Safety and Operations Committee

Board Information Item IV-B

July 15, 2021

Safety Management System Update: Safety Risk Management

Washington Metropolitan Area Transit Authority
Board Action/Information Summary

○ Action ◉ Information | MEAD Number: 202281 | 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 certified with the Federal Transit Administration (FTA).

PURPOSE:

To report to the Board progress on 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**.**

   Key Highlights:

- A mature Safety Management System (SMS) is based on four pillars: Safety Policy; Safety Risk Management; Safety Assurance; and Safety Promotion.

- Since the February presentation to the Safety and Operations Committee, activities have been accomplished and next steps developed for each pillar.

- This presentation focuses on Safety Risk Management implementation in the Rail Operations Control Center (ROCC).

   Background and History:

In 2016, the 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 comprehensive,

collaborative approach that brings management and labor together to build on the transit industry's existing safety foundation to continuously improve how safety risks are identified and assessed with mitigating actions 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 Agency Safety Plans (ASPs) that specify how SMS will be implemented over the course of a three-year period. The compliance deadline for ASP submissions was December 31, 2020. Metro's ASP was approved by the Executive Management Team (EMT), Board of Directors, WMSC, and certified with the FTA in compliance with this deadline. The focus has now shifted toward implementing SMS in accordance with the ASP.

Discussion:

Strategy Summary:
Metro has developed a three-year Strategic Roadmap based on the four components of SMS (Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion). The following summarizes the progress made toward accomplishing key milestones targeted for completion in CY2021:

Safety Policy
Accomplishments: Metro's ASP was certified with the FTA in December of 2020 in compliance with 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 remaining milestones reflected on the Strategic Roadmap. Additionally, a third-party consultant was hired to study Metro's safety organization. The results were used to determine the future state of SAFE organization. The ensuing re-organization will ensure the team is positioned to effectively drive implementation.

Next Steps: The ASP is due for its first annual refresh with the official review period for the proposed revision commencing in August. The EMT, Board, and WMSC will be required to review and approve with submission to the FTA occurring on or before December 31, 2021. The Office of Emergency Management (OEM) has transitioned from the Metro Transit Police Department (MTPD) to the SAFE Department. As the re-organization of SAFE advances, OEM will be integrated into the department. The SMS Project Manager will work with the SAFE/COO stakeholders to continue the development of tactical action plans for each of the open milestones reflected on the roadmap. Those plans will feed an integrated master tracker resulting in a focused, disciplined effort that ensures each milestone on the roadmap is achieved within CY2021.

Safety Risk Management
Accomplishments: As part of developing the ASP, Safety Risk Coordinators were designated from each Metro Department. The ROCC SMS Program Manager has partnered with leadership from SAFE to launch the implementation of the Safety Risk Management process. More detail on this activity is provided in the following Safety Risk Management presentation. Additionally, management of the Metrorail Safety Rules and Procedures Handbook (MSRPH) has transitioned from the Office of the Chief Operating Officer (COO) to the Department of Safety and Environmental Management (SAFE). The SAFE Department and COO leadership have established five panels (Traction Power, Emergency Management, Roadway Worker Protection, Rail System Operations, and Facility Management) composed of employees from every level of the company to review and refresh the content of the MSRPH. A series of tabletops exercises are being performed to stress test the most significant changes and then the proposed version of each change will be vetted through the Rail Safety Standards Committee for review and approval, which is scheduled to start in July. SAFE asked the Office of Quality Assurance, Internal Compliance and Oversight (QICO) to perform an audit on the current state of Metro's Voluntary Safety Reporting Program. QICO recently published the final audit report.

Next Steps: The baseline Safety Risk Management process has been implemented within the ROCC, and all of the resulting information on risk priorities and corresponding mitigations have been uploaded to the Hazard Management Module of our internal Safety software, which in turn will feed the development of our first SMS Dashboard. The dashboard will enable all employees to view the risks identified in order of priority, the actions being taken to reduce them, and the latest status on progress. Additionally, SAFE will partner with Supply Chain Management (SCM) as the next COO division to implement the Safety Risk Management Process. As the changes to the MSRPH are approved by the Rail Safety Standard Committee, the naming convention will transition to Metrorail Safety Standards. SAFE will maintain these standards and work with each COO division to ensure the processes and procedures required to meet those standards are in place and effective. SAFE has initiated the process to establish a partnership with MITRE, a federally funded non-profit that specializes in applying data sciences to advance Safety in Transportation. This partnership will prioritize transforming Metro's Voluntary Safety Reporting Program.

Safety Assurance
Accomplishments: SAFE has prioritized reinforcing the Safety Investigations Team. A Director of Safety Investigations has been appointed and new safety investigators have been added through hiring and internal movements. 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

Incident Management Officer function within the ROCC. The Incident Management Officer is focused on assuring that when an incident occurs, the required processes, procedures, and coordination takes place in compliance with standard operating procedures. SAFE also completed the conversion to MetroDocs, centralizing the department's processes and procedures in one library.

Next Steps: The overall quality of investigations will continue to improve as the results of fatigue modelling and root cause analysis are implemented to drive effective corrective and preventive actions. The Incident Management Officer function will be matured by formalizing job requirements, training, and associated processes and procedures. SAFE hired a Director of Safety Data Analytics that is scheduled to start at the end of July. Improving the Safety Data Analytics function will ensure that effectiveness of mitigating actions are measured to drive continuous improvement. SAFE has also inherited the MetroDocs project and will work with the rest of Metro to adopt this technology, centralizing processes and procedures across the enterprise. MetroDocs aligns with SAFE's initiative to establish Metro Safety Standards and drive development of the processes and procedures required to comply with them.

Safety Promotion
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, all ROCC personnel completed instructor-led SMS training, which featured how to submit safety concerns and make a good-faith challenge, both are effective when a cultures exists where employees feel comfortable speaking up. Additionally, SAFE has partnered to leverage employee communications to use platforms such as MetroVoices to promote progress on implementing SMS and related activities. In June, a Safety Promotions Manager was hired to develop and lead our overall strategy for engaging the workforce and public on the safety transformation taking place at Metro.

Next Steps: SAFE will expand beyond the ROCC to continue the application of Just Culture principles. The initial SMS training with the ROCC resulted in lessons learned that will be used to continuously improve content and delivery. The partnership with MITRE to improve the Voluntary Reporting Program will also include focusing on employee engagement in an effort to bring awareness and education on how to use these reporting mechanisms. The Safety Promotions Manager will capitalize on SAFE's partnership with CSCM to increase communications, engaging both the workforce and public on the efforts we are taking to continuously improve Safety at Metro. As the SMS continues to mature, an effective strategy that encompasses Just Culture, employee engagement, training, and communication will be instrumental to ensuring its success.

Focus: Safety Risk Management

SMS is focused on proactively identifying, assessing, and mitigating safety risks before an incident has the opportunity to occur. Metro's Safety Risk Management process is composed of six steps: 1) Brainstorm; 2) Risk Identification; 3) Risk Analysis; 4) Current State Risk Profile; 5) Mitigations; and 6) Future State Risk Profile. The first step (Brainstorming) involves engaging the workforce to understand their experiences with safety incidents in the past, what safety concerns they have in the present, and to find out what they think the next incident is going to be in the future and why. After the initial brainstorming sessions, a risk submission form was developed. The ROCC's Local Safety Committee has been re-structured to become the operating rhythm that sustains SMS going forward. The committee takes the feedback and submissions, identifies the underly risks represented by the concerns shared, uses relevant data to analyze the risks in terms of likelihood and severity, and then determines the actions that need to be taken in order to reduce the risk. The Local Safety Committee pulls in the reporting employee, managers, and subject matter experts as needed to complete the process. As the mitigation actions are taken, the Local Safety Committee oversees progress and re-evaluates the risk level and priority based on the progress made. As we continue to mature this process software technology will be used to manage risks and corresponding mitigations, and a dashboard will enable employees to review risk priorities, mitigations actions, and progress toward completion.

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	February 2021 – Metro Safety Management System Path Forward presentation
Anticipated actions after presentation	December 2021 – Safety Management System Status Against Plan

Metro SMS
Path Forward
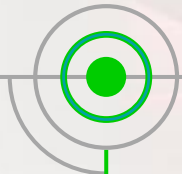
Safety & Operations Committee
July 15, 2021

Background

FTA publishes 49 CFR Part 673 requiring the submission of an Agency Safety Plan by December of 2020

Commence SMS implementation in accordance with the ASP, ROCC prioritized to set the standard

2016

2018

2020

2021

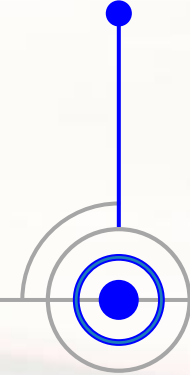**FTA publishes 49 CFR Part 670 "Adopting the principles and methods of Safety Management Systems"**

WMATA's Agency Safety Plan approved by EMT, Board, WMSC, and certified with FTA
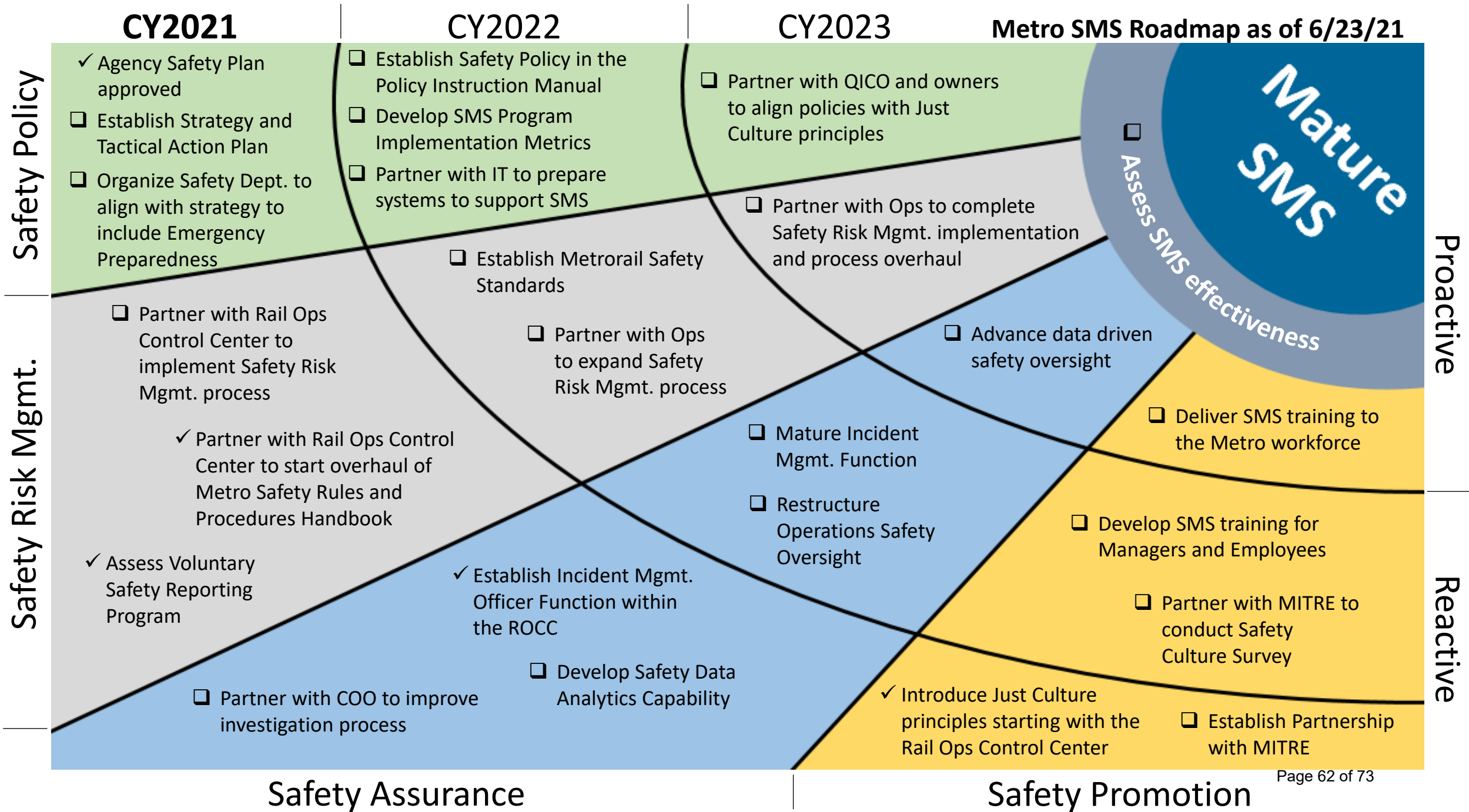
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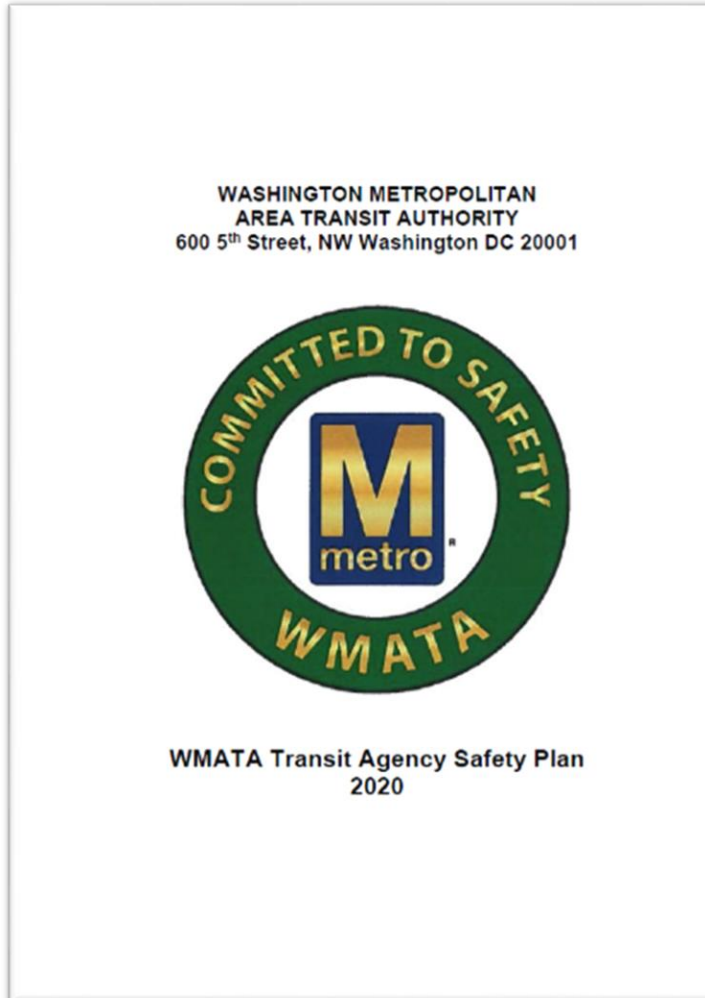Ⓜ metro®

SMS Strategy Summary

- Metro's SMS applies throughout the agency

- Set the Standard with the ROCC – then expand tools and methods throughout Metro

  - Implement proactive Safety Risk Mgmt. processes

  - Overhaul Metro Safety Rules and Procedure Handbooks

  - Update policies to incorporate Just Culture principles

- Risk reduction efforts outside of the ROCC will continue to progress in parallel

- Metro has developed a 3-Year Roadmap for enterprise-wide Implementation of the SMS

Safety Policy

CY2021
- ✓ Agency Safety Plan approved
- ❑ Establish Strategy and Tactical Action Plan
- ❑ Organize Safety Dept. to align with strategy to include Emergency Preparedness

CY2022
- ❑ Establish Safety Policy in the Policy Instruction Manual
- ❑ Develop SMS Program Implementation Metrics
- ❑ Partner with IT to prepare systems to support SMS

CY2023
- ❑ Partner with QICO and owners to align policies with Just Culture principles

Safety Risk Mgmt.

- ❑ Partner with Rail Ops Control Center to implement Safety Risk Mgmt. process
- ✓ Partner with Rail Ops Control Center to start overhaul of Metro Safety Rules and Procedures Handbook
- ✓ Assess Voluntary Safety Reporting Program

- ❑ Establish Metrorail Safety Standards
- ❑ Partner with Ops to expand Safety Risk Mgmt. process

- ❑ Partner with Ops to complete Safety Risk Mgmt. implementation and process overhaul

- ❑ Advance data driven safety oversight

- ❑ Mature Incident Mgmt. Function
- ❑ Restructure Operations Safety Oversight

- ✓ Establish Incident Mgmt. Officer Function within the ROCC
- ❑ Develop Safety Data Analytics Capability

- ❑ Partner with COO to improve investigation process

Safety Assurance

Safety Promotion

- ❑ Deliver SMS training to the Metro workforce
- ❑ Develop SMS training for Managers and Employees
- ❑ Partner with MITRE to conduct Safety Culture Survey
- ✓ Introduce Just Culture principles starting with the Rail Ops Control Center
- ❑ Establish Partnership with MITRE

Mature SMS

Assess SMS effectiveness
- ❑

Proactive

Reactive

Accomplishments

✓ Certified Agency Safety Plan by FTA

✓ Established Strategic Roadmap

✓ Hired SMS Project Manager

✓ Organizational Study and Future State

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COMMITTED TO SAFETY

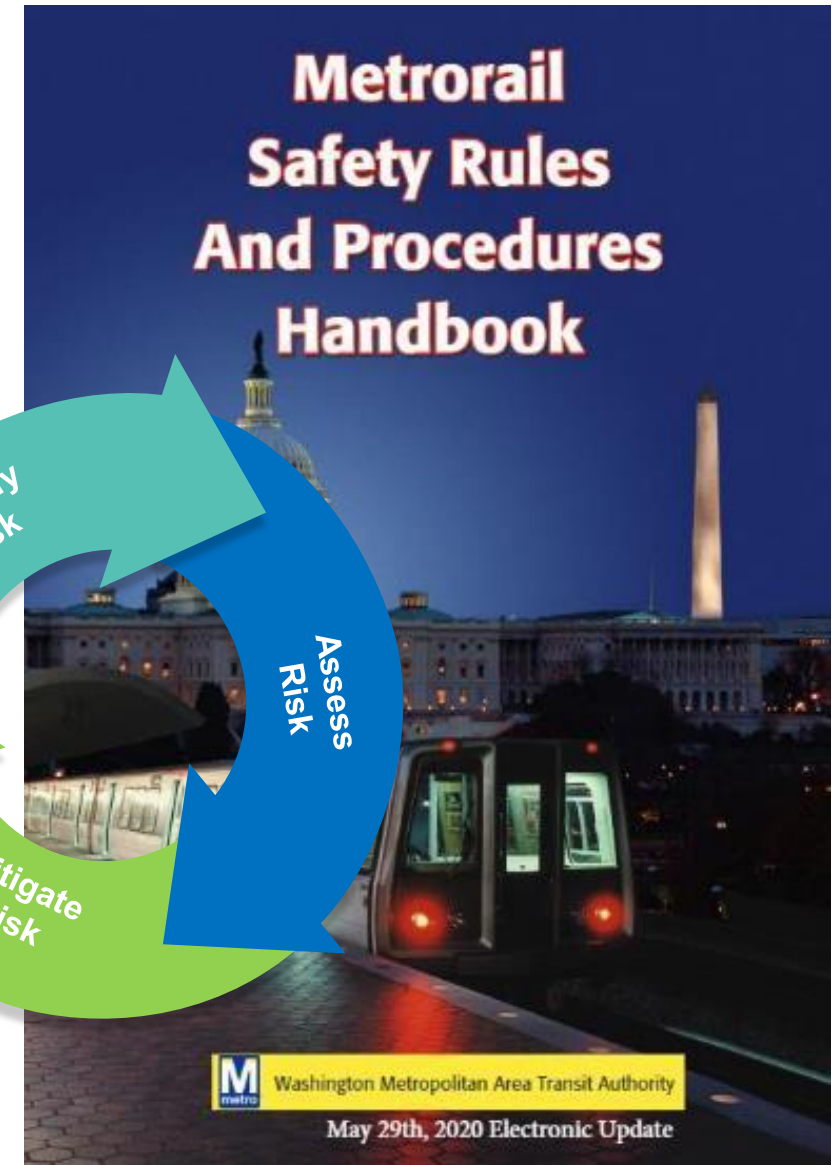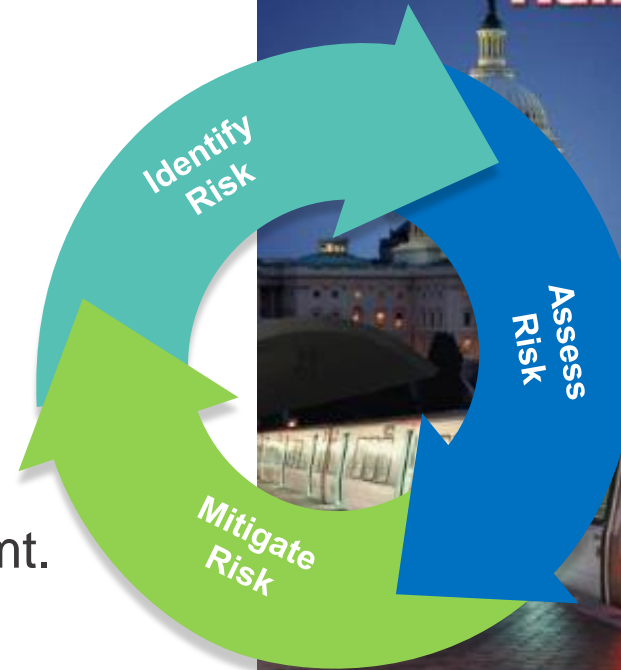**M** metro®

WMATA

WMATA Transit Agency Safety Plan
2020

Next Steps

❑ Agency Safety Plan Annual Refresh

❑ Phased Re-organization to include Emergency Preparedness

❑ Tactical Action Plans

❑ Integrate Master Project Mgmt. Tracker

Accomplishments

- ✓ Hired ROCC SMS Program Manager

- ✓ Launched Safety Risk Mgmt Pilot within the ROCC

- ✓ SAFE obtained ownership of MSRPH

- ✓ Voluntary Safety Reporting Program Audit

Next Steps

- ❑ Mature ROCC Safety Risk Mgmt. Capability

- ❑ Initiate Safety Risk Mgmt. with Supply Chain Mgmt.

- ❑ Establish Metro Safety Standards

- ❑ Establish partnership with MITRE to overhaul Voluntary Safety Reporting Program

Metrorail Safety Rules And Procedures Handbook

Identify Risk — Assess Risk — Mitigate Risk

Washington Metropolitan Area Transit Authority
May 29th, 2020 Electronic Update

Accomplishments

✓ Augmented Safety Investigations Team

✓ Improved Investigation Process

✓ Established Incident Mgmt. Officer

✓ Converted SAFE to MetroDocs

Next Steps

❏ Mature Incident Mgmt. Officer Function

❏ Advance Root Cause Methodology

❏ Develop Safety Data Analytics Capability

❏ Expand MetroDocs across the enterprise

Biomathematical Fatigue Modelling Application
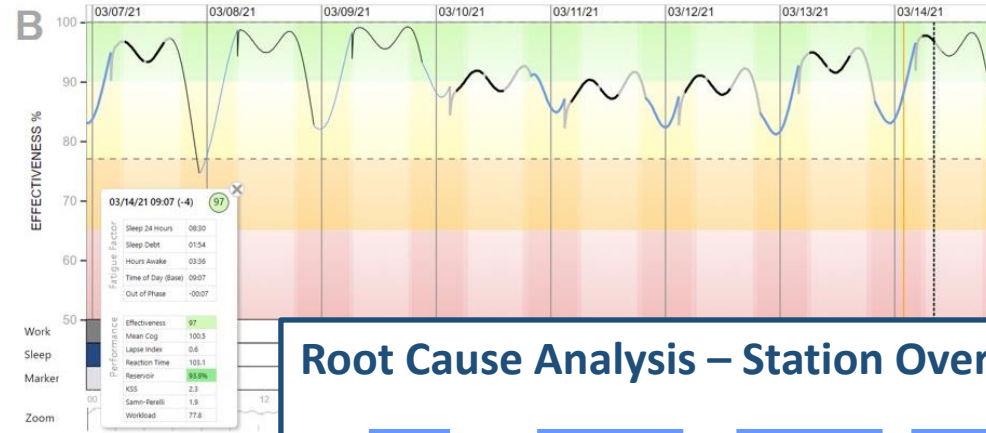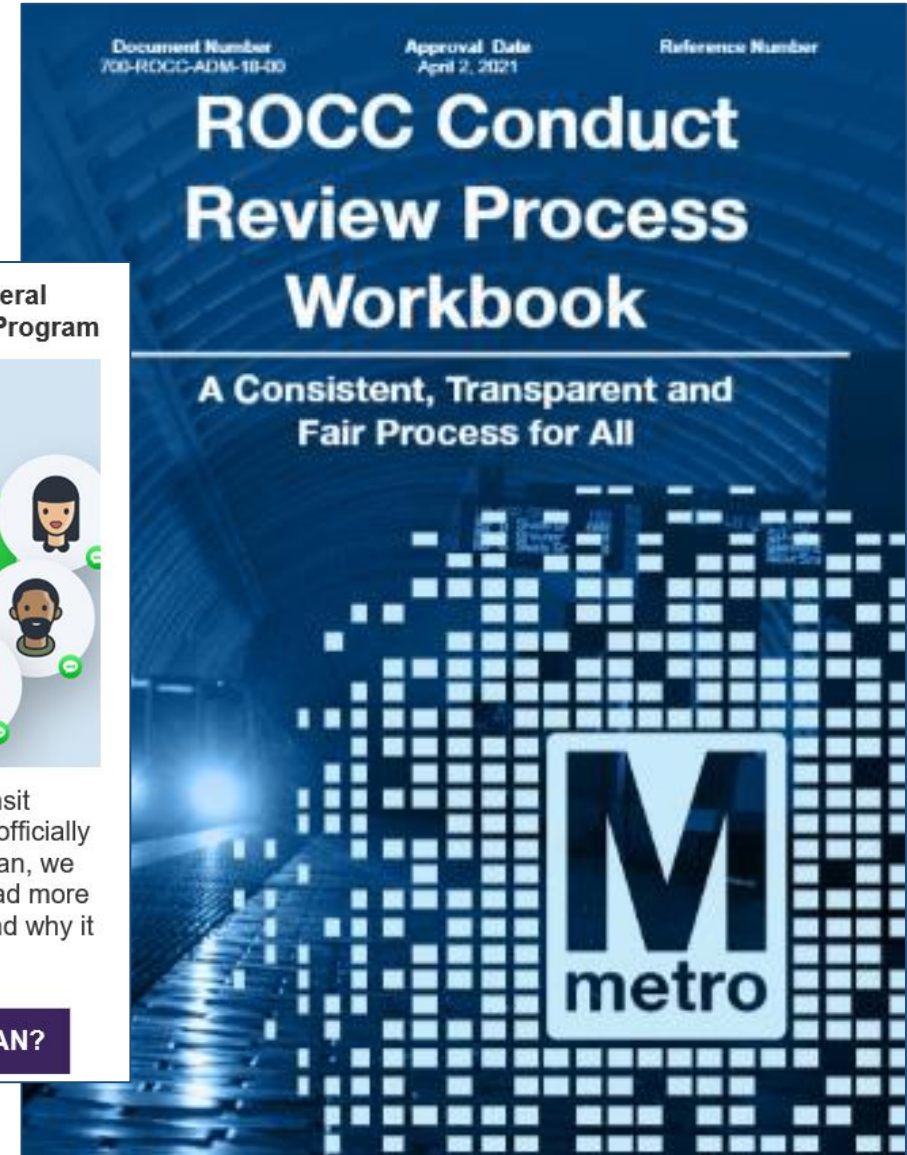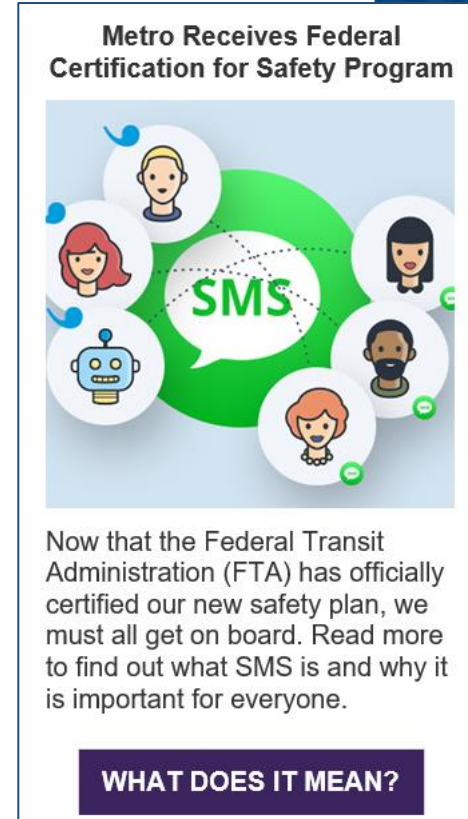
Root Cause Analysis – Station Overruns
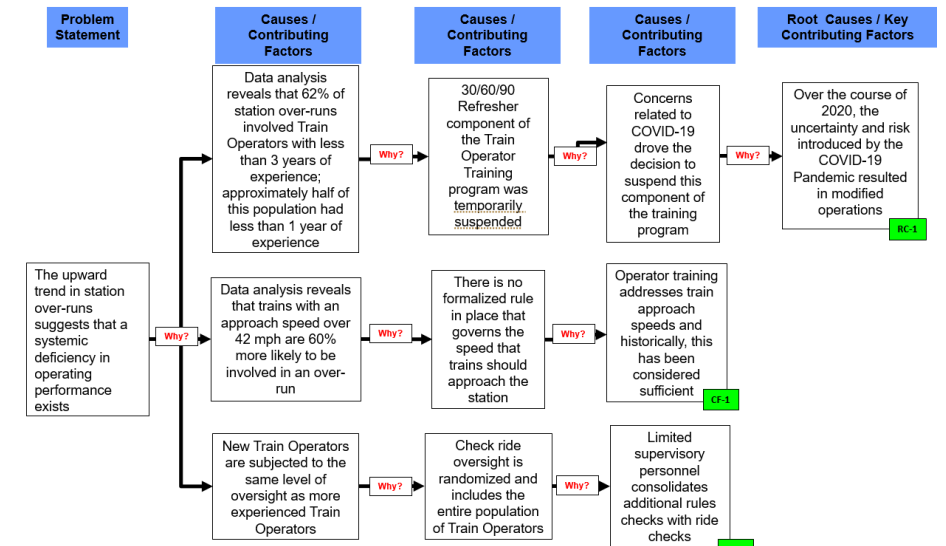
Accomplishments

✓ Applied Just Culture Principles in the ROCC

✓ Trained all ROCC personnel with initial SMS

✓ Increased Employee Communications

✓ Hired Safety Promotions Program Manager

Next Steps

❑ Improve SMS Training

❑ Establish Partnership with MITRE

❑ Voluntary Safety Reporting Promotion

❑ Expand internal and external Comms

Metro Receives Federal Certification for Safety Program

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?

Document Number 700-ROCC-ADM-18-00

Approval Date April 2, 2021

Reference Number

ROCC Conduct Review Process Workbook

A Consistent, Transparent and Fair Process for All

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Safety Risk Management

ROCC First to Launch

① Brainstorm

What's happened in the past?

What's happening now?

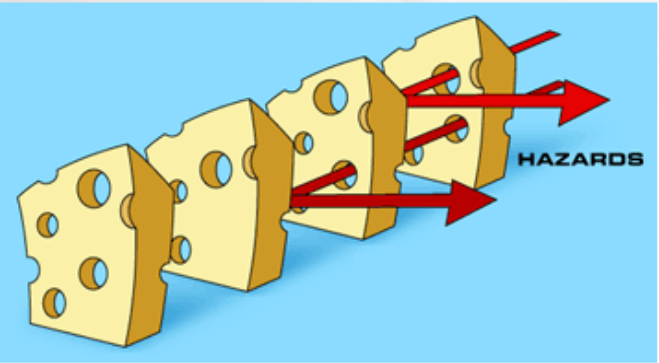*What will happen in the future?*

② Identify Risks

③ Analyze Risks

④ Current Risk Profile

1	2	2	
2		1	
2	2	1	
1	3		

⑤ Mitigations

HAZARDS

⑥ Future Risk Profile

	1	6	
1	2	7	

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- Form went live June 1
- All ROCC staff trained on Safety Risk Management
- Averaging about four submissions / week

The NEW Local Safety Committee

Meets monthly, or more frequently if needed

Structured approach

- Review newly identified risks and completed risk assessments
- Review effectiveness of mitigation efforts
- Revise risk ratings
- Track and report progress
- Escalate issues to Executive Safety Committee, if required

Representation from across the ROCC

- Assistant ROCC Director
- 2 Operations Managers
- 2 Assistant Operations Managers
- 3 Controllers
- ROCC SMS Manager

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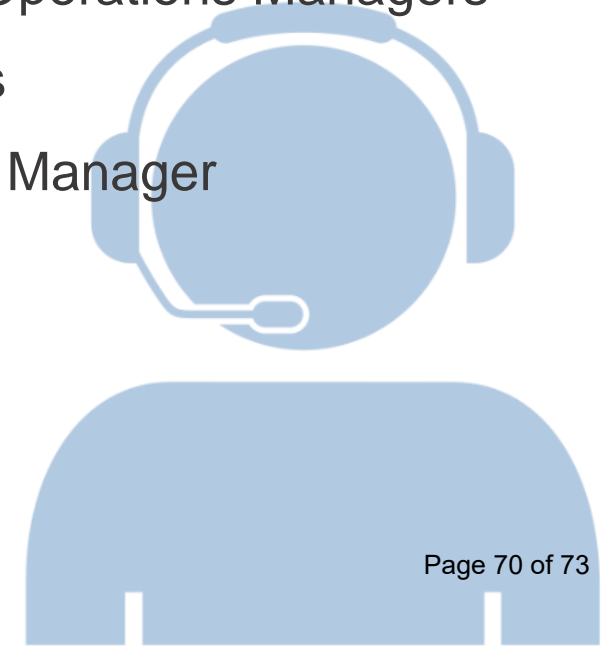
Top six ROCC Risks

1. RTC workload

2. Fire/smoke

3. RWP complexity

4. Fatigue Policy

5. Radio communications

6. Document control

Example Mitigation Plan : RTC Workload

#	Mitigation	Assigned To	ECD	ACD	Status
01-ROCC-RM-01	Third-Party Safety Officials (TPSO) oversee third rail power restoration process	Jayme Johnson	9/30/2020	9/30/2020	Completed
02-ROCC-RM-01	Hire additional controllers (9 Certify in February)	Donna Eisenbeis	2/28/2021	2/28/2021	Completed
03-ROCC-RM-01	TPSO observe certain incidents to ensure processes being followed	Jayme Johnson	3/24/2021	3/24/2021	Completed
04-ROCC-RM-01	Hire additional controllers (2 Certify in April)	Donna Eisenbeis	4/30/2021	4/30/2021	Completed
05-ROCC-RM-01	GOTRS work zone map.	Courtney Munnelly	5/31/2021	5/14/2021	Completed
06-ROCC-RM-01	Hire additional controllers (12 Certify in July)	Donna Eisenbeis	7/31/2021		In Progress: training underway
07-ROCC-RM-01	Ops 4 being created to split Ops 2 into two consoles.	Andy Off	9/01/2021		ECD is tentative, Fall 2021 Target
08-ROCC-RM-01	ROCC Emergency Ventilation Fan SOP will be developed to make communication and roles clear.	Rob Smythe	9/30/2021		SOP has been drafted, undergoing review
09-ROCC-RM-01	WMSC-20-C0037: Power Desk creation, removing RTC responsibilities.	Jayme Johnson	9/30/2021		In Progress: process developed and infrastructure being built out. Responsibilities begin transferring to TRPM in June
10-ROCC-RM-01	Hire additional controllers (7 Certify in November)	Donna Eisenbeis	11/30/2021		In Progress: training underway
11-ROCC-RM-01	Temporary work zone cap in place. Re-evaluated in November after ongoing workload reduction initiatives in the ROCC. (15 work zones per Ops, 20-21 planned based on the 30% cancellation rate)	Andy Off	11/30/2021		In Progress: no decision on if work zone cap will be permanent
12-ROCC-RM-01	Ventilation fan responsibilities transfer from RTC to MOC PLNT personnel.	Andre Ballard / Rob Smythe	12/31/2021		In Progress: planning underway, target September roll out, completion end of 2021
13-ROCC-RM-01	Hire additional controllers (5 Certify in February)	Donna Eisenbeis	2/28/2022		In Progress: training underway
14-ROCC-RM-01	Once ROCC fully staffed: adjustment to controller shifts (e.g., 8-hour shift - 6 hour on console, 1 hour training, 1 hour break)	Donna Eisenbeis	2/28/2022		11 new controllers certified. 24 additional Controllers in Training (expected certification date: 12 in July; 7 in November; 5 in February 2022)
15-ROCC-RM-01	WMSC-20-C0058: Cognitive Task Analysis, on-going workload metrics. October 2022	Ryan Ingalls / Francine James	10/26/2022		In Progress: workload analysis complete, on-going workload metrics

What's Next?

- Load data into Hazard Management Software Module

- Establish ROCC SMS Dashboard

- Formalize the Safety Risk Management Process

- Mature ROCC Safety Committee Functionality

- Improve Risk Submission Visibility

- Develop Metrics to Measure Effectiveness

- Expand implementation

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