Established

2022 Next Steps

- ❑ Establish Office of Emergency Preparedness
- ❑ Expand Investigations Team Capacity
- ❑ Develop Operations Safety Oversight



2021 Accomplishments

- ✓ Applied Just Culture Principles in Rail Ops Control Center
- ✓ Increased Employee Communications
- ✓ Hired Safety Promotions Manager

2022 Next Steps

- ❑ Conduct Safety Culture Assessment
- ❑ Refine Employee Engagement Strategy
- ❑ Expand Internal and External Communications

The image displays two documents. The top document is the 'ROCC Conduct Review Process Workbook', which has a dark blue cover with white text. It includes document details at the top: 'Document Number 700-ROCC-ADM-10-00', 'Approval Date April 2, 2021', and 'Reference Number'. The title 'ROCC Conduct Review Process Workbook' is prominently displayed in large white font, followed by the subtitle 'A Consistent, Transparent and Fair Process for All'. The bottom document is a white graphic with a blue border. It features a circular diagram with icons of diverse people and a robot, with 'SMS' in the center. The text reads: 'Metro Receives Federal Certification for Safety Program', followed by a paragraph: 'Now that the Federal Transit Administration (FTA) has officially certified our new safety plan, we must all get on board. Read more to find out what SMS is and why it is important for everyone.' At the bottom is a purple button with the text 'WHAT DOES IT MEAN?'. The Metro logo is visible in the bottom right corner of the graphic.

Document Number 700-ROCC-ADM-10-00 Approval Date April 2, 2021 Reference Number

ROCC Conduct Review Process Workbook

A Consistent, Transparent and Fair Process for All

Metro Receives Federal Certification for Safety Program

SMS

Now that the Federal Transit Administration (FTA) has officially certified our new safety plan, we must all get on board. Read more to find out what SMS is and why it is important for everyone.

WHAT DOES IT MEAN?

M metro

Next Steps

- Apply Project Management Approach for SMS
 - Each Roadmap Milestone has an owner, action plan
 - SMS Operating Rhythm tracks progress
 - Executive Safety Committee Oversight
 - Progress Reported to Safety and Operations Committee

Questions?

