



Safety and Operations Committee

Board Information Item III-A

**SMS Update, Safety Reporting and
Quality Management System
Implementation**

Washington Metropolitan Area Transit Authority

Board Action/Information Summary

☐ Action ☒ Information

Document
Number:
205686

Resolution:
☐ Yes ☒ No

Presentation Name:

Safety Management System and Quality Management System Update

Project Manager:

Theresa Impastato

Project Department:

Safety and Readiness

Purpose/Key Highlights:

To update the Board on the strategy and progress associated with implementing the Voluntary Safety Reporting Program and the implementation of the Safety Risk Management and Quality Management System Processes.

Interested Parties:

MITRE is a federally funded non-profit specializing in applying data sciences to advance safety in the transportation industry. MITRE has been commissioned to assist Metro with the development and implementation of its Voluntary Safety Reporting Program and the Safety Culture Assessment. **Origami** is providing support with consolidating safety data.

WSP, a leading engineering and professional service firm, is providing technical support to enhance the document management system (MetroDocs), where all Quality Management System documents are stored.

Background:

Safety Management Systems (SMS)

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." (49 C.F.R. § 670.3). 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.

Two years later, the FTA published 49 CFR Part 673 Public Transportation Agency Safety Plan (ASP), which requires transit operators that receive federal funds (under the FTA's Urbanized Area Formula Grants) to develop ASPs that specify how SMS will be implemented over the course of a three-year period. Metro's fourth ASP was approved by the Board on September 14, 2023, which included its Strategic Roadmap. The SMS Strategic Roadmap is organized around the four components of SMS: Safety Policy, Safety Risk Management (SRM), Safety Assurance, and Safety Promotion.

In 2023, Metro achieved noteworthy advancements in deploying its SMS. This overview will provide an update on two pivotal parts of the SMS implementation: Voluntary Safety Reporting and the Safety Risk Management process. These areas are integral components of the broader Safety Management System (SMS) framework, significantly enhancing safety protocols within the organization.

Quality Management System Plan (QMSP)

In 2015, following the L'Enfant electrical arcing and smoke incident, the NTSB recommended (R-16-31) WMATA review and revise its quality assurance program to include audits to identify procedural non-compliance. In response to this recommendation, WMATA committed to implementing an enterprise Quality Management System to include an on-going Internal Review Program to identify procedural non-compliance. In 2021, based on the progress made toward implementation, the NTSB issued a close-acceptable response to WMATA's closure request.

Discussion:

Voluntary Safety Reporting Program (VSRP)

In 2022, Metro collaborated with MITRE to undertake its first Safety Cultural Assessment, establishing a baseline for our then existing safety culture. Subsequently, MITRE and Metro identified two domains warranting enhancement within the Voluntary Safety Reporting Program (VSRP): fear of retaliation reporting and increasing the effectiveness.

Combined with the Metro-specific results from this assessment and MITRE's extensive voluntary safety reporting experience in the aviation industry, much of 2023 was focused on enhancing Metro's existing VSRP. Incremental enhancements included the de-identification of submissions to ensure the protection of identity, timely communication back to employees, rapid identification of risks and emerging risks by data analysis, regular feedback to all employees, timely resolution of reported issues, and continuous monitoring of the program.

In CY2023, Metro's VSRP received over 400 submissions, demonstrating its well-

established functionality. By implementing enhancements this year, the outcomes included increased participation and decreased response times for each submitted hotline concern. Voluntary safety reporting serves as a crucial foundation for all other elements within the SMS. With the invaluable data contributed by Metro's frontline employees, visibility into the organization would be significantly improved.

In CY2024, the VSRP is planned to be integrated into the safety risk management process, drawing elements from MITRE's concept of operations with the goal of establishing an industry-leading program. This integration will incorporate a unified data taxonomy to connect common incident types and causal factors across voluntary submissions and realized risk. The integration will also facilitate the trending and analysis of submitted reports for more comprehensive risk identification and management, ultimately advancing Metro's objective of implementing a safety management system.

Safety Management System Implementation Update

Data feeds are integral to the safety risk management process. A crucial component of these data feeds stems from the VSRP, wherein frontline personnel identify potential risks. These risks are subsequently mitigated through risk mitigation plans. Individual deficiencies are discerned and addressed via safety personnel processes.

System breakdowns are incorporated into the safety risk management (SRM) process for a more structured and strategic approach when they lack appropriate safety controls. Operational departments are responsible for implementing the risk mitigation plans and evaluating their efficacy. As an aspect of the safety assurance function, continuous measurement, monitoring, and assessment of these programs occur. The safety assurance function identifies novel or re-emerging risks and persistent risks for which existing mitigation strategies may be insufficient.

Metro has made significant progress in 2023 in expanding SRM into the operations and infrastructure departments. Processes were established to identify, assess, and mitigate safety risks. The departments on target to complete the critical steps in Safety Risk Management implementation include Bus Services, Access Services, Track and Structures, Communications and Signaling, Power, Facilities Maintenance, and Elevators and Escalators.

Metro's network of safety committees was also revamped and launched. Safety Risk Coordinators were identified as part of the Operations and Infrastructure departments, which the Safety Risk Management Team will train. Numerous tools, templates, and procedures were also developed to progress the SRM function at Metro.

The Safety Management System awareness computer-based training was developed and launched in December 2023. The SMS Training emphasizes hazard reporting and the sustainment of the safety risk management process. The overall risk management function is also being built out, which includes facilitating larger safety risk assessments on certain safety concerns, or when changes are made that impact safety.

Finally, with the approval of the fourth ASP version, the SMS Strategic Roadmap was refined and expanded to record Metro's ambition for 2024. The SMS highlights the top priorities established to accomplish this mission. The ASP describes how those priorities will be achieved.

Quality Management System Plan (QMSP) Update

In 2017, the QMSP was approved and released along with a multi-year plan for implementation. WMATA's QMS core elements establish criteria to help assure WMATA is meeting internal standards, regulatory compliance, and customer needs.

Full implementation of the Quality Management System (QMS) includes documenting all key processes in accordance with the QMSP, developing high-level Quality Management Plans that describes how each Organization approaches quality and compliance, and initiating a Self-Assessment Program to audit procedural compliance and identify opportunities for continuous improvement. The 2023 Strategic Transformation Plan highlights the completion of the QMS implementation as a priority initiative.

The QMSP has recently undergone a revision to align the Quality Policy with the Strategic Transformation Plan and incorporates criteria for risk management in accordance with WMATA's SMS implementation. Further, this revision establishes MetroDocs as WMATA's repository for governing documents such as SOPs, Policies, and Work Instructions.

Over one-thousand Supervisors and Managers are being trained bi-annually on the QMSP through computer-based training to help ensure understanding of their QMS responsibilities.

Hundreds of governing documents are being revised or added to the QMS every year as implementation continues. And self-assessments are underway to monitor compliance with these documents. Full implementation is scheduled to be completed by the end of calendar year 2024.

Funding Impact:

The implementation of SMS and the QMSP through the identified milestones is accounted for in the budget.

Previous Actions:

As documented in the ASP and the QMSP.

Next Steps:

Organizational implementation of SMS and the QMSP is planned as a multi-year process. No change to the timeline is proposed.

Recommendation:

Information Only

Safety Management System and Quality Management System Update

Safety & Operations Committee
January 25, 2024

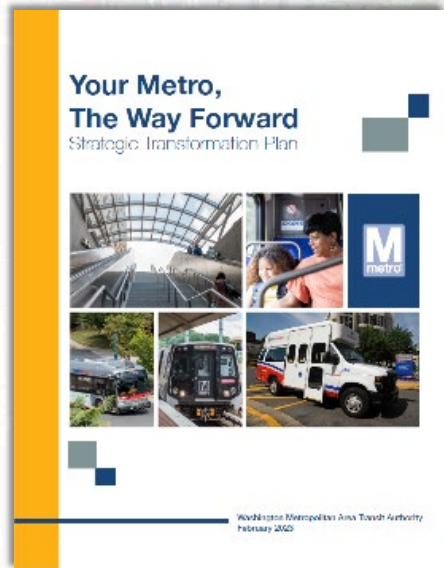


Purpose

- Update the Board with the implementation of:
 - Voluntary Safety Reporting Program
 - Safety Risk Management process
 - Quality Management System Plan



Strategic Transformation Plan: Guides Metro's long-term strategy and day-to-day decision making over the next five+ years



Guiding



Day-to-day decisions

- Customer interactions
- Service schedules
- Communications



Long-term strategy

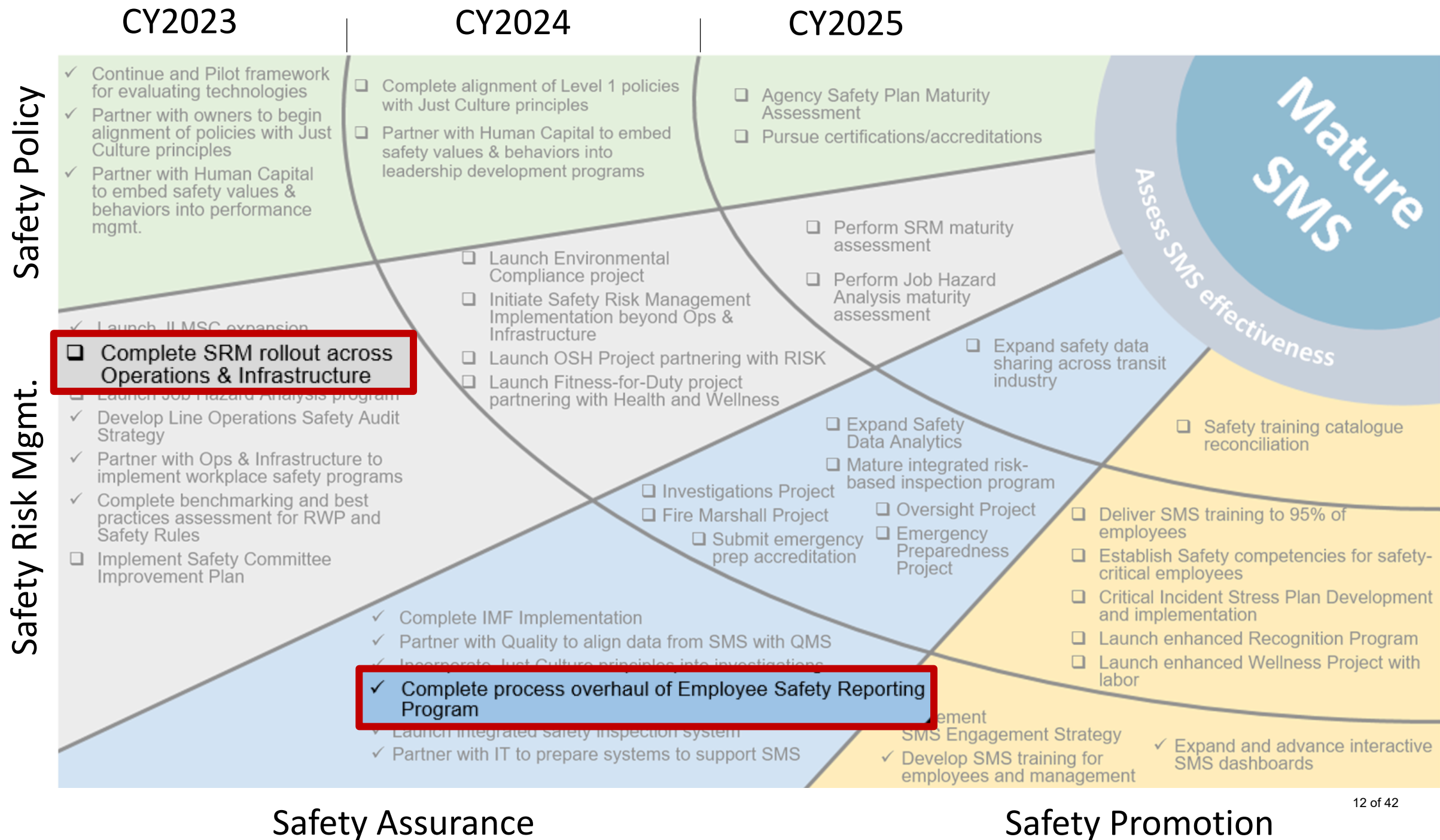
- Budget allocation
- Capital improvements
- Priority projects



Safety Management System has a role in all of the Plan's goals, first and foremost:

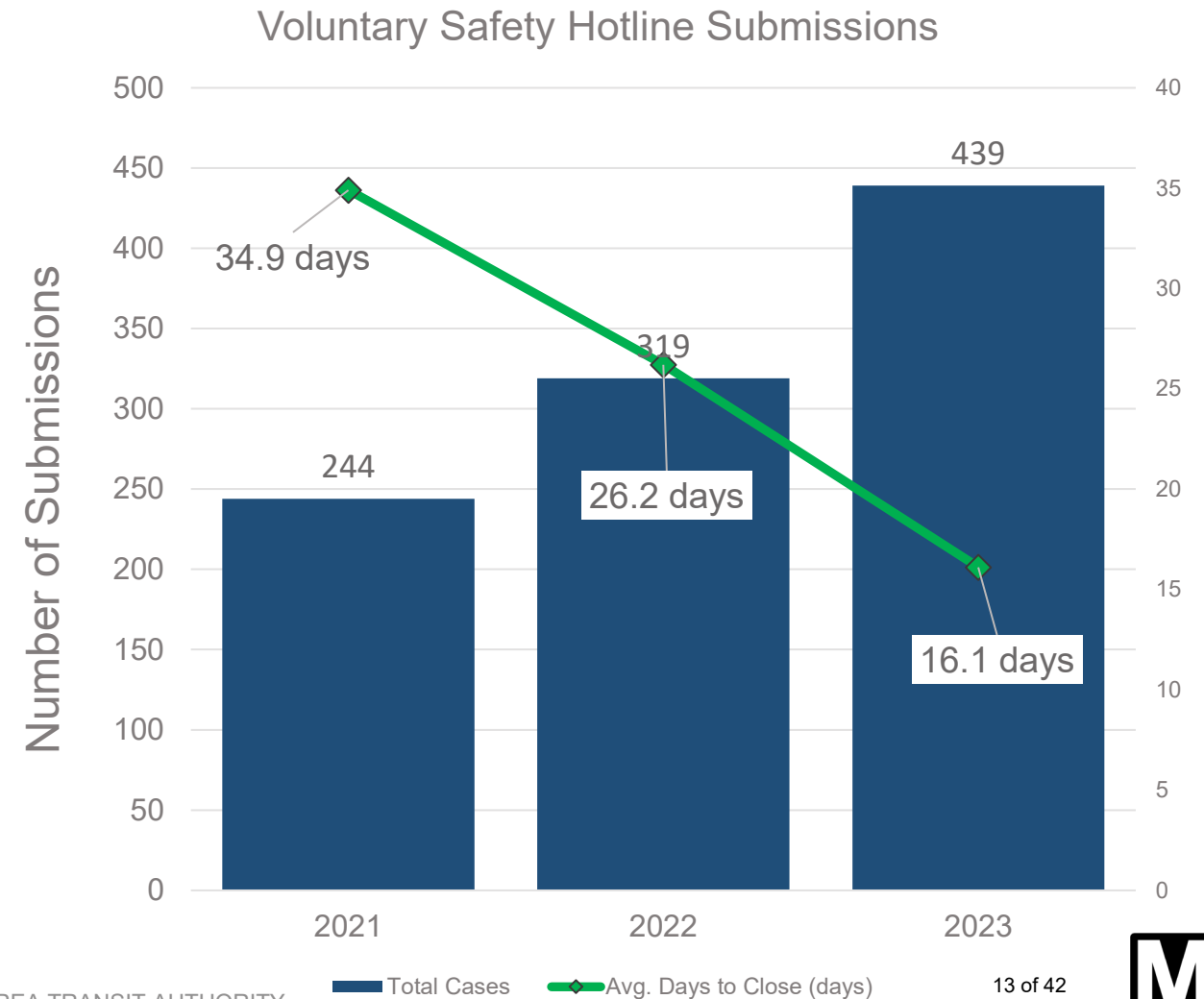
Service Excellence

Deliver safe, reliable, convenient, equitable, accessible, and enjoyable service for customers.

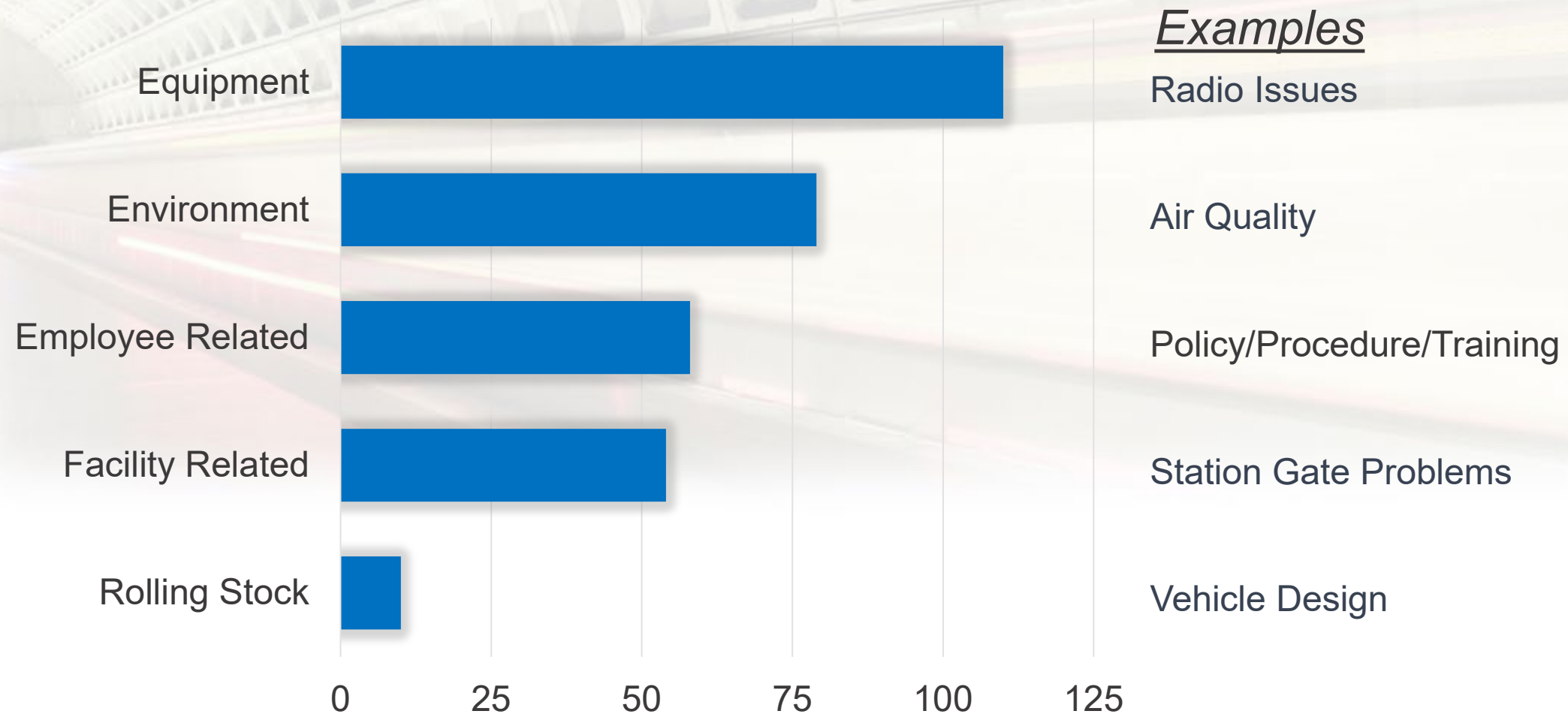


Employee Safety Reporting Participation

- 439 total Safety Hotline employee reports for 2023
- Increase in reports indicate employees engaged in program and comfortable reporting



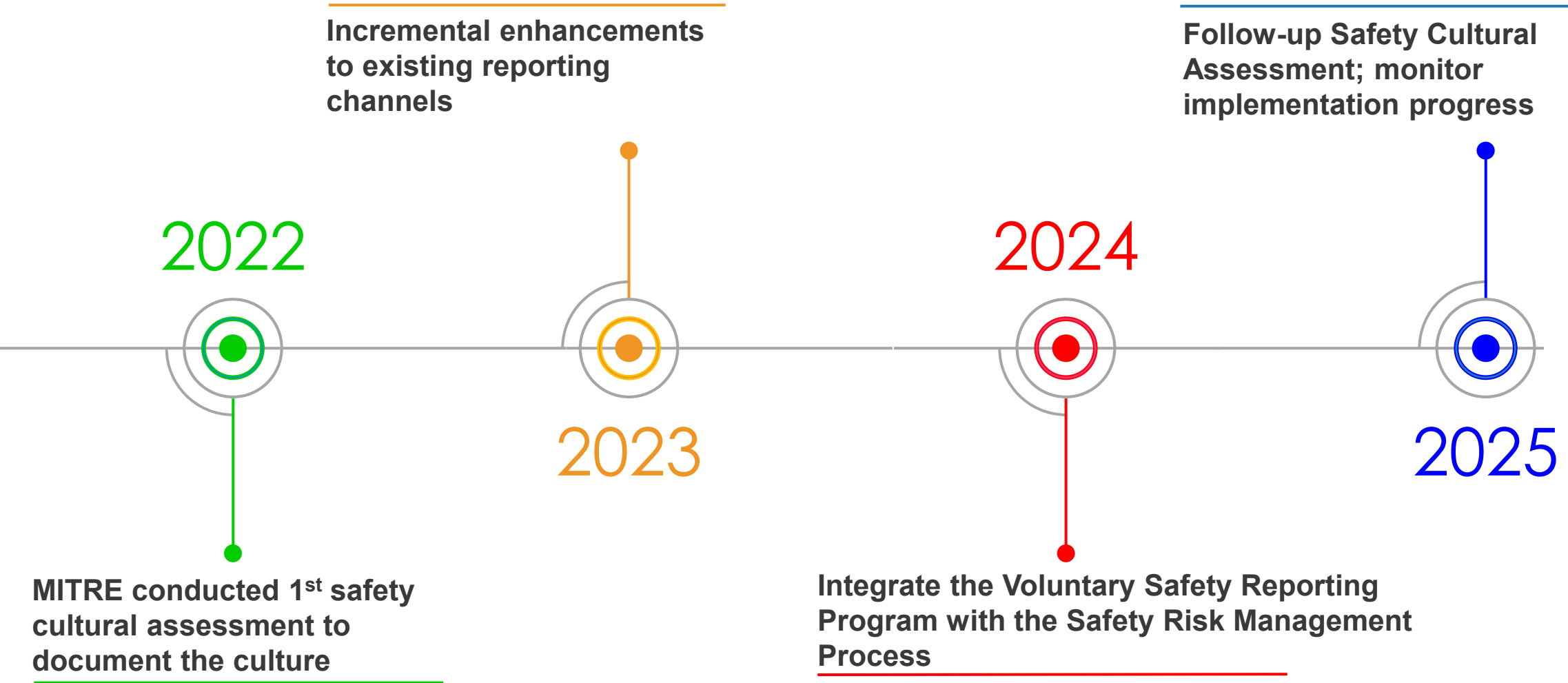
Safety Hotline's Top Safety Issues



Number of Submissions
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

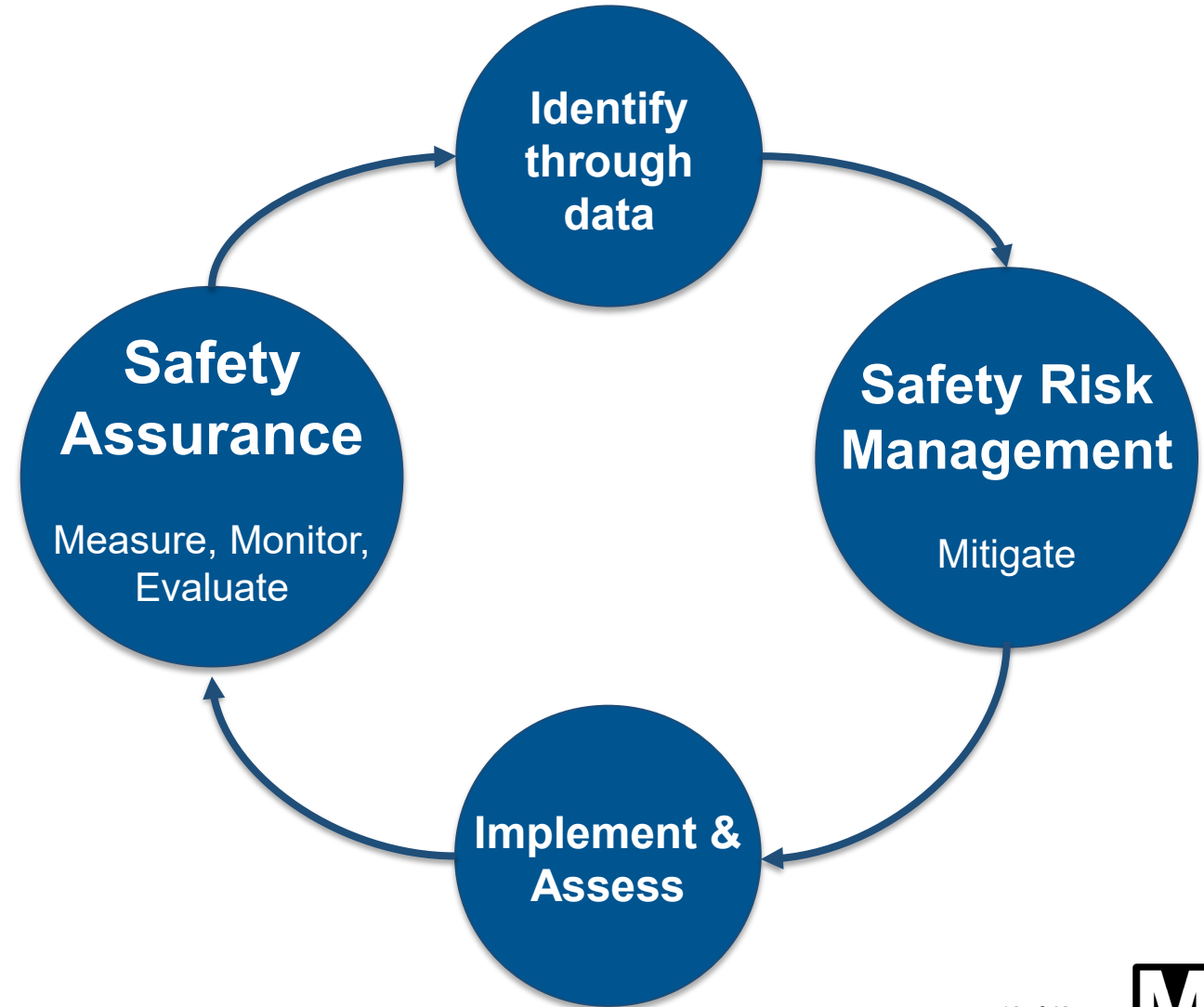


Plan for Continued Improvement



Safety Risk Management Progress

- Voluntary Safety Reporting Program data feeds Safety Risk Management process
- Hazards assessed, prioritized and assigned owners
- Risk mitigated dependent on risk type and probable cause



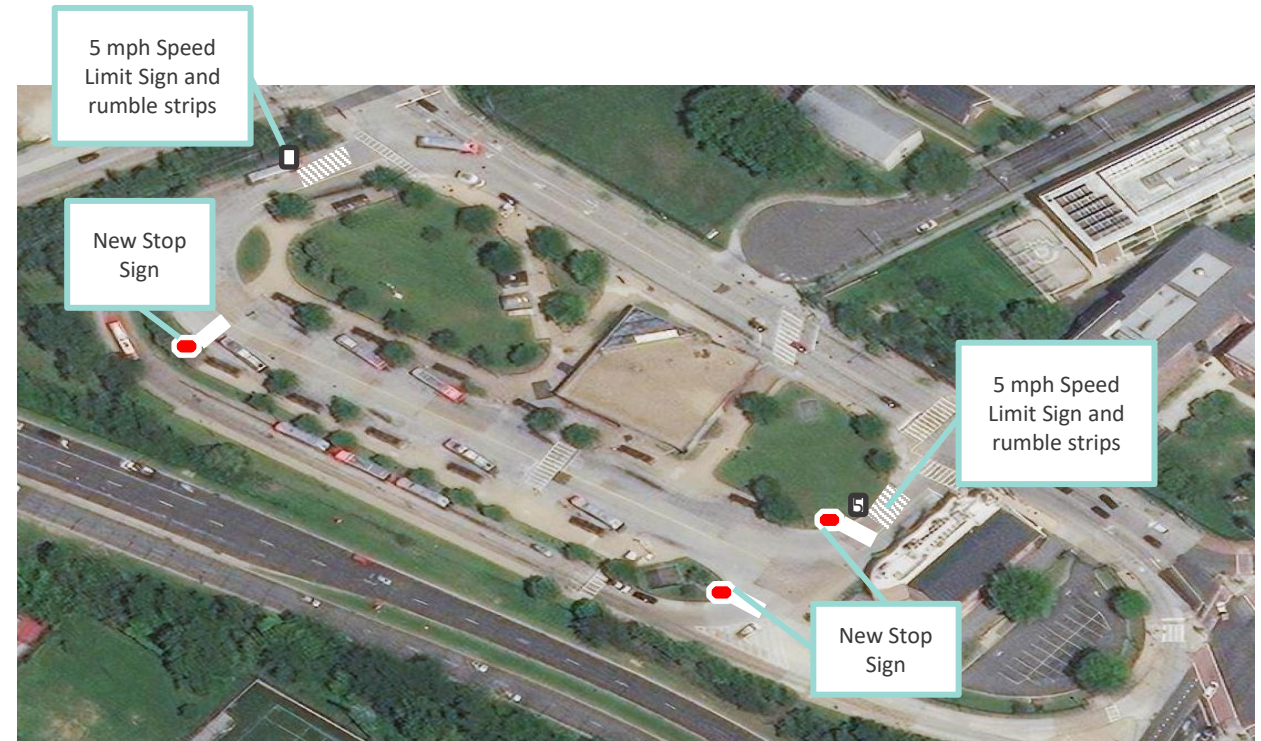
SRM In Action – Anacostia Station Bus Loop

Identified Hazard:

- High volume of pedestrians and bus traffic can cause conflict

Actions taken:

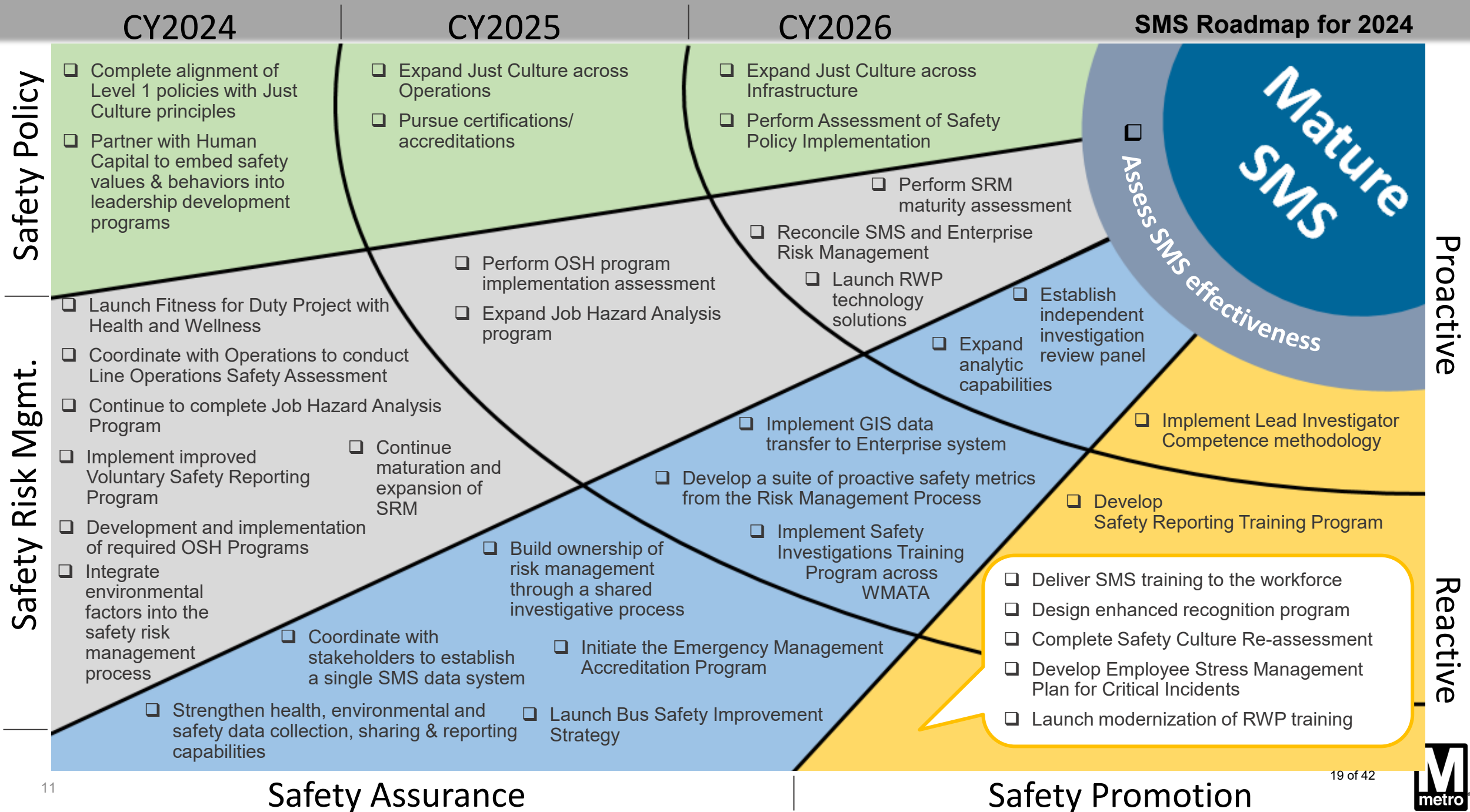
- Added traffic control devices
- Refreshed and added crosswalks
- Added pedestrian wayfinding signs
- Added traffic calming measures



Next Steps in 2024

- Continue to mature and expand Safety Risk Management
- Upskill dedicated Safety Risk Coordinators, training, and tools
- Develop Job Hazard Analysis Program





2024 Highlights

Safety Policy

- Complete alignment of Level 1 policies with Just Culture principles
- Partner with Human Capital to embed safety values & behaviors into leadership development programs

Safety Risk Management

- Launch Fitness for Duty Project with Health and Wellness
- Continue to complete Job Hazard Analysis Program
- Development and implementation of required OSH Programs

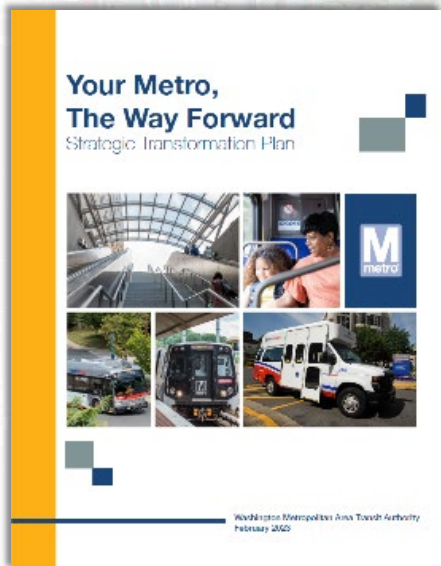
Safety Assurance

- Launch Bus Safety Improvement Strategy
- Build ownership of risk management through a shared investigative process
- Initiate the Emergency Management Accreditation Program

Safety Promotion

- Deliver Safety Management System training to the workforce
- Design enhanced recognition program

Strategic Transformation Plan: Guides Metro's long-term strategy and day-to-day decision making over the next five+ years



Guiding



Day-to-day decisions

- Customer interactions
- Service schedules
- Communications



Long-term strategy

- Budget allocation
- Capital improvements
- Priority projects



Leadership's Commitment

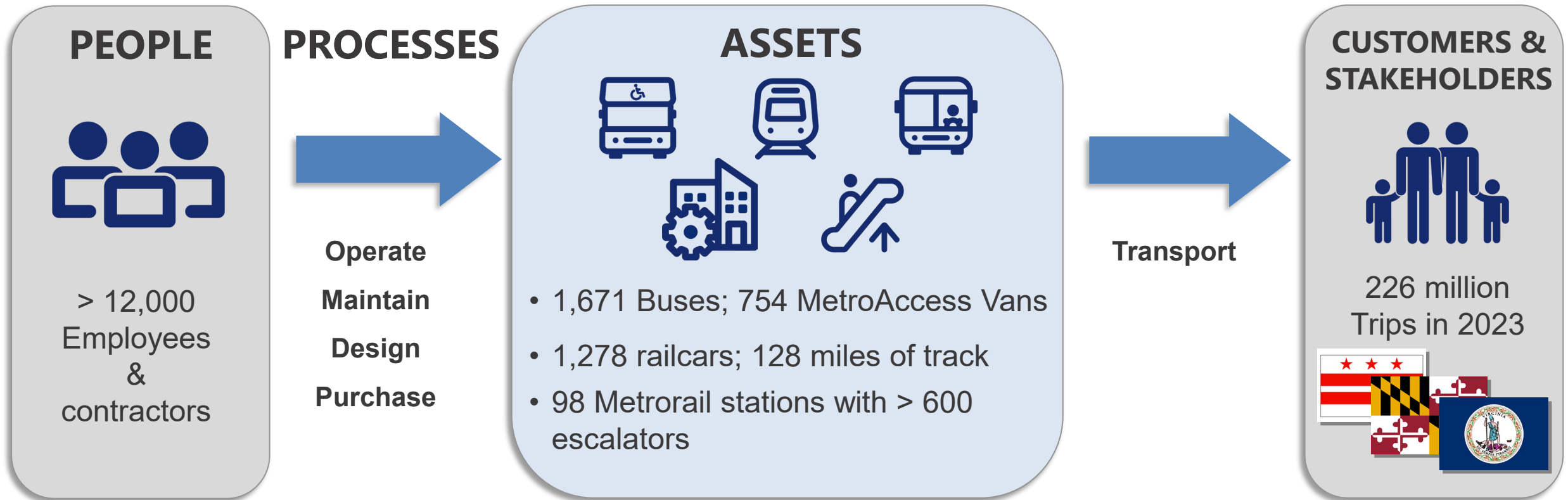
- Complete implementation
- Ensure communication of Policy
- Invest in employee training, coaching, and support resources



Preliminary initiative programs include:

Complete the implementation of a **Quality Management System (QMS)** and continue to monitor outcomes to better coordinate and direct activities.

Why a Metro Quality Management System (QMS)



A QMS is vital to an organization as large, complex, and regionally critical as Metro to assure it is meeting:



Internal Standards

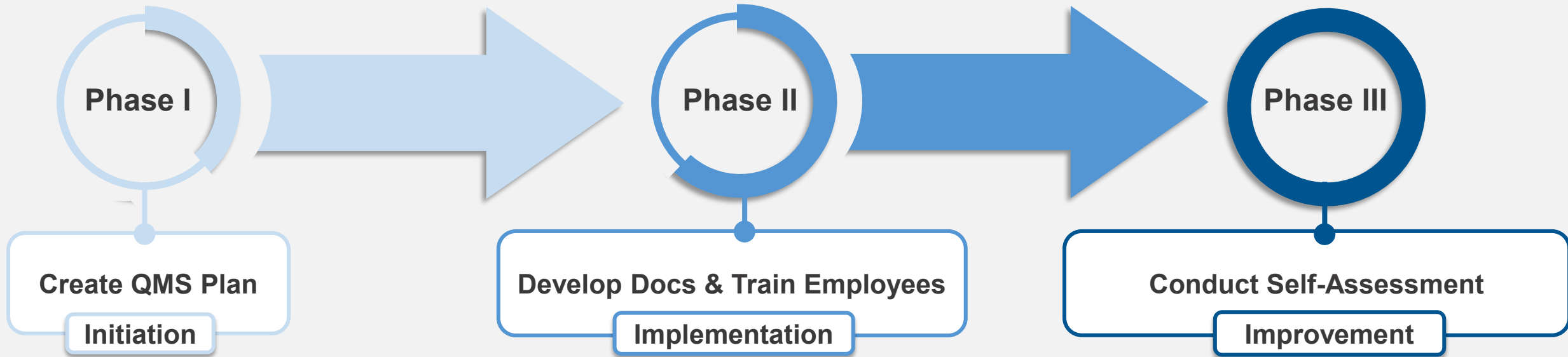


Regulatory Compliance



Customer Needs

Quality Management System (QMS) Implementation



QMS Plan Strategic Goals



Improve Document Management
Establish minimum maintenance and business operations quality standards



Utilize Self-Assessments
Focus on continuous improvement

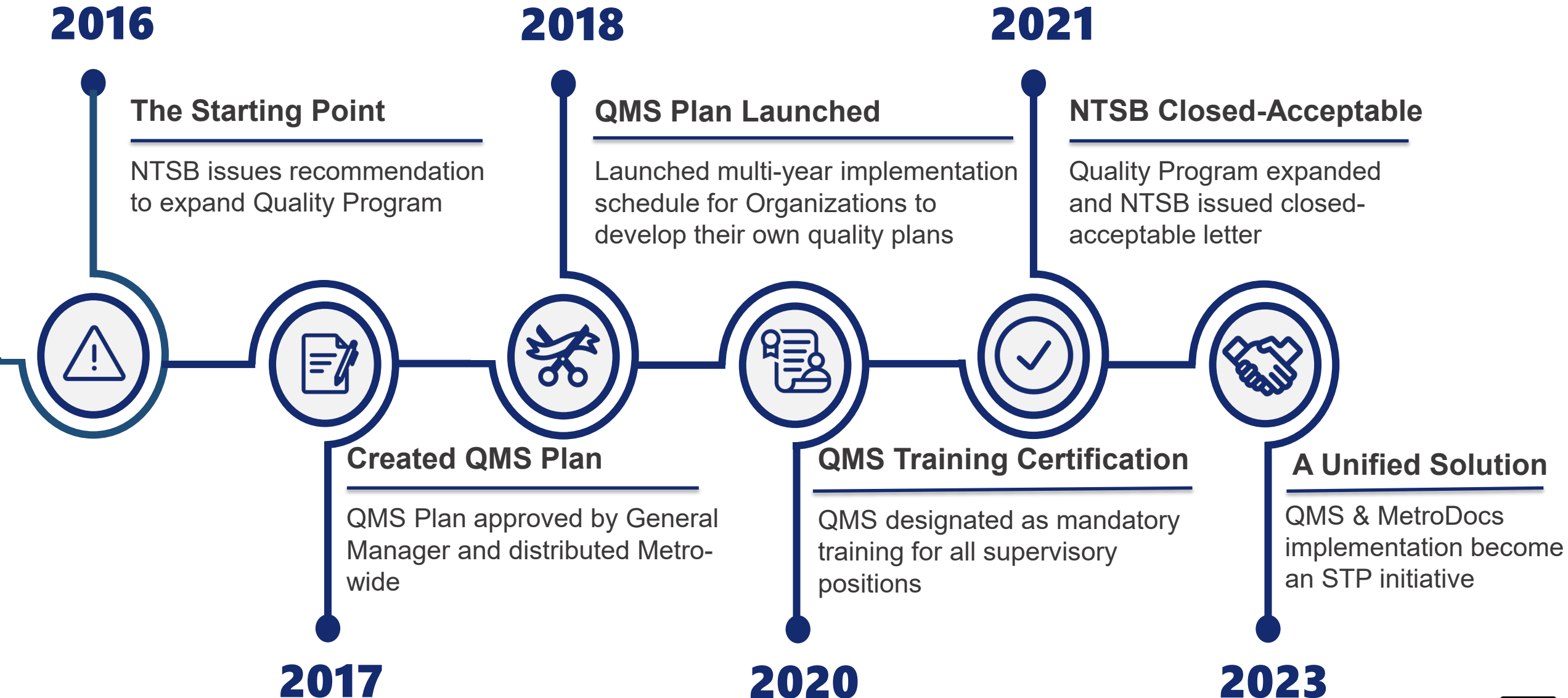


Promote Accountability
Track internal and external corrective actions to completion



Verify Compliance
Review and verify compliance with QMS Plan standards

Quality Management System (QMS) Implementation Timeline





QMS Documents

- **QMS Plan** revised October 2023
- **Quality Policy** aligned w/ STP and approved by GM and Senior Executives
- **Governance Documents** 558 documents across 43 departments were revised and added to QMS



Improvements

- **Self-Assessments** initiated by 12 departments
- **Computer-Based Training** 85% of 1800 management employees completed training



MetroDocs 2.0

- **MetroDocs Features** expanded to include document:
 - Review
 - Approval
 - Acknowledgement
- **Adoption** 70% of departments are using MetroDocs and finding:
 - Easier access
 - Improved efficiency
 - Reduced printing
 - Increased collaboration



QMS Documents

- **Governance Documents**
810 are due for review in 2024
- **Quality Plans** 9 of 10 Metro Organizations are scheduled to complete their Quality Plans by end of 2024



Improvements

- **Self-Assessments** to start in four additional departments
- **Computer-Based Training** is being updated to reflect QMS changes and other improvements



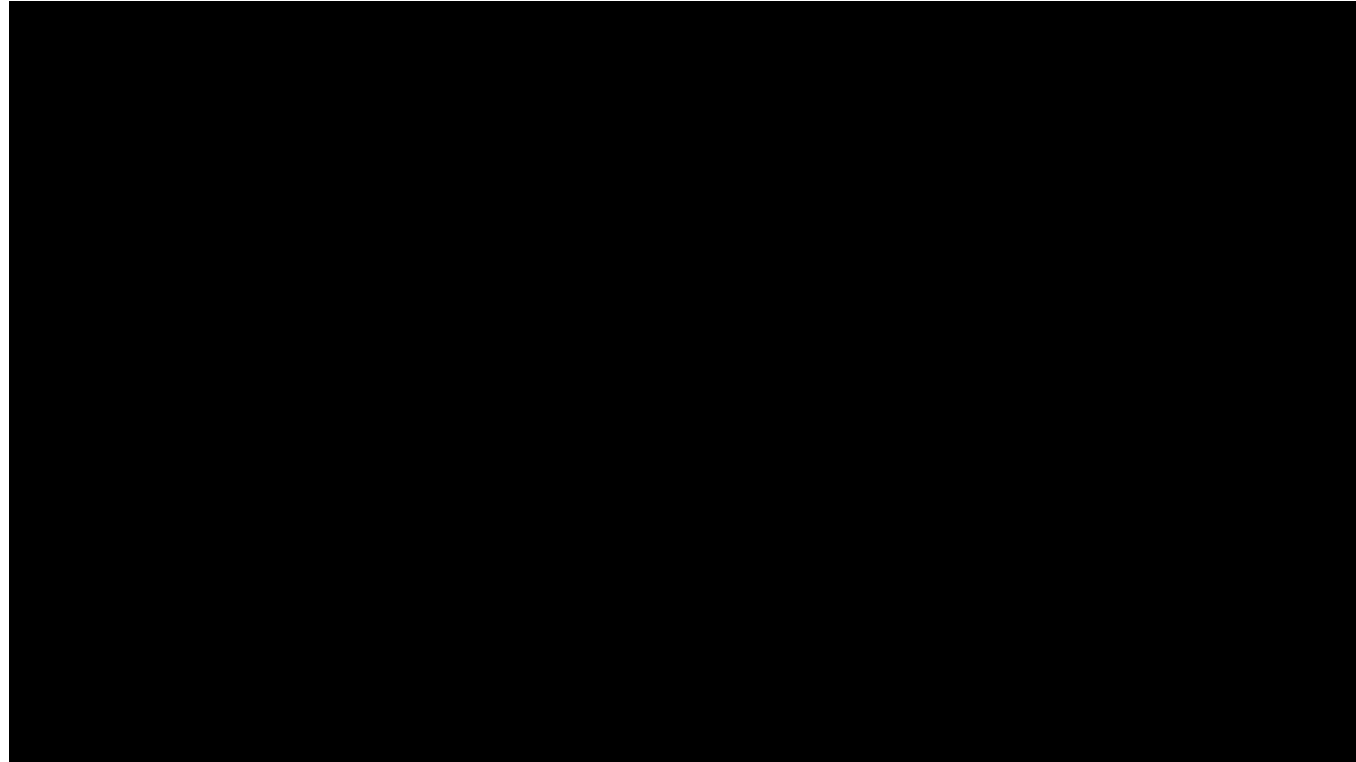
MetroDocs 2.0

- **MetroDocs Feature** enhancements to include:
 - Automated revision due date email notifications
 - Improved search functionality
 - How-to training videos
- **Adoption** expected to reach 95% by end of 2024

Rail Automation Program Updates

Metro has continued to progress the Auto Doors and Automatic Train Operations initiatives

Red Line Auto Doors launched December 5, 2023

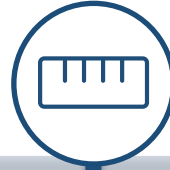


Restoring Red Line Auto Door Operation



Safety Certification

- Received WMSC concurrence for Red Line Auto Doors activation on December 4
- Red Line Auto Doors launched December 5



Training

- Training completed for:
 - Signaling teams
 - Rail Traffic Controllers
 - Vehicle Maintainers
- All active Red Line operators are trained and certified
- Systemwide training began December 2023



System Performance

- No safety failures observed in 275,000+ door operations
- Red Line door reliability is exceeding required performance metric

Continued Safety Oversight of Auto Door Operations

Auto Door systemwide launch is scheduled for spring 2024, pending safety certification

Safety Surveillance

- Review train performance data
- Conduct field inspections
- Review training documentation

Safety Certification

- Conducts weekly WMSC engagement
- Reports observations to Metro leadership and WMSC
- Continued program review for safety certification compliance



Progressing ATO Forward

Safety Certification

- Complete operating rule and procedure updates
- Submitted Concept of Operations and Operational Readiness documents to WMSC
- Conduct WMSC ATO workshop and field demonstration

Training

- Update training modules for following teams:
 - Rail Operators
 - Signaling teams
 - Vehicle teams
 - Rail Traffic Controllers
 - RWP program

System Performance

- Conduct Red Line system performance demonstration winter 2024
- Continue systemwide engineering test runs



Rail Program Schedule

2024 Winter	2024 Spring	2024 Summer
▶	▶	▶
<ul style="list-style-type: none"> Submit operating rule changes for RSSC review and approval 	<ul style="list-style-type: none"> Complete signal control line testing over arial structures Begin systemwide testing using MAS 	<ul style="list-style-type: none"> Activate MAS utilization systemwide
<ul style="list-style-type: none"> Complete Auto Door training for all operations personnel 	<ul style="list-style-type: none"> Operationally ready to commence Auto Doors Systemwide, pending safety certification 	
<ul style="list-style-type: none"> Conduct Rail Automation Workshop #2 with the WMSC for Auto Train Operations 	<ul style="list-style-type: none"> Start Auto Train Operations training for all Red Line operations personnel Submit Green and Silver Line Auto Train Operations test report 	<ul style="list-style-type: none"> Continue Auto Train Operations training for all Red Line operations personnel Submit Blue, Orange and Yellow lines Auto Train Operations test report