Operations Committee Meeting

Open Meeting

Friday, May 21, 2021, immediately following the Audit, Finance & Administration Committee Meeting

Virtual Meeting

211 North Broadway, 6th Floor

St. Louis, MO, 63102

Operations Committee Meeting - May 21, 2021 - Open Meeting

Notice of Meeting and Agenda

1. Call to Order	Approval	Chair Windmiller
2. Roll Call		M. Bennett
3. Public Comment	Information	Chair Windmiller
4. Approval of Minutes of the April 8, 2021 Operations Committee, Open Meeting	Approval	Chair Windmiller
A. Draft Minutes 04-08-2021 Operations Committee, Open Meeting - Page 3	Approval	Chair Windmiller
5. Metro Transit's Agency Safety Plan	Approval	T. Roach / A. Ghiassi
A. Briefing Paper - Page 9		
B. Metro Transit's Agency Safety Plan for 2021 - Page 11		
C. Illinois Department of Transportation Bi-State Safety Oversight Program Letter - Page 185		
D. PTASP Signature Page - Page 187		
6. Operations Report	Information	J. Mefford-Miller
A. Operations Report - May 21, 2021 - Page 189		
7. Pilot Fare Programs to Promote Access, Equity, and Ridership	Information	J. Mefford-Miller / J. Gershman
A. Briefing Paper - Page 196		
8. Contract Award – Light Rail Vehicle Professional Engineering Consulting Services	Approval	J. Mefford-Miller / D. Curry
A. Briefing Paper - Page 200		
9. Contract Award – Electronic Fare Collection System	Approval	J. Mefford-Miller
A. Briefing Paper - Page 203		
10. Title VI Procedures and Analyses Updates	Approval	J. Mefford-Miller / J. Gershman
A. Briefing Paper - Page 206		
11. Marketing & Strategic Planning Services	Approval	T. Zimmerman
A. Briefing Paper - Page 208		
12. President/CEO Report	Information	T. Roach
13. Unscheduled Business	Information	Chair Windmiller
14. Call for the Dates of Future Board & Committee Meetings	Information	M. Bennett
15. Adjournment	Approval	Chair Windmiller

BI-STATE DEVELOPMENT
OPERATIONS COMMITTEE MEETING
OPEN SESSION MINUTES
(Virtual Meeting)
April 8, 2021
Immediately following the
Safety & Security Committee Meeting

Operations Committee Members participating via Zoom

Rose Windmiller, Chair
Vernal Brown
Terry Beach
Derrick Cox – Absent
Irma Golliday – Absent

Other Commissioners participating via Zoom

Justin Zimmerman, Chair
Herbert Simmons
Nate Johnson
Sam Gladney – Absent
Fred Pestello – Absent

Staff participating via Zoom

Taulby Roach, President and Chief Executive Officer
Barbara Enneking, General Counsel and Deputy Secretary
Myra Bennett, Manager of Board Administration
Brenda Deertz, Administrator/Executive Assistant to the President/CEO
Jessica Mefford-Miller, Executive Director Metro Transit
Tammy Fulbright, Interim Chief Financial Officer
John Langa, Vice President Economic Development
Crystal Messner, Chief Audit Executive
Chris Poehler, Assistant Executive Director Engineering Systems
Gregory Smith, Vice President – Purchasing, Materials Management, and Supplier Diversity
Charles Stewart, Executive Vice President Organizational Effectiveness
Jessica Gershman, Assistant Executive Director Planning Systems

Others participating via Zoom

Hannah Jones, ASL Interpreter
Nicole Devore, ASL Interpreter

1. Open Session Call to Order

9:25 a.m. Chair Windmiller called the Open Session of the Operations Committee Meeting to order at 9:25 a.m.

2. Roll Call

9:25 a.m. Roll call was taken, as noted above.

3. Public Comment

9:26 a.m. No comment cards were submitted.

4. Minutes of the January 22, 2021 Operations Committee, Open Meeting

9:26 a.m. The minutes of the January 22, 2021, Operations Committee, Open Meeting were provided in the Committee packet. A motion to approve the minutes, as presented, was made by Commissioner Zimmerman and seconded by Commissioner Brown. **The motion passed unanimously.**

5. Contract Modification: Bus Stop Signage Replacement Project

9:26 a.m. A briefing paper was included in the meeting materials, presenting to the Operations Committee, for discussion, acceptance, and referral to the Board of Commissioners for approval, a request to authorize the President & CEO to approve a Contract Modification with The Harlan Company, increasing the funding by $148,177.42 and the period of performance until June 30, 2021, to complete the Bus Stop Signage Replacement project. Jessica Gershman, Assistant Executive Director Planning Systems, gave an overview of this item.

A motion to accept this agenda item, as presented, with recommendation to the Board of Commissioners for approval, was made by Commissioner Simmons and seconded by Commissioner Zimmerman. **The motion passed.**

6. Single Bid: Track System Upgrades

9:29 a.m. A briefing paper was provided in the meeting materials, regarding a request that the Committee accept, and refer to the Board of Commissioners for approval, a request to authorize the President & CEO to enter into a contract for a single bid (negotiated procurement) with Railworks Track Services, in the not to exceed amount of $4,349,820.00; which includes 10% contingency, for track system upgrades. Jessica Mefford-Miller, Executive Director Metro Transit, provided an overview of this issue.

Commissioner Simmons posed a question regarding the number of proposals received. Ms. Mefford-Miller noted that the request for proposals was placed on I-Supplier; although three companies reached out regarding the request for proposals, only one chose to submit a bid. Committee discussion was held regarding concerns of the use of sole source contracts, especially those relating to transportation. Commissioner Simmons asked if Railworks pays union wages. President/CEO Roach noted that Railworks works on Union scale. He also noted that this company does have a local presence and works with local labor.

A motion to accept this agenda item, as presented, with recommendation to the Board of Commissioners for approval, was made by Commissioner Simmons and seconded by Commissioner Zimmerman. **The motion passed.**

7. Sole Source Contract Authorization for Professional Engineering Services – Phase 1 – Engineering & Design Support Services – Rehabilitation of the MetroLink Cross County Extension Tunnels & Stations

9:37 a.m. A briefing paper was provided in the Committee packet, regarding a request for acceptance and referral to the BSD Board of Commissioners for approval, a request to authorize the President and CEO to enter into a "sole source" contract for professional engineering services related to the rehabilitation of the Big Bend / Skinker tunnels and stations, with Gall Zeidler Consultants, in an amount not to exceed $251,000. Chris Poehler, Assistant Executive Director Engineering Systems, gave an overview of this item.

Commissioner Windmiller stated that it is her understanding that leaks had started early after the operation of the Blue Line, and litigation ensued. She asked the outcome of that litigation. General Counsel, Barb Enneking, noted that this situation was settled amicably.

A motion to approve this agenda item, as presented, was made by Commissioner Beach and seconded by Commissioner Simmons. **The motion passed.**

8. Contract Award - Cleaning of Railcars at Missouri & Illinois MetroLink Maintenance Facilities Amendments

9:40 a.m. A briefing paper was provided in the Committee packet, regarding a request to accept and refer to the BSD Board of Commissioners for approval, authorization of the President & CEO to enter into a 3-year contract, with funds to be committed annually for cleaning of railcars at the Missouri & Illinois facilities, with the highest ranking firm, MERS Goodwill, with price and other factors considered, in the not to exceed amount of $2,360,844.00. Jessica Mefford-Miller, Executive Director Metro Transit, gave an overview of this item, noting that four proposals were received from responsive bidders. She stated that this is an important service and an important part of the vehicle maintenance program.

A motion to approve this agenda item, as presented, was made by Commissioner Johnson and seconded by Commissioner Beach. **The motion passed.**

9. Amendments to Chapter 40, Real Property/Economic Development, Collective Board Policies of the Bi-State Development Agency of the Missouri-Illinois Metropolitan District

9:42 a.m. A briefing paper was provided in the Committee packet, regarding a request to accept and refer to the BSD Board of Commissioners for approval, amendments to Chapter 40, Real Property/Economic Development, Collective Board Policies of the Bi-State Development Agency of the Missouri-Illinois Metropolitan District (Chapter 40), and recommend to the Board that the proposed revisions to Board Policies – Chapter 40 Real Property/Economic Development not be tabled pursuant to Article VI (D) of the Board Policies, as it is in the best interest of BSD that these revised Board Policies be approved at the April 23, 2021, Board of Commissioners meeting. John Langa, Vice President Economic Development, gave an overview of this item.

Mr. Langa noted that currently, per Board Policy, the Vice President Economic Development may approve an easement or a license where the consideration for such is estimated to be $100,000 or less, the BSD President & CEO is authorized to approve the same up to $250,000, and the BSD Board approves easements or licenses where the consideration is estimated to exceed $250,000. He noted that BSD staff recommends amending Chapter 40, Declaration of Surplus Property, adding Section 40.010 (N) Definitions – "Surplus Property", and amending Section 40.030 Real Property Disposition. Mr. Lange stated that the annual Surplus Property Report will continue to be annually submitted to the Board for informational purposes; but the changes would allow, that during the same calendar year, the President and CEO, for up to

$250,000 of appraised value, and the Vice President of Economic Development, for up to $100,000 of appraised value, may approve the disposition of any surplus property, not listed in the Surplus Property Report from the previous year, without requiring a specific Board declaration of the property as surplus. The Board will continue to approve the disposition of any property above $250,000 in appraised value and the declaration of that property as surplus.

Commissioner Simmons expressed concerns regarding the proposed changes, noting that he feels that the Board should have full knowledge of the disposition of all BSD properties. Discussion was held regarding whether these transactions were primarily with public, or private, entities. President/CEO Roach proposed modifying the language to note that, if the transaction involves a private entity, those transactions would be brought before the Board for approval, regardless of value. Commissioner Simmons stated that he would prefer that this item be deferred for further discussion by the Board of Commissioners.

Commissioner Simmons made a motion to defer this item for further discussion by the Board of Commissioners. The motion was seconded by Commissioner Zimmerman.

Chair Windmiller stated that she is agreeable to deferring this item; however, she would like to know how many transactions the Agency has annually which would fall into these lesser categories. Mr. Langa stated that the Agency has approximately twelve of these transactions per year, with approximately 2 of them being with a private entity. He added that most of these are related to easements. Chair Windmiller stated that she does not feel that this request to streamline the process is excessive.

Commissioner Beach stated that he can see both sides of the issue.

Chair Windmiller called for a roll call vote on the motion to defer, with the poll of the Committee being as follows:

Rose Windmiller – Yea	Terry Beach – Yea
Vernal Brown – Yea	Justin Zimmerman – Yea
Nate Johnson – Yea	Herbert Simmons – Yea

The motion passed. This item will be deferred.

10. Memorandum of Agreement (MOA) with St. Louis County Regarding Compliance with COVID-19 Vaccination Dispensing Guidelines

9:56 a.m. A briefing paper was provided in the Committee packet, regarding a request to accept and refer to the BSD Board of Commissioners for approval, a request to enter into a supplemental intergovernmental Agreement between Bi-State Development (BSD) and St. Louis County (the County) in support of a previously approved MOA on Mass Prophylaxis Dispensing. Jessica Mefford-Miller, Executive Director Metro Transit, gave an overview of this item. She reported that the St. Louis County Health Department has advised BSD management that they are now able to distribute COVID-19 vaccine for dispensing to BSD team members, but require a supplemental Agreement to be executed that ensures compliance with CDC COVID-19 vaccination program provider agreements, compliance with manufacturer instructions and all applicable laws regarding qualified vaccinators. She noted that vaccinations have been encouraged and incentivized for BSD employees. Ms. Mefford-Miller reported that

approximately 40% of BSD employees have been vaccinated so far, and management continues to share information and opportunities regarding vaccination with its employees.

A motion to approve this agenda item, as presented, was made by Commissioner Brown and seconded by Commissioner Johnson. **The motion passed.**

11. Operations Report

10:01 a.m. An operations report for Metro Transit was included in the Committee packet, regarding the reshaping of Metro Transit, beyond COVID-19. Jessica Mefford-Miller, Executive Director of Metro Transit, provided a PowerPoint presentation for the Committee regarding a pandemic recovery plan, including information regarding the ridership outlook. She noted a goal of summer 2001 as a target for service stabilization. Ms. Mefford-Miller noted that Metro continues to test and implement new models of service delivery, and placed an emphasis on the need for customer focused investments such as: station/right of way investments, battery electric buses, and customer focused fare payment systems. Commissioner Simmons posed questions regarding the fare collection process and the failure of the "Smart Card" program. Ms. Mefford-Miller stated that Metro continues to use the Gateway Card until another format is implemented, and that the Agency has learned from past experience. Commissioner Simmons noted that there are projects lingering from the past two to three years in Illinois, and asked the status in addressing these issues. Ms. Mefford-Miller noted that updates have been given to the St. Clair County Transit District regarding these items. She noted that some of the issues were related to design flaws. She stated that getting these issues resolved never proceeds as quickly as we would like; however, progress is being made. Commissioner Simmons asked that Ms. Mefford-Miller provide him copies of the updates that are being sent to the St. Clair County Transit District. Ms. Mefford-Miller indicated that she will supply those updates to all Illinois Commissioners. It was noted that this item was submitted as information only, and no action is needed by the Committee.

12. President/CEO Report

10:24 a.m. Bi-State Development President/CEO, Taulby Roach, addressed the Committee with the following information:

The Board Room upgrades are almost complete. He noted that it is anticipated that there will be a shift to a hybrid approach to meetings, beginning with the April 23, 2021 Board Meeting, where staff and Commissioners may participate in person, or online.

Mr. Roach noted that the Operations Report is often condensed, due to time constraints; however, the Commissioners should feel free to reach out to either him or Jessica Mefford-Miller, if there are additional questions or concerns, and for any needed side conversations.

13. Unscheduled Business

10:26 a.m. There was no unscheduled business.

14. Call of Dates for Future Board and Committee Meetings

10:26 a.m. Myra Bennett, Manager of Board Administration, advised the Committee of the upcoming meetings, as follows:

Tentative schedule:

- Board of Commissioners Meeting:	Friday, April 23, 2021	8:30 AM
- Audit Finance & Administration Meeting:	Friday, May 21, 2021	8:30 AM
- Operations Committee Meeting:	Friday, May 21, 2021	9:30 AM

Chair Windmiller referenced President/CEO Roach's comments regarding a move to hybrid meetings, and stated that she will not be attending meetings in person at this point. She asked that those attending BSD meetings in person be limited to staff, and not the public for the present. President/CEO Roach stated that he is in agreement. He noted that, due to ongoing COVID concerns, the Agency is not yet opening meetings to the public; however, he reported that the next Board of Commissioners meeting will be a hybrid meeting, with a limited number of staff participating in person, in order to test the new Board Room system that has been installed.

15. Adjournment to Executive Session – If such action is approved by a majority vote who constitute a quorum, the Committee may go into closed session to discuss legal, confidential, or privileged matters pursuant to Bi-State Development Board Policy Chapter 10, §10.080(D) Closed Records; Legal under §10.080(D)(1).

10:31 a.m. Committee Chair Windmiller stated that the only item for consideration on the Executive Session agenda is the Approval of the Minutes of the January 22, 2021, Operations Committee, Executive Session Meeting. She noted that, if there are no corrections to these minutes, and no discussion is necessary, the Committee could proceed to a motion and vote, without going into Executive Session. The Committee agreed.

Chair Windmiller asked for a motion to approve the minutes of the January 22, 2021, Operations Committee Meeting, Executive Session, as presented, as a closed record. The motion was made by Commissioner Beach and was seconded by Commissioner Brown. The poll of the Committee being:

Rose Windmiller – Yea	Terry Beach – Yea
Vernal Brown – Yea	Justin Zimmerman – Yea
Nate Johnson – Yea	Herbert Simmons – Yea

The motion passed unanimously.

16. Adjournment

10:32 a.m. Chair Windmiller asked if there was any further business, and being none, Commissioner Beach made a motion to adjourn the meeting. The motion was seconded by Commissioner Johnson. Unanimous vote in favor was taken. The motion passed, and the meeting was adjourned at approximately 10:32 a.m.

Deputy Secretary to the Board of Commissioners
Bi-State Development

Bi-State Development Agency
Open Session Agenda Item
Operations Committee
May 21, 2021

From:	Andrew J Ghiassi, Director of System Safety, Security and Emergency Management
Subject:	**Metro Transit's Agency Safety Plan**
Disposition:	Approval
Presentation:	Taulby Roach, President & CEO

Objective:
To obtain approval from the Operations Committee for Metro Transit's Agency Safety Plan annual update that meets and is responsive to the FTA's Public Transportation Agency Safety Program (PTASP) requirements set forth by 49 CFR Part 673.

Background:
MAP-21 (Pub. L. 112-141 (2012)) amended Federal Transit Law by requiring a Public Transportation Safety Program pursuant to 49 U.S.C. § 5329. Under Section 5329(b), the Public Transportation Safety Program must include a Public Transportation Safety Plan to improve the safety of all public transportation systems that receive Federal transit funds. Metro Transit was required to certify that it has a safety plan meeting the rule's requirements by July 20, 2020. This Safety Plan was approved last year by this Committee before the deadline above. An annual update of the Metro Transit's Agency Safety Plan is needed for approval at this time.

Analysis:
Metro Transit's Agency Safety Plan guides the effort in managing safety risks and hazards within our transportation system. The plan includes the following elements:

1. Processes and procedures for establishing a Safety Management System, which consists of four main elements: (1) Safety Management Policy, (2) Safety Risk Management, (3) Safety Assurance, and (4) Safety Promotion.
2. Performance targets based on the safety performance criteria established under the National Public Transportation Safety Plan (49 CFR 673.11(a)(3)).
3. Addresses all applicable requirements and standards as outlined in the FTA's Public Transportation Safety Program and the National Public Transportation Safety Plan (49 CFR 673.11(a)(4)).
4. Establishes a process and timeline for conducting an annual review and update of the Public Transportation Agency Safety Plan (49 CFR 673.11(a)(5)).

The 2021 Plan includes updates for: Organizational Charts, Emergency Management, and Hazard Management

Committee Action Requested:
Management recommends that the Operations Committee accept, and refer to the Board of Commissioners for approval, the 2021 update to the Metro Transit's Agency Safety Plan.

Funding Source:
No funding request is being made with this action. Metro's Office of System Safety, Security, and Emergency Management will review and operate the plan under a principle of continuous improvement to reflect changes in Metro's organization, procedures, equipment, facilities, and operating environment.

Attachments:

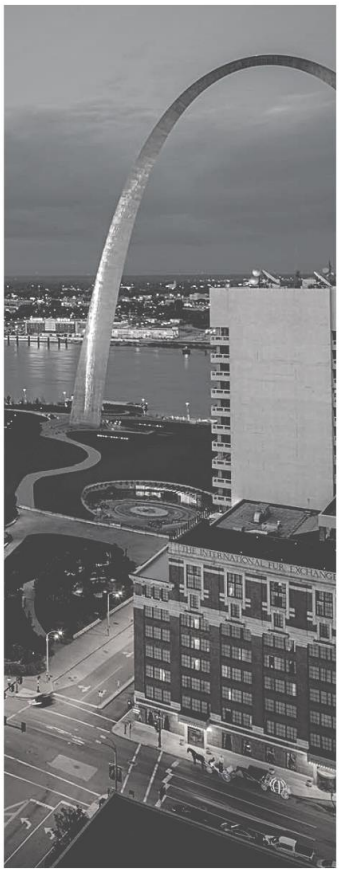
A. Metro Transit's Agency Safety Plan for 2021
B. Illinois Department of Transportation Bi-State Safety Oversight Program Letter
C. PTASP Signature Page

2021

Metro

AGENCY SAFETY PLAN

SYSTEM SAFETY AGENCY SAFETY PLAN



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Approvals

The individuals below, submitting and signing this System Safety Program Plan/Agency Safety Plan, (SSPP/ASP) verify that it was prepared in accordance with the *appropriate and applicable* requirements and guidelines set forth by the Federal Transit Administration in 49 CFR Parts 625, 630, 655, 670, 672, 673, 674 and others, and the BSSO Program Standard; that they are authorized representatives of the Board of Commissioners of Metro Transit that their signatures attest that all items and conditions contained in this plan are understood, accepted and approved; and that they are committed to implementing the Safety Plan and achieving its safety goals and objectives.

APPROVED BY:

Refer to Board Meeting Consent Agenda Approval 6/26/2020

Board Approval

Taulby Roach, ~~President~~ & CEO
Accountable Executive

7.1.20
Date

Steve Berry, General Manager System Safety & Security / Chief Safety Officer

6/19/20
Date

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Revisions/Amendments

Revision No.	Revision Date	Revised Sections
1	06/19/2020	Initial Submission
2	01/01/2021	Organizational charts, Emergency Management, Hazard Management

Executive Summary

General

Applicability

Metro Transit (Metro) is committed to comprehensive safety planning. As an operator of a public transportation system that receives Federal financial assistance under Title 49 of the United States Code (USC) Chapter 53, Metro is subject to the appropriate and applicable requirements and guidelines set forth by the Federal Transit Administration (FTA), and this Public Transportation Agency Safety Plan (PTASP) is compliant with these requirements as well as with the requirements of the National Public Transportation Safety Plan (NSP).

Policy

Metro and the FTA have adopted the principles and methods of System Safety and of Safety Management Systems (SMS) as the basis for enhancing the safety of public transportation. All rules, regulations, policies, guidance, best practices, and technical assistance administered will, to the extent practical and consistent with legal and other applicable requirements, follow the principles and methods of SMS.

Metro Transit's Public Transportation Agency Safety Plan, hereafter referred to as the "Safety Plan" is an agency-wide safety plan that meets and is responsive to the FTA's Public Transportation Agency Safety Program (PTASP) requirements as set forth by 49 CFR Part 673. The Safety Plan reflects the specific safety objectives, standards, and priorities of Metro. Metro has incorporated its System Safety compliance into SMS principles and methods tailored to the size, complexity, and scope of its own public transportation system and the environment in which it operates.

Definitions

Unless otherwise stated, definitions used in this document are consistent with federal regulations and guidance as shown in Chapter 1.

Safety Plan

General

Metro has established a Safety Plan that meets or exceeds the General Requirements of both of the aforementioned requirements and guidelines, including the following required elements:

- ✓ The Safety Plan, and subsequent updates, will be signed by the President & CEO who is the *Accountable Executive*, the GM System Safety, Security, and Emergency Management who is the Chief Safety Officer, and approved by Metro Board of Commissioners.
- ✓ The Safety Plan documents the processes and activities related to SMS implementation.
- ✓ The Safety Plan includes performance targets based on the safety performance criteria established under the National Public Transportation Safety Plan (NSP).
- ✓ Metro will establish a process and timeline for conducting an annual review and update of the Safety Plan.
- ✓ The Safety Plan includes reference to an emergency management and response plan and procedures that address the assignment of employee responsibilities during an emergency; and coordination with Federal, State, regional, and local officials with roles and responsibilities for emergency preparedness and response in Metro area.

- ✓ The Safety Plan includes bus, paratransit, and rail modes of service.

Metro will maintain the Safety Plan in accordance with the recordkeeping requirements in Subpart D of 49 CFR Part 673.

Certification of Compliance

The State Safety Oversight Agency will review and approve the Safety Plan developed by Metro, as authorized in 49 U.S.C. 5329(e) and its implementing regulations at 49 CFR Part 674 and Part 673.

On an annual basis, Metro will certify its compliance with 49 CFR Part 673.

Safety Management System

Metro herein establishes and implements an SMS that is appropriately scaled to the size, scope and complexity of Metro, and includes four components:

1) Safety Management Policy (Part I)
2) Safety Risk Management (Part II)
3) Safety Assurance (Part III)
4) Safety Promotion (Part IV)

Safety Management Policy

Metro has a written statement of safety management policy (Chapter 1) that includes Metro's safety objectives and safety performance targets. The Metro safety management policy will be communicated throughout the organization.

Responsibilities

As detailed in Chapter 2, Metro has also established the necessary authorities, accountabilities, and responsibilities for managing safety amongst the following individuals in Metro, as they relate to development and management of Metro's SMS:

1) *Accountable Executive:* Metro has identified the President and CEO as the Accountable Executive. The President & CEO is accountable for ensuring that the Metro's SMS is effectively implemented throughout the system; and ensuring action is taken, as necessary, to address substandard performance in Metro's SMS. The President & CEO may delegate specific responsibilities, but the ultimate accountability for Metro's safety performance cannot be delegated and always rests with the President & CEO.

2) *Chief Safety Officer (CSO)* The Accountable Executive has designated the GM System Safety, Security, and Emergency Management as the CSO. This position is the key SMS Executive who has authority and responsibility for day-to-day implementation and operation of Metro's SMS. The CSO holds a direct line of reporting to the President & CEO.
3) *Metro leadership and executive management*: Metro has also identified other members of its leadership and executive management who have authorities or responsibilities for day-to-day implementation and operation of an agency's SMS.
4) *Key staff:* Metro has designated key staff, groups, or committees to support the President & CEO and CSO in developing, implementing, and operating the agency's SMS.

Metro has also established a process that allows employees to report safety conditions to senior management, and offers protections for employees who report adverse safety conditions to management.

Safety Risk Management

Safety Risk Management Process

Metro has developed and implemented a Safety Risk Management process for all elements of its public transportation system. The Safety Risk Management process is comprised of the following activities:

1. Identification of safety hazards;
2. Analysis of safety hazards;
3. Safety risk evaluation; and
4. Safety risk mitigation.

Safety Hazard Identification and Analysis

Metro has established a process for hazard identification and analysis (Chapter 5).

Safety Risk Evaluation and Mitigation

Metro has established activities to evaluate and prioritize the safety risk associated with the potential and consequences of safety hazards (Chapter 6). Safety risks are evaluated in terms of likelihood and severity that take into account mitigations already in place to reduce the likelihood or severity of the potential consequence(s) analyzed. Metro has established criteria for the development of safety risk mitigations that are necessary based on the results of the agency's safety risk evaluation.

Safety Assurance

Safety Performance Monitoring and Measurement

Metro has established activities (described in Chapter 7) to:

1. Monitor the system for compliance with, and sufficiency of, the agency's procedures for operations and maintenance;
2. Monitor Metro operations to identify hazards not identified through the Safety Risk Management process;
3. Monitor Metro operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended;
4. Investigate safety events to identify causal factors; and
5. Monitor information to account for all sources including: reporting through any internal and external safety reporting programs. Examples of external reporting entities include, but are not limited to: Federal Transit Administration (FTA) and the BSSO etc.

Management of Change

Metro has established a process for identifying and assessing changes that may introduce new hazards or impact Metro's safety performance. If Metro determines that a change may impact its safety performance, then Metro will evaluate the proposed change through its Safety Risk Management process. (See Chapter 8.)

Continuous Improvement

Metro has established a process to assess its safety performance (Chapter 9). If Metro identifies any deficiencies as part of its safety performance assessment, then Metro will develop and carry out, under the authority of the President & CEO, a plan to address the identified safety deficiencies.

Safety Promotion

Safety Communications

Metro fosters open communication regarding safety between all levels of the agency (Chapter 10). This starts with fully communicating the safety policy to all employees. Metro uses notices, posters and bulletins to ensure all employees are aware of their own and the agency's safety commitments and requirements.

In addition, the Safety Department supports all other departments in ensuring that safety messaging and awareness are communicated effectively within each department. Employees are required and encouraged to report hazards, take responsibility for safety in their tasks and work areas, educate themselves on safety and with formal training, and attend safety briefings, trainings, activities and events.

Finally, all levels of the agency are required, through formal and informal communications, to ensure that safety information is disseminated throughout the agency. This Safety Plan sets forth the requirements for both the formal and informal reporting that supports Metro's SMS.

Competencies and Training

Metro has established a comprehensive safety training program for all agency employees and contractors directly responsible for the management of safety in Metro's system (Chapter 11). The training program includes refresher training, as necessary.

Safety Plan Documentation and Recordkeeping

Safety Plan documentation and recordkeeping is described in Chapter 4.

Safety Plan Documentation

At all times, Metro maintains documents that set forth and support its Safety Plan, including those related to the implementation of Metro's SMS, and results from SMS processes and activities. Metro maintains documents that are included in whole, or by reference, that describe the programs, policies, and procedures that Metro uses to carry out the Safety Plan.

As prescribed by 49 CFR Part 673.31, Metro makes documentation available to the Federal Transit Administration (FTA), other federal and state entities as appropriate, and the BSSO. A variety of methods are used to convey this documentation. Methods include, but are not limited to: data requests, access to various computer databases which house safety/SMS data, internal documents that analyzes data, daily incident management data, and monthly hazard logs.

Safety Plan Records

In addition to any documents or records required elsewhere by 49 CFR Part 673, Metro maintains records of:

a) Safety risk mitigations developed in accordance with 49 CFR Part 673.25;
b) Results from Metro performance assessments as required under 49 CFR Part 673.27; and
c) Employee safety training taken for purposes of compliance with this part and the Public Transportation Agency Safety Training Certification Program.

Part I
Safety Management Policy

Chapter 1 – Safety Policy Statement

1 General Safety Policy

It is the policy of Metro to provide a safe and reliable transportation service for the general public, to provide safe and healthful working conditions for Metro employees, and to comply with applicable occupational and environmental laws and regulations.

Operational and safety training, accident investigation, Standard Operating Procedures, and audit/inspection programs are documented and referenced in Metro's Safety Plan. The purpose of this plan, among others, is to recognize and correct unsafe acts and conditions, to promote safety awareness, and to assist in the prevention of injuries and illness as well as events that are harmful to the environment.

Every Metro employee and any outside contractor who serves Metro has the duty to adhere to the Safety Plan; to recognize, report and correct hazards; to work in a safe manner; to promote safety awareness; and to actively assist in accident prevention.

The President & CEO accepts overall responsibility for safety at Metro. The Executive Vice President Organizational Effectiveness, Executive Vice President of Administration, Vice President of Marketing and Communication, Asst. Executive Director Transit Assets, General Manager MetroLink, Manager of MetroBus, Manager of Paratransit, Assistant Exec Dir Engineering Systems, General Manager Field Security, GM System Safety, Security, and Emergency Management, Chief of Planning are responsible and accountable for implementation of the Safety Plan in their respective areas.

All Metro employees must carry out their assigned duties in a safe and efficient manner. The Executive Safety and Security Committee (ESSC) is responsible for taking a proactive position in assisting Metro management to implement SMS, and identifying and controlling hazards to ensure the highest practical degree of safety for Metro riders and employees. As Chairman of the ESSC, the President & CEO has the primary responsibility for coordinating implementation of the Safety Plan and monitoring compliance.

The signatures of the President & CEO, and Chief Safety Officer included in the Approvals section of this plan attest to the fact that this plan is understood, accepted and approved; and that management is committed to implementing SMS through the Safety Plan and achieving its safety goals and objectives.

2 Safety Management Policy

Metro is furthermore committed to comprehensive safety planning, and as an operator of a public transportation system that receives Federal financial assistance under Title 49 USC Chapter 53, also complies with 49 CFR Part 673.

Metro has adopted the principles and methods of Safety Management Systems (SMS) as the basis for enhancing its safety program. All rules, regulations, policies, guidance, best practices, and technical assistance administered will, to the extent practical and consistent with legal and other applicable requirements, follow the principles and methods of SMS.

Metro has a written statement of safety management policy that includes Metro's safety objectives and safety performance targets.

2.1 Safety Management Policy Statement

Table A Safety Management Policy Statement

The management of safety is one of our core business functions. Metro is committed to developing, implementing, maintaining, and constantly improving processes to ensure that all our transit service-delivery activities take place under a balanced allocation of organizational resources, aimed at achieving the highest level of safety performance objectives and meeting established standards. All levels of management and all employees are responsible for the delivery of this highest level of safety performance.

Metro's commitment is to:

- **Support** the management of safety by providing appropriate resources resulting in a culture that fosters safe practices, encourages effective employee safety reporting and communication, and actively manages safety with the same attention to results as other Metro management systems;
- **Integrate** the management of safety among the primary responsibilities of all officers, directors and employees;
- **Define** clearly for all staff, officers, directors and employees alike, their responsibilities for Metro's safety performance and the performance of our safety management system (SMS);
- **Implement** hazard identification and analysis activities, safety risk evaluation activities, and an employee safety reporting program as fundamental sources for safety data, in order to eliminate or mitigate the safety risks of the consequences of hazards resulting from Metro operations or activities to a point which is consistent with our acceptable level of safety performance;
- **Ensure** that no action will be taken against any employee who discloses a safety concern through the employee safety reporting program (unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures has occurred);
- **Comply** with, and wherever possible exceed, federal and state legislative and regulatory requirements and standards;
- **Ensure** that sufficient skilled and trained people are available to implement safety management processes;
- **Provide** all staff with adequate and appropriate safety-related information and training; ensure they are competent in safety management matters; and allocate to employees only tasks commensurate with employee skills;
- **Establish and measure** our safety performance objectives against realistic and data-driven safety performance indicators and safety performance targets consistent with the National Public Transportation Safety Plan;
- **Continually improve** Metro's safety performance through management processes that ensure appropriate safety management action is taken and is effective; and
- **Ensure** externally supplied systems and services to support Metro operations are delivered meeting our safety performance standards.

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A

Taulby Roach, ~~President & CEO~~
Accountable Executive

7.1.20
Date

2.2 Communication

The Metro safety management policy will be communicated throughout the organization through:

- SMS Training for all employees;
- Communications to all Metro personnel from the President & CEO and CSO;
- New hire trainings;
- Safety Briefings; and
- General bulletin board postings.

The Safety Plan will be available at all times to all employees. It will be maintained in an accessible electronic file and in hard copy(s) by all key SMS personnel in locations accessible to employees under their supervision and management.

3 Authority

3.1 Federal

Statutory mandates in the Moving Ahead for Progress in the 21st Century Act (Pub. L. 112–141; July 6, 2012) (MAP–21), reauthorized by the Fixing America's Surface Transportation Act (Pub. L. 114–94; December 4, 2015) and codified at 49 U.S.C. 5329(d), are in place to strengthen the safety of public transportation systems that receive Federal financial assistance under Chapter 53. This legislation defines requirements for the adoption of Safety Management Systems (SMS) principles and methods; the development, certification, and update of Public Transportation Agency Safety Plans; and the coordination of Public Transportation Agency Safety Plan elements with other FTA programs and proposed rules, as specified in 49 U.S.C. 5329.

In Section 20021 of MAP–21, Congress directed the FTA to establish a comprehensive Public Transportation Safety Program, one element of which is the requirement for Public Transportation Agency Safety Plans. Pursuant to 49 U.S.C. 5329(d), FTA must issue a final rule requiring operators of public transportation systems that receive financial assistance under Chapter 53 to develop and certify Public Transportation Agency Safety Plans.

3.2 State Safety Oversight Program

The Bi-State Safety Oversight (BSSO) is the designated State Safety Oversight (SSO) agency for fixed guideway safety oversight for the MetroLink system.

Metro is covered under the authority of the BSSO program and must develop and implement a compliant Safety Plan, Security Plan, and Emergency Operations Plan that comply with the BSSO Program Standard.

4 Definitions

The following definitions used in this document are consistent with 49 CFR Parts 625, 630, 670, 673, and 674 and the "SMS Glossary of Terms: FTA's Guide to Relevant Terms for SMS Development" of September 2016.

Accident – an Event that involves any of the following: A loss of life; a report of a serious injury to a person; a collision involving an Metro vehicle; a runaway Metro vehicle; an evacuation for life safety reasons; or any derailment of an Metro vehicle [673] at any location, at any time, whatever the cause.

> An *accident* must be reported in accordance with the thresholds for notification and reporting set forth in Appendix A to Part 674.

Accountable Executive – a single, identifiable person who has ultimate responsibility and accountability for the implementation and maintenance of the SMS of Metro; responsibility for carrying out the Safety Plan and Transit Asset Management Plan (TAMP); and control or direction over the human and capital resources needed to develop and maintain both the Safety Plan in accordance with 49 USC 5329 and TAMP.

> The Accountable Executive at Metro is Taulby Roach (President & CEO).

Administrator – the Federal Transit Administrator or the Administrator's designee.

Advisory – a notice from FTA to recipients regarding an existing or potential hazard or risk in public Transportation that recommends recipients take a particular action to mitigate the hazard or risk.

Audit – an examination of records and related materials, including, but not limited to, those related to financial accounts.

BOCC – Bus Operations Control Center

BTW – Behind-The-Wheel, a type of required Operator training.

Capital asset – a unit of rolling stock, a facility, a unit of equipment, or an element of infrastructure used in public Transportation.

Executive Director – Executive Director Metro Transit of Metro Transit.

CFO – Chief Financial Officer of Metro Transit.

Chief Safety Officer (CSO) – an adequately trained individual who has responsibility for safety and reports directly to the Accountable Executive. The CSO does not serve in other operational or maintenance capacities. The Chief Safety Officer role at Metro is fulfilled by the GM System Safety, Security, and Emergency Management.

CM – Construction Manager of the Regional Transit Authority.

Consequence – the potential outcome(s) of a hazard.

Continuous Improvement – a process by which a transit agency examines safety performance to identify safety deficiencies and carry out a plan to address the identified safety deficiencies.

Contractor – an entity that performs tasks on behalf of Metro, FTA, a State Safety Oversight Agency, or other rail transit agency, through contract or other agreement [674], including tasks required for rail compliance.

> For example, contractors could handle any portion of a major construction infrastructure project, handle daily switch inspections, or monthly substation maintenance. A contractor is a third party hired by the agency to fulfill a rail compliance need. The rail transit agency may not be a contractor for the oversight agency.

Corrective Action Plan – a plan developed by Metro that describes the actions that Metro will take to minimize, mitigate, correct, or eliminate risks and hazards, and the schedule for taking those actions. Either a State Safety Oversight Agency or FTA may require Metro to develop and carry out a corrective action plan.

DBE – Disadvantaged Business Enterprise.

Decision support tool – a methodology: (1) To help prioritize projects to improve and maintain the state of good repair of capital assets within the public Transportation system based on available condition data and objective criteria; or (2) To assess financial needs of asset investments over time.

Direct recipient – an entity that receives funds directly from the Federal Transit Administration.

Directive – a formal written communication from FTA to one or more recipients which orders a recipient to take specific actions to ensure the safety of a public Transportation system.

EEO – Equal Employment Opportunity.

Equipment – an article of nonexpendable, tangible property having a useful life of not less than one year. [625]

Equivalent Authority – The Board of Commissioners of Metro Transit is an entity that carries out duties for a recipient or sub recipient of FTA funds under 49 U.S.C. Chapter 53, including sufficient authority to review and approve the Safety Plan.

Event – an Accident, Incident, or Occurrence.

Examination – a process for gathering facts or information, or an analysis of facts or information previously collected.

Facility – a building or structure that is used in the provision of public transportation.

FTA – the Federal Transit Administration.

FMLA – Family Medical Leave Act.

Full level of performance – the objective standard for determining whether a capital asset is in a state of good repair.

Grade Crossing (as defined in the National Transit Database glossary) an intersection of roadways, railroad tracks, or dedicated transit rail tracks that run across mixed traffic situations with motor vehicles, streetcar, light rail, commuter rail, heavy rail or pedestrian traffic; either in mixed traffic or semi-exclusive situations.

Hazard – any real or potential condition that can cause injury, illness, or death; damage to or loss of a facility, equipment, rolling stock, infrastructure, property, system Metro; or damage to the local environment, or reduction of ability to perform prescribed function.

Hazard Analysis – the formal activities to analyze potential consequences of hazards during operations related to provision of services.

Human Factors – applied technology comprising principles that apply to equipment design, certification, training, operations, and maintenance, which seek safe interface between the human and other system components by proper consideration to human performance.

Hazard Identification – formal activities to analyze potential consequences of hazards during operations related to provision of service.

Human Performance – human capabilities and limitations that have an impact on the effectiveness and efficiency of operations related to provision of services.

Implementation strategy – the approach to carrying out transit asset management practices, including establishing a schedule, accountabilities, tasks, dependencies, roles and responsibilities.

Incident – an event that involves any of the following: a personal injury that is not a serious injury; one or more injuries requiring medical transport; or damage to facilities, equipment, rolling stock, or infrastructure that disrupts the operations of Metro, a maintenance-related evacuation of a train into the right-of-way or onto adjacent track; or customer self-evacuation, certain low-speed collisions involving a rail transit vehicle that result in a non-serious injury or property damage, or damage to catenary equipment that disrupts transit operations. Incidents must be tracked and reported to FTA's National Transit Database in accordance with the thresholds for reporting set forth in Appendix A to

Part 674. If a rail transit agency or State Safety and/or federal authorities. See Accident Reporting Threshold for a list of reportable events.

Individual – a passenger, employee, contractor, other Metro facility worker, pedestrian, trespasser, or any person on Metro property.

Engineering – permanent installations that interconnect capital assets for use in public Transportation.

Inspection – a process for gathering facts or information, or an analysis of facts or information previously collected. At the conclusion of an inspection, FTA may issue findings and recommendations.

Investigation – the process of determining the causal and contributing factors of an accident, event, or hazard, for the purpose of preventing recurrence and mitigating risk [673, 674, SMS] or investigation of an event.

Lagging Indicators – provide evidence, through monitoring, that intended safety management outcomes have failed or have not been achieved.

Leading Indicators – provide evidence, through monitoring, that key safety management actions are undertaken as planned.

Management of Change – a process for identifying and assessing changes that may introduce new hazards or impact the transit agency's safety performance. If a transit agency determines that a change may impact its safety performance, then the transit agency must evaluate the proposed change through its Safety Risk Management process.

Near miss – a safety event where conditions with potential to generate an accident, event, or occurrence existed, but where an accident, event, or occurrence did not occur because the conditions were contained by chance or by existing safety risk mitigations.

Key asset management activities – a list of the transit asset management activities that are critical to achieving a transit provider's transit asset management goals for a particular year.

BSSO – the representatives from the Missouri and Illinois Departments of Transportation assigned as the State Safety Oversight Agency for the MetroLink rail fixed guideway system.

National Public Transportation Safety Plan (NSP) – the plan to improve the safety of all public transportation systems that receive Federal financial assistance under 49 U.S.C. Chapter 53 [673, 674] or authorized at 49 U.S.C. 5329.

NTSB – the National Transportation Safety Board, an independent Federal agency.

OCC – Operations Control Center (Rail)

Occurrence – an Event without any personal injury in which any damage to facilities, equipment, rolling stock, or infrastructure does not disrupt the operations of Metro.

Operational System Description – the analysis of operations to gain an understanding of critical operational interactions to identify hazards, or those that have been identified, as well as to identify the mitigations in place to safeguard against the consequences of hazards.

Organizational Accident – an accident that has multiple causes involving many people operating at different levels of the respective agency.

Organizational System Description – a formal description of the structure of a transit agency, including departmental interfaces; functions and responsibilities directly and indirectly related to the delivery of transit service; and functions and responsibilities related to the safety management of service delivery.

OCS – Overhead Catenary System.

Operator of a public Transportation system – a provider of public Transportation, such as Metro, as defined under 49 U.S.C. 5302(14), and which does not provide service that is closed to the general public and only available for a particular clientele.

ESSC – Executive Safety & Security Committee.

Passenger – a person who is on board, boarding, or alighting from a Metro-owned/operated rail transit vehicle for the purpose of travel.

Pattern or practice – two or more findings by FTA of a recipient's noncompliance with the requirements of 49 U.S.C. 5329 and the regulations thereunder.

Performance criteria – categories of measures indicating the level of safe performance within Metro.

Performance measure – a parameter that is used to assess performance outcomes.

Performance target – a specific level of performance for a given performance measure over a specified timeframe.

Person – a passenger, employee, contractor, pedestrian, trespasser, or any individual on the property of a rail fixed guideway public Transportation system.

PHA – Preliminary Hazard Analysis.

PPE – Personal Protective Equipment.

Practical Drift – the slow and inconspicuous, yet steady, uncoupling between written procedures and actual practices during provision of services.

Program Standard is a written document developed and adopted by BSSO that describes the policies, objectives, responsibilities, and procedures used to provide safety and security oversight of rail transit agencies.

Public Transportation Agency Safety Plan (PTASP) – the comprehensive agency safety plan for Metro that is required by 49 U.S.C. 5329 and Part 673, based on a Safety Management System. Until one year after the effective date of FTA's PTASP final rule, a System Safety Program Plan (SSPP) developed pursuant to 49 CFR part 659 may serve as the rail transit agency's safety plan.

Public Transportation Safety Certification Training Program – either the certification training program for Federal and State employees, or other designated personnel, who conduct safety audits and examinations of public transportation systems, and employees of public transportation agencies directly responsible for safety oversight, established through interim provisions in accordance with 49 U.S.C. 5329(c)(2), or the program authorized by 49 U.S.C. 5329(c)(1).

Public Transportation System – the entirety of Metro's operations, including the services provided through contractors.

Rail fixed guideway public Transportation system – any fixed guideway system that uses rail, is operated for public Transportation, is within the jurisdiction of a State, and is not subject to the jurisdiction of the Federal Railroad Administration (FRA), or any such system in engineering or construction. Rail fixed guideway public Transportation systems include but are not limited to rapid rail, heavy rail, light rail, monorail, trolley, inclined plane, funicular, and automated guideway.

Rail Fixed Guideway System – any light, heavy, or rapid system, monorail, inclined plane, funicular, trolley, or automated guideway that: (1) is not regulated by the Federal Railroad Administration; and (2) is included in FTA's calculation of fixed guideway route miles or receives funding under FTA's formula program for urbanized areas (49 U.S.C. 5336); or (3) has submitted documentation to FTA indicating its intent to be included in FTA's calculation of fixed guideway route miles to receive funding under FTA's formula program for urbanized areas (49 U.S.C. 5336).

Rail Transit Agency – any entity that provides services on a rail fixed guideway public Transportation system.

Rail Transit Vehicle – Metro's rolling stock, including, but not limited to passenger and maintenance vehicles.

Rail Transit-Controlled Property – property that is used by Metro and may be owned, leased, or maintained by Metro.

Recipient – an entity that receives Federal financial assistance under 49 USC Chapter 53 [670] and includes sub-recipients.

Record – any writing, drawing, map, recording, tape, film, photograph, or other documentary material by which information is preserved. The term ''record'' also includes any such documentary material stored electronically. [670]

RFP – Request for Proposal.

Risk – the composite of predicted severity and likelihood of the potential effect of a hazard.

Risk mitigation – a method or methods to eliminate or reduce the effects of hazards.

Rolling stock – any revenue vehicle used in a public Transportation system.

ROW – right-of-way

Safety – the state in which the potential of harm to persons or property damage during operations related to provision of services is reduced to and maintained at an acceptable level through continuous hazard identification and safety risk management activities.

Safety and Security Certification – the process applied to project development to ensure that all practical steps have been taken to optimize the operational safety and security of the project during engineering, design, and construction before the start of passenger operation.

Safety Assurance – processes within Metro SMS that functions to ensure the implementation and effectiveness of safety risk mitigation, and to ensure that Metro meets or exceeds its safety objectives through the collection, analysis, and assessment of information.

Safety Deficiency – a condition that is a source of hazards and/or allows the perpetuation of hazards in time.

Safety Management Policy – Metro's documented commitment to safety, which defines Metro's safety objectives and the accountabilities and responsibilities of its employees in regard to safety.

Safety Management Policy Statement – a document signed by the Accountable Executive and distributed throughout Metro that formalizes executive leadership's commitments to support SMS with both short-term and long-range initiatives.

Safety Management System (SMS) – the formal, top-down, Metro-wide approach to managing safety risk and assuring the effectiveness of Metro's safety risk mitigation. SMS includes systematic procedures, practices, and policies for managing risks, hazards [673], and management of safety risk.

Safety Management System Development Plan – a phased approach for a transit agency to coordinate its manageable, logical, and efficient sequence of steps for implementing SMS activities. The Development Plan also assists in effectively managing the workload associated with implementation activities, including the allocation of resources.

Safety Management System Executive – a Safety Officer or equivalent.

Safety Management System Implementation Team – an interdisciplinary team consisting of representatives from all operating, maintenance, and safety-related functions who assist the SMS Implementation Lead by providing the necessary technical and subject matter experts to effectively develop needed processes, activities, and tools.

Safety Management System Manager – the individual that runs the day-to-day operations of the transit agency's Safety Management System. This individual may also serve as the SMS Implementation Lead, especially in small or rural transit systems.

Safety Objective – a high-level, global, generic, and non-quantifiable statement regarding conceptual safety achievements to be accomplished by an organization regarding its safety performance.

Safety Performance – an organization's safety effectiveness and efficiency, as defined by safety performance indicators and safety performance targets, measured against the organization's safety objectives.

Safety Performance Indicator – a data-driven, quantifiable parameter used for monitoring and assessing safety performance.

Safety Performance Measurement – the assessment of non-consequential safety-related events and activities that provide ongoing assurance that safety risk mitigations work as intended.

Safety Performance Monitoring – the activities aimed at the quantification of an organization's safety effectiveness and efficiency during service delivery operations, through a combination of safety performance indicators and safety performance targets.

Safety Performance Monitoring and Measurement – activities a transit agency must establish to:

1) Monitor its system for compliance with, and sufficiency of, the agency's procedures for operations and maintenance;
2) Monitor its operations to identify hazards not identified through the Safety Risk Management process;
3) Monitor its operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended;
4) Investigate safety events to identify causal factors; and
5) Monitor information reported through any internal safety reporting programs.

Safety Performance Target – a specific level of performance for a given performance measure over a specified timeframe related to safety management activities.

Safety Promotion – a combination of training and communication of safety information to support SMS as applied to Metro's system.

Safety Reporting Program – a process that allows employees to report safety conditions to senior management, protections for employees who report safety conditions to senior management, and a description of employee behaviors that may result in disciplinary action.

Safety Review – a formal, comprehensive, on-site review by the BSSO of the transit agency's safety practices to determine whether the agency complies with the policies and procedures required under the Safety Plan.

Safety Risk – the assessed likelihood and severity of the potential consequence(s) of a hazard, using as reference the worst foreseeable, but credible, outcome.

Safety Risk *Evaluation* – the formal activity whereby Metro determines Safety Risk Management priorities by establishing the significance or value of its safety risks.

Safety Risk Management (SRM) – a process within Metro's SMS/Safety Plan for identifying hazards and analyzing, assessing, and mitigating safety risk.

Safety Risk Mitigation – the activities whereby a public Transportation agency controls the likelihood or severity of the potential consequences of hazards.

Safety Risk Probability – the likelihood that the consequence might occur, taking as reference the worst foreseeable – but credible – condition.

Safety Risk Severity – the anticipated effects of a consequence, should it materialize, taking as reference the worst foreseeable – but credible – condition.

Security is defined as freedom from intentional danger for employees and passengers.

Serious Injury – any injury which: (1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date of the injury was received; (2) Results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) Causes severe hemorrhages, nerve, muscle, or tendon damage; (4) Involves any internal organ; or (5) Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

SMS Executive – a Safety Officer or an equivalent.

SRM – Safety Risk Management (see above).

SSCP – Safety and Security Certification Plan

SSCRC – Safety and Security Certification Review Committee.

State – the States of Missouri and Illinois or a State agency.

State of Good Repair (SGR) – the condition in which a capital asset is able to operate at a full level of performance.

State Safety Oversight Agency (SSOA) – an agency established by a State that meets the requirements and performs the functions specified by 49 U.S.C. 5329(e) and the regulations set forth in 49 CFR part 674.

Sub-recipient – an entity that receives Federal transit grant funds indirectly through a State or a Direct Recipient.

System Safety is defined as the discipline that, through the application of system safety management and engineering principals, achieves the optimal degree of safety within the constraints of operational effectiveness and solid financial management.

Testing – an assessment of equipment, facilities, rolling stock, and operations of a recipient's public Transportation system.

Threat – any real or potential condition that can cause injury or death to passengers or employees, or damage to or loss of transit equipment, property, and/or facilities.

Transit agency – an operator of a public Transportation system that receives Federal financial assistance under 49 U.S.C. Chapter 53, including Metro.

Transit asset management (TAM) – the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycle in order to provide safe, cost-effective, and reliable service.

Transit Asset Management Plan (TAMP) – a plan developed for Metro pursuant to 49 CFR part 625 that includes, at minimum, capital asset inventories and condition assessments, decision support tools, and investment prioritization.

Transit asset management policy – a transit provider's documented commitment to achieving a state of good repair for all of its capital assets. The transit asset management policy defines the transit provider's transit asset management objectives and defines and assigns roles and responsibilities for meeting those objectives.

Transit asset management strategy – the approach a transit provider takes to affect its policy, including how it will meet objectives and state of good repair performance targets.

Transit asset management system – a strategic and systematic process of operating, maintaining, and improving public Transportation capital assets effectively, through the life cycles of those assets.

Transit provider – a recipient or sub recipient, including Metro, who owns, operates, or manages capital assets used in the provision of public Transportation.

USDOT – United States Department of Transportation.

Vehicle – any rolling stock used on a rail fixed guideway public Transportation system, including but not limited to passenger and maintenance vehicles.

Vulnerability – a characteristic of passengers, employees, vehicles, and/or facilities that increases the likelihood of a security breach.

5 Objectives and Performance Targets

Metro has established Safety Objectives, performance targets and performance measures in coordination with its State Safety Oversight Agency and in compliance with the National Public Transportation Safety Plan. These are delineated in Part III: Safety Assurance.

6 Scope

It is the mission of Metro's management to provide bus, paratransit, and light rail services to the St. Louis Region. This Safety Plan is intended to cover all current and future Metro bus, paratransit and rail operations, services, and projects. In order to implement Metro's safety policies, goals, and objectives, this Safety Plan:

- Addresses all Metro departments and contractors;
- Applies to all activities which involve planning, design, construction, procurement, installation, and testing of equipment or facilities, operations, maintenance, support activities, and the environment in which the transit system operates, including areas of public access and adjacent property;
- Charges each officer, director, manager, supervisor, and employee with the responsibility for Safety Plan implementation and success;
- Requires coordination, integration, communication, and cooperation among all officers, directors, managers, supervisors, departments, and employees:
- Encompasses all rail, paratransit and bus facilities, equipment, vehicles, and employee activities and applies to all who come in contact with the rail and bus systems;
- Establish appropriate safety performance measures to ensure continuous safety improvement;
- Accommodates federal and state safety assessments, inspections, investigations, audits, examinations and testing; and
- Fosters a positive safety culture at Metro.

7 Purpose

Metro has adopted the practices and methods of SMS as described in the National Transportation Safety Plan (NSP). The purpose of this Safety Plan is to systematically implement Metro's SMS program and introduce safety processes where they are necessary to achieve assurance. The Safety Plan is reviewed annually to ensure all systems, equipment, facilities, plans, procedures, manuals, and training programs are in compliance with established safety requirements; and that the Safety Plan reflects the current SMS configuration at Metro. Specifically, the Safety Plan:

- Establishes the safety program on a company-wide basis;
- Provides a framework for implementing Metro's safety management system, policy, goals and objectives;
- Identifies the relationships and responsibilities of each Metro department relative to achieving safety goals and objectives;
- Identifies the relationships and responsibilities of Metro with municipal, and state governing bodies and other organizations and agencies that impact transit system safety;
- Provides a mechanism whereby Metro can demonstrate its commitment to safety, foster a positive safety culture and meet safety performance goals;
- Provides requirements that, as appropriate, contractors and suppliers meet Metro's safety requirements prior to commencing work and/or while on the premises;
- Satisfies federal, state, and local requirements;
- Ensures that the system meets or exceeds accepted industry safety standards;
- Facilitates FTA and SSOA safety inspections, reporting, corrective actions and general and special directives and requirements; and
- Implements NSP performance criteria, state of good repair, vehicle safety standards, meet training criteria and all other safety management requirements and goals.

8 Employee Safety Reporting Program

Metro has an efficient and robust Employee Safety Reporting program. Employees (including contractors) are encouraged to report safety conditions to the Safety Department that is a hazardous condition or may cause a hazardous condition. All employees are protected from retaliation from their peers and/or supervisors due to reporting safety conditions.

Examples of items that can be reported include:

- Hazards/potential hazards
- Safety issues and concerns
- Accidents/incidents
- Possible solutions and safety improvements
- Close calls/near misses

When is Safety Reporting Protected?

- Reporting safety hazards or potential hazards.
- Making suggestions for safety improvements.
- Reporting other employees' unsafe behavior.
- Fatigue that presents an unacceptable hazardous condition.
- Self-report of a close call or near miss.

When is Safety Reporting Not Protected?

- Willful safety violations.
- Reckless and neglectful acts.
- Actions resulting in an accident/incident.
- Criminal activities.
- Alcohol or drug use.
- Making a false report.
- Being observed violating Metro's safety rules by supervisor.

There are a variety of methods to report safety issues. One method is to use the **Safety Hotline at 314-982-1638.** A report can also be made using the **email address**: Safety@metrostlouis.org. Employees can also notify a Safety Representative in person. All employees can have the option of remaining anonymous. An alternate method is to utilize the SMS training cards provided to all employees. The card summarizes employee reporting options and provides a QR code for employee hazard reporting via smartphone.

Reported safety items will be recorded and tracked in the ESRI system.

The Safety Department will investigate each item reported and report the findings to the person who originally filed the issue. The safety concerns reported will then be made available for all employees to see and the results of the investigations in the Safety Promotion process described in Part 4.

Also, all employees will be required to receive SMS awareness training. This training has been developed by the Safety Department and is available electronically here:

https://elearning.easygenerator.com/154e344e-2e4d-47d2-b94d-0d79d00d5992

Chapter 2 – Safety Accountability and Responsibility

1 Management Structure

Metro has established the necessary authorities, accountabilities, and responsibilities for the management of safety amongst the following individuals in Metro, as they relate to the development and management of Metro SMS:

> ***Accountable Executive:*** Metro has identified the President & CEO as the Accountable Executive. The President & CEO is accountable for ensuring that the agency's SMS is effectively implemented throughout Metro's system; and ensuring action is taken, as necessary, to address substandard performance in Metro's SMS. The President & CEO may delegate specific responsibilities, but the ultimate accountability for Metro's safety performance cannot be delegated and always rests with the President & CEO.
>
> ***Chief Safety Officer (CSO):*** The Accountable Executive has designated the GM System Safety, Security, and Emergency Management as the Chief Safety Officer (CSO). This position serves as the SMS Executive with authority and responsibility for day-to-day implementation and operation of Metro's SMS. The CSO holds a direct line of reporting to the President & CEO. The President & CEO, or other designee assigned by the President & CEO will serve as the CSO when the position is vacant or unavailable.
>
> ***Metro leadership and executive management:*** Metro has also identified other members of its leadership and executive management who have authorities or responsibilities for day-to-day implementation and operation of Metro's SMS.

Key staff. Metro will also designate key staff, groups, or committees to support the President & CEO and CSO in developing, implementing, and operating the agency's SMS.

2 System Overview and History

MetroLink: The MetroLink Rail Fixed Guideway System (MLRFGS) is owned and operated by Metro, a Bi-State Development enterprise. The Metro was created in 1949 through a compact between Missouri and Illinois and ratified by the United States Congress. Metro's broad powers enable it to cross local, county, and state boundaries to plan, construct, maintain, own, and operate specific facilities in its efforts to enhance the quality of life in the region. Its service area encompasses 200 municipalities. The mission of the Bi-State Development Agency (now doing business as Bi-State Development (Metro)), as articulated by its governing board, is to promote "regional economic development."

MetroBus: MetroBus is the St. Louis metropolitan region's bus system that operates a fleet of 400 clean-burning diesel buses on 77 bus routes in Missouri and Illinois, encompassing a service area of nearly 540 square miles.

Call-A-Ride: Metro Call-A-Ride is the St. Louis metropolitan region's paratransit system that operates a fleet of more than 120 modern, wheelchair-lift equipped vans. This shared-ride service is available with advance reservations to the general public and to persons whose disabilities inhibit them from using accessible, fixed-route MetroLink and MetroBus service.

3 Metro Operations

3.1 General Administration

Metro is governed by a 10-member Board of Commissioners; five each from the States of Missouri and Illinois. Missouri Commissioners are appointed by the Missouri Governor, based on recommendations from the St. Louis County Executive and the Mayor of the City of St. Louis. The County Board Chairs of St. Clair and Madison County directly appoint Illinois Commissioners. The Commissioners are required to be resident voters of the respective states and must reside within the Bi-State Metropolitan Region. Commissioners serve without compensation. Operating five enterprises, Bi-State Development (Metro) is a dynamic and multi-faceted resource for economic development in the St. Louis region. Metro, the region's public transportation system, operated by Metro, includes approximately 87 vehicles, 46-mile MetroLink light rail system; approximately 393 MetroBus vehicle fleet that operates on 77 MetroBus routes in Missouri and Illinois; and Metro Call-A-Ride, a paratransit fleet of approximately 120 vans. Metro owns and operates St. Louis Downtown Airport and its surrounding industrial business park. In addition, it operates the Gateway Arch Riverboats, Gateway Arch Revenue Collections Center and Gateway Arch trams. Metro operates the Bi-State Development Research Institute and the Regional Freight District.

3.1.1 Lambert Airport to 5th & Missouri Alignment (Phase I)

The initial MetroLink (ML) route is a conventional light rail line extending 16.9 miles east from Lambert International Airport (Lambert Terminal One Station and Terminal Two) to the 5th and Missouri Station in East St. Louis, Illinois. All of the ML alignment is on semi-exclusive right-of-way. Phase I consists of approximately three quarters of a mile of elevated structure at Lambert Airport, a tunnel below a portion of University of Missouri-St. Louis campus, a tunnel below the Washington University School of Medicine/ Barnes Jewish Hospital / Children's Hospital medical buildings complex, a former baggage cart tunnel under Union Station, the historic Washington/8th Street Tunnel under downtown St. Louis and the lower deck of the Eads Bridge. In addition, nine miles of the Phase I alignment is on continuous former railroad right-of-way. With the exception of a one-third of a mile single-track section just east of the Lambert Terminal One Station, the existing ML route is double tracked. The alignment contains several bridges spanning highways, railroads, and the Mississippi River. This alignment connects a number of major activity centers beginning with Lambert International Airport and including the University of Missouri-St. Louis (UMSL), Forest Park, the Central West End, St. Louis University, Union Station, Busch Stadium, Civic Center, the Convention Center and the Edwards Jones Dome, Arch-Laclede's Landing, the Arch, and the Casino Queen. Of the 20 stations, eleven (11) are at-grade, three (3) are below grade, two (2) are subsurface, and four (4) are on elevated structures. All stations have 200-foot long high-level (car floor height) platforms to accommodate a two-car consist. Phase I is typically supported by ballasted track, consisting of 132-lb. rail installed on wood ties. Highway grade crossing surface improvements along the Phase 1 Alignment include replacing 132 lb. rail with new head hardened 115 lb. rail and panelized concrete surface installed on concrete crossties. There are 115 lb. to 132 lb. rail transitions installed at the merge with Phase I at the DeBaliviere Junction. Phase 1 Stations are:

- Lambert Airport, Terminal One (elevated)
- Lambert Airport, Terminal Two (elevated)
- North Hanley (Park & Ride & with parking garage)
- UMSL North
- UMSL South (Park & Ride)
- Rock Road (Park & Ride)
- Wellston (Park & Ride)
- Delmar (Park & Ride)
- Forest Park-DeBaliviere (Junction; Park & Ride; below grade)
- Central West End (Bus Transfer Center)
- Cortex
- Grand (Park & Ride & Transit Plaza)
- Union Station (below grade)
- Civic Center (Bus Transfer Center)

- Stadium (below grade)
- 8th & Pine (subsurface - tunnel)
- Convention Center (subsurface - tunnel)
- Arch/Laclede's Landing (elevated)
- East Riverfront (elevated)
- 5th & Missouri (Park & Ride)

3.1.2 Crossover arrangements on the Phase I alignment:

- 5th/Missouri Interlocking - Universal crossover with turn back signal
- East Riverfront Interlocking – Scissors with a diamond configuration
- Laclede's Landing Interlocking - Double crossovers (scissors with a diamond configuration)
- Tucker Interlocking– Universal crossover with one (1) turn back signal near Stadium Station
- Ewing Yard Interlocking - Universal crossover with two (2) single crossovers and one (1) turnout into the yard
- Central West End Interlocking - Universal crossover
- Forest Park Pocket Interlocking - Double ended pocket track
- DeBaliviere Junction Interlocking – Turnout to Cross County alignment on track # 1 and on track #2; a diamond on track # 2; and a single crossover on the Cross County alignment (Parkway)
- Waterman Interlocking - Single crossover
- Page Interlocking - Universal crossover
- UMSL South Interlocking – Universal Crossover
- North Hanley Interlocking - Double crossovers (scissors with a diamond configuration)
- Airport Interlocking - A switch is located at each end of the single-track section between the Airport stations

3.1.3 Active Warning systems for Highway Grade Crossings (Phase I)

MUTCD compliant active warning system for highway grade crossings, which include conventional railroad-type warning bells, cantilevered flashing lights, and cantilevered-gates, provide motorist and pedestrian warning at each grade crossing. In addition, lunar white lights facing the track on each side of the crossing flash when gates are descending. These lights turn solid when gates are horizontal to alert the operator that protection is in place. There are 12 road grade crossings on the Phase I alignment:

- Broadway (E. St Louis)
- 4th Street (E. St Louis)
- Main (E. St Louis)
- Ewing
- Sarah
- Newstead
- Boyle
- Taylor
- Bartmer
- Etzel
- Plymouth
- North Market

3.1.4 St. Clair County Extension (Phase II)

The St. Clair Extension is a 20.9-mile addition to ML, heading southeast and east from the former 5th and Missouri terminus to Shiloh-Scott Station, and serving much of St. Clair County, Illinois. Phase II links Phase I with various activity centers and includes nine stations. Phase II is also on exclusive right-of-way and is also double tracked. Approximately 14 miles is on former CSX System railroad alignment. Phase II has no tunnels but there are numerous bridge structures

over major highways, railroads, and creeks. Phase II is supported by ballasted track, consisting of 115 lb. rail installed with resilient fasteners on concrete ties with the exception of Special Track work (Crossovers & Turnouts). Phase II Stations are:

- Emerson Park (Park & Ride)
- Jackie Joyner-Kersee
- Washington Park (Park & Ride)
- Fairview Heights (Park & Ride)
- Memorial Hospital (below grade; Park & Ride)
- Swansea (Park & Ride)
- Belleville (Park & Ride)
- College (Park & Ride)
- Shiloh-Scott (Park & Ride)

3.1.5 Crossover arrangements on the Phase II alignment:

- Emerson Park Interlocking – Double ended pocket track
- Hall Interlocking – Three single crossovers, one of which goes into the 29th Street Yard; additionally, there are two turnouts into the 29th Street Yard.
- Fairview Interlocking - Double ended pocket track
- Royal Interlocking - Universal crossover
- Belleville Interlocking - Universal crossover
- College Interlocking - Universal crossover with turn back signal
- Scott Interlocking – Double crossover (scissors with diamond configuration) and tail track

3.1.6 Active Warning systems for Highway Grade Crossings (Phase II)

- Missouri Avenue
- St. Louis Avenue
- Martin Luther King
- 9th Street
- 15th Street
- 18th Street
- 37th Street
- St. Clair Avenue
- Kingshighway
- Lebanon Road
- Old Caseyville Road
- Shiloh Station Road

3.1.7 Cross County Extension (Phase III)

The Cross County Extension (Phase III) is a 7.6-mile branch to ML, first heading west from the Forest Park-DeBaliviere Station through Clayton and then south to Shrewsbury, serving a portion of southwest St. Louis City and County. It links Phase I and Phase II in Missouri and Illinois with various activity centers including Washington University, the St Louis County seat in Clayton, the Galleria Mall, and the Sunnen Industrial Park. Phase III is also on exclusive right-of-way, of which 4 miles is on former railroad alignment. Stations in Phase III are similar to those on Phases I & II and include elevated, at grade and subsurface configurations. There are four tunnels in Phase III. The DeBaliviere Tunnel begins just west of the Forest Park DeBaliviere Station junction and the track rises to the surface 483 feet later on the south side of Forest Park Parkway. The Skinker Tunnel begins just east of Skinker Station and the track rises to the surface 1000 feet later on the north side of Forest Park Parkway. The Big Bend Tunnel starts east of the University City-Big Bend

Station and travels 5,500 feet to the Forsyth station. The alignment rises out of the tunnel to the surface west of Forsyth Station. The Skinker Tunnel and the Big Bend Tunnel are both equipped with ventilation systems. The Eager Road Tunnel, located just north of the Brentwood/U.S. I-64 Station, runs 450 feet underneath U. S. I-64,Eager Road, and 2 other ramps There is one MUTCD compliant street grade crossing (Sunnen) that employs an active warning system equipped with conventional railroad-type warning bells, flashing lights, and cantilevered gates. Phase III is also supported by ballasted track consistent with the methods used on Phase II. Direct fixation is used at the station platform areas and in the Phase III tunnels for support and fastening of 115 lb. rail. Some of the special interlocking is on wood ties. There are 115 lb. to 132 lb. rail transitions installed at the merge with Phase I at the DeBaliviere Junction. Excluding the Forest Park-DeBaliviere Junction station, there are nine (9) stations on the Phase III alignment:

- Skinker-University City (subsurface – tunnel with mezzanine level)
- University City-Big Bend (subsurface – tunnel with mezzanine level)
- Forsyth (below grade)
- Clayton –Central (Shaw Park Garage)
- Richmond Heights (Park & Ride)
- Brentwood I-64 (Park & Ride; Meridian Garage; below grade)
- Maplewood-Manchester (Elevated; Bus Loop)
- Sunnen (Park & Ride)
- Shrewsbury Lansdowne I-44 (Elevated; Park & Ride)

3.1.8 Crossover Arrangements on Phase III

- Big Bend Interlocking– Universal crossover (in tunnel)
- Enterprise Interlocking - Universal crossover
- Clayton Road Crossover – Single crossover (hand throw)
- Brentwood Interlocking - Universal crossover (on bridge)
- Shrewsbury Interlocking - Double crossover (scissors with a diamond configuration) and tail track

3.1.9 Stations

The stations are attended and fare collection is accomplished via a self-service proof-of-payment system. Security at the stations is provided through roving contract security and law enforcement task force details, Transit Security Specialists, undercover police surveillance teams, Transit Service Managers, and Fare Inspectors. undercover police surveillance teams, Transit Service Managers, Fare Inspectors, and roving security posts. An elevator, escalator, or an ADA18 compliant ramp services all of the elevated and subsurface stations. An ADA compliant public address system including speakers and message boards convey visual and audible information to passengers. In addition, conditions at station platforms are monitored by closed circuit television (CCTV) and passenger assistance telephones (PAT) available on most platforms and at Ticket Vending Machines (TVMs). Most parking lots and garages also have CCTV (some have pan, tilt and zoom functions), and blue light emergency telephones. The Public Safety dispatch center located at the Operations Control Center (OCC) monitors the CCTV system and PATs on a 24-hour basis. Additional details can be found in the separate System Security Plan.

3.1.10 Tunnels

The MLRFGS has a total of eight (8) tunnels on Phases I & III. Phase II has one (1) pedestrian tunnel below the alignment. Most of the longer tunnels have either wet or dry standpipe systems and are designed to comply with NFPA20 130. All tunnels are equipped with closed circuit television cameras (CCTV) to support video analytic software used by Security Dispatch at the OCC. Jet fan ventilation systems are included in the Skinker & Big Bend Tunnels on Phase III. All tunnels are equipped with blue light emergency telephones.

3.1.11 Bridges

There is a total of fifty-six (56) rail bridges along the MLRFGS ROW. Most of these bridges span highways; however, several span creeks or ditches and seven (7) are over freight rail tracks. The Eads Bridge employs closed circuit

television cameras (CCTV) to support video analytic software used by Security Dispatch at the OCC. No Clearance Zone Signage has been posted on all Phases to delineate areas of limited horizontal clearance. There are non-slip walkways at the centers of most bridges to provide safety for maintenance employees and patrons (in the event of an evacuation).

3.1.12 Pedestrian Overpasses

There are several pedestrian bridges (overpasses) on Phase I, II, and III:

- Des Peres Pedestrian Bridge (CC0.5, Metro-owned)
- Ackert Walkway from Washington University to the north side of Forest Park Parkway (CC1.2, owned by others)
- Ritz Carlton Pedestrian Overpass (CC2.6, owned by others)
- Clayton-Central Station Pedestrian Walkway – connects the Clayton-Central Station center platform to the Shaw Park Parking Garage to the north (CC3.1, Metro-owned)
- Pedestrian Overpass over Black Creek (CC5.8, Metro-owned)
- DeBaliviere Pedestrian Walkway Bridges (west and east sides of DeBaliviere Highway Bridge, MP 8.7, Metro-owned)
- Forest Park Pedestrian Walkway – existed prior to Phase I (MP 9.9, owned by others)

The Ritz-Carlton pedestrian overpass was constructed by Metro during Phase III but is owned and maintained by others. Each pedestrian walkway is protected by a fence or railing, and where applicable, posted warning signs to prevent contact with the Overhead Catenary System (OCS).

3.1.13 Light Rail Vehicles

The initial fleet of ML cars consists of 31 Siemens-built, Model SD 400 Light Rail Vehicles (LRVs). These 1000 series vehicles are bi-directional, and an operator's cab is provided at each end of the car. The cabs are identical except for some switches and electronic equipment installed only at one end. The LRV has a single articulation joint and is approximately 89 feet long. Each LRV has four double-width doors per side for high platform loading, as well as a low-level, single-width door at each end, at the right front position. The low-level door allows track-level access and/or emergency egress. The LRVs operate on nominal 860-volt DC electrification, with speeds capped at 55 miles per hour. The LRVs are equipped with 72 seats, and are capable of accommodating 106 standees (178 passengers in total) at a normal (AW2) loading (this provides for three square feet per standing passenger), and up to 212 standees (288 total passengers) at crush (AW3) loading. Metro added 10 2000 series AC powered LRVs in 1999 for the initial alignment. There are 24, 3000 series AC powered LRVs added to the fleet during the construction of Phase II. These vehicles are functionally identical to the existing fleet. Finally, 22 4000 series AC powered LRVs were added to the fleet for the Cross County Extension bringing the total fleet size to 87. These are also functionally the same as the existing fleet.

3.1.14 Light Rail Vehicle Design

Metro Light rail Vehicles are designed to "fail" in the safest manner possible so failure of any safety critical component will automatically stop the train or cause it to run at a safer, restrictive speed. The Automatic Train Protection (ATP) subsystem of the Automatic Train Control System (ATCS) assures safe separation of trains. The LRV operator performs daily pre-trip departure tests to ensure proper operation of safety-critical subsystems. The safety and security features of the LRV include:

- Fire extinguishers in every LRV cab;
- Dead man's pedal and hand held button;
- Passenger Intercom System;
- Emergency battery power provides communications, emergency car lighting, running lights and head and taillights if traction power is lost;
- Safety sensitive edges on all high level doors;
- The door interlock system prevents the train from moving while the doors are open;
- Internal manual door releases that are, in turn, linked to the LRV door interlock system (in an emergency the doors can be opened for passenger evacuation);

- Fire and smoke resistant materials;
- Each car is equipped with head lights, tail lights, brake lights, and railroad lamps;
- Cab signal input/output data monitoring system;
- Emergency braking capabilities exist to provide emergency stopping;
- Accidental decoupling protection;
- Pantograph lowering devices;
- A Public Address (PA) system for communication by the operator to passengers as well as to persons external to the train;
- All LRVs are equipped with cameras that record to a 6000 Pro Digital Video Recorder; and
- ML trains are operated manually with cab speeds of 0 (stop), 5, 15, 25, 35, 45, and 55 miles per hour as well as a yard mode. (Operation on sight, not to exceed maximum restricted speed of 15 MPH)

3.1.15 Train Control

There is a total of 24 interlockings with power-operated switches whereby Controllers can route trains to the other track and request a signal to reverse their direction. Both main tracks are cab signaled in both directions with proper traffic established. The signal system on all line segments of the MetroLink consists of an Automatic Train Protection (ATP) Signal System. The signaling system utilizes wayside signals located at interlocking and incab signals. Mainline block track circuits are double rail Audio Frequency (AF). Separation between mainline block track circuits is maintained by impedance bonds. Interlocking track circuits are a combination of double rail Audio Frequency (AF) track circuits and single rail power frequency (PF) track circuits operating at 60HZ or 100HZ. Separation between interlocking track circuits is maintained by insulated joints. All signal locations are controlled via vital microprocessors. Wayside signals provide authority through interlocking limits and the first track circuit beyond the interlocking. Cab signals provide authority through signal blocks and all speed commands. Cab signals operate at 2340 Hz and are modulated by various frequencies for the speed commands. Cab signals are directly injected at impedance bonds, or via cab signaling loops, depending upon the specific situation. There are 3 basic types of signal locations:

- Interlockings (Signal House): Locations including power switches and wayside signals.
- Audio House (Relay House): Location required when distance to adjacent interlocking is too far for AF track circuits to operate.
- Highway Grade Crossing (Crossing Case): Signal case located at highway grade crossing for controlling flashing light and gates.

The design of the signaling system complies with all relevant requirements of the American Railway Engineering and Maintenance-of-Way Association (AREMA). This design ensures no single, independent component failure results in an unsafe condition. Color-light wayside signals at interlockings and eight (8) aspect cab signals are used. The critical safety features of the signal and train control system are described below: The Automatic Train Protection System is a vital fail-safe system that ensures safe train operation. It consists of car borne and wayside equipment and performs the following functions:

- Prevents rear-end collision;
- Prevents head-on collisions caused by allowing or admitting trains onto conflicting, converging, or opposing routes;
- Prevents derailments caused by switch movement directly ahead of or beneath a train;
- Enforces maximum authorized, civil and temporary speed restrictions;
- Provides broken rail protection;
- Provides insulated joint breakdown protection;
- Provides route integrity and security for approaching and traversing established route trains; and
- Provides traffic integrity between interlockings.

Aspect	Indication
Green	Straight Route at permitted speed
Green Over Lunar	Straight Route – Restricted speed
Yellow	Diverging Route into Normal Direction of Travel at permitted speed
Yellow Diverging	Route into Normal Direction of
Yellow Over Lunar	Diverging Route – Restricted speed
Red	Red Stop
Flashing Yellow	Diverging Route Against Normal Direction of Travel at permitted speed
Lunar	Restricted speed

3.1.16 Wayside Signal Aspects used on MLRFGS

Highway Grade Crossing Safety Features

A flashing lunar indicator at grade crossings informs the operator the flashing lights are activated, but the crossing gates are not in a horizontal position.

A solid lunar indicator at grade crossings informs the operator the crossing gates are in a horizontal position and other crossing equipment is functioning properly.

Where grade crossings are at the end of a platform, dwell times and speed reduction are used to ensure sufficient time exists for the crossing gates to come down.

3.1.17 Operations Control Center (OCC)

The OCC is located at the Ewing Yard & Shops facility. Its function is to direct, control, and monitor operations using radio, telephone, CCTV, and public address communications. Light Rail Controllers, assigned to OCC 24 hours each day, are responsible for all movement of trains and equipment on the mainline. The Controllers, through the Supervisory Control and Data Acquisition (SCADA) system can view and activate critical safety and security features including the following:

- Fire protection equipment and deluge systems;
- Security systems;
- Train movements;
- Power removal and restoration at substations and on the catenary system; and
- Tunnel ventilation systems.

The Controller can implement required corrective actions necessary to maintain regular service or special event schedules as well as those necessary to minimize the adverse impacts of equipment failures or emergency situations. The Controllers monitor and control operations through proper use of the following system equipment:

- SCADA System: Each Controller monitors SCADA displays to ensure the status of and allow for train control, traction power systems, fire and intrusion, and other essential communication systems;
- CCTV: Each Controller has access to CCTV cameras to help monitor and coordinate activities on the MetroLink system. CCTV cameras are located on each station platform and at select parking lots, ticket machines, and other locations throughout the system; and
- Metro Bus Communications and Public Safety Dispatch are also located in OCC

3.1.18 Communications

- Public Address
- Radios
- Telephones in communication rooms, signal bungalows and substations
- Fiber Optics system
- CCTV
- SCADA
- Passenger Assist Telephones (PATs)
- Emergency Telephones (ETs)
- Intrusion and fire detection systems
- Tunnel Ventilation Control System (TVCS)

Employees and patrons are able to communicate with security personnel at the OCC from any station through the use of PATs. Security also monitors station activity using CCTVs. Telephones and the station's public address system is used to communicate verbal instructions to passengers. Safety and security features of the Communications System include:

- Vandal-resistant PATs located on the platform, and at multiple TVM sites;
- Emergency telephones (blue light) are located in the tunnels (at the ends and at each emergency egress:
- location) and on many parking lots:
- A Public Address System at stations and on the LRVs;
- CCTVs23 are located throughout the system as follows:
    - At all stations; primarily focused upon the PAT and platform edge
    - In parking lots and parking garages
- ENCRYPTIC Digital Recording Device Cameras on LRVs;
- Intrusion detection at traction power substations and signal/communication rooms;
- Smoke detectors and/or fire/smoke alarms in maintenance facilities, MetroLink station comm rooms, signal/interlocking houses, traction power substations, and underground stations;
- Fixed and portable radios for operations, maintenance, security, yard and management personnel;
- Emergency stop buttons and failure alarms on escalators;
- Emergency phones in elevators; and
- Information boards.

3.1.19 Radio System

MetroLink Operations staff including Operators, MOW/ROW, Safety and Public Safety have access to the first five (5) channels listed below. Channels beyond five (5) are division/department specific. Currently, mobile and portable radios provide two-way voice communication via 5 preset channels as follows:

Channel Designation:

- (1) MetroLink Operations East (Union Station to Shiloh-Scott)
- (2) MetroLink Operations West (Union Station to Lambert Airport Main including Cross County Extension)
- (3) Operations Emergency
- (4) Ewing Yard
- (5) 29th Street Yard

MetroLink Subscriber radios (portable and mobile) are connected to OCC and each other through a region wide communications network. The network is divided into five cells and the associated tunnel subsystems.

3.1.20 Ewing Yard and Shops

This location is a 12-acre facility adjacent to the mainline at 700 South Ewing Avenue in the city of St. Louis. It can functionally accommodate 50 LRVs. The main shop building is 71,000 square feet and contains the facilities and equipment required to maintain ML passenger vehicles, fixed facilities and equipment. Its construction is pre-cast concrete exterior wall panels and steel columns and joists. The second floor office space is framed by metal studs and drywall and a single-ply membrane roofing over rigid insulation covers the entire structure. The Ewing Facility is 100% covered by sprinklers with a wet pipe system. The system is equipped with a sprinkler system flow alarm and valve switches integrated with a fire panel which is connected to alarms, smoke detectors, pull boxes and sprinkler tamper alarm. The fire panels are located in a 24-hour attended location. The Shop area includes the following LRV service, inspection, and repair facilities:

- A car wash facility for exterior vehicle cleaning;
- A platform for interior vehicle cleaning;
- A blow down facility for traction motor and undercarriage cleaning;
- A running repair track for scheduled car servicing inspection, minor repairs, and changing-out minor components;
- A heavy repair area for vehicle overhauls, major repairs and modifications, exchange of trucks, and vehicle wheel truing;
- A truck shop for repair and overhaul of trucks and change-out of truck components;
- A wheel and axle shop for dismounting and pressing wheel and bearings;
- A pantograph shop for testing and repairs;
- A brake shop for testing and repair;
- A coupler shop for testing and repair;
- A heating, ventilation, and cooling (HVAC) shop for testing and repair; and
- Component repair shops support maintenance services for all elements of the ML system and include:
    - Welding shop
    - Electrical room
    - Mechanical room
    - Machine shop
    - Electronics shop
    - Wheel truing equipment

The Ewing Yard and Shops also houses the Operational Control Center (OCC), Bus Communications and Public Safety Dispatch (mezzanine level) where personnel monitor, direct, and control ML operations. The Rail Dispatcher, who controls movement in the Ewing Yard, is located on the 1st floor of the facility inside the front entrance.

3.1.21 29th Street Yard and Shops

This is located at 2901 St. Clair Avenue, East St. Louis, IL, just east of the Jackie Joyner-Kersee Center Station, on the mainline. This facility accommodates 48 LRVs.

The 29th Street facility is approximately 51,800 square feet, located on a 15-acre site, with two through tracks and two, one-LRV-long stub tracks. One through track includes a car wash and an interior cleaning location. The other through track, with four car spots, is for running repairs. The two stub tracks that enter the shop from the west are equipped with a bridge crane and truck turntables to perform heavy maintenance. It is primarily a single story facility, but there is some limited parts storage on a mezzanine. An LRV paint facility with two stub tracks is located on the southeast side of the main building. One track is configured for painting preparations (e.g. body work), and the other is a paint booth. The Rail Dispatcher, who controls movement in the 29th Street Yard, is located on the 1st floor of the facility inside the front entrance.

The 29th Street Yard is equipped with the same component repair capabilities as the Ewing Yard with the exception of the wheel truing equipment. There is also a limited amount of office space on the first floor. The 29th Street facility is constructed in a similar fashion to Ewing and the fire protection system is identical.

3.1.22 Electrification & Power Distribution System

The LRV is propelled by electricity furnished by a power conversion and distribution system. There are thirty-one (31) substations located near the passenger stations along the ROW and there is one at each yard and shops facility. These provide power to the distribution system. The distribution system is composed primarily of a contact wire above each track, together with associated feeder cables, support poles, and components.

3.1.23 Substations

Substation electrical supply equipment receives high voltage three-phase Alternating Current (AC) power from Ameren Missouri at both 34.5 Kilo Volt (KV) and 13.8 KV, depending upon the location of the substation, and from Ameren Illinois at 12.47 KV. The substations convert the AC power to 860 Volt Direct Current (VDC) nominal line voltages. Manual controls at the substations allow local power to be removed and restored.

Substations are equipped with smoke/fire detectors and intrusion detectors, and with equipment status monitors. Some of the conditions monitored include:

- Traction power disconnects
- Transformer over-temperature (stages 1 & 2)
- Rectifier diode over-temperature (stages 1 & 2)
- DC current breaker tripped (east or west)

All detected alarms and controls at the substations are transmitted to OCC via SCADA.

3.1.24 Power Distribution System

The electrical power distribution system is constructed using either direct suspension (suspended from cross span wire) or messenger/catenary wire suspension (suspended from horizontal arms extended out from a support pole) or by overhead conductor rail (Eads Bridge). In tunnels, the messenger and contact wires are mounted to the roof. The messenger/catenary system includes both fixed and auto-tensioned sections.

Safety and security features of the electrification system include:

- Only trained and qualified employees are allowed to access substations;
- Doors to substations are locked and vandal-resistant;
- Fire and intrusion detection are provided;
- OCC can selectively remove and restore traction power to the OCS and the substations;
- Mechanical disconnect switches are mounted on OCS poles in Phase I and mounted at grade in vandal-proof boxes on Phase II and Phase III and on some newer Phase I installations;
- OCS disconnect switches have locking mechanisms to guard against unauthorized operation;
- All OCS support structures are grounded and double insulated;
- All draw-out switchgear are mechanically interlocked with breakers; and
- Critical safety functions are monitored from the OCC.

3.1.25 State of Good Repair (SGR) & Transit Asset Management

One of the significant requirements of MAP-21 is that each transit agency develop a Transit Asset Management Plan (TAM). Metro began developing this plan in 2012 and has finalized its detailed listing of critical assets. The initial phase of this project resulted in completed asset listings for the Ewing Yard & 29th Street, Signals, Stations, and Traction Power Substations. Moving Ahead for Progress in the 21st Century Act (MAP-21) supports the Department of Transportation's (DOT) aggressive safety agenda. One of the significant requirements of MAP-21 is that each transit agency develop a Transit Asset Management Plan (TAM). The elements of the TAM include:

- Current asset inventory
- Asset condition assessment

- Performance measures
- Investment prioritization
- Tracking system that factors Safety

The FTA developed the National Safety Plan, which sets national priorities through performance based requirements; articulates goals for improved safety risk analysis and performance management in future national safety plans; defines process for collecting improved, standardized industry safety data; establishes clear and consistent definitions/metrics for tracking performance allowing for performance comparisons across agencies and enabling FTA to formulate national trend data and set priorities. Metro initiated development of its TAM in 2012 and its contractor, Code Red Business Systems (CRBS) completed the current asset inventory listings for the following asset groups:

- Bus & Rail Maintenance Facilities
- MetroLink Stations
- Transfer Centers
- Yard & Shops
- Vehicles
- Signal & Train Control Systems
- Communications Systems
- Track
- Overhead Catenary System
- Traction Power Substations

The Metro Asset Management Improvement Committee (AMIC) was commissioned in 2014 and is developing the necessary policies and procedures that will further the asset management culture. Metro's Asset Management System, Maximus 5 (M-5) is currently utilized to track Metro assets through the unit lifecycle. Assets are assessed based on age, condition, and performance and once the FTA releases guidance on safety requirements the database shall be utilized to query safety critical data to support better decision making and trend analysis. CRBS, being cognizant of forthcoming regulations has included place holder registers for inventory forms.

The plan divides the assets into four major classes - Vehicles, Facilities/Stations, Guideway, and Systems. A top level view of those classes is shown in the below table.

In the fall of 2017, Metro began the implementation of an enterprise Asset Management (EAM) software system. The provider of the software, Trapeze Software Group, is well known to Metro and to the public transit community. In addition to Asset Management, the software will perform as a maintenance management system. This system provides all of the above listed elements of a TAM. The EAM software will be fully implemented in eighteen (18) months to two (2) years.

The nexus between SMS and TAM is not prescriptive in the MAP-21 rulemakings. Metro is exploring how to functionally integrate these management systems, starting with identification of the assets most critical to transit system safety, and then identifying how Metro can better manage these assets to maximize the benefits of SMS and TAM.

3.1.26 Metro Asset Classes

Vehicles	Facilities/Stations	Guideway	Systems
•Rail vehicles and fixed	•Rail Maintenance	•Track	•Security

3.2 Bus and Paratransit Operations

3.2.1 Bus Fleet

The current fleet makeup for buses is 408 Cummins powered diesel vehicles. 393 manufactured by the Gillig Corporation and 15 manufactured by New Flyer. The active bus fleet is a mixture of 35, 40, and 60 foot vehicles ranging in age from 2000 to 2018. The average age of bus fleet at this time is 6.35 years.

3.2.2 Paratransit Fleet

The paratransit fleet is comprised of 1 Chevrolet C4500 built in 2008, 19 Chevrolet C4500s built in 2009, 49 Chevrolet C5500s built in 2010 and 37 Freightliner M2 built in 2015 and 17 Freightliner M2 built in 2016. All Chevrolet vans are powered by 6.6 Dura Max diesel engines and the Freightliner vans are powered by Cummins Interact System B (ISB). The average age of the van fleet is 5.84 years.

3.2.3 Fleet Specs, and Seating Capacity

Length	Width	Height	Seating
Bus			
40’	102”	114.5”	40/39
35’	102”	114.5”	32/20
60.7’	102”	110.4”	54/30
Van			
24’	96”	124”	14
25’	96”	125”	14
LRV			
89.6”	104.5”	150”	72

3.2.4 Bus Facilities

MetroBus currently has five (5) facilities. Each facility has its own maintenance shop. One of the facilities is located in Illinois and the remaining four are located in Missouri. Following is a list of the facilities/stations, their addresses, and telephone numbers:

- East St. Louis 801 N. 47th Street (618) 271-7450
- Brentwood 3000 S. Brentwood (314) 982-1441
- DeBaliviere 565 DeBaliviere (314) 982-1540
- Central Facility Compton & Spruce (314) 982-1504
- Bus Operations Control 700 Ewing (314) 289-6868

Each bus facility/station has a Facility Director and the Missouri facility/stations have a Station Superintendent. All Operators are assigned to a station and are under the immediate supervision of a Transit Service Manager (TSM). It is the Station Superintendent's job to guarantee the smooth and efficient operation of his/her station. The Station Dispatcher is in charge during the absence of the Station Superintendent. You will come in contact with him/her every day. The Station Dispatcher's duties include making your work assignment. Some stations have a clerk who assists in the handling of office clerical duties, including the typing of accident reports. It is important that you cooperate with all station personnel. In the event that you have any questions or problems, solicit the aid of the station personnel.

3.2.5 Metro Transit Centers

- Ballas Transit Center 790 South New Ballas, Town & Country, St. Louis, MO 63141
- Catalan Loop Transit Center 8610 South Broadway, St. Louis, MO 63111
- Central West End Transit Center 4510 Children's Place, St. Louis, MO 63110
- Civic Center Transit Center 401 South 14th Street, St. Louis, MO 63103
- Hampton-Gravois Transit Center 7315 Gravois, St. Louis, MO 63101
- North Broadway Transit Center 6231 North Broadway, St. Louis, MO 63147
- North County Transit Center 3140 Pershall Rd., Ferguson, MO 63136
- North Hanley Transit Center 4300 Hanley Road, St. Louis, MO 63134
- Riverview Transit Center 9000 Riverview Drive, St. Louis, MO 63147
- Shrewsbury-Landsdowne I-44 Transit Center 7201 Lansdowne Ave., St. Louis, MO 63119
- Washington Park Transit Center 909 N. 54th Street, East St. Louis, IL 62203

3.2.6 MetroBus Routes

Missouri Routes		
1 Gold	35 Rock Road	73X I-55 Express
2 Red	40 N. Broadway	73 Carondelet
4 Natural Bridge	41 Lee	74 Florissant
5 Green Line	42 Sarah	75 Christian Hospital
8 Shaw-Cherokee	46 Tesson Ferry	76 McDonnell-Waterford
9 Oakville	47 Hanley	77 Village Square
10 Gravois-Lindell	49 Lindbergh	78 Bellefontaine
11 Chippewa	56 Kirkwood-Webster	79 Ferguson
13 Union	57 Manchester	79X North County Express
16 City Limits	57X Clayton Road	90 Hampton
17 Mackenzie	58 Chesterfield Valley	91 Olive
18 Taylor	58X Twin Oaks Express	94 Page
19 St. Louis Avenue	59 Oakland	95 Kingshighway
21 Watson Road	60 Shepley-Lilac	97 Delmar
30 Arsenal	61 Chambers	98 Ballas-North Hanley
31 Chouteau	64 Lucas-Hunt	100 Hazelwood
32 Dr. ML King	65 Outer Forty	101 Fenton Connector
33 Midland	70 Grand	174X Halls Ferry Express
34 Earth City	71 Patterson-Redman	410X Eureka Express
Illinois Routes		
1 Main Street-State Street	8 Alta Sita	16 St. Clair Square
2X Waterloo-Columbia	9 Washington Park	17 Carlyle Plaza-17th Street
2 Cahokia	12X ML Station Shuttle	17X Lebanon-Mascoutah
4 19th & Central	12 O'Fallon-Fairview Heights	21 Scott AFB-Main
5 Missouri Ave.-ML King	13 Caseyville-Marybelle	21X Scott AFB-East
6 Rosemont	14 Memorial-Westfield Plaza	22X Sauget Industrial Parkway

7 Fairmont City	15 Belleville-Shiloh-O'Fallon	

4 Administration

It is the responsibility of Metro's Senior Staff, Directors, Managers and Supervisors to ensure safety throughout the system. Safety responsibilities and tasks are described throughout this section.

4.1 Board of Commissioners

The Board of Commissioners is a bi-state entity under the control of a 10 member Board of Commissioners appointed by government bodies from participating states, which presently include Missouri and Illinois.

4.2 President & CEO

The President & CEO has the ultimate responsibility of implementing the PTASP and directs the allocation of available resources as necessary to meet system safety goals and objectives and monitors and evaluates safety programs. This position also is responsible for carrying Metro's Transit Asset Management Plan (TAM) and has control/direction over the human and capital resources needed to develop and maintain both the PTASP[1] and the TAM[2]. In addition, the President & CEO implements Metro's safety policy and, provides policy direction to departments while advising in the development of strategies for resolution of major problems.

4.1 General Manager System Safety, Security, & Emergency Management

The President & CEO has designated the GM System Safety, Security, and Emergency Management to act as the Chief Safety Officer[3] (CSO) over Metro Transit. This position holds a direct line of reporting to the President & CEO. The GM System Safety, Security, and Emergency Management has the authority and responsibility for the day-to-day implementation and operation of Metro's SMS.

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4.2 Dir System Safety, Security, and Emergency Management

The Dir System Safety, Security, and Emergency Management has the authority and responsibility for the day-to-day implementation and operation Safety Department activities. This position reports directly to the GM System Safety, Security, & Emergency Management.

The Safety Department is further staffed by: Sr. Manager Regulatory Compliance & Program Oversight, Drug and Alcohol Program Manager, Safety Auditors who carry out safety activities and report to the Dir System Safety, Security, and Emergency Management.

4.3 Executive Director Metro Transit

The Executive Director Metro Transit is responsible for the following functions: operations training; transit information; ADA compliance; rail, bus and paratransit operations; maintenance operations; scheduling; and service planning. In addition, this position oversees the grievance procedure and arbitrations and manages all committee activities between labor and management.

[1] In accordance with 49 U.S.C. 5239(d)
[2] In accordance with 49 U.S.C. 5326
[3] In accordance with 49 CFR Part 673

Metro Executives reporting directly to the Executive Director include:

- Assistant Executive Director Engineering Systems
- Asst. Executive Director Transit Assets
- Asst Executive Director Planning & Systems
- General Manager of Call-A-Ride
- General Manager of MetroLink
- General Manager of MetroBus
- ADA Coordinator

Executives and their supporting staffs are described below.

4.4 General Manager MetroBus and Paratransit

Responsible for the following functions: safety in operations; operations training; transit information; ADA compliance; scheduling; and service planning. In addition, this position oversees the grievance procedure and arbitrations and manages all committee activities between labor and management.

4.5 General Manager MetroLink

Responsible for the following functions: safety in operations; operations training; transit information; ADA compliance; scheduling; and service planning. In addition, this position oversees safety in maintenance; maintenance training; transit information; ADA compliance; maintenance operations and oversees the grievance procedure and arbitrations and manages all committee activities between labor and management.

4.6 Asst. Executive Director Transit Assets

Responsible for the following functions: safety in maintenance; maintenance training; transit information; ADA compliance; maintenance operations. In addition, this position oversees the grievance procedure and arbitrations and manages all committee activities between labor and management for maintenance positions.

4.7 Exec VP Administration

Metro combines budget, payroll and accounting into one cohesive Finance Division whose Chief Financial Officer reports to the Sr. VP Chief Financial Officer. The Finance Division encompasses six functions: Accounting, Budgets, Fare box Revenue Collection, and Information Technology. Specific safety-related functions of the Finance Division include facilitating achievement of Safety Plan objectives through preparation and control of Metro's budget, staffing level recommendations and monitoring and control of capital programs.

4.8 Assistant Executive Director Engineering Systems

The Engineering Department is responsible for ensuring that equipment purchased by Metro meets safety requirements and that design requirements have been coordinated with all appropriate departments, as well as, grants administration,. As required, the Engineering Department may be assisted by a Program Management Consultant and Construction Management Consultant, General Architectural and Engineering Consultant, and contractors.

4.9 Exec VP Organizational Effectiveness

Human Resources is responsible for assuring that staff positions are effectively defined and classified and that qualified personnel are identified to meet staffing needs. Human Resources manages, coordinates and monitors all employee relations activities and employee benefit programs. This department also manages the employee assistance programs.

4.10 VP Marketing & Communication

Marketing and Communications is responsible for public relations, marketing and retail sales, advertising, film production and creative services. The Public Information Officer provides liaison with the public and provides information on Metro operations.

4.11 General Manager Field Security

General Manager Field Security is responsible for coordinating day to day operations that include providing security for Metro's system including all operating facilities and protecting and safeguarding Metro's employees and riders.

4.12 Legal Counsel/Claims

Metro uses the following resources for legal services:

- Outside legal counsel;
- Metro's internal and external counsel for legal issues including workers' compensation, legal opinions, human resources and insurance, and an in-house department to handle claims (both liability and workers' compensation) and to direct outside counsel to handle the litigation.

5 Safety and Security Committees

5.1 Safety and Security Certification Review Committee (SSCRC)

When undertaking a major capital project, the Safety and Security Certification Review Committee (SSCRC) is the forum for formal discussion of safety and security issues. The SSCRC is a multi-disciplined group representing Metro and its program management, construction management, architectural, and general engineering consultants and contractors. The SSCRC is chaired by the Assistant Executive Director of Engineering Systems and co-chaired by the GM System Safety, Security, and Emergency Management, and the Dir System Safety, Security, and Emergency Management. The committee is comprised of managers and staff having specific expertise in systems engineering, facilities engineering, maintenance engineering, program and construction management, operations, safety and security, emergency management, systems integration, public participation, rail vehicles, and risk management.

The structure of the SSCRC is the following:

- Assistant Executive Director of Engineering Systems, Chair
- GM System Safety, Security, and Emergency Management, Co-Chair
- Dir System Safety, Security, and Emergency Management, Co-Chair
- Asst. Executive Director Transit Assets
- Director of Field Security
- General Manager MetroLink
- General Manager MetroBus
- General Manager Call-A-Ride
- Senior Director of Maintenance of Way
- Project Manager
- General Manager Field Security
- BSSO Representative, Observer

SSCRC activities include:

- Assuring safety and security requirements are incorporated in the contract drawings and documents through a process of design review.

- Ensuring safety and security requirements and conformance checklists that have been developed for the construction of the major capital project are formally reviewed and approved.
- Review, monitoring and oversight of safety and security issues not resolved by the consultant design team and/or construction contractors.
- Assure coordination between all represented Committee members, including the design to facilities, systems, and equipment.
- Reviewing safety hazards and security vulnerabilities identified through analyses, assessments, design reviews and other mechanisms so as to ensure that they are being fully addressed.
- Track the status of identified hazards and vulnerabilities.
- Issuance of reports on SSCRC activities and outstanding issues.
- Issues Conformance Certificates for safety related elements in design and other phases of the major capital project through the entire project.
- Coordinates and assures final Safety and Security Certification Verification report is signed and issued prior to revenue operations.

5.2 Executive Safety and Security Review Committee (ESSC)

Metro takes a proactive approach to system safety by identifying and assessing system-wide safety and security issues in the Executive Safety and Security Committee (ESSC) meetings. The ESSC has been established to facilitate safety and security coordination among Metro departments. Chaired by the President & CEO, the Committee is charged with the responsibility of assisting in maintaining a high level of system safety and security. This committee brings together the common sense, technical expertise and unique perspectives of a variety of staff to focus upon system safety and security issues. The committee functions as the interdepartmental unit empowered to lead Metro in hazard management efforts. The ESSC assesses system-wide safety and security issues and verifies that safety and security is considered and incorporated in any new procedures, training programs, facilities and designs.

This committee meets at least quarterly and supports Safety in the following:

- Determining safety and security compliance with management policies, rules, procedures and assigned security responsibilities;
- Reviewing and discussing identified hazards and status of activities to resolve including review of supporting documentation (e.g. hazard tracking log, hazard investigation reports, and inspection reports);
- Reviewing safety and security data, information, and trends and identifying organizational issues that may contribute to events or less effective response to events;
- Actively promoting safety and security campaigns;
- Reviewing drills, exercise scenarios, and after action reports;
- Proposing improvements in safety and security procedures, equipment, and training;
- Assessing safety and security impacts of facility and/or operational changes;
- Annual review and revision as needed of the Safety Plan, as well as assuring its implementation;
- Monitoring compliance of each department with specific safety responsibilities and procedures as set forth in the Safety Plan by reviewing the results of safety audits conducted by the Safety Department;
- Participating in accident/event investigations as appropriate and in accordance with Metro's established procedures. The type of accident/event dictates who investigates the accident/event, appropriate forms or reports to be used and who is to be notified;
- Performing system safety review functions as required. Coordinating and follow up with any external safety audits and participating as required (e.g., BSSO, peer reviews);
- Collecting, analyzing and reporting safety data. Reviewing maintenance and failure rate data to identify safety problems;
- Reviewing results of safety inspections, emergency drills, simulations and tests and developing action as appropriate;

- Preparing written documentation of all meetings, tasks, activities, investigations, analyses and recommendations. Following up on all pending matters;
- Establishing safety goals and objectives as defined by Metro employee safety program; and
- Resolving field-related operating issues that may require a change, modification and/or addition to fixed safety/operational assets and/or operating procedures as a result of accidents, events, or field observations that relate to day-to-day safe and secure operations.

ESSC Committee members include:

- President & CEO (Chair)
- GM System Safety, Security, and Emergency Management (Chief Safety Officer) (Co-Chair)
- Dir System Safety, Security, and Emergency Management (Co-Chair)
- Executive Director Metro Transit
- GM Field Security
- Director of Field Security
- Executive Vice President of Organizational Effectiveness
- Asst. Executive Director Transit Assets
- General Manager MetroLink
- General Manager MetroBus
- General Manager Call-A-Ride
- Chief Financial Officer
- Vice President of Marketing and Communications
- Emergency Management Coordinator
- Chief Audit Executive (Observer)
- Assistant Executive Director Engineering Systems
- Executive Vice President of Administration
- Vice President Economic Development
- General Counsel
- Director of Risk and Absence Management
- Assistant Executive Director of Planning and System Development

6 Safety Tasks by Position

6.1 GM System Safety, Security, and Emergency Management

The GM System Safety, Security, and Emergency Management serves as the Chief Safety Officer and is responsible for developing Metro's safety and security strategic direction and providing the day-to-day leadership, management and administration of the Metro safety, security administrative activities, and emergency management programs through:

- Communicating Metro's safety and security goals and programs and strategic direction.
- Providing direction in the development, coordination, and implementation of security training programs.
- Assessing threats and vulnerabilities to the Metro system and recommending corrective measures to reduce the potential for crime and vulnerabilities of the Metro transit system.
- Managing security crime and threat statistics and trend analysis.
- Managing security assurance audits and corrective action plans.
- Assuring that the Metro security management program meets or exceeds applicable regulations and guidance of the FTA, Department of Homeland Security (DHS), and industry best practice.
- Assessing threat and intelligence information and related updates from TSA and law enforcement partners regarding Metro passengers, employees, and operations.
- Developing and overseeing the Public Safety Department budget.

6.2 Dir System Safety, Security, and Emergency Management

The Dir System Safety, Security, and Emergency Management carries out the day-to-day responsibilities of the Safety Department by:

- Directing and monitoring of the SMS program at Metro, and ensuring immediate corrective action is implemented for failures of the SMS.
- Providing monthly status reports to the President & CEO on items of immediate concern and quarterly on SMS compliance agency-wide.
- Providing information, recommendations and status reports to the President & CEO on resource allocation supporting SMS compliance at Metro.
- Ensuring sufficient manpower and equipment resources are adequately deployed at Metro to meet SMS requirements, and informing the President & CEO of any deficiencies in this critical area.
- Co-Chairs monthly ESSC meeting to address system hazards and other safety concerns.
- Provides primary consultation and guidance on SMS implementation throughout the agency.
- Provides monthly reports to the President & CEO on SMS compliance agency-wide.
- Oversees and supports departmental assessments, investigations, inspections, observations and other Safety Assurance activities to ensure full compliance with SMS.
- Participates in formal meetings with BSSO, President & CEO, GM System Safety, Security, and Emergency Management, and other Metro management on safety issues.
- Assists in and supports development of safety policies, procedures, and programs.
- Supervises and oversees work of assigned safety staff, conducts performance reviews with staff, and initiates appropriate actions related to such.
- Serves as Metro's main contact with BSSO and other agencies related to safety programs and procedures.
- Prepares records, documents, and data required by such agencies.
- Supports the departmental investigations of employee and vehicle accidents/events and injuries.
- Works with Operations Training and Maintenance Training to develop programs to reduce accidents and injuries.
- Conducts inspections and researches safety codes, standards, and regulations.
- Supports the departmental collection and analysis of safety data and statistics, and reviews reports, records and documents of this analysis by departments. Ensures each department distributes its data/analyses to all other departments in a timely and accurate fashion.
- Coordinates staff safety meetings and attends meetings, conferences and group functions related to safety.
- Assists in the development of training sessions relating to safety issues.
- Identifies safety concerns, analyzes reports and information, supports the development of programs for accident injury prevention, and provides recommendations to reduce frequency of accidents.
- Assists in claim investigations of work-related injuries or disabilities; assists in preparation of files for litigation.
- Attends meetings at least quarterly with BSSO to review agency hazards.
- Establishes and implements effective industrial hygiene and occupational policies and procedures for operating and maintenance functions.
- Recommends, monitors, and evaluates Metro compliance activities with federal/state safety and health laws, hazardous waste management plans, and environmental standards and regulations.

- Establishes criteria for the selection, maintenance, and proper use of personal protective clothing and equipment.
- Participates in the development of training programs for Right-to-Know and Hazardous Materials Management and other regulatory mandated training.
- Oversees development and maintenance of industrial hygiene, occupational management databases and computer information systems, and
- Ensure the investigation of safety concerns reported to the Safety Department.

6.3 Sr. Manager of Regulatory Compliance and Program Management

The Senior Manager of Regulatory Compliance & Program Oversight oversee Safety programs and serves as the primary point-of-contact for all regulatory audits. This includes:

- Supporting the Dir System Safety, Security, and Emergency Management and General Manager of System Safety, Security, and Emergency Management.
- Leading the SMS program, Drug & Alcohol Program, Regulatory Compliance Program, and the System Safety/Security Document Control Program.
- Directing Metro's regulatory audits and serving as a liaison to the State Safety Oversight (SSO).
- Developing/Sustaining collaborative relationships with internal departments, regulatory agencies, key stakeholders, customers, and the public.
- Representing the agency on various safety committees and organizations.
- Supervising the Drug and Alcohol Administrator and its support position.

6.4 Drug and Alcohol Program Manager

The Drug & Alcohol Program Manager is responsible for the implementing and managing Bi-State's Drug & Alcohol Program and ensuing compliance with federal requirements. This includes:

- Monitoring compliance with the DOT/FTA/USCG Drug and Alcohol Testing Programs to ensure all applicable testing types and thresholds are met.
- Ensuring all employees receive the necessary training and are aware of drug and alcohol policies.
- Maintaining an accurate list of safety sensitive employees.
- Scheduling random selection, reasonable suspicion, and DOT testing.
- Maintaining secure recordkeeping systems for all testing records and related materials.
- Generating reports.
- Serving as Metro's Designated Employer Representative (DER) during disciplinary hearings.

6.5 Safety Auditors

- Investigates and reports on complaints, events, accidents and hazards as required.
- Handles fire-life safety deficiencies that do not require contractor or facilities maintenance.
- Performs documentation audits for compliance with SMS.
- Provides support for the Safety Department.
- Collects and analyzes data and performs trend analysis.
- Provides safety messages to all operators.
- Conducts safety meetings/trainings.
- Performs safety inspections: Facility & Shop, mainline & work site, and construction site.
- Participates in MetroBus and Paratransit activities and attends monthly meetings, and
- Develops and performs safety-related training.

6.6 Emergency Management Coordinator

The Emergency Management Coordinator leads the development and implementation of Metro's emergency management programs, training, procedures, and drills and exercises, including:

- Developing and managing emergency management training for Bi-State and Metro managers, supervisors, and employees.
- Implementing and exercising Bi-State and Metro facilities emergency response and evacuation plans for building occupants at all Metro facilities. In collaboration with operations and department managers at each facility, implementing and sustaining facility-specific emergency teams, related emergency SOPs, and training and exercise programs.
- Developing, implementing, and exercising Bi-State's Emergency Operations Plan (EOP) and other emergency management documents for response to winter operations, tornados, terrorist events, and evacuation operations, in coordination with first responder agencies throughout the Metro service area.
- Updating and implementing Metro's Emergency Familiarization Plan for bus and rail vehicle and infrastructure familiarization training for police, fire, and other emergency personnel.
- Developing and maintaining the Bi-State's Continuity of Operations Plan (COOP).
- Preparing and submitting monthly reports to federal and state regulatory agencies, as required.

7 System Safety Task Matrix

The remainder of this section describes in matrix and narrative format the specific activities required to implement the Safety Management program.

Table B System Safety Task Matrix

Safety Tasks by Functional Area	Executive	Maintenance	Operations	Safety	Finance	Engineering	ESSC	Frequency
Develops system safety policy statement	A	S	S	P	S	S	S	AR
Develop Safety Plan	A	RC	RC	P	S	S	RC	AR
Update Safety Plan	A	RC	RC	P	S	S	RC	Yearly
Liaison with BSSO	S	S	S	P	S	S	S	AR
Conduct internal safety audits	A	P	P	P	P	P	S	Yearly
Develop emergency response plans	A	P	P	P	S	S	S	AR
Investigate, document and report all accidents/events	S	P	P	S	S	S	S	AR
Collect, analyze, document, distribute and review safety data	RC	P	P	S	P	P	S	Daily
Report required threshold accidents to outside agencies (BSSO, FTA, NTSB)	A	S	S	P	S	S	S	AR
Hazard management	S	P	P	S	P	P	P	AR
Configuration management	S	P	P	S	P	P	P	AR
Safety and security certification	S	S	S	S	S	P	S	AR
Training Functions	S	P	P	P	P	P	S	AR
Design reviews	S	S	S	S	S	P	S	AR
Occupational safety and health programs	S	P	P	P	S	P	S	AR
Implement SMS	P	P	P	P	P	P	P	Daily

Responsibility: Participants are responsible, as shown in the matrix, for:
A Approval – approving specified documentation
P Primary Task – including preparation of the specified documentation
S Secondary/Support – provide necessary support to accomplish and document task.
RC Review & Comment – review and provide comment on the task or requirement.
Frequency:
(D) Daily, **(M)** Monthly, **(Q)** Quarterly, **(Y)** Yearly, and **(AR)** As Required.

8 KEY SMS PERSONNEL AND RESPONSIBILITIES

Within Metro, each department/functional area provides distinct roles and carries out specific safety management responsibilities to ensure the protection of passengers, employees, emergency responders, the community served, and Metro's property.

Safety management responsibilities by department/function are summarized in the following table:

Table C
Key SMS Personnel by Department with System Safety Management Accountability

Department/Functional Area	Specific Position(s) with Safety Management Accountability / Key Departmental SMS Personnel
Human Resources	Director of Human Resources
System Safety & Security	GM System Safety, Security, & Emergency Management & Dir System Safety, Security, and Emergency Management
Marketing and Communications, Public Information	VP Marketing & Communication
Public Safety	General Manager Field Security
Rail Operations	General Manager of MetroLink
Bus Operations	General Manager of MetroBus
Paratransit Operations	General Manager of Call-A-Ride
Operations Training Rail	Assistant Superintendent Light Rail Training
Operations Training Bus & Paratransit	Director of Bus and Van Operator Training
Scheduling and Service Planning	Asst. Executive Director Planning & Systems
Bus, Rail and Paratransit Vehicle Maintenance	Asst. Executive Director Transit Assets
Bus Maintenance	Chief Mechanical Officer
Rail Maintenance	Chief Mechanical Officer
Paratransit Maintenance	Chief Mechanical Officer
Bus & Rail Facility Maintenance	Sr. Director Bus & Rail Facility Maintenance & Support Services
Traction Power	Superintendent of Traction Power Maintenance
Signals	Superintendent of Signals Maintenance
Communications	Superintendent of LRT Communications Maintenance
Right-of-Way Maintenance	Senior Director of Maintenance of Way
Track Maintenance	Superintendent Rail ROW Maintenance
Procurement	Director of Procurement
IT	Director of IT Infrastructure
Engineering & Engineering	Assistant Executive Director of Engineering Systems

Key SMS Personnel are responsible for ensuring their departments are in full compliance with Metro's SMS program as described herein and in supporting documentation. They will perform Safety Assurance activities, including documentation, internal controls, monitoring and auditing of their departmental compliance with this Safety Plan and

other supporting programs, plans and procedures. The Safety Department is responsible to support each of the departments below in these efforts.

8.1 President & CEO

SMS is a management system. It requires the attention of the highest management official, and is a tool for the executive to ensure that all employees know and understand that safety is not the responsibility of a "safety department," but is the responsibility of each and every employee in each and every department.

Metro's Accountable Executive is the President & CEO.

The Accountable Executive has ultimate responsibility for establishing and maintaining the SMS for Metro. The President & CEO is also responsible to:

- Ensure safety concerns are considered in Metro's ongoing budget planning process;
- Ensure transparency in safety management priorities for the Board of Commissioners and for the employees;
- Establish guidance on the level of safety risk acceptable to the agency; and
- Ensure the safety management policy statement is appropriate and communicated throughout the agency.

8.2 Human Resources

- Develop position descriptions that address safety-related restrictions and requirements;
- Develop and administers medical standards for specific job positions, as warranted;
- Ensure that successful candidates for positions are capable of safely performing the tasks of these positions on a repetitive basis;
- Administer the application of Metro's employee discipline policy;
- Provide oversight and follow-up of site visits by health professionals (e.g., in connection with Metro's drug and alcohol testing program);
- Maintain complete and current documentation in personnel files, including HIPAA records for Drug & Alcohol compliance;
- Ensure employees are screened prior to employment in compliance with all FTA and BSSO requirements; and
- Assist Maintenance Training and Operations Training in training program development.

8.3 Marketing and Customer Communications/PIO

- Act as a source of information to the public and news media during an emergency;
- Coordinate the dissemination of information to Metro employees and document all functions and activities during emergencies;
- Provide public information during emergencies to ensure safety and security of passengers;
- Provide public information on safety and security for regular operations
- Collect information from the public regarding safety, security, hazards and safety events, and properly route information for optimal hazard resolution; and
- Work closely with all departments to effectively manage safety information.

8.4 Transit Security Specialists

- Being alert and observant of the personal security of Metro passengers, employees, and the general public at stations, stops, and along Metro Transit system routes.
- Managing security logistical deployments within assigned zones.
- Responding to security and emergency incidents.
- Reporting observations of new vandalism damage or graffiti to Dispatch.

- Providing leadership and direction to Metro employees during security incidents.
- Providing liaison with local or Transit Police Taskforce officers and assisting in crowd control, securing witness information, and providing general on-scene assistance, as may be requested.
- Making on-scene decisions about restricting or continuing operations due to a security incident, in coordination with law enforcement.
- Issuing warnings, exclusions, and citations for violations of Metro Code of Conduct and fare policies.
- Preparing and submitting internal Metro reports for security incidents in which they are involved or to which they respond.
- Collaborating with Transit Police Taskforce officers in fare enforcement missions.
- Following radio communication protocols for internal and outside agency talk groups.
- Patrolling park and ride lots and parking structures, monitoring appropriate use, and issuing warnings and citations for Metro Code parking violations.
- Patrolling the light rail alignment and bus routes, identifying, reporting, and responding to identified security breaches or vulnerabilities

8.5 Operations

The General Managers of MetroLink, MetroBus and Call-A-Ride are responsible for the following functions: safety in rail, bus and paratransit operations, operations training, and scheduling and service planning. In addition, this position negotiates, interprets, and administers various collective bargaining agreements, and provides direction to line management in all matters concerning labor and employee relations, including management of all committee activities between labor and management.

8.5.1 Rail Operations

- Ensure safety and security of MetroLink operations;
- Coordinate safety-related activities of Rail Operations staff and ensure compliance with the Safety Plan;
- Recommend development of industrial, occupational, and environmental safety management goals;
- Ensure compliance with company and safety-related programs, policies and procedures, bulletins, and the Safety Plan;
- Coordinate daily activities of rail operations supervisors, instructors, dispatchers, movement directors, off board fare collectors, and operators;
- Implement and monitor Metro's Drug and Alcohol Program;
- Take appropriate actions to resolve identified hazards in a timely manner;
- Support the internal safety and security audits and participate in emergency response drills as required;
- Continuously identify any operating hazards that require formal implementation of the Hazard Management Process; and
- Ensure that Rail Service Delivery staff adheres to established standard operating procedures, bulletins, rules and processes set out in the Safety Plan.

8.5.2 Rail Operations Training

- Train and qualify new rail operators on routes and equipment operation, pre-trip inspection, emergency procedures and injury and illness prevention;
- Perform re-training following accidents & occupational injuries as warranted; and
- Coordinate with Dir System Safety, Security, and Emergency Management to incorporate Metro's safety policy, rules and procedures in verbal instructions and hands-on training.

8.5.3 Bus/Paratransit Operations

- Administer and monitor standardized programs, policies and procedures;

- Coordinate daily activities of dispatchers, clerks and secretaries;
- Implement and monitor Metro's Drug and Alcohol Program;
- Ensure that preventive maintenance, running repairs, housekeeping and vehicle servicing are performed safely;
- Ensure that Bus/Paratransit staff adheres to established standard operating procedures, bulletins, rules, and the processes set out in the Safety Plan;
- Take appropriate actions to resolve identified hazards in a timely manner;
- Assist in the coordination of internal safety audits and participate in emergency response drills as required;
- Monitor bus operations by means of field supervision and radio dispatching;
- Ensure effective response during emergencies as required by circumstances;
- Assist in accident investigations as required; and
- Serve on Operations and Safety and Security Review Committee.

8.5.4 Riverboat Operations

- Administer and monitor standardized programs, policies and procedures;
- Ensure compliance with all Federal and State regulations governing operations on the waterways;
- Coordinate daily activities of all riverboat staff
- Implement and monitor the DOT/Coast Guard Drug and Alcohol Program compliance;
- Ensure that preventive maintenance, running repairs, housekeeping and vehicle servicing are performed safely;
- Ensure that Riverboat staff adheres to established standard operating procedures, bulletins, rules, and the processes set out in the Safety Plan and other supporting documentation;
- Take appropriate actions to resolve identified hazards in a timely manner;
- Assist in the coordination of internal safety audits and participate in emergency response drills as required;
- Monitor riverboat operations by means of field supervision and radio dispatching;
- Ensure effective response during emergencies as required by circumstances;
- Assist in accident investigations as required; and
- Serve on Operations and Safety and Security Review Committee.

8.5.5 Scheduling and Service Planning

- Under the guidance of the Chief of Planning, ensure that service delivery schedules allow sufficient running time for safe operations at speed limits and adequate recovery time for bus, rail and paratransit operators;
- Investigate operator complaints of insufficient running time;
- Develop work runs and schedule relief in accordance with collective bargaining agreements and regulatory requirements;
- Develop marketing tools to increase the transit safety awareness of riders and others coming in contact with Metro;
- Develop and implement community outreach programs promoting the safe use of Metro services; and
- Ensure operational safety of stops, shelters, and route design and layover/recovery areas.

8.6 Vehicle Maintenance

The Asst. Executive Director Transit Assets is responsible for ensuring safety in the following areas:

8.6.1 Transit Asset Management Program & State of Good Repair

- Metro has developed required performance measures under the requirements of 49 CFRs 625 & 630. At this time, Metro is in development of a fully compliant Transit Asset Management Plan (TAMP), including its state of good repair for rolling stock, equipment, infrastructure and facilities.

8.6.2 Special Projects

- Handle special maintenance projects, including those with safety-related impacts, as required.

8.6.3 Maintenance Training

- Ensure proper training of all new mechanics and technicians to safely and effectively inspect, maintain and repair Authority's fleet.
- Ensure proper training of maintenance staff in emergency/safety procedures and injury and illness prevention as appropriate.

8.6.4 LRV Maintenance

- Assure that the LRV fleet is properly maintained and available in safe operating condition according to Metro's procedures;
- Provide necessary mechanisms for reporting defects and hazardous conditions;
- Coordinate with the Dir System Safety, Security, and Emergency Management on system safety requirements;
- Administer and monitor standardized programs, policies, and procedures;
- Administer safety programs for department employees;
- Monitor the collection and disposal of waste (e.g., oils, clarified waste water sludge) to affect safe handling and minimize employee and environmental exposure to potentially hazardous products and materials;
- Ensure appropriate action to resolve reported or otherwise identified hazards in a timely manner. As appropriate, coordinate the development and testing of engineering solutions as a means of addressing vehicle related hazards; and
- Coordinate with the Dir System Safety, Security, and Emergency Management in the development and implementation of risk reduction measures associated with the operation and maintenance of Metro's rail revenue vehicles.

8.6.5 Bus/Paratransit/Non-Revenue Maintenance

- Coordinate safety-related activities of the bus maintenance staff and ensure compliance with the Safety Plan;
- Oversee field maintenance programs and practices and ensure compliance with the Safety Plan;
- Ensure that programs, retrofits, major repairs and maintenance practices are performed safely and monitored for safety-related issues;
- Ensure that functions comply with the Safety Plan;
- Monitor body and paint, mechanical repairs and component rebuild activities for quality;
- Coordinate and monitors the Vehicle Improvement program, and all off-property repairs;
- Assist in accident investigation process as required;
- Arrange removal of defective or damaged equipment
- Ensure preventive and corrective maintenance of Metro's non-revenue fleet;
- Ensure body and mechanical repairs, excluding major hydraulic and high-rail components on all of the non-revenue vehicles;
- Schedule and coordinates preventive maintenance activities;
- Maintain vehicle records;
- Assist Safety Department in conducting safety-fire inspections and correcting any identified safety deficiencies;
- Assure that the communications electronic systems are properly maintained and operational on a daily basis. Ensure that equipment is in compliance with manufacturer specifications, federal requirements, and directives;
- Ensure all emergency communications electronic equipment is in compliance with organizational requirements along with the associated guidelines. Ensure that applicable safety practices and procedures are adhered to relative to the communications and electronic service industry and
- Maintain Metro radios and fare boxes.

8.6.6 Quality Assurance

- Where applicable, participate in the development of technical equipment specifications and procedures that address the safety requirements of regulatory agencies and Metro. Ensure that replacement equipment meets safety requirements prior to acceptance. Examine equipment and systems to explore the potential for increased efficiencies and improvements in user and fire safety as well as in performance;
- Administer warranty programs;
- Coordinate major equipment rebuild, repair, and retrofits;
- Ensure performance of inspection and testing activities necessary to ensure that equipment, supplies, and operations result in the desired level of safety;
- Monitor the performance of preventive maintenance efforts;
- Stop work on all unauthorized modifications;
- Establish and maintain current drawings for Metro facilities and systems;
- Analyze equipment failures and identifies trends;
- Document equipment and facility modifications and informs affected staff of these modifications; and
- When appropriate participate with the Safety Department in accident investigations, and develops findings and recommendations.

8.6.7 Inventory

- Monitor procurement practices to ensure that safety is not compromised in replacing parts;
- Monitor man-machine interfaces and
- Ensure Metro stocks quality parts and provides specification and quality assurance for parts and materials.

8.7 Maintenance of Way

8.7.1 Track Maintenance

- Ensure signals and switches are maintained safely and efficiently;
- Ensure substations and catenary are maintained safely and efficiently Facilities/Grounds
- Ensure Metro rights-of-way and structures are maintained safely and efficiently.
- Ensure safety of Metro buildings including mechanical and electrical equipment, bus shelters and stops;
- Ensure that rail stations and stops meet applicable safety requirements and Metro practices;
- Ensure that work is coordinated within Facilities/Grounds to complete work safely and efficiently without adversely affecting revenue service;
- Monitor compliance of organizational policies and procedures;
- Ensure the creation and maintenance of accurate records of inspections, maintenance work, accident-related activities and emergency responses;
- Assist as necessary in accident investigations;
- Develop preventive maintenance procedures with input from employees who perform the work;
- Monitor the performance of preventive maintenance efforts
- Ensure the creation and maintenance of accurate records of inspections, maintenance work, accident-related activities, and emergency responses;
- Ensure necessary procedures are in place and implemented for conducting maintenance activities in a safe and effective manner for all;
- Provide for enforcement of required safety procedures for all maintenance activities;
- Assist the Safety Department in conducting safety/fire inspections and correcting any identified safety deficiencies; and
- Serve as liaison with various municipalities and other external agencies for hazard resolutions involving building operations.

8.8 Finance

The Director of Finance ensures the following critical activities occur:

- Facilitate achievement of Safety Plan objectives through preparation and control of Metro's budget and staffing level recommendations;
- Manage and maintain the safety of IT systems and fare collection processes;
- Ensure necessary funding for safety programs/projects;
- Ensure that equipment purchased by Metro meets safety requirements and that design requirements have been coordinated with all appropriate departments;
- Perform technical maintenance for accident record keeping, employee injury reporting forms, and related accident data as required;
- Provide claims administration;
- Ensure that the procurement process complies with established procedures for evaluating materials and products for use by Metro;
- Ensure that all contracts comply with Metro's Safety Plan and all federal, state and local fire/safety regulations;
- Include safety requirements in contracts such that contractors must meet all applicable state, federal, and local regulations as well as Metro's requirements;
- Develop and maintain a list of hazardous materials and equipment;
- Enforce safety procedures related to hazardous substance acquisition, handling, labeling, storage, disposal, and record keeping;
- Ensure the Internal Audit department performs financial audits as required.

8.9 Engineering

The Assistant of Engineering Systems ensures the following critical activities take place:

- Administer/monitor construction contracts to ensure that contractor procedures conform with current BSSO and OSHA regulations and that the results are safe for Metro and/or public use;
- Monitor the installation of facilities, systems, and equipment to ensure compliance with contractual requirements and procedures;
- Write technical specification;
- Coordinate communications concerns relative to joint missions and training exercises with local municipalities;
- Approve any new, upgraded or modification of communications or electronic systems;
- Conduct environmental impact studies;
- Provide Emergency response to hazardous waste, chemical spills and/or other issues required by regulation;
- Oversee design and engineering consultant services, and construction contracts;
- Report and makes recommendations to the Executive Director Metro Transit and Metro's Board on major capital projects;
- Participate on Metro's Executive Safety and Security Review Committee (ESSC) and the Safety and Security Certification Review Committee (SSCRC) as appropriate;
- Coordinates capital program matters and activities with communities, governmental agencies, regulatory agencies and funding agencies;
- Program and schedule major capital project tasks;
- Manage hazard and vulnerability processes for capital projects'
- Establish and maintains current drawings for capital project facilities and systems;
- Develop project specific safety and security plans and milestones'
- Monitor implementation of project specific safety and security plans, activities and responsibilities'
- Monitor environmental and chemical compliance with local, state and federal regulations for capital projects'
- Provide capital budget analysis;

- Provide document control for capital projects' and
- Provide configuration management for capital projects.

Chapter 3 – Integration with Public Safety and Emergency Management

The following sections describe Emergency Response Planning, Coordination, and Training:

1 Emergency Management

The Emergency Management program is a function of the Public Safety Department under the direction of the General Manager of System Safety, Security and Emergency Management. Emergency Management responsibilities of the program reside with the Emergency Management Coordinator who reports directly to the General Manager of System Safety, Security and Emergency Management. Together, they coordinate with internal/external entities to develop a Multi-Year Training and Exercise Plan (MYTEP) which will conform to training requirements listed in the Emergency Operations Plan (EOP) as described below.

Metro's **EOP** is its primary guidance and policy document for emergency preparedness, response, recovery and mitigation. The Plan provides for supporting plans and procedures to be developed to guide Bi-State Development (BSD) in response to all hazard emergencies, such as the PTASP and SSP.. BSD/Metro is responsible for the coordination and provision of Transportation resources provided to federal, state, and local governments, volunteer organizations, and the general public response in the event of an all hazard response which necessitates immediate evacuation. In such circumstances, BSD/Metro has coordinated with both local, county, and state governments and the emergency management agencies in its service area to support on-going development and revision of their respective Emergency Operations Plans and supporting incident management and response protocols and resource inventories. Metro employees actively participate in the Urban Area Strategic Initiative (UASI) working group to assist in the development of regional plans to ensure effective response to evacuations and emergencies, including events related to, but not limited to, Improvised Explosive Devices (Executive Directors) and Chemical, Biological, Radiological, Nuclear, or Explosive (CBRNE) attacks, earthquakes, tornadoes, fires, and flooding.

Bi-State Development and Metro also actively participates in the Transit Security Grant Program (TSGP) in cooperation with the Department of Homeland Security (DHS), the State of Missouri, St. Louis County, St. Louis City, St. Louis Area Regional Response System (STARRS) and SCCTD. As a result of the program, a Regional Transit Security Working Group (RTSWG) has been defined and a Regional Transit Security Strategy (RTSS) has been developed according to Metro System Safety, Security, and Emergency Management. Emergency response planning, coordination, and training procedures are also contained in Metro's Standard Operating Procedures for bus and rail operations and Metro's Security and Emergency Operations Plan. Metro ensures that the guidelines contained in the EOP are regularly evaluated through agency-wide emergency exercises. Public Safety personnel participate in annual drills and fire/life safety training with various emergency responders and Metro Departments including Safety. Past drills have included active shooter scenarios, facility evacuation, hazardous materials drills, and table top exercises. The EOP is reviewed and updated, as needed, or on an annual basis by the Emergency Management Coordinator and the ESSC. Users of the Plan are encouraged to submit recommendations for its improvement. Comments are required to be specific and accompanied by the reasons for the recommendations. Revision proposals are directed to the Emergency Management Coordinator, who then submits the recommendations to the ESSC for review and approval. Distribution to the ESSC is controlled by the GM of System Safety,Security, and Emergency Management. All personnel above department head shall receive this document.

Bi-State Development management, including members of the ESSC, also carry out the following organizational and operational tasks during an emergency:

- Analyze the emergency situation;
- Protect life, and provide for health and safety of Metro customers, employees, and visitors;
- Protect property and assets of Metro;

- Establish priorities for use of available Metro resources during and after an emergency;
- Enable Metro to be as self-sufficient as possible for up to 72 hours following a regional emergency or disaster;
- Provide Metro buses to emergency agencies on a priority basis, as requested and available for emergency response during the crisis;
- Provide transit services for the customers and communities served by Metro as far as possible during the emergency; and
- Activate Memoranda of Understanding/Agreement, as required.

Metro's emergency planning process includes, but are not limited to the following categories:

- Flood
- Earthquake
- High velocity winds and tornadoes
- Derailments and collisions (mass casualties)
- Grade crossing accidents
- Hazardous Materials
- Hijacking or hostage situation
- Terrorist attacks:
- Chemical/Biological - Inside vehicle
- Chemical/Biological - Outside vehicle
- Bomb threats or explosives (includes weapons of mass destruction (WMD)

1.1 Meetings with External Agencies

Metro staff attends first responder meetings throughout the year and other emergency response meetings as required to coordinate and plan emergency response and proactive processes. Agencies represented at these meetings including local police, state police, FBI, Attorney General's office, fire departments, emergency medical service, emergency management agencies and public utilities.

Metro also coordinates with the City of St. Louis and County Fire Departments and Protection Districts as well as with other supporting agencies for planning, training and exercises to ensure comprehensive response to any adverse event on the system.

A regional Fire-Life Safety/ Security Committee will be maintained for each jurisdiction and will meet semi-annually to discuss issues related to emergency management and familiarization.

1.2 Emergency Preparedness Planning

Bi-State Development's emergency management planning and preparation is consistent with the objectives outlined in the Homeland Security Presidential Directives (HSPDs) requiring implementation of the National Response Plan (NRP), the National Incident Management System (NIMS), the National Infrastructure Protection Plan (NIPP), and the National Preparedness Goal. BSD/Metro's activities to support implementation of HSPD requirements are coordinated through the Urban Area Strategic Initiative (UASI) Working Group. The System Security Plan (SSP provides additional details about Metro's response to terrorist events).

1.3 Emergency Management Training, Drills, and Exercises

Emergency Management drills and exercises are planned and conducted with police, fire and emergency response personnel from the various jurisdictions. On new extensions, extra tabletop exercises and drills are held to familiarize the jurisdictions with ML operations, its equipment and facilities, and procedures. Metro operates on a three-year cycle. The first year is a table top drill, year two a functional drill, and year three a full-scale drill. The activities include Metro/BSD personnel who would have to respond to emergency situations on the ML System. Emergency management functional drills and tabletop drills will be conducted in both Illinois and Missouri. In addition, facility emergency

preparedness drills are conducted semi-annually. Other possible drills and exercises can include, but are not limited to, evacuation, and severe weather sheltering. Metro follows the Homeland Security Exercise and Evaluation Program (HSEEP) protocol. The following is a three-year exercise chart schedule.

Event	Approximate Date
Full Scale Exercise	3rd CY quarter 2019
Table Top Exercise	2nd CY quarter 2020
Functional Exercise	3rd CY quarter 2021

1.4 Implementation of Findings

After Action Reports (AARs) are developed following the completion of emergency drills and exercise scenarios and all hazard incidents. The ESSC reviews the After Action Reports and develops and implements appropriate actions to respond to the After Action Report recommendations. Discrepancies found as a result of corrective training or drills are corrected in the procedures developed by the appropriate department with the assistance of the Safety Department.

1.5 Emergency Familiarization Training Program

Emergency exercises, including tabletops and full field exercises are a critical part of Metro's emergency preparedness training. At least once each year, Metro works with its first responder partners to hold a full field exercise. Exercises are documented via After Action Reports. More information can be found in Metro's EOP.

Periodic familiarization and refresher training have been planned and coordinated between Metro and the local fire and police departments. This training included disaster activities, vehicle emergency equipment, and communications. Training sessions in emergency response to MetroLink, Paratransit and Buses are conducted annually. In addition, management conducts a review of emergency response plans annually (**See Safety Poster Outlining Familiarization Training Initiatives**).

Meetings/drills have been coordinated and implemented with the following agencies on various fire/life safety issues:

- ✓ St. Clair County Police Departments
- ✓ St. Clair County Fire Departments
- ✓ St. Louis City & County Police Departments
- ✓ St. Louis City & County Fire Departments
- ✓ Bureau of Alcohol, Tobacco, Firearms and Explosives
- ✓ Emergency Medical Services
- ✓ Health Services Organizations
- ✓ Transportation Security Administration
- ✓ Regional Emergency Management Agencies (i.e WashU, St Louis City, St Louis County, St Claire County)

This program provides instruction on the equipment used on ML. Training and familiarization is conducted for fire and rescue personnel, local police, and ML employees. This training consists of two (2) phases with Phase 1 (Computer Based Training Module) mandatory. Phase 2 (In-person facility and vehicle tour) shall be scheduled through the Emergency Management Coordinator or by emailing request to Safey@metrostlouis.org. The required computer training is accessible here:

https://elearning.easygenerator.com/d44f5325-452d-40c5-9577-c558363aa7ab

1.5.1 Fire Departments

- Procedures for notification, control, and degree of responsibility on-site;

- Levels of service (equipment, personnel, etc.) to be delivered in response to various types of transit emergencies;
- Appropriate methods for communication and transfers of command;
- Familiarization with Metro equipment and facilities;
- Use of tools, equipment, and Metro personnel to assist as necessary;
- Procedures to remove and restore power; and
- Scheduled drills and exercises.

1.5.2 Police Departments

Familiarization training is also provided to local and regional police and law enforcement organizations including those law enforcement personnel specifically assigned by contract to the MLRFGS. Law Enforcement Training is conducted and coordinated with Metro Public Safety. Included in the training is:

- Procedures for notification, control, and degree of responsibility on-site;
- Familiarization with Metro equipment and facilities; and
- Scheduled drills and exercises.

1.6 Employee Training

All Metro operations and maintenance personal undergo emergency response training to ensure they have a thorough understanding of their role and responsibility during an emergency. At a minimum, training is provided on Metros SOP's and emergency plans that the employee may be required to implement, and on any specialized equipment. In addition, management conducts an annual review of emergency response plans to ensure consistency with training drills and exercises. All Metro new hires also receive a transit employee emergency guide, emergency evacuation routes/procedures, and a comprehensive overview of what to do during an emergency, first aid and fire extinguisher training. This training session is offered via computer based training and accessible here:

https://elearning.easygenerator.com/3761a523-d5dc-4c30-88f4-e85cd5263eed

1.7 Emergency Management Training

Metro and BSD incorporates emergency management training through various safety, Public Safety, and operations training programs in order to achieve the following objectives:

- Applicable management, operations, and maintenance rules, procedures, and plans are effectively documented and conveyed to those responsible for their implementation;
- Oversight to ensure Metro personnel responsible for dispatching and controlling assets to administer, operate, and maintain the system's safety and security equipment and facilities;
- Safety-related rules and procedures for management, operations, and maintenance personnel are documented and effectively implemented by all employees as required;
- Emergency procedures have been developed, documented and are successfully implemented by all personnel as required, including public safety and security personnel (if appropriate);
- Transportation personnel and local emergency responders understand the hazards of the transportation environment; and
- An adequate level of preparation is maintained for a possible emergency.

Additional training typically addresses rules, policies, and procedures, as well as many of the hazards in the transportation environment (e.g., live power, track and roadway safety, hazardous materials and alternate fuels, medical emergencies or blood-borne pathogen awareness, personal safety, and injury prevention). NIMS and Incident

Command System (ICS) orientation and training activities are ongoing. All employees participate in the Metro Emergency Reference System Guide training.

1.8 Emergencies Involving Criminal Activity

A more detailed discussion of the response and handling of emergencies involving criminal activities (i.e., terrorism, bomb threats, hijacking, etc.) is found in Metro's System Security Plan (SSP) and Emergency Operations Plan (EOP) which is considered Security Sensitive.

2 Command Center

2.1 MetroLink Operations Control Center (OCC)

The MetroLink Operations Control Center is utilized to coordinate, manage and provide mitigation planning for emergencies involving the rail system. The OCC is located at 700 S. Ewing Avenue. It is equipped with display boards, computers and/or laptops (with internet connection), television with satellite dish, telephone lines, portable radios and other equipment as directed by the President & CEO.

The Command Center Director is the General Manager of MetroLink or designee. The Director is in charge of the overall management of the event in the Command Center by making executive and policy decisions based on the information received.

2.2 MetroBus, Bus Operations Center (BOC)

The MetroBus Operations Center (BOC) is utilized in the same manner as MetroLink's OCC but is focused solely on bus operations rather than rail. It is located at the same location as OCC at 700 St. Ewing Avenue. It is equipped with the same equipment as OCC and has their own designated area within the Ewing Control Center. They are located in the same room as OCC and Public Safety Dispatch in order to provide for efficient communication and coordination.

The Operations personnel are responsible for the operation, maintenance and coordination of Transportation services (bus, rail and paratransit). Transit Service Managers are responsible for coordinating the on-site response to events. Safety and Security personnel are responsible for ensuring that all Metro operations are maintained with the highest degree of safety and security. Safety and security personnel identify any special needs and provide strategies to safely mitigate the situation.

2.3 Emergency Operations Center (EOC)

The Emergency OperationsCenter is activated anytime there is a need to handle an event, foreseen or unforeseen beyond current capabilities. For Grey and Green events, the Accountable Executive may activate the Command Center at their discretion. For the Yellow activation level, the Command Center is activated at the discretion of the CEO or their designee.

Immediately following the activation of the EOC, the following people are notified of the activation and asked to report, or send a representative, to the proposed location:

- GM of System Safety,Security, and Emergency Management (EOC Director)
- Executive Director Engineering Systems
- Dir System Safety, Security, and Emergency Management
- Asst. Executive Director Transit Assets
- General Manager MetroLink
- General Manager MetroBus

- General Manager Call-A-Ride
- General Manager Field Security
- Vice President of Marketing and Communications

After activation of the EOC, BSD and Metro staff notifies and coordinates with the following agencies, as applicable:

- BSSO
- National Transportation Safety Board
- Federal Transit Administration
- St. Clair County Police Departments
- St. Clair County Fire Departments
- St. Louis City & County Police Departments
- St. Louis City & County Fire Departments and Protection Districts
- Bureau of Alcohol, Tobacco, Firearms and Explosives
- Emergency Medical Services
- Health Services Organizations
- Transportation Security Administration
- Regional Emergency Management Agencies (i.e. Washington University EMA, St Louis City EMA, St Louis County OEM, and St Claire County EMA)

2.3.1Activation Criteria

The EOC may be activated for any, but are not limited to, of the following reasons:

- Resources beyond Metro's capability are required to respond to an emergency;
- An emergency of long duration;
- Major policy decisions will be needed;
- Local or state emergency is declared; and
- Activation of the Command Center will be advantageous to the management of the emergency.

2.3.2 Functions of the Emergency Operations Center

For Yellow Leveledevents, the Emergency OperationsCenter coordinates all emergency plans and management decisions (with the incident commander/EOC Director leading the discussion), including, but are not limited to, taking the following actions:

- Implement event plans and document all Command Center actions;
- Request assistance from outside emergency response agencies for fire, medical, police and evacuation emergencies;
- Dispatch supervisors to the scene or other designated locations;
- Dispatch Metro public safety to assist at the event scene;
- Communicate with the Operations Control Center, Bus Operations Center (BOC), and Public Safety Dispatch for all bus and rail movements, as required; as appropriate, activate/deactivate overhead catenary power;
- Contact maintenance supervisors for assistance, as required;
- Coordinate requirements for supplemental service, both bus,rail, and public safety;
- Perform management notifications, respond to incoming telephone calls and perform other duties as assigned; and
- Provide timely media information.

Other EOC functions include, but are not limited to;

- Vehicle Maintenance - Provides heavy rescue equipment for rail related events. Bus/Paratransit/Auto/Truck Maintenance provides the response for any vehicle needs, including tow vehicles and provides the necessary mechanics at the scene.
- Rail Systems and Right-of-Way Maintenance - Maintenance of Way conducts track maintenance repairs and restores track, signals and overhead and other rail related systems and provides heavy rescue equipment as needed.
- Information Technology (IT) - IT staff are available to coordinate troubleshooting and repair of any computer-related problem.
- Engineering - Provides technical assistance with issues regarding any Metro facilities or right-of-way and coordinates any contractor assistance, as required.
- Marketing and Communications - The communications personnel of Marketing and Communications act as the authoritative source of information to the public and news media. They will also coordinate the dissemination of information to Metro employees and documenting all functions and activities of the Command Center. At the conclusion of the event, the communications personnel issue a report outlining all activities and policy decisions. Customer Service personnel assist public relations by disseminating customer information via customer service clerks and Metro's web or social media pages.
- Metro Public Safety & Security - Public Safety assumes the role of Incident Commander when the event is a potential or actual crime zone. Public Safety coordinates crowd control, assists with the evacuation of customers and/or employees, coordinates traffic control, and security within and around the event site. Public Safety also coordinates with local, state and federal emergency operations agencies.

2.4 EOC Activation Level

Bi-State Development and Metro recognizes four levels of emergency operations, which are determined by the severity of the incident. The purpose of this rating system is to provide a standard for determining the magnitude of response to the emergency.

Planned special events are categorized by the expected size of the crowd drawn to the event, and by the potential number of transit customers affected by the event. The purpose of the rating system is to provide a universal standard for determining the level and scope of the response to the event.

Table D EOC Activation Levels

Levels of Emergency	
Grey **Emergency Surveillance**	An event where Metro property or equipment is damaged, employees or customers are injured and/or service is disrupted. Emergency services may be required, but in general, Metro operating department resources are adequate to conclude the event. **OR** An event that has minimum impact on Metro's transit service with few or no response team members required on-scene. In general, Metro's Operation's department resources and capabilities are adequate to manage the event.
Green **Minor Emergency**	Some coordination with a couple outside agencies is required for incident stabilization. Incident operations cannot be resolved within our current capabilities. **OR** An event of a large nature that involves a certain part of the service area, including multiple days (such as Mardi Gras) and/or large crowds. It may involve bus and/or rail, but is general local in nature. Maintenance of the right-of-way, which adversely affects transit service and causes significant delays of over 20 minutes, would typically be suspended within this category. Response team members and crowd management services may be needed to ensure customer service.
Yellow **Major Emergency**	An emergency requiring the close coordination of several Metro departments (Operations, Maintenance, Safety, Security, Claims, Customer Service, Public Safety, and Executive Staff) and significant mutual aid from community Police, Fire or Medical Services. Examples may include a large fire, severe injury accident, and significant criminal event, emergency in the right-of-way, area-wide power outage, civil disturbance, major hazardous material spill or severe weather. This kind of event has a greater impact upon portions of Metro operations and may halt some of those operations temporarily. Metro operating department resources may be adequate to conclude the event.
Red **Catastrophic Emergency**	A regional disaster or event requiring a large amount of outside resources to assist Metro or in which Metro is required to assist. Response to this type of emergency requires centralized emergency management of all Metro functions, as well as decentralized on-site management and response. When a Yellow Major Emergency is declared, the City of St.

Levels of Emergency	
	Louis or St, Clair County directs Metro resources and coordinates with emergency response agencies.

Chapter 4 – SMS Documentation & Records

Plan Review and Modification

1 Safety Plan Management

The Safety Management program operates under a principle of continuous improvement. To this end, the Safety Plan must be reviewed annually and revised as needed to reflect changes in Metro's organization, procedures, equipment, facilities, and operating environment including:

- Policy changes (mission, goals, or objectives):
- Organizational changes:
- Changes to rules and regulations:
- Changes in operating procedures:
- Elimination of equipment or addition of new equipment: and
- Elimination of a facility or addition/acquisition of a new facility.

Changes in safety policy, goals, or objectives require the approval of the President & CEO.

Changes in policy, organization, rules, regulations, or operations necessitating Safety Plan adjustments are accomplished within the schedule described herein.

2 BSSO Requirements

2.1 Submittal Procedure

The BSSO requires Metro to assess its Safety Plan once each year. Metro must submit proposed Safety Plan changes to the BSSO annually for review and approval, including a summary identifying and explaining proposed changes. The specific due dates for the Safety Plan are contained in the Bi-State Safety Oversight Program Standards Manual for Oversight of MetroLink (Program Standard).

Metro must also submit to the BSSO any Safety Plan revisions made between annual updates. Such submissions are made prior to the time the revision is to be implemented. The BSSO reviews, and approves as appropriate, such revisions.

2.2 Review and Approval Procedure

2.2.1 Approved Plans

The BSSO reviews revised Safety Plans to ensure that they comply with the BSSO Program Standard. Following finalization of the initial PTASP in 2020, by April 1 of each year, Metro shall provide the BSSO with a draft of the annual update or written confirmation that a review was conducted with no revisions deemed necessary. The BSSO completes this review within **30 calendar days** of receipt of the plan, or notifies Metro if additional time is needed to complete the review. If Metro's plan complies with the Program Standard, the BSSO issues a written approval of the plan and requests that Metro send a final copy of the Safety Plan with appropriate approval signatures and other endorsements as needed by May 15. The plan the BSSO reviews and approves is considered the Safety Plan in effect until another such plan is submitted and approved in accordance with the requirements of the Program Standard.

2.2.2 Rejected Plans

If the BSSO determines that the submitted Safety Plan does not meet the published standards of the Program Standard, it will send a written notice, along with a description of what changes are necessary to gain approval. This written notice will typically be made up of a completed checklist, and as needed, an additional narrative or memo. Metro will have 30 calendar days to make such changes, unless otherwise specified in the BSSO's correspondence.

The BSSO will meet with Metro to discuss the review if Metro wishes. In the event Metro objects to a noted deficiency or requested change from the BSSO, it shall provide written notice of its objections, and suggest alternatives within 7 calendar days. The BSSO and Metro shall review the objections and suggested alternatives and agree to an appropriate course of action within 15 calendar days. This review process may include meeting(s) to clarify any deficiencies or issues.

3 Metro Internal Safety Plan Review and Approval Process

The Dir System Safety, Security, and Emergency Management will coordinate the annual review and revision process of the Safety Plan and ensure the review takes place. The Dir System Safety, Security, and Emergency Management will notify Metro management by October 31st of each year of the requirement to review their section of the Safety Plan for revisions. The Dir System Safety, Security, and Emergency Management has the responsibility to incorporate any required changes into the overall Safety Plan. By March 1st of the next year, the revised Safety Plan is presented to the Executive Safety & Security Committee for review and approval. A copy of the updated Safety Plan is forwarded to the BSSO for review and approval. After the BSSO issues their approval, a final version of the Safety Plan with all applicable signatures is transmitted to the BSSO and a published copy is posted on the MetroWeb. In the event that no changes are required following the annual Safety Plan review, the President & CEO will notify the BSSO that the annual review of the Safety Plan has been completed and that changes are not required.

A revision cover sheet is included with the distribution of each revision. The revision cover sheet includes the revision number, date, and description of all updates. If no revisions are deemed necessary, a dated revision cover sheet is distributed verifying that no revisions are needed.

4 Training Records

Employee safety training is logged and maintained in a Learning Management System (LMS). The Office of Safety provides supervisors, at their request, access to records to ensure employee compliance. Each department is responsible for ensuring their respective team members have completed the prescribed

These departments are responsible for ensuring that training records are entered into the Learning Management System (LMS). Using the LMS, these departments track training on a monthly basis. When recurring training is required, the Department Heads notify the employee and the employee's supervisor. Any anomalies are also noted and brought to the attention of the heads of Operations Training, Maintenance Training, HR as well as the Dir System Safety, Security, and Emergency Management.

Contractor training records are maintained by the department providing the contractor training.

Records of safety-related training are maintained in accordance with the requirements of 49 CFR 673 and 674.

Part II
Safety Risk Management

Safety Risk Management Process

Metro has developed and implemented a Safety Risk Management process for all elements of its public transportation system. The Safety Risk Management process is comprised of the following activities:

- ✓ Identification of safety hazards,
- ✓ Analysis of safety hazards,
- ✓ Safety risk evaluation, and
- ✓ Safety risk mitigation.

Safety Hazard Identification and Analysis

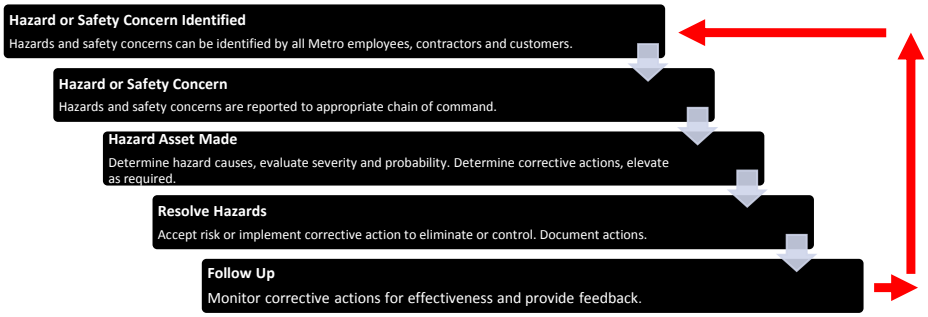
Metro has established a process for hazard identification and analysis. Metro includes, as a source for hazard identification and analysis, data, and information provided by the BSSO and the FTA. (Chapter 5)

Safety Risk Evaluation and Mitigation

Metro has established activities to evaluate and prioritize the safety risk associated with the potential consequences of safety hazards. Safety risks are evaluated in terms of probability and severity and take into account mitigations already in place to reduce the probability or severity of the potential consequence(s) analyzed. Metro has established criteria for the development of safety risk mitigations that are necessary based on the results of the agency's safety risk evaluation. (Chapter 6)

Hazard Management Process

Chapters 5 and 6 together describe the Hazard Management Process but the figure below summarizes the process.



Chapter 5 – Hazard Identification & Analysis

1 Hazard Management Process – Activities and Methodologies

1.1 Hazard Management Process

> **Hazard** – *any real or potential condition that can cause injury, illness, or death; damage to or loss of a system, equipment or property, or damage to the local environment.*

Hazard identification and resolution is the core element of the Safety Plan, requiring timely correction of unsafe conditions, ideally, anticipated and reconciled before serious accident, injury, or damage occurs. The methodology employed for the formal process of hazard identification and resolution at Metro is based on U.S. Department of Defense Military Standard (MIL-STD-882E) *Standard Practice for System Safety*.

To ensure that Metro provides safe and reliable Transportation services, Metro uses the hazard methodology to ensure hazards are identified, analyzed for potential impact on the operating system, and resolved in a manner acceptable to Metro management and regulatory agencies.

All Metro management, staff, contractors, and suppliers are required to implement hazard management and safety and system assurance throughout the design, construction, testing, and operational phases of Metro's projects. Hazards which cannot be eliminated in the design phase are to be controlled by safety devices, warning devices, training, and/or written procedures to prevent hazards.

Hazard identification and resolution is a safety process managed by the Dir System Safety, Security, and Emergency Management with the assistance of the Executive Safety and Security Review Committee (ESSC). Hazards are also managed and discussed through individual Bus/CAR/MetroLink SMS meetings on a monthly basis.

1.2 Hazard Identification

FTA SMS guidance defines hazard identification as:

> **Hazard Identification** – *formal activities to analyze potential consequences of hazards during operations related to provision of service.*

Hazard identification activities define conditions and failures that have the potential for causing an accident. It is the responsibility of all Metro employees to identify and report hazards in accordance with the processes described in the Safety Plan. While identifying every hazard is virtually impossible, the implementation of the hazard identification procedures can greatly increase Metro's ability to identify and thereby eliminate hazards or reduce risk to an acceptable level. The Safety Department conducts periodic inspections of facilities and equipment to identify hazards on a proactive basis. It also reviews incident reports, injury and illness reports, and worker's compensation databases. In the investigation of serious accidents, *ad hoc* safety committees are assembled utilizing various disciplines as committee members to develop a consensus determination of hazard severity and causal factors. When required, contractors and manufacturers may provide outside assistance to the committee. Independent reviews may be obtained as to ensure objectivity.

Departmental managers are responsible for ensuring their employees report hazards to the Safety Department for review and analysis. Ultimately, these same managers are responsible for their respective department's compliance with their role in the SRM process described in this Part.

Another important source of hazard identification comes from the Employee Safety Reporting Program which is described in detail in Part 1 and additionally in Part 4. Hazards/concerns reported through this process will go through the same SRM process as described in this Chapter.

1.2.1 Formal Approach

The Dir System Safety, Security, and Emergency Management, with support from the ESSC, will determine those hazards for which formal analyses [i.e. Preliminary Hazard Analysis (PHA), or Operating Hazard Analysis (OHA)] are prepared. Further details are provided below in Hazard Evaluation and Analysis.

To address hazards resulting from system extensions or modifications, operational and other changes, safety analysis included in design and procurement contracts will provide for:

- Identification of potential/existing hazards;
- Assessment of the severity and probability of occurrence/reoccurrence of each potential hazard;
- Timely awareness of hazards for those who must resolve them;
- Ability to track and control of hazards through all phases of a project's life cycle; and
- Formal Safety and Security Certification where applicable.

1.2.2 Methods of Identification

Hazard identification can be derived from the day-to-day operations and maintenance activities of the system. These activities can include the certification of new construction, the review of system modifications, structure inspection activities, equipment modifications, design reviews, testing, analysis, and maintenance inspections. Finally, hazards are often identified as a result of safety audits, peer reviews, customer complaints, and triennial reviews. A summary of sources for hazard identification is as follows:

- Maintenance Audits & Inspections
- Facility & Equipment Inspections
- Metrolink Structures Inspection Program
- Training & Certification Programs
- Accident & Injury Investigations
- Contractor, Patron, & Employee Reports
- Safety Data Acquisition & Analysis
- Operating Rules & Procedures
- System Replacements & Updates
- New Systems & Rolling Stock
- SSO Three Year Reviews
- Internal Safety & Security Audits
- MetroLink Incident Management System
- Trespasser/Near Miss Log
- Safety Meeting Discussion Points and Action Items
- Facility Inspections
- Revenue Vehicle Inspections
- Transit Asset Management
- Safety Committees
- External Regulatory Agencies such as the FTA and the BSSO
- Employee Safety/Hazard Reporting

1.3 Hazard Investigation, Evaluation/Classification, and Analysis

1.3.1 Hazard Investigation

1.3.1.1 Metro Safety Reportable Hazards

Hazards identified by an employee can be reported through the Employee Safety Reporting Program as previously described in Chapter 8. Employees are trained on hazard reporting through the company-wide SMS training.

Investigation findings are documented and provided to the Dir System Safety, Security, and Emergency Management, who will provide support for the department and monitor corrective actions through full resolution. These hazards will be included on the hazard/mitigation log for completion and monitoring.

The Employee Reporting Program is another option for employees to report hazards directly to the safety department. These hazards/concerns are tracked in an ESRI computer database.

1.3.1.2 BSSO Reportable Hazards

In accordance with BSSO Program Standard requirements, if Metro determines that the final risk assessment of the hazard identified is "unacceptable" using the criteria and assessment process specified in this Safety Plan, Metro notifies the BSSO within 24 hours or by 5:00 pm on the next regular working day following the determination of the unsafe condition as "unacceptable'. Metro transmits notifications to the BSSO in accordance with the IDOT-MoDOT State Safety Oversight Program Rail Accident/Incident and Hazard Notification Procedure for MetroLink issued June 6, 2017.

Metro or its contractor investigates a hazard reported to the BSSO as unacceptable in accordance with the provisions specified by Metro in its Safety Plan. Metro maintains a file of hazards reported to the BSSO and makes these files available to the BSSO for review and evaluation.

Metro will submit to the BSSO electronically the initial report of its investigation of an unacceptable hazard within seven (7) calendar days of the hazard being identified by Metro.

Metro submits to the BSSO status reports of the unacceptable hazard investigation at least monthly. Until the investigation is completed. Metro shall transmit these status reports electronically.

Upon completing the investigation of the unacceptable hazard, Metro prepares and submits to the BSSO for review and approval a final report that includes a description of activities, findings, identified causal factors, hazard analysis, and a corrective action plan (CAP) as appropriate. Metro transmits an electronic copy of the final investigation report to the SSO PM via email.

Chapter 6 – Safety Risk Evaluation

1 Hazard Evaluation and Analysis

The next step in the hazard management process involves classification of each hazard in terms of severity and probability of occurrence in order to determine the risk with which it is associated. This, in turn, provides the basis for determining possible mitigation strategies and allows the RFGS to prioritize the hazards. The risk assessment criteria are adapted from the APTA[4] Guidelines, MIL-STD 882E,[5] and from the FRA Collision Hazard Analysis Guide. [6] The classification process is described in the following sections. The initial risk assessment is performed by the Safety Department.

1.1 Hazard Severity

Hazard Severity is a measure of the most practical/credible mishap resulting from personnel error, environmental conditions, design inadequacies, and/or procedural deficiencies for systems, subsystems, or component failure or malfunction

Table F Hazard Severity Table

Category	Technical Definitional	Human Cost	Property Cost	Other Impacts
Catastrophic	Could result in death, permanent disability or complete system loss could result from incident cause by hazard.	Death to 2 or more; permanent disability to multiple persons.	Loss will exceed $1M	Irreversible environmental damage.
Critical	Could result in multiple severe injuries, disability, or major system loss will result from incident cause by hazard.	Hospitalization of 3 or more persons; single fatality.	Loss between $500K and $1M	System interruption greater than 24 hours.
Marginal	Conditions are such that injuries to 2 or more persons and/or severe damage to system and components.	Immediate medical care (EMS) away from scene for 2 or more persons.	Loss between $10K and $500K	System interruption less than 24 hours.
Negligible	Minor injury or damage.	Injury or occupational illness not resulting in a lost work day.	Damage less than $10,000	Minimal environmental impact.

[4] American Public Transportation Association
[5] MIL-STD 882E (11 May 2012) is the Department of Defense document that describes its Standard Practice for System Safety and was widely accepted by the rail transit industry as a best practice in the area of hazard management
[6] Collision Hazard Analysis Guide: Commuter & Intercity Passenger Rail Service; Office of Safety, Federal Railroad Administration, Wash. DC. (Oct. 2007)

1.2 Hazard Probability

Metro describes the probability that a hazard may occur in potential occurrences per unit of time, events, items or activity. Metro derives qualitative hazard probability from research, analysis, and evaluation of safety data from the operating experience of Metro and/or other similar transit authorities. A qualitative hazard probability ranking for Metro is as follows:

Table G Hazard Probability Table

Hazard Probability Levels			
	Description	**Quantitative**	**Fleet/System**
Frequent	Likely to occur frequently	1 time out of 10 or more during a 12 month period of time	Continuously experienced
Probable	Will occur several times	1 time out of 100 during a 12 month period of time	Occurs frequently
Occasional	Likely to occur some time	1 time out of 1000 during a 12 month period of time	Will occur several times multiple locations
Remote	Possible to occur	1 time out of 100,000 during a 12 month period of time	Could occur once or twice
Improbable	Unlikely but possible to occur	1 time out of 1,000,000 in a 12 month period	Very unlikely but could occur once within lifetime of a fleet or system
Eliminated	So unlikely, we assume the occurrence may not be experienced.	Will not occur	This category applies to hazards that have been eliminated by design

2 Hazard Control and Elimination (Resolution)

FTA defines risk as:

> **Risk** – *the composite of predicted severity and likelihood of the potential effect of a hazard*

The objectives of a Hazard Resolution process are:

- To identify areas where hazard resolution may require a change in the system design or development of special procedures;
- To verify hazards involving interfaces between two or more systems have been resolved;
- To verify the resolution of a hazard in one system does not create a new hazard in another system; and
- To verify required analysis is provided in a timely manner, and identify where delinquent analysis is delaying hazard resolution.

Hazard resolution is not synonymous with hazard elimination. In Metro's operating environment, as in the real world, some hazards may be impossible to eliminate and it may be highly impractical to eliminate others. Thus, hazard resolution involves the reduction of risk to the lowest practical level. This is accomplished in a variety of ways, from re-design to warnings or administrative controls.

To determine what action to take to correct or to document acceptance of identified hazards, a system of determining the level of risk involved has been adopted. This risk assessment activity is incorporated in a formal safety analysis. In turn, this will enable management to properly understand the amount of risk involved relative to what it will impact (schedule, dollars, operations, etc.) to reduce the hazard to an acceptable level.

Before implementation of any corrective action, Metro has established a hazard severity category (1 through 4 and a probability ranking (A through F) which are combined to form a numerical value called a Risk Index, reflecting both severity and probability of occurrence for each identified hazard. Metro assigns a Risk Index to a hazard before implementation of any corrective action. The range of possible Risk Indices is shown in the following matrix.

Table H Hazard Risk Index

Frequency of Occurrence	1 Catastrophic	2 Critical	3 Marginal	4 Negligible
(A) Frequent	1A	2A	3A	4A
(B) Probable	1B	2B	3B	4B
(C) Occasional	1C	2C	3C	4C
(D) Remote	1D	2D	3D	4D
(E) Improbable	1E	2E	3E	4E
(F) Eliminated	N/A	N/A	N/A	N/A

2.1 Hazard Assessment

Metro applies risk assessment criteria to the identified hazards based on their estimated severity and probability of occurrence to determine acceptance of the risk or the need for corrective action to further reduce the risk. The risk assessment and acceptance criteria assist Metro management in understanding the amount of risk involved by accepting the hazard relative to the costs (schedule, dollars, operations, etc.) to reduce the hazard to an acceptable level. The following table identifies the hazard acceptance criteria:

Table I – Hazard Acceptance Criteria

HAZARD ACCEPTANCE CRITERIA				
	Hazard Risk Index	Decision Authority	Special Conditions	Responsible Party
	1A, 1B, 2A, 2B, 3A	Unacceptable	Requires immediate resolution and review, notification to SSO with 24 hours, concurrence from the ESSC and the Chief Safety Officer	CSO & ESSC
	1C, 1D, 2C, 2D, 3B, 3C	Undesirable	Requires review and approval of mitigation plan(s), or Accept risk from the Chief Safety Officer	CSO
	1E, 2E, 3D, 3E, 4A, 4B	Acceptable with Review	Mitigate risk to as low as reasonably practical or accept risk	Dir System Safety, Security, and Emergency Management
	4C, 4D, 4E	Acceptable	Risk is acceptable as is without further mitigation	Dir System Safety, Security, and Emergency Management

2.2 Hazard Resolution Precedence

Management will take appropriate actions to reduce the risk associated with the identified hazard to the lowest level practical. The methods utilized for eliminating or controlling hazards are listed in their order of precedence, as follows:

- Design for Minimum Risk: In other words, incorporate features in the initial design to eliminate hazards. If an identified hazard cannot be eliminated, then the associated risk can be reduced to an acceptable level through design.

- Incorporate Safety Devices: If identified hazards cannot be eliminated or their associated risk adequately reduced through design, that risk shall be reduced to an acceptable level through the use of fixed, automatic or other protective safety-designed features or devices. Provisions shall be made for periodic functional checks of safety devices.
- Provide Warning Devices: When neither design nor safety devices can effectively eliminate identified hazards or adequately reduce associated risk, devices shall be used to detect the condition and to produce an adequate warning signal to alert personnel of the hazard. Warning signals and their application shall be designed to minimize the probability of incorrect personnel reaction to the signals, and shall be standardized within like types of systems.
- Develop Procedures and Training: Where it is impractical to eliminate hazards through design selection or adequately reduce the associated risk with safety and warning devices, procedures and training shall be used. However, without a specific waiver, no warning, caution or other form of written advisory shall be used as the only risk reduction method for Category 1 or 2 hazards. Procedures may include the use of personal protective equipment. Precautionary notations shall be standardized. Tasks and activities judged critical might require certification of personnel proficiency.
- Reduce, Replace, Remove, or Do Not Operate – If there is no practical way to reduce the hazard, replacement, removal, or non-operation is indicated.
- Accept (with or without varying levels of review)– If a hazard will result in no, or less than minor, illness, injury, or system damage, no further action is necessary.

2.3 Procurement/Contractor Requirements

Metro procurements of safety-critical systems, processes or products require that responding contractors/suppliers utilize a methodology for hazard management in accordance with this list in order of precedence. Specifications include the requirement for all contractors/suppliers who provide systems, subsystems, or equipment that affect safe vehicle movement or passenger/employee safety to adhere to this Safety Plan. The contractor/supplier's Safety Plan and supporting documentation must be approved by the Metro department responsible for the contract in coordination with the ESSC. The Metro-approved contractor program plans must, at a minimum, define objectives, tasks, procedures, schedules, and data submittal for the safety activities that will be performed by the contractor/supplier.

2.4 Hazard Tracking / Monitoring

Metro tracks and analyzes all events/hazards through the use of the ESRI system and a Tableau database. The data is searchable and includes a variety of elements beyond hazards to include day-to-day operational activities. Metro has given the BSSO access to the Tableau database. The BSSO can access data in real-time. Incidents are tracked with 30 days, per 49 CFR Part 674.27. Occurrences are also tracked and made available per 49 CRF Part 674.27.

Hazards are identified and prioritized through a variety of methods. Examples include but are not limited to: the daily MetroLink Defect Call, on-going and/or follow up meetings, communications with individual departments, and regular Safety Department hazard meetings.

For hazards meeting the unacceptable or undesirable thresholds, Metro has established a Hazard Tracking Log which reflects the consolidation of information in the hazard management process. The Hazard Tracking Log includes the following required information:

- Hazard ID#
- Description of Hazard
- Reported by
- Location (if applicable)
- Source
- Probability Level
- Severity Category

- Hazard Classification rating (initial and final)
- Location (if applicable)
- SSO Report Date
- Mitigations
- Status

All hazards are continuously tracked and analyzed for potential trends. To assist in trend analysis evaluation, Metro uses the Tableau Server. This server can generate a variety of reports based on the hazard being analyzed.

Table E Sample Hazard Tracking Log[7]

HAZARD ID	HAZARD DESC	REPORTED BY	HAZARD LOCATION	MILE POST	SOURCE	DATE OPENED	HAZARD CLASS	TEMP MITIGATION	PERM MITIGATION	STATUS	CLOSE DATE
2010HAZ01	Deterioration at Union Station Tunnel	MOW - Structures	Union Station Tunnel	13.4	INSPECTION: STRUCTURES	11/23/2010	2 - High	TEMP REPAIRS; frequent monitoring	CAPITAL PROJECT	Load ratings completed by Modjeski & Masters indicate that additional temporary shoring towers are needed in the North Bay area near the Comm Room. Design Phase of the replacement tunnel continues, currently at 15% complete. A separate design package for constructing a new Comm. Room outside of the tunnel is at 60% design completion. A Construction Manager / General Contractor (CM/GC) has been selected, with contract negotiations in progress. The CM/GC will work with the design team through the design phase to provide constructability and cost estimating advice, prior to construction.	
2010HAZ03	Deteriorating Concrete Ties	Grott	Various - Cross County & St.		INSPECTION: MOW	11/3 /2010	3 Medium	MONITOR	TBD	Remediation in IL and XCO continues	
2010HAZ04	TRESSPASSERS ON ROW	Ghiassi	Various		ACCIDENT	11/23/2010	3 Medium	MONITOR	TBD	MONITOR Tresspasser Log; ongoing; See white paper; Priorities established;	
2010HAZ06	2010HAZ07	Forest Park Ped Bridge poor condition	MOW - Structures	Forest Park over ROW	9.8	7/26/2011	3 Medium	3 Medium	Monitor	Metro continues to monitor this bridge with the City. Metro requested a brief structural analysis of one of the steel trusses be performed by Juneau, which was completed and shared with the City. The City is in the process of hiring a contractor to perform initial repairs on the bridge in Summer 2018, and a potential 2nd phase of repairs in Summer 2019.	Monitor; City of St Louis has assumed ownership & will repair; City has contractor on board
2010HAZ08	Water intrusion in Downtown Tunnel	Audit	Downtown tunnel		3 YR SAFETY REVIEW - 2008	12/13/2012	3 Medium	More frequent inspections & monitoring	Capital Project	Amanda Wedekemper will be managing the project. The RFP for design was advertised in January, with no proposals received. Since then, the RFP has been revised and will be re-advertised in the next few weeks. Proposals were received recently and Metro is currently (June ' 18) in the Evaluation process of selecting a consultant for this project.	

The Hazard Tracking Log is submitted each month to BSSO. BSSO reviews the Monthly Hazard Tracking Log and forwards any questions or requests for information to Metro. In addition, Metro conducts quarterly meetings with BSSO to review the Hazard Tracking Log and the other activities associated with the hazard management process. The quarterly hazard management meetings are discussed further in other sections.

[7] This table includes the hazard methodology used prior to the hazard rating methodology described in this document.

Chapter 7 – Accident & Incident Investigations

1 Accident & Incident Investigations

This chapter describes the process used by Metro to report accidents and incidents occurring on MetroLink (ML), MetroBus, or Call-A-Ride property or involving employees or property. Additional details related to reporting, investigating, and documenting accidents and incidents can be located in the Department of Risk Management, Claims & Safety SOPs 4.1 through 4.7[8] and in ML SOPs 106.01 through 106.20.

1.1 Accident & Incident Notification

All accidents & incidents involving Metro personnel or property must be reported to the OCC/BOCC in accordance with Metro's rules and standard operating procedures. Safety SOP 4.4 provides guidance as to levels for notification & response. Any Metro employee involved in, or witnessing, an accident or incident, shall immediately notify OCC/BOCC. In turn, the OCC/BOCC shall notify appropriate management, supervisory and emergency response personnel in accordance with the notification protocol. For MetroLink this protocol is described in ML SOP 106.20. Internal notifications shall be made as soon as practical.

1.2 Accident Investigation

The Safety Department has the overall responsibility for accident investigations as defined by the accident investigation procedure. A TSM is first on the scene and initially investigates accidents. Depending on the severity of the accident, the Safety On-call Representative may also participate in the investigation. In the case of an accident defined as a Level 2 or higher, a Safety On-call Representative is notified and will respond to the scene. The Safety Representative will assume the lead investigation role. The Safety Department, with support from ML Operations, MetroBus, or Call-A-Ride, has identified certain procedures to follow when conducting an investigation. All formal safety investigations are confidential and include the following steps, as appropriate:

- On-site inspection of the scene;
- Review of statements written by involved persons;
- Interviews with involved persons and witnesses;
- Review of the following physical evidence:
    - System log data
    - Vehicle and signal system event recorder data
    - Communication tapes
    - Train control position data
    - Train alarm tabulation printouts
    - Car, track, equipment maintenance and inspection reports
    - OCC documentation
    - CCTV Tapes
    - DRD Videos
    - On-scene measurements

[8] This section of SOPs is general in nature and is applicable to the entire METRO system including bus, van, and rail.

- SCADA

- Perform system tests;
- Preserve evidence;
- Coordinate incident reconstruction activities; and
- Prepare report for management and the SSO (for rail).

1.3 Regulatory & Management Reporting

The Safety Department identifies and coordinates all reports to outside agencies as required.

1.3.1 State Safety Oversight (Rail)

Metro reports rail accidents and injuries to the MoDOT and IDOT SSO, and the FTA in accordance with 49 CFR Part 674 and the SSO Program Standards Manual.

The contact information for IDOT, MoDOT, and the FTA:

- IDOT – IDOT District 8 Communications Center Phone (618-346-3233)
- MoDOT – MoDOT SSO Program Manager Phone (573-418-0500), MoDOT 24-Hour Emergency Phone (573-751-4291)
- FTA – email (TOC_01@dot.gov) , phone (202-366-1863)

The following accidents and incidents require notification within two (2) hours[9]:

- A loss of life
- A report of a serious injury to a person
- A collision involving a rail transit vehicle
- A runaway train
- An evacuation for life safety reasons
- Any derailment of a rail transit vehicle, at any locations, at any time, whatever the cause

The FTA released two (2) guidance documents[10] that excludes deaths and serious injuries from the 2-Hour reporting requirement if it was due to: illness, drugs, or natural causes occurring on the rail transit property. In these circumstances, the SSO Program Standard[11] requires Metro notify the SSO within one business day.

Reports prepared for the SSO Agency will follow the format outlined in Annex A - adopted from APTA Standard for Rail Transit Accident/Incident Investigation; Volume 4-Operating Practices, APTA; RT-SOP-002-02, dated July 26, 2004. Accident reports developed and prepared for the respective SSO agency are reviewed, approved and adopted by the SSO agency. The SSO Agency may request that causal factors or hazards identified during the investigation be addressed or corrected by Metro. In that instance, Metro will prepare a CAP as described in Chapter 8 of Part III – Safety Assurance.

1.3.2 NTSB[12]

Metro notifies the NTSB following a rail accident[13]:

a) No later than 2 hours after an accident which results in:

[9] *Appendix to Part 674 – Notification and Reporting of Accidents, Incidents, and Occurrences further defines the FTA reportable accidents.* This Appendix is listed with 49 CFR Part 674 and the SSO Program Standard
[10] Titled Two-Hour Accident Notification Guide (02/23/18), and Two-Hour Accident Notification Quick Reference Checklist (02/23/08).
[11] Section 7.5 Fatalities and Serious Injuries Unrelated to Rail Transit Operations or Maintenance.
[12] National Transportation Safety Board
[13] [53 FR 49152, Dec. 6, 1988]: Title 49 C.F.R. PART 840—RULES PERTAINING TO NOTIFICATION OF RAILROAD ACCIDENTS

1) A passenger or employee fatality or serious injury to two or more crewmembers or passengers requiring admission to a hospital;

2) The evacuation of a passenger train;
3) Damage to a tank car or container resulting in release of hazardous materials or involving evacuation of the general public; or

4) A fatality at a grade crossing;

b) No later than 4 hours after an accident which does not involve any of the circumstances enumerated in paragraph (a) of this section, but which results in:

5) Damage (based on a preliminary gross estimate) of $150,000 or more for repairs, or the current replacement cost, to railroad and non-railroad property; or
6) Damage of $25,000 or more to a passenger train and railroad and non-railroad property.

Title 49 CFR. Part 840 stipulates that the operator of a railroad[14] shall notify the NTSB by telephoning the National Response Center at telephone 800–424–0201 at the earliest practicable time after the occurrence of any one conditions listed above.

49 CRF Part 840.4 stipulates that the information to be given in notification:

a) Name and title of person reporting.
b) Name of railroad.
c) Location of accident (relate to nearest city).
d) Time and date of accident.
e) Description of accident.
f) Casualties.

1) Fatalities.
2) Injuries.

g) Property damage (estimate)
h) Name and telephone number of person from whom additional information may be obtained.

1.3.3 Federal Transit Administration

Metro also reports safety and security data monthly to the National Transit Database (NTD).

The NTD is the means by which the FTA collects uniform safety and security data. For an incident to be reportable to the NTD, it must involve a transit vehicle or occur on transit property and meet certain criteria. Reporting requirements categorize incidents as major or minor based on thresholds described in the NTD Reporting Manual.

The FTA NTD Report Manual mentions the importance of distinguishing between safety incidents and crimes, injuries, or deaths resulting from robbery, assaults, trespassing, arsons, and other crimes and misdemeanors not considered safety items. Those incidents are reported separately. Further information for the FTA NTD Reporting Manual is available from http://www.ntdprogram.gov/ntdprogram/ or the National Transit Database, PO Box 457, Merrifield, VA, 22116-0457; Telephone: 703-205-2475. Additional guidance on reporting accidents/incidents to the FTA is contained in the FTA National Database Report Manual.

Metro's Safety & Security NTD Data may be viewed on the NTD website at any time by approved employees, the SSO officials, and others who are qualified.

[14] (a) *Railroad* means any system of surface **transportation of persons or property over rails**. It includes, but is not limited to, line-haul freight and passenger-carrying railroads, and **rapid transit**, commuter, scenic, subway, and elevated railways

1.3.4 Missouri Division of Workers' Compensation

Employee injuries must be reported to the Missouri Division of Workers' Compensation within 30 days after receiving notice.

1.3.5 Illinois Division of Workers' Compensation

Metro complies with all reporting requirements for workers compensation in the State of Illinois.

Part III
Safety Assurance

Safety Performance Monitoring and Measurement

Metro has established activities to monitor its system for compliance with its procedures and maintenance and exercises activities that evaluate the effectiveness of any corrective action/mitigations for existing deficiencies.

A robust accident/investigation program has been established for safety events to determine casual factors.

In addition, information shared through the Employee Safety Reporting Program is included in the Safety Assurance program at Metro for investigating, monitoring, and analysis.

Management of Change

Metro has established a process for identifying and assessing changes that may introduce new hazards or impact Metro's safety performance, which is described in Chapter 8. If Metro determines that a change may impact its safety performance, then Metro will evaluate the proposed change through its Safety Risk Management process.

Continuous Improvement

Metro has established a process to assess its safety performance. If Metro identifies any deficiencies as part of its safety performance assessment, then Metro will develop and carry out, under the direction of the President & CEO, a plan to address the identified safety deficiencies. The continuous improvement process is further described in Chapter 9.

Chapter 8 – Safety Performance Monitoring and Measurement

This chapter describes Metro's performance measures, transit asset management and state of good repair, and other performance measuring and monitoring activities, including Rules Compliance/Procedures Review, Hazardous Materials Program, Employee Safety Reporting Program, Drug and Alcohol Program, and the Procurement Process.

1 Safety Data Acquisition

1.1 Safety Data Acquisition and Analysis

It is the task of the Safety Department to monitor safety performance of Metro's operations. Selected data is accumulated and analyzed by Safety Department staff. This includes but not limited to: injuries, potentially hazardous equipment failures, structural defects, reports from the Employee Reporting Program, and rules and procedures violations. This information is presented at the quarterly Safety and Security Executive Committee (ESSC). The data is used in the tracking of hazard-related data to identify safety-related trends. These trends are further analyzed or investigated by the Safety Department, with the assistance of the affected department, to pinpoint the specific areas of concern. This is accomplished by interviews with personnel in the affected department(s) and analysis of pertinent documentation. Monthly safety meetings with each transportation mode are also used to discuss trends, hazards, information reported through the Employee Safety Reporting Program and any other safety concerns that may arise. Identified hazards are submitted to the management of the department responsible for implementation of the necessary corrective action. Also included in the submittal are recommendations for mitigation(s) or a request for corrective action development. The effectiveness of mitigations and corrective actions are tracked by the Safety Department, and through monthly Safety meetings with each mode of transportation.

1.2 Data Acquisition

Safety data is collected, documented and analyzed from numerous sources by all departments. Sources include but are not limited to:

- Accident Reports
- External agency Reports and Publications
- City Official Concerns
- Claims Reports
- Daily Operations Reports
- Maintenance Reports
- Employee Concerns
- Employee Occupational Injury Reports
- FTA Bulletins and Safety Advisories
- Homeland Security Alerts
- Hot Spot Maps
- Insurance Inspection Reports
- Internal Audit Reports
- BSSO/FTA Reviews
- Passenger Concerns/Customer Complaints
- Inspections, Assessments and Observations
- Safety Meetings
- Special Occurrence Reports
- Public Safety Reports, concerns and investigations

- Social Media Posts
- Employee Safety Reporting Program
- Customer Service information
- System reliability
- Rule Compliance Checks

Safety data collection also involves obtaining technical information, data and reports for use in systems development of program elements. Sources for such data include but are not limited to:

- American National Standards Institute (ANSI)
- American Public Transportation Association (APTA)
- American Society for Testing and Materials (ASTM)
- Federal Motor Carrier Safety Administration (FMCSA)
- Federal Motor Carrier Safety Administration (FMVSS)
- Department of Homeland Security (DHS)
- Environmental Protection Agency (EPA)
- Federal Transit Administration (FTA)
- State Safety Oversight Program (SSO)
- Missouri and Illinois Statutes
- Safety Data Sheets (SDS)
- National Fire Protection Association (NFPA)
- National Transportation Institute (NTI)
- Occupational Safety and Health Administration (OSHA)
- Transportation Security Administration (TSA)
- National Transit Database (NTD)

Other data and information sources include building codes and professional society guidelines, and information technology and cybersecurity standards organizations.

1.3 Data Analysis and Access

Used as part of the hazard management process, data collection and analysis are used to identify hazards before they cause accidents by such techniques as trend analysis.

Metro's departments under the direction of Key SMS Personnel are to collect and track their safety-related data to identify causal factors and undesirable trends, including those related to hazards. The investigation may include interviews, testing and analysis of related documentation. Identified hazards are tracked and findings requiring corrective action are submitted to the Safety Department and the other Metro department(s) for review, assessment, concurrence and discussion of further appropriate mitigations. The Safety Department reviews all safety data analysis, and verifies compliance with SMS and this Safety Plan, and provides expert advice to Metro Management on trends through the ESSC.

2 National Public Transportation Safety Plan Safety Performance Measures

Metro has set performance targets based on the safety performance criteria established under the National Public Transportation Safety Plan (NSP). FTA's National Safety Plan describes the required safety performance areas public transit agencies must measure, outlined below. These performance measure focus on existing data delivered to the National Transit Database (NTD).

Each year, Metro will set performance goals in each area. The goals for each year will be found in **Appendix A – National Public Transportation Safety Plan Safety Performance Measures.**

National Public Transportation Safety Plan Safety Performance Measures			
System Reliability	**Safety Events**	**Fatalities**	**Injuries**
The mean distance between mechanical failures by mode.	The number and rate per total vehicle revenue miles by mode.	The number and rate total vehicle revenue miles by mode.	The number and rate per vehicle revenue miles by mode.

2.1 Coordination with East-West Gateway Council of Governments (EWGW) and the States

Per 49 CFR Part 673.15(a)&(b), Metro is required to coordinate its performance targets as required by the National Public Transportation Safety Plan with the local Metropolitan Planning Organization and the State(s). These entities consist of EWGW, IDOT, and MoDOT.

During the draft stages of the PTASP each year, Metro will communicate its proposed performance targets to EWGW. The Accountable Executive, or their designee, will communicate this to EWGW by electronic means or/or an actual meeting. This will be accomplished each year before the draft PTASP is transmitted to the BSSO.

The annual draft PTASP submittal to the BSSO will serve the requirement of Metro communicating its proposed performance targets with the State(s). Metro also has the opportunity of communicating and coordinating with the BSSO on its safety performance measures through the quarterly BSSO meetings and/or site visits.

3 Safety Performance Measures

3.1 Performance Indicators

Metro uses a variety of performance indicators to measure its compliance with, and the sufficiency of, its procedures for operations and maintenance. As described in Chapter 6, Metro uses information obtained from the Incident Management System through a Tableau database to track and trend Metro events and hazards. This information is tracked and trended on a monthly and quarterly basis.

Metro will also use Leading and Lagging Performance Indicators when briefing senior management. The ESSC is given performance data on these indicators at least quarterly and sooner if the need arises. A report is generated from this information and shared with the BSSO.

If a negative trend is present, the trend will be analyzed and mitigations measures discussed. If appropriate, a hazard rating will be assigned and tracked on the hazard/mitigation table. This will allow the hazard and mitigation efforts to be analyzed for effectiveness on a regular basis.

While listing all of the performance data here would be exhaustive, a summarized list is found in Appendix B – Performance Indicators.

Example of performance indicators used at Metro are listed in Appendix B – Performance Indicators.[15]

4 Operating and Maintenance Rules and Procedures

Operational and maintenance rules and procedures are contained in the Standard Operating Procedures (SOPs), Rule Book, and Operations Manuals. Facilities rules and procedures are contained in the Facilities Maintenance Plan and manufacturers' manuals. These publications cover all rules and procedures that are necessary to operate a safe and efficient bus, rail and paratransit. The Metro Employee Manual, Drug & Alcohol Policy, and rule books cover the vast majority of the safety rules for Metro.

All rules compliance findings of non-compliance are evaluated by the Dir System Safety, Security, and Emergency Management, and where appropriate, are managed through Metro's hazard management process in compliance with Part II (Safety Risk Management) of this Safety Plan.

5 Rules Compliance

The data obtained from the Rules Compliance programs is an important part to the SMS process at Metro. These rules cover both operational and maintenance types. Currently, most of the data from rules checks are kept in excel databases. Paper copies are also used for rules compliance checks. Safety has access to all of these records and reviews on a monthly basis for hazards and trends. In addition, the data from this program is also analyzed at monthly Rail and Bus/CAR safety meetings. Hazards and trends discovered are put through the SRM process and mitigations/CAPs are generated when appropriate. In the future, it is the intent for the Rule Compliance Program data to be fed into the forthcoming EAM system. This will make the data more accessible and easier to sort and analyze.

These monthly safety meetings are also used to discuss the effectiveness of supervision relating to the implementation of operating and maintenance rules. If the data reflects an ineffectiveness or a process breakdown, a different direction may be warranted or a process may need to change.

5.1 Rules and Procedures for MetroLink

MetroLink has prepared and implemented a Rulebook and Standard Operating Procedures (SOPs) as well as specific maintenance procedures that affect safety.

5.2 Operating and Maintenance Rules

5.2.1 MetroLink Rulebook

This manual consists of those rules and procedures applicable to all ML employees. Department managers, as required or as needed, make requests for revisions. The General Manager MetroLink approves revisions to the *ML Rulebook* after review by Safety Department and supporting staff.

A schedule of reviews has been established whereby system and operational changes are approved prior to implementation. Such changes include operational rules and procedures, supplementary manuals and bulletins. The General Manager MetroLink has the authority and responsibility for development and control of the ML Rulebook and General Orders. A new rulebook is published at least every three years to incorporate interim changes.

[15] As a part of the overall SMS system, performance indicators will evolve and change. These changes can be directed internally as well as externally.

5.2.2 General Orders

General Orders are issued to modify a current operating rule or procedure or to address an urgent operating requirement.

5.2.3 Supplementary Manuals

Supplementary manuals are published to address a specific job assignment or function within a department, division or section. These manuals are developed, issued, and implemented at the departmental level. Revisions to supplementary manuals are the responsibility of the department manager affected.

5.3 Maintenance Personnel

Vehicle Maintenance Superintendents and Supervisors enforce rules and procedures by observing and monitoring employee performance in bus, paratransit and rail shops and yards. Facilities and Rail Maintenance Supervisors enforce rules and procedures by observing and monitoring employee and contractor performance on the rail system and at worksites. Rules and procedures monitored and observed for compliance include but are not limited to:

- General safety;
- Proper use of tools, equipment and machinery;
- Proper use of personal protective equipment;
- Right-of-way safety;
- Fire safety;
- Material handling and storage: and
- Quality Assurance inspections and audits of procedures, including rule compliance.

Preventive maintenance activities are continuously monitored by maintenance managers and supervisors. Inspection tasks are periodically updated to reflect fleet needs and enhance operational efficiency and safety.

Maintenance Supervisors also conduct follow-up activities after audits to ensure employee compliance with maintenance rules.

5.4 Maintenance of Way (Right of Way & Rail Systems Maintenance)

MetroLink established rules and procedures which govern maintenance activities along the operating right of way. These rules also apply to Metro contractors or other contractors that may perform maintenance or construction activities. Before any work along the right of way is authorized a work permit must be obtained. Before work is commenced, a supervisor will brief the work crew on the upcoming work and the applicable safety measures. The supervisor will then make unannounced visits to the work sites to check for work zone safety compliance. In addition, Transit Safety Managers (TSMs) as described below (LRV Operator Rules Compliance Program) and Safety personal will make routine visits.

5.5 Facility Worker Safety

Vehicle Maintenance Superintendents and Supervisors enforce rules and procedures by observing and monitoring employee performance in bus, paratransit and rail facilities and yards. Facilities and Rail Maintenance Supervisors enforce rules and procedures by observing and monitoring employee and contractor performance on the rail system and at worksites. Rules and procedures monitored and observed for compliance include but are not limited to:

- General safety;
- Proper use of tools, equipment and machinery;
- Proper use of personal protective equipment;
- Right-of-way safety;
- Fire safety;

- Material handling and storage: and
- Quality Assurance inspections and audits of procedures, including rule compliance.

5.6 MetroBus & Call-A-Ride Operator Rules Compliance Program

MetroBus and Call-A-Ride have an Operator Evaluations Program to monitor operator performance, to identify violations and take the necessary action to correct these. Call-A-Ride has an Operator Evaluations Program to monitor operator performance, to identify violations and take the necessary action to correct these. The Operator Rules Compliance Program consists of observations performed by TSMs to evaluate if the operators are adhering to the operating rules and to determine methods to improve their operating proficiency. All operators undergo at least one direct observation by a TSM during each calendar. New operators have their first direct observation within one year from the date that they enter passenger service. For each evaluation, the TSM completes a checklist and discusses the results of the evaluation discussed with the operator. The Manager of Paratransit Operations takes action to correct the observed rule violations. Disciplinary action is administered in accordance with Call-A-Ride guidelines.

The plan is reviewed annually for effectiveness by the Safety Department and the Manager of Paratransit Operations. The review includes a thorough look back at the previous year to determine trends and significant exceptions. The plan for the coming year is crafted and will specifically detail the focus as to which rules will be reviewed and the frequency of those reviews.

Finally, the Internal Audit Program also reviews operator adherence to the Metro's operating rules. At least once in every three-year audit cycle, the Internal Audit Department audits operations. The audit includes a records review of the Operator Rules Compliance Program, first hand observations of the bus/van operator's performance in revenue service, and efficiency checks to ensure the operator response to unexpected events.

6 Facilities and Equipment Inspections

Metro has established and maintains a list of MLRFGS facilities, physical equipment, and rolling stock subject to inspections and tests for safety critical elements. Several departments perform or monitor safety-related tests and inspections of facilities, equipment, and rolling stock. The **Transit Asset Management Plan** provides a listing of all Metro facilities, equipment, and rolling stock.

6.1 Yard & Shops Inspections

The Safety Department inspects the MLRFGS operating and maintenance facilities on an annual basis to ensure the safety of employees and guests and to ensure compliance with applicable safety regulations.

The Safety Department participates with the Rail Facility Maintenance Department and the LRV Maintenance Department to identify and document compliance with local, state, and federal regulations regarding environmental pollution issues related to air, water, soil contamination, and provides assistance to control hazards. A safety inspection of each facility is completed annually and includes a review of the following:

- Reporting findings and recommendations resulting from safety tests and inspections to appropriate;
- Metro management;
- Performing follow-up inspections to determine compliance with findings and recommendations;
- Evaluating the effectiveness of safety tests and inspections;
- Portable fire extinguishers;
- Fire detection and alarm systems;
- Fire suppression systems;
- Building construction and maintenance;
- Building facilities: i.e. heating, ventilation, and air conditioning, electrical, etc.;
- Means of egress and security (access controls);
- General housekeeping and storage practices; and

- Occupants' awareness of emergency procedures.

All inspections are documented. Inspection reports include the following:

- Date of inspection;
- Name of facility;
- Listing of items observed;
- Description of observed deficiencies;
- Lists of applicable codes, SOPs, and regulations;
- Suggestions to improve the safety of the facility; and
- Name of inspector.

The inspection team will ensure personal protective equipment (PPE) is available at all times, eyewashes and fire extinguishers are operational, and general facility defects are noted and corrected. Serious deficiencies, i.e. life threatening, are corrected immediately. If a serious deficiency cannot be corrected immediately, it is given priority for corrective action and preventive measures are taken to mitigate the hazard in accordance with the procedures outlined in this Safety Plan. If a corrective action for a serious deficiency is delayed the Dir System Safety, Security, and Emergency Management or the Executive Safety & Security Committee may impose temporary measures to protect life and property. Examples of such measures include shut downs, evacuations, notifications, or signage advising of present conditions.

Inspections will be conducted to ensure compliance with local, state, and federal environmental regulations. Where inspections bring to light deficiencies in systems or equipment, employees follow the hazard management procedures outlined in the Safety Plan. Conformance with these procedures provides timely resolution of possible hazards along with proper reporting of deficiencies within components of the system.

An inspection report identifying safety and health defects found during the inspection will be issued to the Rail Facilities Maintenance Department. This Department is responsible for correcting any hazards related to facilities and the equipment therein and also provides a schedule listing when the corrections will be completed.

A follow-up inspection and report will be made approximately 45 days after the initial inspection. Facility inspections and audits are tracked by the Maintenance of Way Department. The procedures for the annual safety inspection, including the "Facility Inspection Checklist" are outlined in this Safety Plan.

6.2 Structures Inspection

The Metro Board of Commissioners adopted The ML Structures Inspection Manual in August 2002 as the official ML Structures Inspection Manual. The manual was updated in November 2008 and renamed the MetroLink Standard for Structures Inspection and Maintenance. Implementation of the Structures Inspection Program is the responsibility of the Program Manager. This plan includes protocols, timetables, and responsibilities for the inspection of ML structures. Structures governed by the plan include, but are not limited to, bridges, culverts, tunnels, retaining walls and elevated platforms. The current manual was last updated in 2019.

The inspections prescribed by this manual are performed in accordance with the current edition of the AASHTO "Manual for Bridge Evaluation" and other standards and guidelines as noted in the plan. Maintenance of Way is responsible for the implementation and monitoring of the program. Deficiencies found in the structures are rated on a scale of 0 (failed) to 9 (Excellent) based on its condition and the rating is recorded along with a report and photos in a structures database. A member of the Safety Department reviews reports on structures that receive a rating of 4 (Poor Condition) or lower. The hazard management process is then engaged to determine the risks associated with that structure.

6.3 Stations Inspections

The Rail Facility Maintenance Department has the primary responsibility for inspections of stations and parking lots. The stations are inspected at least monthly; however, all maintenance and operational personnel report hazards or defects as noticed. The frequency and scope of station inspections are discussed in more detail in below.

An annual emergency power simulation is conducted at MetroLink stations. The main power breaker is opened and electric power is removed. Operation of alarms, enunciators, generators, fire suppression systems, lights and equipment on the emergency circuit is verified.

6.4 Rolling Stock Inspections

The LRV Maintenance Department has the responsibility for regular inspection and maintenance of the MLRFGS rolling stock. The LRV Maintenance program includes daily safety inspections, mileage-based preventative maintenance inspections and RCM overhaul program. Scheduled inspections occur at mileage intervals of 5,000, 15,000, 30,000, 50,000, and 100,000 miles. LRV electro mechanics inspect equipment on the trains during preventive maintenance work. The LRV maintenance program is described in detail in the LRV Maintenance Manual.

LRV Maintenance conducts a pre-trip inspection on each LRV prior to passenger service. The LRV operator then performs a pre-departure check before commencing service. These items include:

- Fire protection equipment;
- Emergency communications equipment - PA, Radio, Intercom;
- Brakes, door operation, horns, bells, & silent alarm;
- On-board signal equipment; and
- Headlamps, RR lamp, & indicator lamps.

A copy of the Daily Pre-departure Inspection Form is available at the LRV Maintenance departments. The Safety Department conducts regular LRV Inspections at least four times per year and also participates in post-accident inspections.

6.5 Fire Detection & Suppression Equipment Inspections

The Safety Department is responsible for the inspection of fire protection equipment at Metro and other Metro facilities while the respective facility maintenance department is responsible for the maintenance. Generally, Metro adheres to NFPA 25[16] and uses the following guidelines:

- Portable fire extinguishers are inspected monthly by Metro and serviced annually by a contractor;
- Sprinkler systems (drains and water flow alarms) are tested monthly by zone rotation so that all systems are checked at least quarterly;
- Fire pump tests are done annually by a qualified contractor;
- Deluge and dry pipe sprinkler systems are trip tested annually by a qualified contractor;
- Fire hydrants are flow tested annually at facilities, tunnels, and MetroLink stations;
- Hydrostatic tests are done every five years on dry pipe systems. A system that has been modified or repaired is hydrostatically tested before it is returned to service; and
- Reduced pressure back flow prevention devices that serve a fire protection system are tested and tagged by a certified plumber annually.

Safety maintains copies of the fire equipment inspection reports and copies are provided to the Maintenance of Way Department, and local fire authorities as requested.

6.6 Systems Inspections

The Rail Systems Maintenance Department has the overall responsibility for the inspection and maintenance of the MLFRGS systems elements consisting of the following:

[16] NFPA 25 – National Fire Protection Association Standard for the Inspection, Testing, & Maintenance of Water-Based Fire Protection Systems; National Fire Protection Association, Quincy, MA

- Signals
- Communication
- OCS
- Power Substations

The frequency and scope of systems inspections are discussed in more detail in Section 15 – Maintenance.

7 Maintenance Audits & Inspections

Safety critical systems, such as track, structures, train control, transit vehicles, tunnel ventilation and fire control, elevators, escalators, and communications are inspected/tested and/or serviced on a scheduled, periodic basis. Inspections are done using checklists for each audit. The detailed checklists are included in the maintenance plans and manuals listed in Appendix C. When these systems are found in a failed or out of tolerance condition, in such a manner that would present a significant hazard, applicable operations will be restricted to maintain safety until an appropriate remedial action has been implemented. Equipment found in a failed or out of tolerance condition is recorded and tracked by the responsible maintenance department. These discrepancies are not to be closed out until repairs are completed. In the case of transit vehicle maintenance, should a vehicle not receive the prescribed preventive maintenance within the required maintenance schedule, the vehicle is will be withheld from revenue service.

The Safety Department performs internal safety audits of maintenance activities for safety critical systems. These audits focus on adherence to schedule, application of standards and procedures, and record keeping. All safety critical hazards discovered during audits or inspections are tracked in the hazard-tracking database.

7.1 Rail Systems Maintenance

7.1.1 Train Control

The Signals Maintenance and LRV Maintenance Departments share the responsibility for the Metro's train control system. The Signals Maintenance Department is responsible for inspection and maintenance of wayside train control components. The LRV Maintenance Department inspects and maintains the vehicle car borne train control components.

7.1.2 Signal System Inspections and Maintenance

The inspection program for the signal system includes all aspects of the Automatic Train Protection (ATP) systems; including: - track circuits, cab signals, Vital Logic Controllers (VHLC), vital relays, electronic interlockings, relay houses, signals, power-operated switches, and highway grade crossings. The frequency and scope are detailed in the ML Signal Systems Maintenance Plan. A number of "best management practices" regarding the frequency of inspection and the content of tests have been adopted from APTA's Signal & Communications Equipment Inspection and Maintenance Volume VI; APTA's Standard for Rail Transit Systems Highway Rail Grade Crossing Warning Device Inspection, Testing; and Maintenance Volume III; and Federal Railroad Administration's Rules and Regulations Governing Railroad Signal and Train Control Systems. However, MetroLink is not subject to the FRA rules and regulations, and such practices have been adopted as suitable for MetroLink due to the similarity of equipment in certain applications. This plan is reviewed annually to determine if updates to the plan are required. Table K provides the inspection frequency of some of key Signal System elements.

Table F Inspection Schedule – Key Signal System Elements

Inspection Schedule - Key Signal System Elements	
Inspection	**Frequency**
Solar Switches	Quarterly
Visible Damage Assessment	Monthly
Ground Tests[17]	Monthly
Signal House Utility/Standby Generator/VHLC/Ground Tests	Monthly
Power Switches/Power Switch Circuit Controllers	Monthly/ Annually
Highway Grade Crossings	Monthly/Annually
Hand Throw Switch Circuit Controller/Electric Lock/Derail	Quarterly
Snow Melting test	Annually
Impedance Bonds/Rail Connections	Semi-Annually
Wayside Signals	Monthly/Semi-Annually
Insulated Joints	Semi-Annually
AC/AF track Circuits	Semi-Annually
Signal House Utility	Semi-Annually
Timer Relays	Annually
AC Vane Relays	Every 2 Years
Vital Relays	Every 4 Years
Route Locking/Approach Locking/Indication Locking/Time Locking/Traffic Locking/Wayside Signal Aspects	Every 2 Years
Meggering	Every 10 Years
Shunt Fouling	Quarterly

7.1.3 Traction Power & OCS Inspections & Maintenance

The Traction Power Maintenance Department performs the OCS and TPSS inspection and maintenance. The frequency and scope of traction power inspections is detailed in the Traction Power Maintenance Plan. A number of practices regarding the frequency of inspection and the content of tests have been adopted from APTA's Manual of Standards and Recommended Practices for Rail Transit Systems 2004. This plan is reviewed annually to determine if updates to the plan are required. **Table K** lists the frequency of some of the key Traction Power elements.

[17] At minimum, Grounds Tests are performed monthly. Each time the system is modified or disarranged, a Grounds Test is performed

Table K – Inspection Schedule – Key Traction Power & OCS Elements

Inspection Schedule – Key Traction Power & OCS Elements	
Inspection or Sub-System	**Frequency**
TPSS – Visual & equipment readings	Weekly
OCS – Mainline Visual	Weekly
TPSS – Breakers & Batteries	Quarterly
OCS – Video Inspection	Quarterly
OCS – Section Insulators	Quarterly
OCS – Air Break & Overlap	Quarterly
OCS – Fixed Tension	Quarterly
OCS – Lightning Arresters	Quarterly
OCS – Poles and Pole Ground	Quarterly
OCS – Yard Inspections	Quarterly
OCS – Balance, Weights	Semi-Annual
OCS – DC No-load Switch	Semi-Annual
OCS – Yard Door Bridge & DC Switch (Shop)	Semi-Annual
TPSS – Transformers, switchgear, rectifiers, circuit breakers	Annual
OCS – Hands-on hardware and support elements	Annual
OCS – Wire Gauge	Annual
Ladders & Hot Stick	Annual
Auxiliary PPE & Equipment	Annual

7.1.4 Communication Equipment Inspections and Maintenance

The LRT Communications Maintenance Department is responsible for the inspection and maintenance of the MLRFGS communication equipment. The frequency and scope of inspections are detailed in a database available at Rail Systems. Maintenance procedures are described in the ML Light Rail Communication System Maintenance Plan.

7.2 ROW Inspections & Maintenance

7.2.1 Track Inspection and Maintenance

The Rail ROW Maintenance Department is responsible for the inspection and maintenance of Metro's track components, consisting of: the roadbed, ballast, ties, rail, fasteners, and special track work, as well as various other

components of the ML ROW. The frequency and scope of track inspections are detailed in the Track Maintenance Plan. A number of practices regarding the frequency of inspection and the content of tests have been adopted from APTA's Manual of Standards and Recommended Practices for Rail Transit Systems. Such practices have been adopted as suitable for MetroLink due to the similarity of equipment in certain applications. This plan is reviewed annually to determine if updates to the plan are required. Table L lists the inspection frequency of some of the key track elements.

Table L – Inspection Schedule-Key Track Elements

Inspection Schedule - Key Track Elements	
Inspection	**Frequency**
Ultrasonic Testing Mainline	Semi-Annually
Ultrasonic Testing Special Track Work	Annually
Geometry Testing	Annually (wood tie segments) Triennially (concrete tie segments)
Track Inspection	Weekly
Mainline Switches	Monthly/Annually
Yard Track & Yard Switches	Monthly
Alignment Inspections	Quarterly
Highway Grade Crossing Site Lines	Bi-Monthly

Additionally, the first train each day is operated at reduced speed to permit observation of any irregularities on the alignment.

7.2.2 Ventilation & Tunnel System Inspection and Maintenance

The Rail Facility Maintenance Department is responsible for the inspection and maintenance of Metro's Tunnel Ventilation Systems. Tunnel ventilation is tested quarterly and maintained per manufacturer specifications. Included are visual inspection, cleaning, lubrication, and voltage verification. Operation is verified by SCADA.

7.3 Facility Inspections & Maintenance

The Facility Maintenance Department is responsible for the inspection and maintenance of Metro's facilities, consisting of MetroBus, Call-A-Ride, and the MLRFGS operations and maintenance facilities, stations, parking structures, parking lots, and various other elements along the service area. The frequency and scope of these inspections in covered in detail in the Facilities Maintenance Plan. The Plan is reviewed annually to determine if updates or modifications are required. Table M lists the inspection frequency for some of the key elements.

Table M – Inspection Schedule – Key Rail Facilities Elements

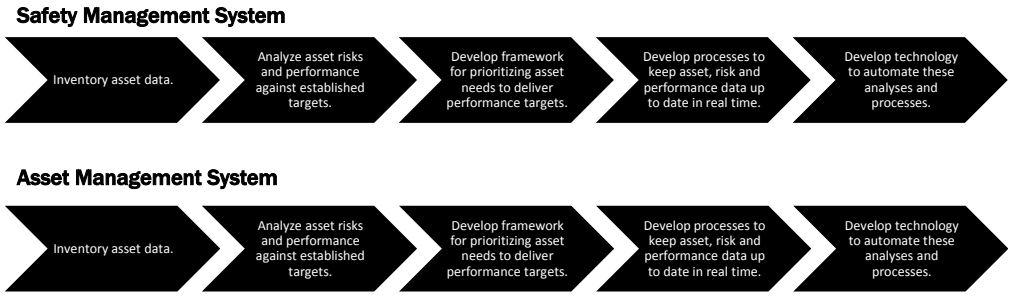
Inspection Schedule – Key Rail Facilities Elements	
Yard & Shops	
Air Drier	Monthly
Compressor	Monthly
Crane Hoist	Monthly
Emergency Generator	Monthly
Exhaust Fan	Quarterly
HVAC	Monthly
Mobile Lift	Monthly
Overhead Door	Semi-annually
Train Wash	Monthly
Unit Heater	Annually
Fire Protection	Monthly
Stations	
Site Conditions	Monthly
Walking Surfaces	Monthly
Communication Building/Room	Monthly
Lighting	Monthly
Emergency Generator	Monthly
Plumbing	Monthly
Irrigation	Monthly
Lift Station	Monthly
HVAC	Monthly

7.3.1 Elevator & Escalator Maintenance Audits

The Rail Facility Maintenance Department oversees a contract which provides all of the required inspections and preventative maintenance for the MLRFGS elevators and escalators. Generally, elevators and escalators are scheduled for inspection and service monthly and the elevators have a load test done every 5 years.

8 Transit Asset Management/State of Good Repair

Metro also addresses the requirements of 49 CFR Parts 625 and 630, Transit Asset Management (TAM) and State of Good Repair (SGR), through Metro *Transit Asset Management Plan*, which includes TAM and SGR performance measures. Previously stated in this Plan, both the SMS and the TAM are newer requirements for the transit agency and their continued nexus will evolve. Below depicts the Nexus between Safety Management and Transit Asset Management.



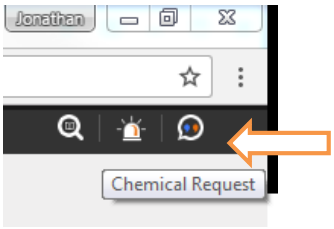
9 Hazardous Materials Program

Metro has written Hazard Communication procedures for procuring chemicals to be used within the company facilities and properties. The specific Safety SOP that addresses this is **SOP 10.4 - Hazard Communication**. Metro adheres to OSHA's Hazard Communication Standard (29 CFR 1910.1200). This standard requires that chemical manufacturers, distributors, and importers develop material safety data sheets (SDSs) for each product in compliance with the United Nationals Globally Harmonized Systems of Classification and Labeling of Chemicals (GHS). The standard requires employers make the SDS available to all employees who may work with a potentially hazardous chemical. Metro meets this requirement by providing an on-line, computer based SDS database. Metro is in the transition phase of establishing a new provider for the chemical management system. Currently, the master list of chemicals can still be found at the following web site: http://cs.cloudsds.com/CampusView.

Metro's procedures require that "Prior to the purchase of chemicals, products, compounds, or materials that may have potential of exposure to individuals handling it, Metro's procedures require that an SDS will be sent to the Safety Department of Metro for verification, review, and either approval or rejection." Approvals for new chemicals are obtained by submitting a request to Safety by using the online database system. Before any chemical can be allowed for use at Metro, the Department Superintendent or Supervisor will request approval through the Safety Department. This includes the use of test or sample chemicals. Any Superintendent or Supervisor can request an approval of a new chemical. The current process is described below:

Click on the link to be taken to the Metro Database: https://cs.cloudsds.com/CampusView.

- Select the icon in the top right corner, "Chemical Request."
- Select the blue text "Submit New Chemical Request".
- Fill in all blocks with as much information as possible. Incomplete requests will be returned to the requestor.
- Ensure a copy of the SDS is attached to the request. You will find a section at the top of the form where you will attach the SDS. If a GHS compliant SDS is not available please attach an older MSDS for the product to the request.
- For any additional questions concerning the chemical request process please reach out to a representative of the Safety Department.



Additional details can be found in Safety SOP 10.4 (Hazard Communication) available on Metro's intranet system on the Safety SOP page. Once all the information has been entered, select the blue text at the bottom of the page "Submit and Go to Main Menu". Once the Safety Department receives the request it will be reviewed and a response sent within three working days.

If the submitted materials are not already on the Approved Materials List, the Safety Department shall review the SDS against an Approvable Materials Criteria and either approve the product with the recommended methods of handling or disapprove with the reasons for rejection. The Safety Department shall maintain and continually update the Approved Materials List as new materials are added or obsolete products are removed and revise the Approvable Materials Criteria as needed.

All Metro Employees working with chemicals shall be required to complete the Office of Safety's computer based training for hazard communication. This training is accessible electronically here:

https://elearning.easygenerator.com/a2e7f851-dfe7-487f-bd4f-28508c898ee2

10 Federal, State, & Local Requirements

10.1 Federal Regulations

Although Metro is not specifically subject to OSHA[18] regulations, it does use OSHA guidelines in establishing a baseline for its safety programs. Additional federal regulations applicable to Metro and the MLRFGS are found in the Code of Federal Regulations; Title 49 – Transportation, as cited and included throughout this document. The MLRFGS 'safety sensitive' employees are subject to all of the DOT/FTA drug & alcohol requirements discussed further in Metro's Drug & Alcohol Plan. Metro will also be following developments and rulemaking associated with MAP-21 and will modify policies, plans, and procedures accordingly.

10.2 State Regulations

Metro and the MLRFGS are subject to State Safety Oversight regulations promulgated by the State of Missouri and by the State of Illinois.

10.2.1 MoDOT

Specific regulatory requirements are established in Missouri for:

- **Signs** (7 CSR 265-9.050) - Requires that all warning & directional signs along the MLRFGS ROW be made from a non-corrosive substance and be covered with reflectorized material.

[18] Occupational Safety & Health Administration

- **Hours of Service** (7 CSR-9.070) - Requires a minimum of ten (10) hours off duty after each twelve (12) consecutive hours on duty and a minimum eight (8) hours off duty in each 24-hour period.
- **Highway Grade Crossings** (7 CSR 265-9.100) - Provides standards and requirements for the construction and maintenance of highway grade crossings.
- **Highway Grade Crossing Warning Devices** (7 CSR 265-9.110) - Prescribes minimum standards for warning devices; adopts and incorporates MUTCD, Part VIII[19]
- **Visual Obstruction at Public Grade Crossings** (7 CSR 265-9.130) – Standards for visual obstructions at public grade crossings.

10.2.2 IDOT

IDOT became the SSOA for the State of Illinois on January 1, 2017. The Illinois Commerce Commission provides the regulations and oversight at rail grade crossings in Illinois.

In addition, both states have developed and implemented a Bi-State Safety Oversight Program Standards Manual for Oversight of MetroLink which provides standards, procedures, and technical direction to the MLRFGS. Metro and the MLRFGS are also required to conform to a variety of state (and federal) environmental regulations in Missouri and Illinois.

10.3 Local Regulations

There are a host of local regulations which impact the operation of the MLRFGS. These include environmental regulations – such as underground storage tanks and water and air quality – as well as local fire protection and building codes, and elevator/escalator inspection requirements.

A summary of the more significant Federal, State, & Local regulations that may apply to the MLRFGS are listed in Table N. Metro ensures compliance for the Federal, State, and Local requirements through a variety of methods. Some of these methods include, but are not limited to: training records, inspections, field verifications, document checks, computer database records check, permit audit, and internal audits,

Table N – Federal, State, & Local Regulations

Federal, State & Local Regulations		
Topic or Area of Concern	**Statutory Reference**	**Requirements**
Elevator & Escalator Inspections	Missouri State & St. Louis County ASME A17.1, ANSI A90.1 Illinois conveyance Illinois State Act(225ILCS312/120)	Certified inspector reports, State Operating Certificates, Certificates of Inspection
Highway Grade Crossings	Title 92: Transportation, Chapter III: ICC, subchapter c: Rail Carriers, Part 1515 Report of Railroad Accidents/Incidents, Section 1515.10 Monthly Reports; Missouri Title7 CSR 265-9.100 & 265-9.110	Standards and requirements for the construction and maintenance of highway grade crossings
Driver license Recertification and Verification	49 CFR Parts 390 - 399,	Compliance with DOT driver Qualification; Federal Motor Carrier Safety Administration

[19] See Appendix F - Reference Documents & Citations

Federal, State & Local Regulations		
Missouri Hazardous Waste Management Law and the Petroleum Storage Tank Law	The Resource Conservation and Recovery Act (1976); MO - Underground Storage Tanks – Technical Regulations – 10 CSR 20; 40 CFR Part 280; 41 Ill Admin Code 174, 175, 176, & 177	Report releases; cooperate in inspections; complete corrective actions; record keeping
Title 49 CFR Part 40 - Procedures for Transportation Workplace Drug & Alcohol Testing Programs	Board Policy Chapter 70.030; Title 49 CFR Part 655 - Prevention of Alcohol Misuse & Prohibited Drug Use in Transit Operations; Title 49 CFR Part 4 - Marine Casualties & Investigations; Title 49 CFR Part 16 - Chemical Testing (Coast Guard)	D & A Tests (Random, Post Acc, Pre-employment; etc.); Substance Abuse Program
Seismic Safety Requirements for New Building or Existing Building construction procurements	42 U.S.C. 7701 et seq.	Applies only to contracts for the construction of new buildings or additions to existing buildings.
ICC regulations required for New Construction / Rehabilitation / Improvement Projects affecting Metro transit services in Illinois	20 ILCS 3405	
MODOT Regulations required for New Construction / Rehabilitation / Improvement Projects affecting Metro transit services in Missouri	Missouri Title 7 Divisions 10, 60, and 265	
Americans with Disabilities Act Title III	Appendix A to Part 36 - Standards for Accessible Design Appendix A to Part 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities	Federal Regulations required for New Construction / Rehabilitation / Improvement Projects
Metropolitan St Louis Sewer District (MSD)	Rules and Regulations and Engineering Design Requirements for Sanitary Sewer and Storm Water Drainage Facilities (Rev 1/1/2011)	Sanitary Sewer and Storm Water Drainage Facility Design Requirements
Office of the Illinois State Fire Marshal (OSFM)	Public Act 92-0873, cited as the Elevator Safety and Regulation Act; (430 ILCS 15/4) (from Ch. 127 1/2, par. 156) – Underground Storage Tank Management	Covers the construction, operation, inspection, testing, maintenance, alteration, and repair of Elevators & Escalators Ill State Fire Marshal shall administer the Illinois Underground Storage Tank Program in accordance with this Section and Section 22.12 of the Environmental Protection Act
MO Div. of Fire Safety	Department of Public Safety Division 40—Division of Fire Safety	Registration & Inspection of Elevators & Escalators

Federal, State & Local Regulations		
	Chapter 5—Elevators	
NTD Safety & Security Reporting	Title 49 CFR Part 630	http://www.ntdprogram.gov/ntdprogram/pubs/safetyRM/2011/html/2011_Safety_and_Security_Reporting_Manual_TOC.htm.

11 Drug and Alcohol Program

Metro and Bi-State Development are committed to complying with the Drug Free Workplace Act and preserving the highest possible safety standards both in the quality of its services and the safety of its passengers, employees, the general public and property. In support of this commitment and its commitment to a drug-free workplace, the Metro Board of Commissioners has adopted a policy to prohibit the illegal or inappropriate use, possession, manufacture, or distribution of drugs and alcohol by Metro employees. This Board Policy was last updated in February 2006 and re-affirmed by the Board in 2016. Metro employees and employees of a transit contractor who hold safety sensitive positions (covered employee) are subject to drug and alcohol testing in accordance with federal and state regulations[20]. The implementation of the Metro Board Policy, as well as the requirements of federal and state regulations, is the responsibility of management.[21]

Metro and Metro's Management Policy on Drugs and Alcohol addresses the following topics:

- Prohibited Substances
- Prohibited Conduct
- Test Classifications
    - Pre-employment
    - Post-Accident
    - Random
    - Reasonable Suspicion
    - Return to Duty
    - Follow Up
    - Probable Cause [22]
- Testing Protocols
- RX and Medication
- Consequences

Additionally, the Drug and Alcohol Policy and Plan booklet provides managers and employees with additional material such as Drug and Alcohol contacts (Appendix A), Definitions and Acronyms (Appendix B & C) as well as detailed instructions.

For special circumstances[23] Appendix F provides details about employee notification in the event of a confirmed positive test and Appendix G contains a detailed list of Metro's safety sensitive job classifications. Finally, the document provides employees with descriptions of the consequences of substance abuse as well as a directory of substance abuse professionals who can provide counseling.

[20] Federal Register 49 CFR Part 40: Procedures for Transportation Workplace Drug and Alcohol Testing Programs.
Federal Register 49 CFR Part 655: Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations
[21] Metro Board Policies, Section 70.030, *Drug and Alcohol,* particularly paragraph E
[22] Probable cause testing occurs under Metro authority and is used following serious rule violations or accidents & WC injuries that do not meet the FTA.
[23] Such as "Shy Bladder" and "Shy Lung"

In addition, MetroLink rule 2.04 - Operating Impairment requires employees to report any health or medical condition that may impair his or her ability to perform the assigned duties to Controller Supervisor, or Rail Dispatcher. This rule specifically includes the use of over-the-counter and prescription medication.

Employees are given written information and classroom training that includes information about the Metro-sponsored Employee Assistance Program (EAP). This is a confidential counseling program from which all employees and their family members can obtain professional help in treating chemical dependency and substance abuse.

12 Procurement Process

The Safety Department performs safety reviews of procurement specifications, designs for facilities, equipment, or systems that may affect the safety of employees and passengers of ML. The review is performed to ensure the incorporation of safety requirements in contract documents, and to assess compliance with the safety requirements through the testing and/or inspection of the facility, equipment, or system. Safety aspects of bid documents and specifications include the following:

- Safety requirements for construction or installation;
- Tracking and verifying compliance with safety & security requirements in design reviews;
- Testing and certification for installations and interfaces;
- Maintaining configuration control;
- Periodic safety evaluations and audits;
- Incorporation of "fail-safe" principles where failure could cause a catastrophic event;
- Safety devices, parts and materials that eliminate or mitigate most identified safety hazards.

12.1 Pre-Procurement Reviews

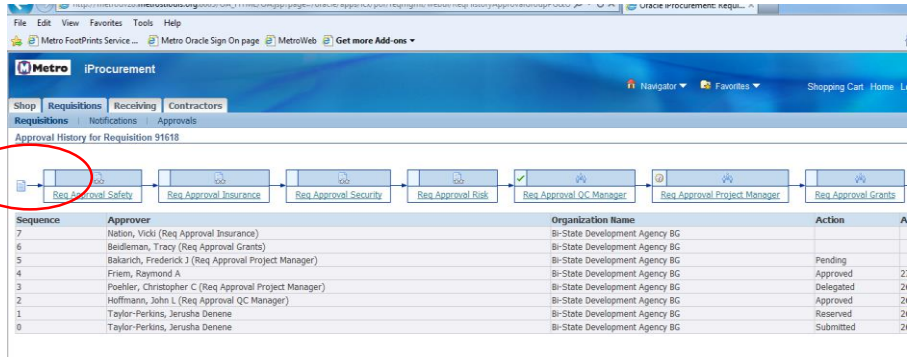
For contracts that exceed $100K, the Safety Department participates in pre-procurement review with Procurement and the project manager to identify any unusual or unique safety issues that might be associated with the procurement. A safety staff member is then assigned to monitor the project through conclusion. For major system construction or major upgrades, Metro's Safety and Security Certification procedures are incorporated throughout the procurement process.

12.2 Oracle Workflow

Metro's Oracle Requisition Approval Workflow sends notifications to the Safety Department when a requisition is submitted with factors that require their awareness. This notification is sent when a requisition is initially submitted. Discussions are then made off-line between the Safety Department, the requesting department and Procurement regarding Safety requirements prior to issuance of a solicitation or purchase order. A sample of the workflow is shown in **Table O.** The review and discussion prior to the purchase order ensures the following:

- All MSDS are pre-approved;
- All required Metro training is included in the contractual agreement;
- A contractor safety plan and contractor Job Hazard Analysis are included as part of the contract submissions when appropriate. These are reviewed, and approved by safety staff prior to the start of work.
- All safety-sensitive contractor employees are identified and applicable Metro Drug and Alcohol Policies are included in the contract
- Safety staff is able to participate in concept and design reviews as well as in the development of contract specifications

Table 0 – Oracle Workflow Approvals



Examples of categories routed to Safety include construction, rail systems and ROW maintenance, hazardous materials, work on MLRFGS ROW and others. Safety staff can then request additional material or confer with others.

Chapter 9 – Management of Change

1 Managing Safety in System Modifications

1.1 System Modification

Any safety-critical change or modification to Metro's Transportation equipment or system is controlled to assure hazards are appropriately identified and controlled in the plans and designs of the modified equipment or system. This chapter will discuss Metro's process for identifying and assessing changes that may introduce new hazards or that may have an impact on our agency's performance.

2 System Modification Review & Approval

Any safety-critical change or modification to Metro's Transportation equipment or system is controlled to assure that hazards are appropriately identified and controlled in the plans and designs of the modified equipment or system.

This section describes the processes to ensure safety concerns are addressed in modifications to existing systems, vehicles, equipment, and procedures do not require formal safety certification but which may have an impact on safety. These processes and approvals support and ensure a high level of system safety for patrons, employees, and the general public.

The configuration items of the MLRFGS, MetroBus, and Call-A-Ride are those civil systems and subsystems that define the engineering and physical basis of the safety critical operating and maintenance practice. The initial baseline configuration for all modes of transportation consist of the design criteria, "as-built" engineering documents such as Certified Operating and Maintenance Practices (including applicable training and qualification requirements). These documents establish the basis for the preparation of the design, construction, and operations and maintenance parameters. Various processes, as described in the following paragraphs, have been established to ensure safety review, analysis, and approval (where appropriate) of changes to the fleet and facilities which may have a safety impact.

Any proposed change described in this section with a safety impact is subject to the Safety Risk Management Process (SRM) described in Part II. Hazards discovered in the System Modification process will follow the SRM process with possible involvement of the Safety and Security Certification Review Committee and ESSC,

2.1 Metro Active Project System (MAPS)

In general, the Department of Engineering & New Systems Development (ENSD) is responsible for the development, implementation, and management of capital projects and operating service projects[24]. All projects are managed by a system referred to by ENSD as the Metro Active Project System (MAPS). The MAPS Manual[25] describes the policies, goals, objectives, and procedures which apply to MetroBus, Call-A-Ride, or MetroLink. Five specific types of projects, as listed below, are governed by the MAPS Manual.

2.2 MAPS Project Types

1) Design/Construction – longest in duration; recent MLRFGS example is the Cortex Station addition
2) Capital Maintenance – similar to Design/Construction projects but shorter in duration & lower in cost. Examples include the rail profile grinding project and the replacement of catenary strain insulators
3) Equipment – involve the procurement and installation of power driven, heavy equipment such as a 1 ton hoist or a bucket truck; also could involve vehicle procurement

[24] These are distinguished primarily on the basis of funding – i.e., capital projects are funded by the Capital Budget Funds and operating service projects are funded by the operating budget. Both types could include maintenance as well as new additions or enhancements to the system.
[25] ENSD Policies & Procedures (Rev. 1 10/09/2008) available on Metro Web

4) Special Projects – Arts-In-Transit installation and engineering studies (i.e., environmental impact; feasibility; customer needs surveys)
5) Operating Services – These services could include elevator maintenance, installation of security cameras, upgrades to SCADA

Metro's Safety Department maintains an active role throughout the project life cycle of any MetroBus, Call-A-Ride project that might have a safety impact or introduce new hazards to the system. A project begins as a concept developed by one of many managers to meet one of the needs identified by the project types listed above. Once the concept has been approved by the appropriate personnel and funding has been identified, a Project Charter or Scope of Work as needed, is developed by the assigned project manager. The charter initially addresses many of the items discussed in the Safety Plan in that it contains an overview of the project scope and a summary of any potential hazards, risks, operating impacts, and configuration issues. The Charter is circulated electronically for review and approval. Metro uses Policy & Procedure Manager (PPM)™[26] software. This review and approval process include automatic routing and email notification. The Dir System Safety, Security, and Emergency Management is required to approve all Charters that affect the transportation systems. The charter is also reviewed by the appropriate safety staff to determine the extent, if any, the safety of the system might be impacted. If so, the Safety Department will actively participate in all phases of the project life cycle including design, procurement, construction, testing, permitting and ultimately operations. The Safety role during design and construction is very similar to the safety certification review processes described later in this chapter with a few exceptions. The projects referenced here will typically not involve all of the safety critical elements certified for a new alignment. However, the safety staff, in conjunction with ENSD, MetroBus, Call-A-Ride, ML Operations, Rail Systems Maintenance, Right of Way Maintenance and LRV Maintenance, will identify those specific elements from the listing in the Safety Certification section of this chapter that will require certification on a project by project basis. The assigned Safety Auditor will attend design reviews and progress meetings throughout the life cycle of the project. Safety staff will visit the project jobsites to monitor progress and jobsite safety. Safety also audits to verify conformance to specifications. The Safety Auditor will sign the approvals on submittals, tests, QA/QC processes, and temporary permits on the safety critical elements for each project. The safety review process for MetroBus, Call-A-Ride, and MetroLink projects will also address system safety integration issues, where applicable.

2.3 Design Reviews

Design reviews are performed as needed for all major system procurements such as new vehicles, facility construction or modifications to established design criteria and standards. Reviews are performed to evaluate progress and technical adequacy of the design and to identify any necessary interface functional and physical compatibilities.

Design reviews include:

- Conceptual design reviews
- Preliminary design reviews
- Final design reviews
- Prototype reviews
- First article or initial product conformance reviews

A design review might, for example, consider compatibility with existing safety features, design and procedures of existing Metro equipment. The reviews address such factors and interfaces as:

- Human factors
- Environmental parameters
- Emergency responses
- Fire sources and protection
- Equipment layout and maintainability
- Operations and maintenance requirements

[26] Developed by Policy Technologies International Inc. at www.policytech.com. Now owned by NAVEX Global Corporation.

3 Configuration Management

This section describes the requirements and methods used to ensure configuration management control. It includes the following:

- The authority to make changes;
- The process for making changes; and
- The notification and assurances to all affected departments regarding control of the rail transit agency's design baseline.

The purpose of this section is to ensure that modification to individual subsystems or fleet and inventory-wide changes are recorded on as-built drawings and addressed in training courses, maintenance manuals, and procedures.

The configuration items of the transit system are those civil systems/subsystems which define the engineering and physical basis of the system, and safety critical operating and maintenance practice. The initial baseline configuration consists of the System Design (design criteria, standard drawings, and standard specifications) and the project documents associated with the original transit system project as well as those documents for each subsequent new alignment.

This section of the Safety Plan addresses those aspects of these items that are safety critical. A listing of many of the transit system safety critical systems and sub-systems is shown in Table P. The 'baseline' consists of those items whose changes may affect the System Safety Profile of the transportation system. Included in this category are the physical components of the fixed plant, Safety Critical Software, transit vehicles, and operational documents such as the Operating Rules and SOPs for operations and maintenance. The controlling documents include specifications, drawings, and/or associated lists, selected or designated as belonging to a particular technical baseline.

Any proposed change described in this section with a safety impact is subject to the Safety Risk Management Process (SRM) described in Part II. Hazards discovered in the Configuration Management process will follow the SRM process with possible involvement of the Safety and Security Certification Review Committee and ESSC,

3.1 Baseline Configuration

3.1.1 Design Criteria, Standard Drawings, and Standard Specifications

Metro's Design Criteria and Standard Specifications define the principal design requirements for the transit system in sufficient detail to permit the definition and allocation of requirements to the systems and assemblies that comprise the system. The project documentation includes any exceptions allowed from the design criteria and 'As-Built' drawings that reflect field changes made to the standard specification drawings issued with the project. Changes that have an impact on a safety critical system, sub-system, or operating practice will require review by the System Safety Committee (SSC) as established through the Metro Configuration Management Program. Therefore; it is important that this information be included on the Configuration Change Request (CCR) form (See Appendix B of the 2012 Configuration Management Plan). If it is unclear whether or not the change impacts safety critical system, it shall be noted on the form for determination by the Policies and Procedures Board (PPB) or SSC. For the purpose of determining impacts to safety critical systems, cost or schedule implications are not considered.

Table P – Safety Critical Systems & Sub-Systems

Safety Critical Systems & Sub-Systems[27]		
Systems & Facilities		
01 Signals	05 Right of Way	09 Structures
• Interlockings • Train Separation • Wayside Equipment • Cab Signaling • Grade Crossings • Track Circuits	• Fencing • Drainage • Misc. Buildings • Line of Sight • Clearances	• Bridges • Tunnels • Retaining Walls • Culverts • Station Slabs
02 Communications	06 Rolling Stock	10 Yard & Shops
• PAT • Radio • SCADA • Intrusion Detection • CCTVs	• Light Rail Vehicles • Non-Revenue vehicles • Hi Rail Equip • Bus • Van	• Access/ Security • Storage Building • LRV Paint Facility • Electrical • Mechanical/HVAC • Special Equipment
03 Electrification	07 Fare Vending Equipment	11 Stations & Parking Lots
• Substations & Power • Overhead Catenary • Catenary Poles • Strain Insulators	• TVMs • Validator • Software	• Platforms • Parking Lots • Garages • Buildings
04 Track	08 Emergency Response Equipment	23 Integrated Tests and Procedures
• Ballasted Track • Direct Fixation • Embedded Track • Special Track work	• Track Carts • Emergency Egress & Ingress	• Tunnel Ventilation • Fire Suppression • Alarms • Ops Control Center
Policies, Procedures, & Training		
12 System Safety & Security	15 Configuration Mgmt. Plan	19 MetroLink Rulebook
• PTASP • SSP • EOP	16 Quality Assurance Plan	20 Operations & Maintenance SOPs
13 Emergency Familiarization	17 Safety SOPs	21 Training & Certification
14 Fire Life Safety	18 Security SOPs	22 Public Awareness
Integrated Testing		
23. Integrated Test Plan		

[27] These are derived from the listing of elements that are included in the Safety Certification Process of this Safety Plan.

3.1.2 Engineering Drawings and Associated Specifications

Engineering drawings and specifications were developed during the Design phase(s) of the program and consist of the following types:

- Civil Systems (facility architect-engineer drawings and specifications): These documents are the drawings and specifications required to define, develop, procure, construct, fabricate, and install the basic facilities.
- Rail Systems, Equipment Drawings and Specifications: These documents are the drawings and specifications required to define, develop, procure, construct, fabricate, install, and test the specific configuration items or elements that, when integrated, make up the systems installed.

3.1.3 Operation and Maintenance Requirements

Operation and maintenance requirements and specifications consist of the Safety Critical operating practices at the time that a segment of transportation system is certified as revenue ready. This is primarily expressed in the Operating & Maintenance Plan. Safety Critical operating practices include unusual dispatching patterns (e.g. temporary speed restrictions, single tracking, etc.), operational rules pertaining to signal aspects and requirements for training/certification of train operators and signal technicians. Non-safety critical operational items such as train schedules are excluded from this documentation.

3.2 Configuration Changes – Approval & Control

3.2.1 Engineering

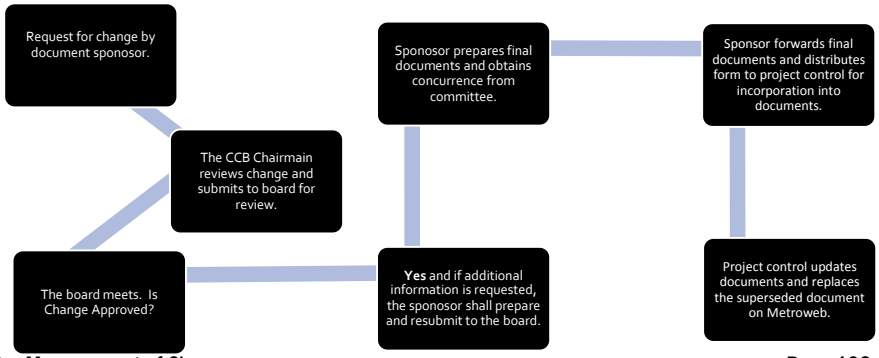
This process is managed by ENSD and is described in detail in the Metro ENSD Configuration Management Plan (Nov. 2012) also available on Metro's intranet system. That plan describes the procedures for the submittal, approval, and implementation of all baseline document changes as well as the process for the notification and distribution of those changes. Moreover, the Plan (pg. 3) stipulates the review by System Safety of any changes to the baseline documents that have an impact to safety critical systems, procedures or documentation.

3.2.2 Vehicle Maintenance

The configuration control process for Vehicle Maintenance is stipulated in the Vehicle Maintenance Department SOP 1.1, which applies to LRVs, MetroBus, Call-A-Ride, maintenance shop equipment, and non-revenue vehicles.

The configuration change process is illustrated in Table Q below:

Figure Q - Configuration Change Proc



3.2.3 Roles & Responsibilities

Safety:

- Review and identify potential safety hazards with any proposed change.
- Identify hazard severity and system risk resulting from single point and common cause failures.
- Participate in the Configuration Management Meetings to review progress and address any relative safety issues.

Engineering:

- Control the Configuration Management baseline
- Design Criteria
- Standard Specs & Drawings
- Document Control

Rail Systems:

- Controls all system integration issues

MetroLink, MetroBus, Call-A-Ride Operations:

- Update changes to rules, procedures and any other item relating to safety and security.
- Update changes which could impact system and infrastructure changes on operations.

4 Safety & Security Certification[28]

4.1 Safety & Security Certification Program

Safety & Security Certification is the process of monitoring and documenting satisfactory compliance with a formal list of safety and security requirements. The requirements are defined in design criteria, contract documents, the Safety Plan, and applicable codes and industry standards. These safety requirements are adhered to for all construction stages where revenue service will be maintained. For large projects, a specific Safety Certification Plan is developed.[29] For smaller projects – which primarily involve enhancements or additions to the existing system, this process is handled during the reviews conducted for system changes.[30] Metro self-certified all three major phases of the current system and the results of that process, in fact, provide the baseline for the configuration management process discussed in Section 8.

Metro's safety certification process is consistent with FTA's 'Handbook for Transit Safety and Security Certification" (FTA-MA-90-5006-02-01; November 2002). The goal of the safety certification process is to verify that identified safety and security requirements have been met and to provide evidence the new operating segments/phases are safe and secure for use in revenue service. Accordingly, the objectives of the safety and security certification program are to document that:

- Facilities and equipment have been constructed, manufactured, inspected, installed, and tested, in accordance with safety and security requirements in the design criteria and contract specifications;

[28] Note that the security aspects of the certification process are discussed separately in the System Security Plan
[29] For example, for the Cross County Extension, see The Cross County Safety & Certification Plan (January 2005)
[30] See Chapter 7 – System Modification &Review.

- Operations and maintenance procedures and rules have been developed and implemented to ensure safe and secure operations;
- Safety and security procedures have been reviewed and updated if appropriate;
- Training documents have been developed for the training of operating personnel and emergency response personnel;
- Operations and maintenance personnel have been trained and qualified or certified;
- Emergency response agency personnel have been prepared to respond to emergency situations in or Metro property; and
- Safety and security-related system integration tests have been conducted.

Metro maintains documentation to verify compliance with the safety certification process. The documentation may include test reports, quality assurance audits, submittals, visual inspection reports, and warranties. The Safety Certification Process is used formally for major rehabilitation projects[31] and system extensions. In these instances, Metro issues Certificates of Compliance for all applicable elements.

The Implementation and monitoring of the Safety Certification process is accomplished through the Dir System Safety, Security, and Emergency Management. Final authority to approve the certification of Metro's extensions and expansions for revenue service rests with the President & CEO.

4.2 Certifiable Elements

Metro has established and maintains a master list of the 23 system elements that must be reviewed for safety compliance during major construction projects as well as for system enhancements and modifications. All twenty-three (23)-system elements may not be relevant to a particular project; however, the master list is always used as the baseline. Metro's list of Certifiable elements is displayed in Table R below.

Table R – MLRFGS Certifiable Elements List

MLRFGS Certifiable Elements List		
Number	Element	Comments or annotations
1	Signals	
2	Communication	
3	Traction Power & Electrification	
4	Track	
5	Right of Way	
6	Rolling Stock	
7	Fare Vending Equipment	
8	Emergency Response Equipment	
9	Structures (Bridges & Tunnels)	
10	Yard & Shops	
11	Stations & Parking Lots	

[31] An FTA requirement for projects in excess of $100,000,000 and for new system or extensions.

12	System Safety & Security Documents	Primary documents include the PTASP, the SSP, & the Safety Certification Plan on large projects
13	Emergency Familiarization	
14	Fire Life Safety Plan	Includes charter with local first responders
15	Configuration Management	Discussed in earlier in Chapter 8
16	Quality Assurance Plan	
17	Safety SOPs[32]	
18	Security SOPs	
19	Operations Rule Book	Incorporates interim operations bulletins
20	Operations & Maintenance SOPs	
21	Training & Certification	Categories include operators, maintainers, emergency responders, security, and employee safety
22	Public Awareness	
23	Integrated Tests & Procedures	

4.3 Safety & Security Requirements

The appropriate safety and security requirements will need to be identified for the applicable elements involved in a major construction project or in a system enhancement. The following documents are utilized in this identification process:

- Bid documents that may have been modified to meet new alignments and/or configurations;
- Metro Design Criteria for Systems & Facilities;
- Metro standard specifications and drawings
- Lessons learned and experience gained from operating and maintaining the existing ML alignment.
- Recommendations from fire and law enforcement jurisdictions;
- Results of Metro's hazard identification & analysis process;[33]
- Threat & vulnerability analyses;[34]
- Rail Transit Industry practices;
- APTA[35] rail standard practices;
- Reports from and experience of other transit agencies on safety and security;
- Internal safety reviews & audits;
- Federal, State, local and industry codes, regulations, guidelines and standards such as NFPA; and
- State Safety Oversight Triennial Review Reports

[32] Standard Operating Procedures
[33] As described in Chapter 5
[34] Applicable to security review; discussed in the SSP.
[35] American Public Transportation Association

4.4 Safety and Security Certification Review Committee (SCRC)

The Executive Safety & Security Committee acts as the SCRC during normal operations. For large rail projects[36] a separate SCRC is convened. The SCRC is responsible for safety review, compliance assessment, making recommendations to Metro and Metro Management regarding safety certification process and certifying that system extensions and other system enhancements are safe and secure for revenue service. The following persons may be included on the Committee:

- Safety Certification Team
- Fire Departments and Local & State Police
- Design Consultants
- Test Director and RAMP[37] Committee (Major Projects)
- Engineering & New Systems Development (ENSD)
- Rail Systems
- ROW Maintenance
- MetroBus, Call-A-Ride, and ML Operations
- Vehicle Maintenance
- MO & IL State Safety Oversight (advisory)

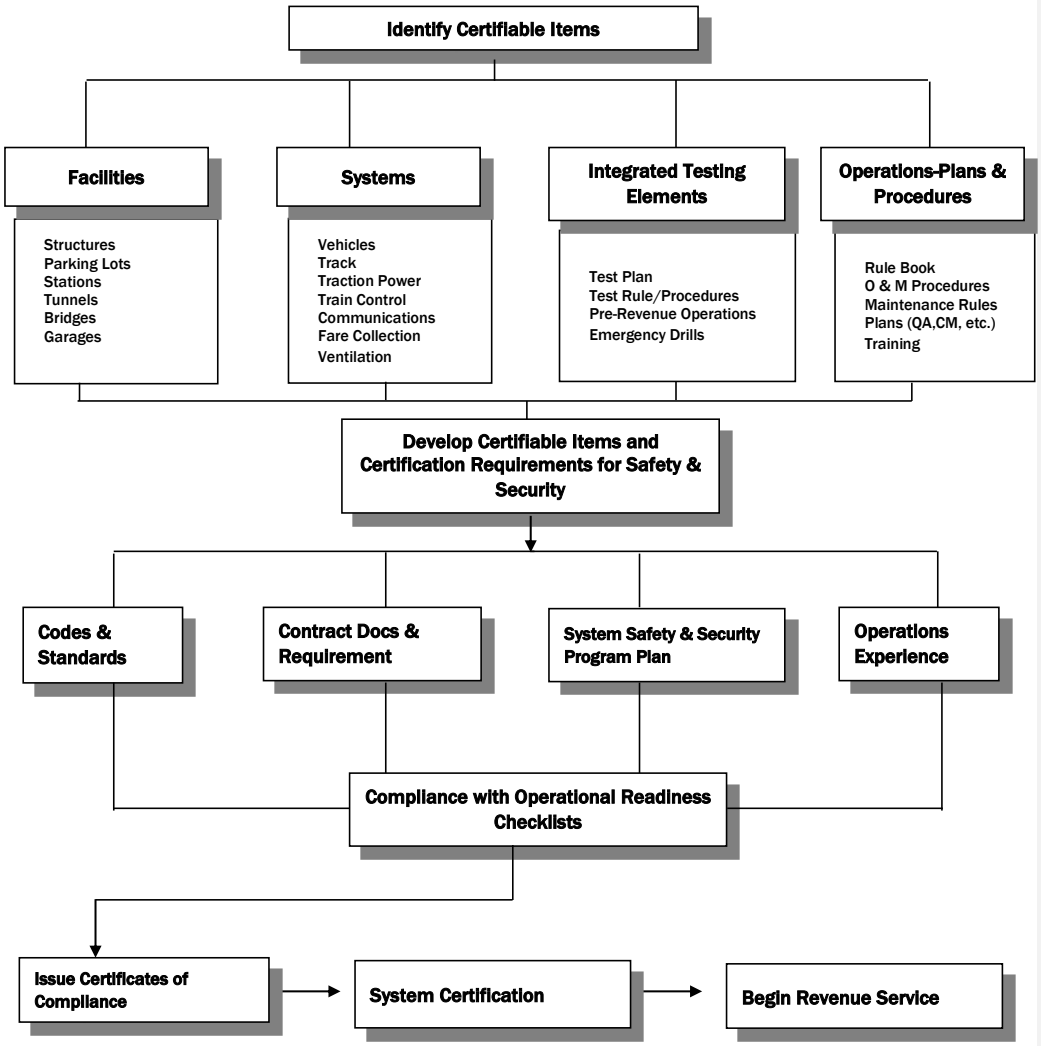
The SCRC responsibilities include:

- Review and approve documentation as evidence of conformance to safety and security requirements;
- Identify potential hazards/open issues;
- Require hazard analyses to be performed to determine initial and residual risks;
- Assign responsibilities for open issues and track to closure;
- Conduct site visits and define additional safety-related tests and analysis, as required;
- Subsequent to site installation and commencement of formal testing, review test plans and procedures, and issue test permits with applicable restrictions;
- Determine whether to accept specific conditions or require corrective actions, including the specific method to mitigate the conditions or potential hazard;
- Provide recommendations to the President & CEO regarding certification and noncompliance of system elements;
- Issue Certificates of Compliance for certifiable elements
- Issue Temporary Use Permits; and
- Issue System Safety and Security Certificate, certifying that system extensions or system enhancements are safe and secure for revenue service operations.

More detail about the safety and security process used by Metro is available in the Cross County Safety & Security Certification Plan (January 31, 2005). A graphic, displaying the entire process, is shown in Table S.

[36] generally greater than $100,000,000
[37] Rail Activation Management Program

Table S – The Safety and Security Certification Process



Chapter 10 – Continuous Improvement

Metro defines continuous improvement as: a process by which a transit agency examines safety performance to identify safety deficiencies and carry out a plan to address the identified safety deficiencies. Many areas of this Safety Plan have already addressed the components of this section. Continuous improvement can be measured

1 Safety Department Activities Required to Implement Safety Management Program

To achieve continuous improvement in safety as outlined in this document, Metro performs the following safety risk management, safety assurance and safety promotion activities through its safety department to support other departments in meeting their obligations under the SMS:

- Conducts FTA- and BSSO-mandated internal safety audits;
- Conducts inspections at all facility locations;
- Performs investigations of major accidents involving employees/equipment
- Conducts investigations of safety complaints, concerns and reports
- Prepares reports on significant events;
- Participates on safety committees, including the ESSC and performs follow-up to safety committee issues;
- Trains maintenance employees in industrial/occupational safety requirements;
- Liaisons local, state, and federal responders and agencies concerning emergency response to events involving mass transit;
- Supports the development, review and revision of safety-related Standard Operating Procedures (SOPs) in conjunction with Operations and Maintenance Departments; and develops, reviews and revises SOPs for the safety department functions;
- Participates on all committees for construction projects;
- Conducts safety inspections during construction projects;
- Assists Metro management with safety issues;
- Participates in Safety and Security Certification process for all capital projects;
- Reviews and comments on any changes to safety elements within MetroLink, Paratransit and Bus system;
- Reviews trended safety data provided by departments and provides feedback to ensure departmental compliance with SMS data requirements;
- Participates in development and implementation of system emergency drills;
- Facilitates monthly MetroBus and Paratransit Safety Meetings;
- Participates in formal meetings with the President & CEO, as appropriate, on safety issues;
- Provides full support and coordination on SMS implementation agency-wide;
- Ensures continuous safety improvement through support activities for all departments; and
- Provides oversight activities for internal SMS assessments by each department.

2 Corrective Action Plans (CAPS) / Internal Safety Audit Process (ISAP)

2.1 Scope and Authority

All Metro departments, Metro contractors, and supporting Metro departments are subject to annual audits by Bi-State Safety Oversight **(BSSO)** and the Internal Audit Department **(IAD)**. Other Metro Departments, such as Corporate Compliance & Ethics may assist and provide support for these audits, as determined and approved by the BSSO.

The Internal Audit Department has the authority and responsibility to conduct or oversee regular internal audits and shall provide a formal report of Findings/Observations to the BSSO annually to ensure effective corrective action is

taken to resolve deficiencies. Auditors shall be independent from the first line of supervision responsible for the activity being audited.

2.2 Internal Safety Audits

2.2.1 Objective

Internal safety audits are absolutely essential for the Public Transportation Agency Safety Plan **(PTASP)** and System Security Plan **(SSP)**. Internal safety audits shall be conducted to determine if all organizational elements, equipment, procedures and functions are performing as intended from a safety perspective.

The internal audit program is intended to provide Bi-State Development **(Metro)** with mechanisms for assuring that the PTASP and SSP are being implemented and procedures are being performed in accordance with Metro's own and with BSSO requirements. Metro must ensure that internal audits are conducted by individuals independent from the function being audited and free of any conflict of interest and/or the appearance of a conflict of interest. It should be emphasized the Metro internal audit program is intended to evaluate the implementation of the PTASP and SSP – not the documents themselves.

The key objectives of the internal audit program are as follows:

- Determining if the programs described in Metro's PTASP and SSP are being implemented through audit techniques such as interviews, document reviews, field observations, and measurements.
- Determine if hazards and areas of the PTASP and the SSP in which Metro is non-complaint are being identified in a timely manner and appropriately tracked and mitigated using Metro's established hazard management process.
- Issue findings when hazardous conditions or non-compliant practices are discovered, and issue observations when processes or procedures can be improved. Findings will result in a formal recommendation that would require management to develop a Corrective Action Plan (CAP).
- Work with affected departments to address findings, mitigate deficiencies, or improve business practices through development and tracking of CAPs in accordance with the Metro-established process.
- Determine whether the PTASP or the SSP should be updated.
- Ensure all elements of the PTASP and the SSP are reviewed in an ongoing manner and completed over a three-year cycle.
- Ensure all elements of the PTASP and SSP are reviewed in an ongoing manner and completed over a three-year cycle. The three-year cycle commences on a date designated by Metro with the intention of completing at least one-third of the elements each year.
- The internal audit process must provide top management with a means for measuring how key safety-related activities are performing relative to the PTASP and SSP. Internal audits are also conducted to provide an official evaluation of accomplishments, and to determine whether all MLRFGS organizational elements, equipment, procedures, and functions in the scope of the PTASP and SSP are performing as intended.

2.2.2 Notifications

Metro must notify the BSSO at least 30 calendar days before the conduct of scheduled internal audits, and at that time shall submit to the BSSO any checklists or procedures that it will use during the reviews.

2.2.3 Annual Internal Review Reports

No later than February 1 of each year Metro shall submit to the BSSO an annual report documenting all internal audit activities from the preceding calendar year, and the status of findings and corrective actions associated with audits conducted.

The Metro annual internal audit reports must be accomplished by a formal certification signed by the President & CEO indicating Metro is in compliance with its PTASP and SSP. If Metro determines the findings from its internal audits indicate that it is in non-compliance with it PTASP or SSP, the President & CEO must identify the actions Metro will undertake to achieve compliance, such as proposed or in-progress CAPs.

After reviewing the annual internal audit report, the BSSO will issue a written response, either approving or rejecting Metro annual report. The BSSO will also review and approve or disapprove and reject the Metro's annual report. The BSSO will also review and approve or disapprove the activities proposed to close open CAPs. The BSSO will issue response within 30 calendar days of its receipt of the Metro annual audit report and the President & CEO's certification. A meeting to review and discuss the BSSO response to Metro's annual internal audit report may be convened at the request of either party.

If the annual report is approved by the BSSO, then no further actions relative to the annual reports will be required by Metro for that annual period. If the annual report is rejected, the BSSO may require other information or analysis that relates to the internal audit process. Metro will be required to respond with this additional information or analysis within 30 calendar days. Alternatively, the BSSO may require Metro to prepare a CAP in accordance with the requirements contained in the BSSO Program Standard

The annual internal audit report may be delivered to the BSSO in a format agreed to by the BSSO and Metro (electronic or hard copy). Once approved, a final version of the report must be submitted by Metro to the BSSO in an unalterable format with all required approval signatures visible.

2.2.4 Threat and Vulnerability Assessment (TVA)

Within a three year cycle, Metro is required to perform a new or review past Threat and Vulnerability Assessment (TVA) for any necessary updates. The BSSO will approve Metro's process for threat and vulnerability efforts through the annual review and approval of the SSP. The BSSO will monitor ongoing Metro activities as a part of the internal audit program oversight activities. Metro is expected to document its methodology for performing TVAs, including how it identifies, manages and assesses vulnerabilities system wide utilizing an all hazards approach.

2.3 Audit Scheduling

The Internal Audit Department is responsible for scheduling the annual audits. Its staff, under the direction of the Chief Audit Executive, will develop, adopt, and distribute standard procedures for the Internal Safety & Security Audit. Departments to be reviewed will be informed of the audit and will be provided with information regarding the purpose, scope, and content of the planned audit. The BSSO will be notified at least 30 days prior to commencing the audit to review the proposed topics and checklists.

The internal safety audit process shall identify the facilities, equipment, procedures, and functions that supports the initial safety certification of the system for passenger service operation. In order to ensure the independence of the audit process, the unit conducting the audit must not be the unit in charge of implementing the items being audited.

The three-year audit schedule can be found in Appendix S.

2.4 Audit Process

Audit protocol is developed in accordance with the SSO Program Standard. Internal procedures and processes are implemented to ensure standards are being met. Specific audit guidelines and written checklists are developed by the Internal Audit Department to measure the success of each Metro Department in implementation of safety or security policies, procedures, and requirements. In each case, the audit guidelines are tailored to the unique safety or security responsibilities of each department.

The internal audit process is intended to be a positive force for the organization and a tool whereby possible problem areas may be discovered and addressed. It should not be construed to extend beyond the realm of system safety to alter established agency management structures.

The internal safety audits shall address, at a minimum, the following areas during a three-year cycle:

- Safety Policy.
- Safety Goals & Objectives.
- Implementation of the SSPP.

- Authority & Management Structure.
- The hazard management process, including hazard identification, hazard analysis, hazard, mitigation & hazard tracking.
- System Modification (not requiring safety certification), including plan reviews, hazard identification and resolution.
- Configuration Management, including documentation process, storage, retrieval.
- Safety Certification on major projects.
- Data Acquisition and Analysis, including safety event histories, hazardous and threat conditions, distribution.
- Accident notification, investigation, and reporting.
- Emergency Response, including fire, and safety-related failure mode scenarios.
- Internal Safety Audits.
- Operation Rules and Procedures, including development, maintenance, implementation, and enforcement.
- Facilities & Equipment inspections, including rolling stock, elevated structures, tunnels, station inspection, and fire protection.
- Maintenance audits including rail systems and equipment, fire protection equipment, emergency and safety devices.
- Training and Certification, including qualification criteria for operational and maintenance personnel, documentation and contractor safety, including construction safety programs and requirements, maintenance and enforcement.
- Employee Safety including comprehensive programs to manage specific elements.
- Hazardous Materials, including compliance with federal and state Environmental Protection Agencies.
- Drug and Alcohol Abuse Programs, including testing, training, documentation, procedures.
- Procurement, including procedures, receiving inspections, and safety review.
- Review and Approval of PTASP.

2.5 Bi-State Annual Activity & Audit Reports

No later than **February 1** of each year, Metro is required to submit to the SSO an annual report documenting all internal audit activities from the preceding calendar year, and the status of findings and corrective actions associated with audits conducted.

Also, no later than February 1 of each year, Metro's Accountable Executive is required to is issue a formal signed certification indicating that Metro is in compliance with the SSPP and the SSP.

2.6 Internal Audit CAP Dispute Process

Any disputes that occur involving the IAD CAP Process are managed following the IAD Policy and Procedures Manual.

2.7 CAP Process Outside of IAD Process

2.7.1 CAP Process

CAPs can be developed resulting from a variety of situations or hazards. Some of examples which could result in a formal CAP following Program Standard guidelines include: Unacceptable/Undesirable hazard rated items; as directed by the President & CEO, Executive Safety & Security Committee, Safety Department, BSSO, FTA, or other ad hoc meetings involving the monitoring of deficiencies. Outside of a directive from the BSSO or FTA, the Safety Department will facilitate the development of the CAP with the respective department. Ultimately the CAP is the responsibility of the assigned Department. Once a CAP has been generated, the CAP will be submitted to the BSSO in accordance with the Program Standard. Any internal disputes on CAP development/content will be brought to the President & CEO and/or the ESSC for resolution.

All CAPs following the Program Standard process will be documented and maintained in the BSSO CAP Tracker Log. The individual departments will maintain their own documentation and and communicate updates to the BSSO in accordance with the program standard. Internal meetings to discuss CAP progress or the effectiveness

of the mitigations are generally done at the Department level with the Safety Department assistance when needed. Ad hoc CAP meetings do occur when needed and the progress of all CAPs can be discussed at the ESSC.

All immediate or emergency CAP actions will be implemented in concurrence with the Program Standard section on *Immediate or Emergency CAPs*. An example of a situation that would involve immediate action could involve an Unacceptable Hazard or other situations that could involve immediate harm or danger to the system or agency if quick corrective action is not taken. If such a case were to arise, the Dir System Safety, Security, and Emergency Management, GM System Safety, Security, and Emergency Management, or the President & CEO would make the decision for emergency action. The Dir System Safety, Security, and Emergency Management would then ensure the Program Standard procedures are followed in this area to include a notification to the BSSO in writing by 5:00 pm on the business day following its decision to take corrective action.

Part IV Safety Promotion

Chapter 11 – Safety Communication

Metro communicates safety and safety performance information throughout the Agency conveying information on hazards and safety risks relevant to employees' roles and responsibilities and informs employees of safety actions taken in response to reports submitted through an employee safety reporting program, among other information.

Metro understands SMS is dependent upon ongoing management commitment to communication. One of management's most important responsibilities under SMS is to encourage and motivate others to want to communicate openly, authentically and without concern for reprisal.

1 Employee Safety Reporting Systems[38]

All employees have the responsibility to report any adverse safety conditions, events or acts; any observed or foreseeable hazards; and any safety concerns.

Employees may report via the following methods:

- Reporting directly (in person) to the immediate supervisor
- Reporting directly to the facility superintendent
- Reporting directly to a Safety staff member
- Reporting directly to the CSO or CEO
- Email Safety@metrostlouis.org
- Report to the Safety Hotline number: 314-982-1638

Employees have the option of reporting anonymously at any time. Employees who do not report anonymously will receive feedback from Safety or Supervisor in their area as to the disposition of the report.

Any person receiving a report of a hazard will immediately notify their supervisor in his or her area.

All reports will be documented and investigated in a timely fashion. Unacceptable and undesirable hazards will be addressed immediately with mitigation or elimination by the department in which the hazard occurred.

Supervisors in each department are responsible to ensure that all reported hazards are properly documented, investigated and reported back as appropriate using Metro's Standard Operating Procedures (SOPs).

2 Safety Dashboard

The Safety Dashboard (Dashboard) is a cloud-based program used by Metro to accomplish Safety Communication. The Dashboard will be accessible through any device that can access the internet. Device examples include but are not limited to: computers, phones, tablets etc. Metro employees and contractors will have access to the Dashboard at the discretion of the Safety Department.

[38] Employee Reporting Program discussed in Part 1

2.1 Safety Performance

The Dashboard will display safety performance indicators Metro establishes. These indicators will include the four (4) required Safety Performance Indicators as set forth by the National Public Transportation Safety Plan. These categories will measure by mode (MetroLink, MetroBus, and Call-A-Ride): Fatalities per one hundred thousand miles, Injuries per one hundred thousand miles, and Safety Events per one hundred thousand miles, and System Reliability. More information can be found on Safety Performance Indicators in Part 1. In addition, any additional safety performance indicators established by Metro will also be communicated through the Dashboard.

2.2 Hazards

The Hazard Log will be posted and regularly updated on the Dashboard. In addition, any other relevant hazards or trends will be posted on the Dashboard for employee/contractor access. Hazards reported through the Employee Reporting Program will be posted on the website and any safety actions taken as the result of investigations. The Employee Safety Reporting Program contact points will be listed in the Dashboard as well.

2.3 Safety Initiatives

Any current or future safety initiatives will be posted on the Dashboard. Safety initiative examples include: rail safety week, radar speed checks, emergency exercises, etc.

3 Safety Posters

Safety posters will be used in common areas at Metro facilities to communicate many of the safety items the Dashboard covers. Posters will allow Metro to communicate safety to employees and contractors who do not have access to an electronic means to access the Dashboard. Posters will also assist in communicating the Employee Safety Reporting Program.

Chapter 12 – Competencies and Training

Metro has established a comprehensive safety training program for all agency employees and contractors directly responsible for the management of safety in Metro's system. The training program includes refresher training, as necessary

Overview

1 Training Program

In accordance with Metro Transit's Standard Operating Procedures and Rule Books, Metro provides thorough, relevant, and ongoing education and training for all employees to ensure that assigned duties are completed safely and effectively. Metro requires all employees to be properly trained to perform their jobs safely; to this end, Metro employs operations and maintenance training with integral safety components to inform employees about job hazards and the appropriate methods for controlling these hazards.

Training records are kept in each employee's file. See other sections for more information on training records.

Training mechanisms include classroom, written and video communications, field exercises, and drills. There are formal training programs for operators and employees involved in maintenance activities. These include training classes, training manuals, and lesson plans. Testing is conducted as necessary to ensure training effectiveness and all safety training is documented. Tests are given to all new operators to ensure knowledge. Refresher and In-Service training of operators can occur as a result of accident investigations, long-term absences, and observations. General refresher training for all operators is scheduled on annual cycle, triggered by a Learning Management System (LMS). Lesson plans that include policy, rules, and procedures are utilized in this effort. The frequency and amount of training conducted by the various departments depends upon regulatory requirements and the level of hazard associated with the operation. The Directors of Safety, Security, Maintenance Training, Operations Training, and the ESSC work together to ensure that safety elements are included in the curricula and that safety information is disseminated to affected employees.

More specifically, this effort includes:

- Identifying requirements for all Metro training as it impacts safety. This encompasses New Employee and Refresher training related to procedures and equipment including manufacturers training and retraining requirements identified as a result of accident investigations.
- Reviewing all training programs for safety adequacy/
- Assessing the effectiveness of training courses and on-the-job experience.
- Providing specific training with specialized curricula to operators, mechanics, and emergency response personnel with the introduction of new vehicle technologies.

Activities or functions judged to be safety-critical may require special training and/or certification. Employees, whose duties directly impact the daily safe operation of the system, must be formally trained and certified by successfully completing specialized training courses, typically provided by ML Operations, LRV Maintenance, or Maintenance of Way.

The basic training programs for these positions include the **ML Operating Rules and ML Operations Standard Operating Procedures**, special instructions pertaining to the specific craft and on-the-job training under supervision. Training and certification are provided for new employees and those promoted to positions of increased responsibility. Upon successful completion of training and testing, ML issues a certification to the employee.

The testing programs include performance and /or written examinations designed to determine the employee's knowledge and understanding of job functions as well as the ability to perform job functions. Any employee who does not complete the training and testing program or who fails to qualify for subsequent recertification is not granted certification and is not permitted to perform in the specific craft until certification is acquired. Permanent records of

personnel training are maintained by the training organization responsible for providing certification/recertification for the employee.

2 Training and Education Policy

It is Metro's policy to provide thorough, relevant, and ongoing training for all employees to ensure that assigned duties are completed safely and effectively.

Policy 1 – Employees must actively participate in new employee training relevant to the specific job being performed.

- Training curriculum must be based on federal, state, local, company and contract requirements, incorporating national standards when applicable.
- Training curriculum must be comprehensive and sufficient in length to enable employees to safely and confidently operate in their work environment.
- Employees must be trained for all assigned tasks and equipment used on the job.
- Employees must complete all required hours of each training program.
- Employee performance must be evaluated and documented upon completion of each training program.
- Employees must complete a final written exam upon completion of applicable training programs.
- Training curriculum must be linked to the performance objectives for which employees will be evaluated while on the job.
- Supervisors and Managers will not authorize or instruct any employee to perform work for which employee has not been trained.

Policy 2 – New Operators must complete all required hours of New Operator Training, including both classroom and Behind-The-Wheel (BTW) hours.

- New Operator curriculum must be based on national training standards, incorporating all federal, state, local, company, and contract requirements.
- New Operators must be evaluated after completion of each Classroom and Behind-The-Wheel (BTW) training module.
- BTW hours are defined as actual driving hours behind the wheel, or "hands on the wheel time."
- Make-up driving or classroom sessions must be provided for employees who are absent or short on hour requirements.
- Operators must complete a final written exam upon completion of New Operator Training.
- Training progress and verification of program completion must be documented and kept in the employee's file.
- Supervisors or Managers will not authorize or instruct any Operator to operate vehicles for which the Operator has not received proper training.

Policy 3 – Metro's New Operator Training programs must be implemented in a standardized format across all locations.

- Supervisors must ensure that training curriculum meets all required hours as mandated by specific client, state, local or contractual requirements.
- Supervisors must ensure that all Instructors have access to standardized training materials in order to teach key subject areas appropriately.
- Training curriculum must be reviewed and evaluated annually to ensure that training content is relevant, appropriate, and up-to-date.

Policy 4 – Operators must successfully pass on-board evaluations at the end of the training process and before being released to revenue service.

- Supervisors or other qualified personnel must board the bus and observe the Operator while operating the vehicle.
- Operator Evaluation forms must be completed and kept in the Operator's file.

- Supervisors or other qualified personnel must conduct an additional evaluation within 30 days after release into the field for all new Operators.

Policy 5 – Employees must actively participate in refresher training or in-service education programs when new requirement, duties, tasks, systems or processes are added or introduced as part of job requirements.

- New requirements include but are not limited to:
  - Vehicles, equipment, machinery, tools
  - Chemicals or materials
  - Laws, regulations, standards, policies or procedures
  - Transfer to a new job
  - Leave of absence
  - Special circumstances or conditions requiring additional training
- Supervisors must coordinate refresher training for employees based on current operating trends. Refresher training should be used for accident prevention and trend reversal.
- Supervisors must ensure that refresher training is provided annually for each employee based on state and contract requirements.
- Supervisors must inform employees when in-service training is required, and provide information regarding the date and time of training.
- Employees who refuse to comply with refresher or in-service training requirements will be subject to disciplinary action.

Policy 6 – Employees must attend and participate in mandatory, regularly scheduled safety meetings.

- Supervisors must inform employees of the date and time of safety meetings.
- Supervisors must arrange for make-up meetings in the event that an employee is absent from a safety meeting.
- Supervisors must ensure that employees have access to and check bulletin boards, orders, and safety notices on a daily basis.

Policy 7 – Employees responsible for operating a vehicle must actively participate in post-accident training following a preventable accident.

- Post-accident training content will be based on the root cause of the accident.
- Operators must complete post-accident training prior to returning to driving duties.
- Operator performance must be documented and kept on file, showing that the Operator re-mastered the learning points/driving skills associated with the accident.

3 MetroLink Operations Training & Certification

3.1 Supervisors

The training program for Rail Supervisors and Controllers is focused on the MetroLink Rulebook and SOPs as well as specific administrative and technical responsibilities of these roles. Rail Supervisors who were not previously train operators also must complete LRV operator training. Biennial recertification of an eight hour class is required for both Rail Supervisors and Controllers.

3.2 LRV Operators

ML has implemented and maintains a training program for all new LRV operators. This program consists of classroom instruction and supervised yard and line operation of an LRV. Successful completion of the course requires test scores of 85% or higher and test scores of 100% on all signals knowledge. Refresher training is provided as follows:

- Annual recertification requires completion of an additional eight hours of training;
- Additional refresher training is required following a 30-day (eight hours) and a 60-day or longer (eight hours combined with a TSM observation) absence from duty;
- Other training for special events, new configurations, and new procedures are provided on an as needed basis.

4 MOW (Rail Systems and Right of Way Maintenance)

MOW electricians, track maintainers, maintenance mechanics, and truck drivers must possess a valid CDL license and medical card in accordance with Safety SOP 3.3. All MOW employees are required to be qualified annually on the MetroLink Operating rules through Track Access Training and Qualification. This training is described below under the Section "Track Access Training."

Additionally, MOW personnel are trained on the safe and efficient operation of various types of specialized work equipment as required for their respective job responsibilities; e.g. Forklift Truck, Boom Trucks, Bucket Truck, Hi-Rail Vehicles, and Other Specialized Work Equipment.

Signal and Traction Power Electricians are given job specific training that includes classroom training, on the job training, knowledge and ability tests, and a field review. Coursework covers all electrical components, specialized work equipment, first aid, and maintenance and emergency procedures.

The training for all job classes consists of some classroom training, but the majority of training includes on the job training. All job classifications have a qualification period wherein newly hired employees must demonstrate proficiency in their job responsibilities. A more detailed summary of two[39] recently developed programs is included below.

All MOW personnel are trained on First Aid, Blood Borne Pathogens and CPR every other year.

5 Traction Power & Substation Maintenance Employees

In 2010, 2011, and 2012, Metro contracted with an outside vendor to provide Substation Maintenance training to Traction Power Electricians and Management. The topics for these five-day courses (Substation Maintenance I and II) are described below. Metro provides Overhead Catenary System maintenance training and schedules this 5 day course as appropriate. These courses were completed for newer employees in 2015.

Substation Maintenance I	• Identify substation types, applications, configurations, components and safety procedures; • Understand circuit breaker fundamentals, maintenance and testing methods; • Perform insulation resistance, contact resistance, over potential, vacuum integrity, power factor testing and tank-loss index for air, oil and vacuum medium voltage circuit breakers; • Identify switchgear arrangement, torque requirements, insulation systems and maintenance intervals; • Perform AC/DC switchgear inspection and maintenance; • Identify battery types, applications, systems and components and perform battery maintenance and testing; • Basic over current and voltage protective relay maintenance and testing methods; and • Interpretation of all test results;

[39] Specific training curricula were developed for Substation Maintenance and for Track Inspections as suggested during the 2008 Triennial Review

Substation Maintenance II	• Theory, construction and operation of three-phase power transformers; • How to interpret ratings and nameplate data; • Required testing and maintenance of dry-type and liquid –insulated power transformers in accordance with ANSI/NETA MTS-2007; • Testing of Power Transformers including electrical testing; • Theory and operation of AC and DC protective relays, including over current, over/under voltage and differential; • Test and maintain AC and DC protective relays; • Calibration of protective relays; and • Interpret and analyze all test results.

6 Signal Maintenance Employees

In 2012, Metro began a training program for Signal Electricians that includes training on the following components and maintenance procedures:

- Switches: Power, Solar, Electric Lock, Rigid, Circuit Controller and Track Geometry
- Track Circuits: PF, AF and Cab Signals
- Drawings/Print reading, Equations and VHLC
- Crossings, Control Lines, SBD and Civil Restrictions
- Power Distribution, Generators, Auto Transfer Switch and Review

The signal course modules consist of 40 hours of training which also include classroom instruction, maintenance activities, and tests.

7 Maintenance Electrician High Voltage Training

Employees who are exposed to an electrical circuit that has not been de-energized must be trained every two years. The level of electrical safety training required is dependent on whether the employee is classified as a "qualified person" or "unqualified person".[40]

All electrician and LRT Communications staff were initially trained on Arc Flash Protection and will receive refresher training every two years thereafter as described in **Safety SOP 10.20**.

8 Track Inspection Training Program

During 2009, Metro contracted with an outside vendor to conduct a two (2) day class on track inspections. The objectives of the program are as follows:

- Interpret and apply applicable FRA standards to a track inspection;
- Record defects appropriately;
- Take remedial action on defects;
- Determine priority levels as per Metro standards;
- Review standard practices and apply them to track inspection; and
- Define various track/train concepts

[40] A "qualified person" shall be trained and knowledgeable in specific topics as outlined in Safety SOP 10.20. An "unqualified person" shall be trained in the inherent hazards of electricity and any related work practices that are necessary for their safety

The program incorporates a blend of classroom instruction, hands-on training, and appropriate tests. The first classes were completed in June 2009. An updated refresher class conducted by an FTA authorized provider was held in 2013.

9 LRV Maintenance Employees

An LRV Electromechanic receives training in a twelve-week course that includes seven written tests and three application tests. The class work covers electrical, electronic, mechanical, pneumatic, logic, and HVAC disciplines. Siemens has certified the training program and applicants for the program must first pass a basic aptitude test. They are also trained and certified to operate LRVs in the yard upon hire into the position and are recertified every two years.

10 Track Access Training

All contractor employees and Metro employees performing work along the MLRFGS ROW are required to complete one or more of the following training programs:

TIER 1 (MetroLink System Safety)

This is a basic system safety awareness class for persons who work on or next to the alignment but are not doing any actual flagging duties or for those persons who may access the alignment for inspections, investigations, or observations. Generally, all of these individuals will be accompanied by at least one person who has Tier 2 training (Flagging and Radio) and can make radio contact with OCC.

TIER 2 (MetroLink Flagging & Radio Use)

This class provides additional knowledge for individuals who will actually be flagging trains and for those who will use the MLRFGS radio communication system.

TIER 3 (MetroLink Operating Rules)

This class is for Metro employees who spend considerable time on the MLRFGS ROW (i.e., Rail Systems, Engineering & Construction, Track Car Operators, and Safety & Claims) who will be using non-revenue vehicles along the ROW or who will be protecting work crews along the alignment. The class provides a basic understanding of ML operating rules including those applicable to the operation of a track car. This class also provides a b7asic understanding of construction & maintenance operations on the ROW. The class does not provide competency training in the actual operation of rail vehicles.

All employees who successfully pass Tier I, II, & III System Safety Training (requires a written test score of 90%[41]) receive a track access card noting the applicable permissions. Recertification is required annually for Metro employees[42] and for contractor employees. Metro's safety staff provides the training.

11 Record Keeping

Permanent records of personnel training are maintained by the organization responsible for providing certification/recertification for that specific employee or by the department providing the training. The Internal Audit Department reviews training and recertification records during the ISAP.

[41] Also, Metro requires that the test portion related to aspect & indication must be 100% correct.
[42] Metro employees are permitted to "test out" (classroom attendance waived) on alternate years

12 Employee Safety & Loss Control Program

The Safety Department provides specific safety training in a variety of disciplines. Some examples include: fire extinguisher, bus accident preventability, van accident preventability, occupational safety, first aid, SMS awareness, CPR training, first responder, safety onboarding, terrorist recognition, van evacuation, fork trucks, spill control, hazard communication, fatigue awareness, emergency management on boarding, confined space, bus evacuation, blood borne pathogen, accident level determination, and accident investigation. As noted above, this department also provides the Tier I-II-III training.

13 Occupational Safety

Safety Department SOPs 10.1 through 10.25 specifically address most of the safety issues related to employee safety. Table T provides a detailed list. All SOPs are available on the Safety SOP page on MetroWeb. The Office of Safety requires Metro Employees to complete the Occupational Safety Course prior to the start of their assignment. The computer based training is accessible electronically here:

https://elearning.easygenerator.com/3e605884-3ff5-44a1-880a-fc5cba5549c1

Table T - Metro Occupational Safety SOPs

10-Employee Safety	
10.4	Hazard Communication
10.8	Blood Borne Pathogens
10.9	Confined Space
10.10	Footwear Protection
10.11	Powered Industrial Trucks
10.15	Portable Ladder Safety
10.20	Arch Flash and Electrical Safety
10.21	Fall Protection
10.23	Personal Protective Equipment (PPE)
10.24	Lockout & Tag out

14 MetroBus & Call-A-Ride Safety Training

On an annual basis, Bus and Call-A-Ride hold Bus Operator Recertification Training (BORT) and Van Operator Recertification Training (VORT). During these periods, Safety will be giving a training refresher on defensive driving and any other relevant training materials based on trends.

The Safety Department will also conduct operator training for new operators of Bus and Call-A-Ride. During the first week of Operator training, the Safety Department will conduct an Accident Preventability training with all new Operators. The Safety Department will then follow up and conduct another Accident Preventability class during the Operators last week of training.

15 System-wide Safety Management System (SMS) Training

All employees are required to complete an in-house SMS Training. Employees will also be required to pass a test and download a copy of the current PTASP. The curriculum for this training is based on the PTASP / SMS requirements. SMS Training will be evaluated each year for any changes or updates. This in-house SMS training will suffice the Public Transportation Safety Certification Training Program (PTSCP) per 49 CFR Part 672.

Appendices

Appendix A – National Public Transportation Safety Plan Safety Performance Measures

The following Safety Performance measures have been established jointly by Metro in coordination with East-West Gateway Council of Governments for calendar year 2021:

1) Fatalities (total number of reportable fatalities and rate per total vehicle revenue miles by mode)
   a) MetroLink-.0 per 100K miles
   b) MetroBus- 0 per 100K miles
   c) Call-A-Ride-0 per 100K miles
2) Injuries (total number of reportable[43] injuries and rate per total vehicle miles by mode)
   a) MetroLink-.12 injuries — 0.404/100k
   b) MetroBus- 142 injuries – 0.830/100k
   c) Call-A-Ride-12 injuries – 0.253/100k
3) Safety Events (total number of reportable events and rate per total vehicle miles by mode)
   a) MetroLink-25 safety events—0.842/100k
   b) MetroBus-71 safety events – 0.415/100k
   c) Call-A-Ride-9 safety events – 0.190 /100k
4) System Reliability (mean distance between major mechanical failure by mode)[44]
   a) MetroLink-27,605 miles
   b) MetroBus-26,612 miles
   c) Call-A-Ride-28,661 miles

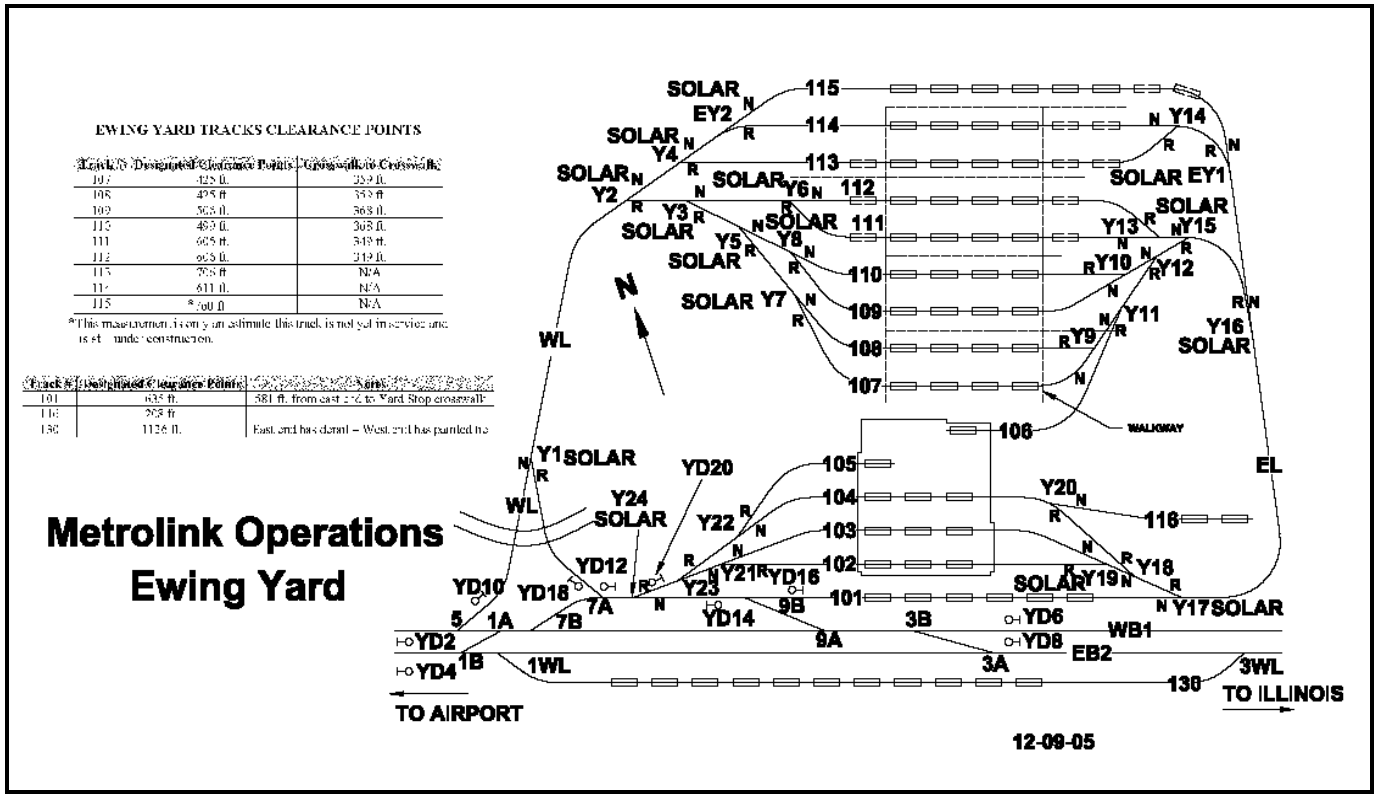
[43] The thresholds for "reportable" fatalities, injuries, and events are defined in the NTD Safety and Security Reporting Manual.
[44] Major Mechanical System Failures: Major mechanical system failures prevent a vehicle from completing or starting a scheduled revenue trip because actual movement is limited or because of safety concerns. Examples of major bus failure include breakdowns of brakes, doors, engine cooling systems, steering, axles, and suspension.

Appendix B – Performance Measures

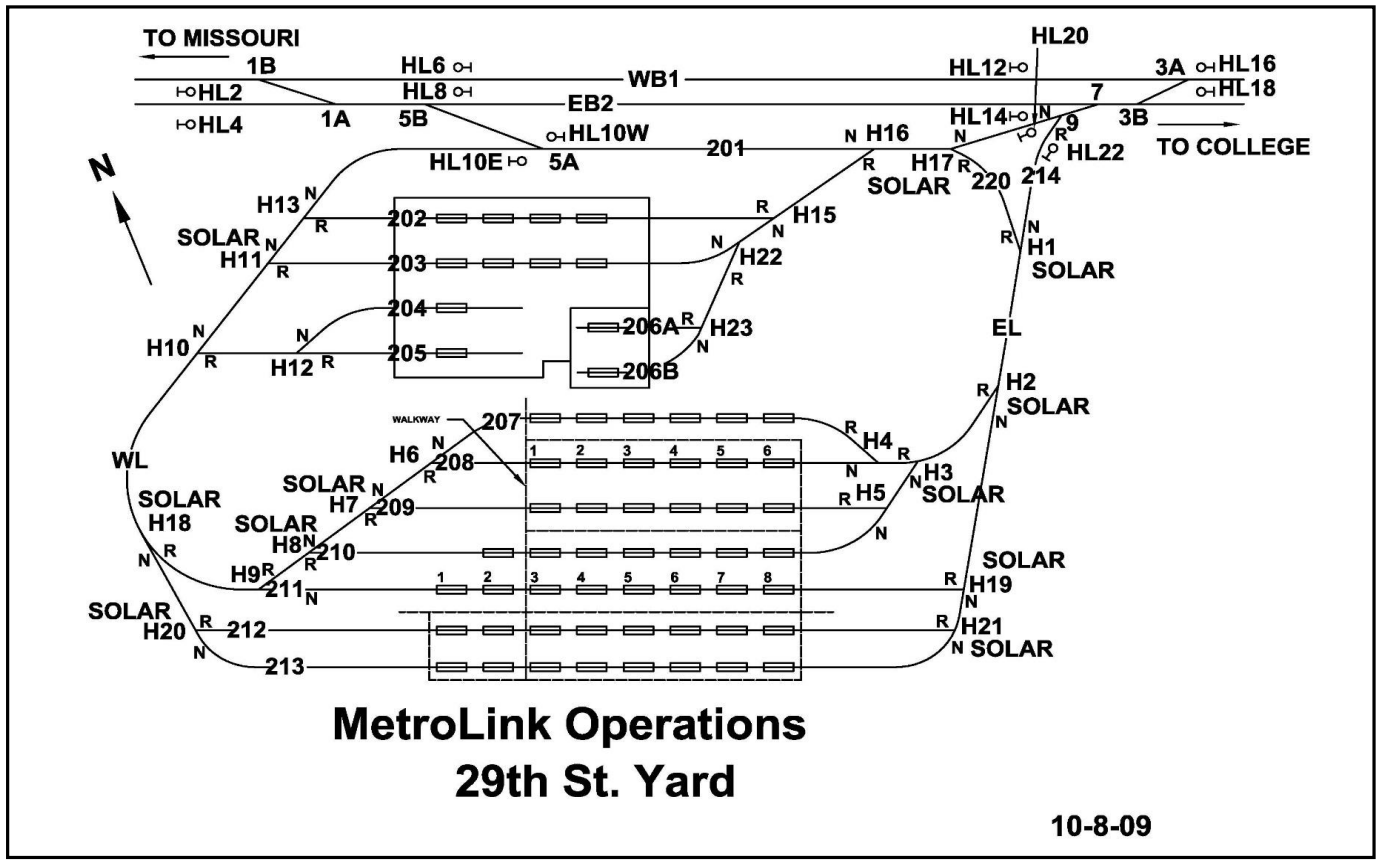
Metro Safety Performance Measures
Bus: Preventable Accidents per 100k Revenue Miles
Bus: Hours of Service Violations
Bus: Non-Preventable Accidents per 100k Revenue Miles
Van: Preventable Accidents per 100k Revenue Miles
Van: Non-Preventable Accidents per 100k Revenue Miles
Van: Hours of Service Violations
Rail: Reportable Accidents
Rail: Red Signal Overruns
Rail: Trailed Switches
Rail: Platform Overruns
Rail: Wrong Side Doors
Rail: Work Zone Violations
Rail: Trespassers-locations and frequency
Rail: Near Miss Events-locations and frequency
Rail: Hours of Service Violations
Vehicle Maintenance: Vehicle & Facility Inspections
Training: Safety Training
Safety: Active Safety Campaigns
Safety: Non Vehicular Employee Injuries
Safety: Vehicular Employee Injuries

Appendix C – MLRFGS Alignment

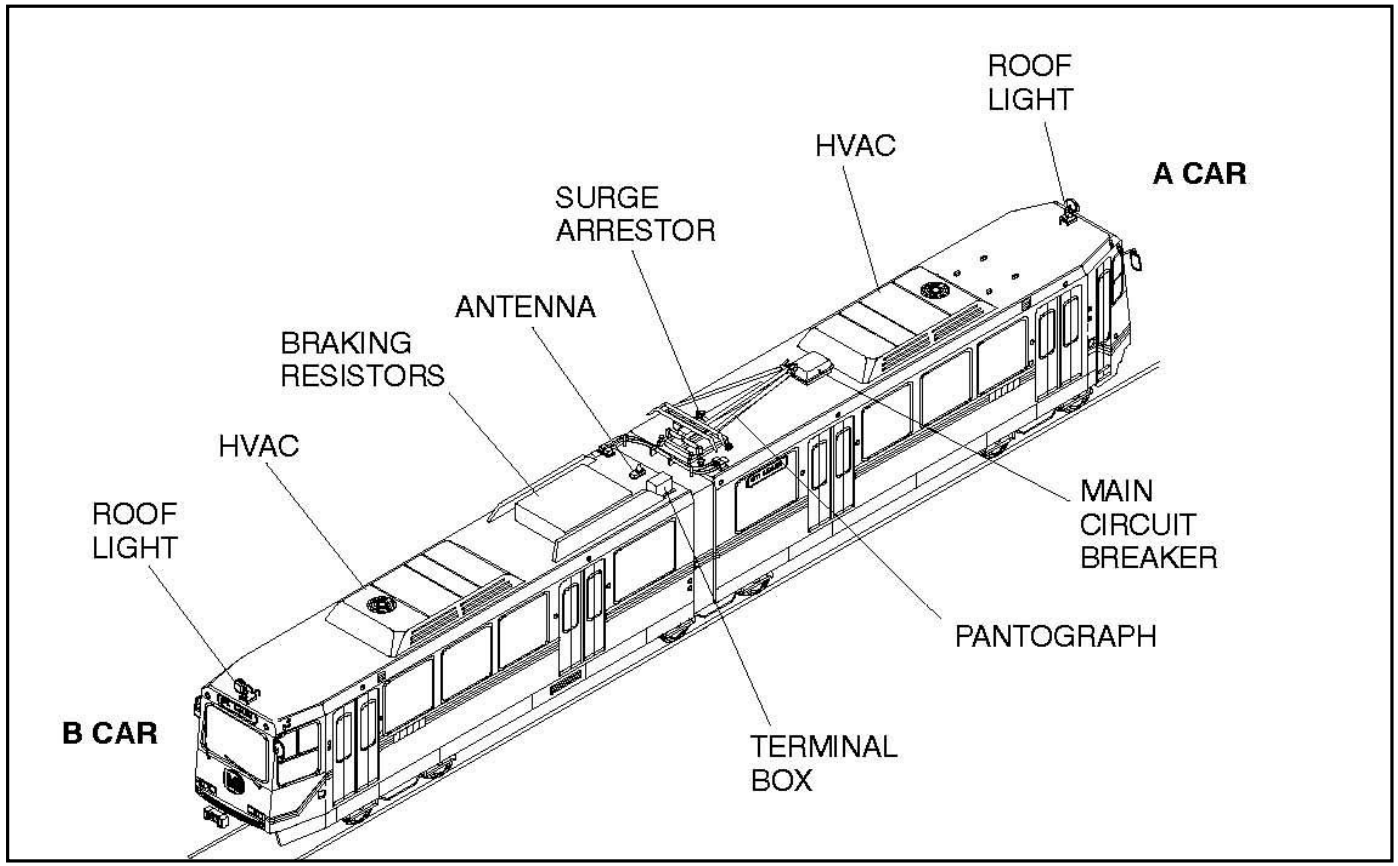
Appendix D – Ewing Yard Operating Model



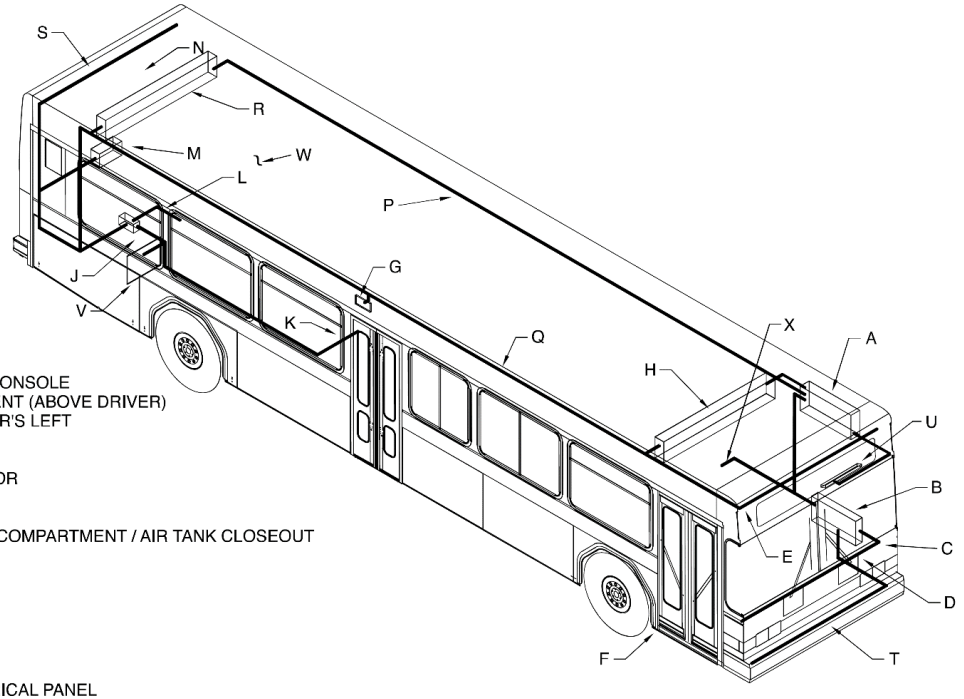
Appendix E – 29th Street Yard Operating Model



Appendix F – Generic Siemens LRV Schematic

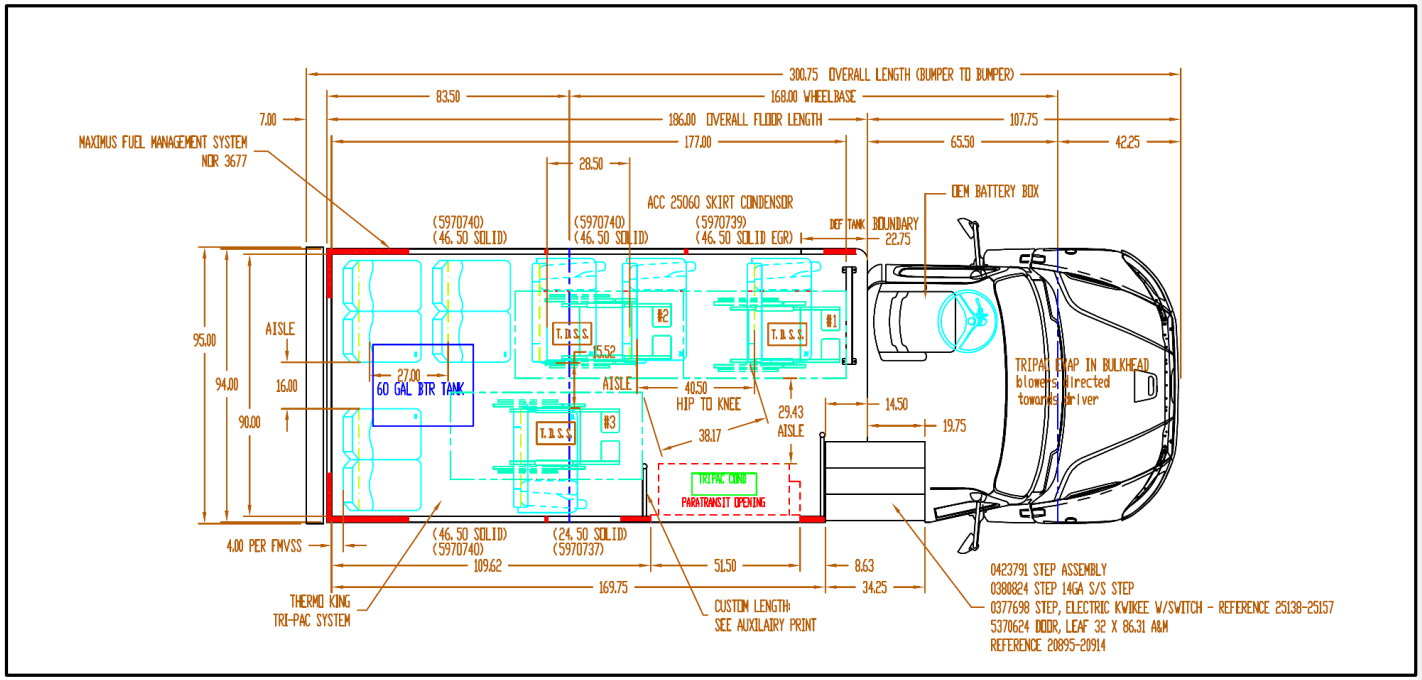


Appendix G – Generic Gillig Bus Schematic



LOCATION CODE
A = OVERHEAD SAWTOOTH CONSOLE
/ ELECTRICAL COMPARTMENT (ABOVE DRIVER)
B = CONSOLE AREA AT DRIVER'S LEFT
C = BATTERY BOX
D = DASH AREA
E = FRONT CAP & FRONT DOOR
F = CHASSIS, FRONT
G = REAR DOOR
H = OVERHEAD ELECTRICAL COMPARTMENT / AIR TANK CLOSEOUT
J = ENGINE & SETTEE AREA
K = CHASSIS, CENTER
L = TRANSMISSION AREA
M = REAR RUN BOX AREA
N = AC COMPRESSOR AREA
P = ROOF, LH
Q = ROOF, RH
R = REAR BULKHEAD ELECTRICAL PANEL
S = REAR CAP
T = HEADLIGHT CHANNEL
U = INDICATOR LIGHT BAR
V = ENGINE COMPARTMENT FUSE PANEL AREA
W = REAR EXTERIOR ROOF AREA (HYBRID)
X = RADIO BOX

Appendix H – Generic Paratransit Vehicle Schematic



Appendix I–MLRFGS System Elements-Station Configurations

	Station Name	Street Addresses	City	State	Zip Code	Park N Ride Lot	# Of Parking Spaces	Station Configuration				Comments & unique characteristics	Elevators	
								At Grade	Below	Elevated	Subsurface		Track # 2	Track # 1
MISSOURI (PHASE I)	**East Riverfront**	100 South Front	E. St. Louis	IL	62201	YES	295			X		East end of Eads Bridge	Y	Y
	5th & Missouri	150 North 5th Street	E. St. Louis	IL	62201	YES	410	X						
	Arch-Laclede's Landing	200 Washington Avenue	St. Louis	MO	63102	NO				X		West end of the Eads Bridge	Y-2	
	Convention Center	600 North 6th Street	St. Louis	MO	63102	NO					X	In Downtown Tunnel	Y	Y
	8th & Pine	323 8th Street	St. Louis	MO	63102	NO					X	In Downtown Tunnel	Y	Y
	Stadium	400 South 8th Street	St. Louis	MO	63102	NO			X			West end of Downtown Tunnel		
	Civic Center	1414 Spruce Street	St. Louis	MO	63103	NO			X			Bus Transfer Station		
	Union Station	300 South 18th Street	St. Louis	MO	63103	NO			X				Y	
	Grand	3560 Scott Avenue	St. Louis	MO	63110	YES	60	X				Bus Transfer Station	Y	
	Cortex	402 South Boyle Avenue	St. Louis	MO	63110	NO		X						

	Station Name	Street Addresses	City	State	Zip Code	Park N Ride Lot	# Of Parking Spaces	Station Configuration				Comments & unique characteristics	Elevators	
								At Grade	Below	Elevated	Subsurface		Track # 2	Track # 1
	Central West End	410 South Euclid Street	St. Louis	MO	63110	NO		X				Bus Transfer Station	Y	
	Forest Park-DeBaliviere	250 DeBaliviere Avenue	St. Louis	MO	63112	YES	100		X			Junction	Y - 2	
	Delmar	731 Hodiamont Avenue	St. Louis	MO	63112	YES	150	X				Bus Transfer Station		
	Wellston	6402 Plymouth Avenue	St. Louis	MO	63133	YES	250	X				Hwy Grade Crossing between platforms		
	Rock Road	7001 St. Charles Rock Road	St. Louis	MO	63133	YES	190	X						
	UMSL-South	7804 East Campus Drive	St. Louis	MO	63121	YES	130	X						
	UMSL-North	1500 Mark Twain Drive	St. Louis	MO	63121	YES	100	X						
	North Hanley	4401 North Hanley Road	St. Louis	MO	63134	YES	1571	X				Garage adjacent		
	Lambert Airport, Terminal Two	10201 Lambert Intl Airport Blvd.	St. Louis	MO	63145	NO				X			Y	
	Lambert Airport, Terminal One	10701 Lambert Intl Airport Blvd.	St. Louis	MO	63145	NO				X			Y	

	Station Name	Street Addresses	City	State	Zip Code	Park N Ride Lot	# Of Parking Spaces	Station Configuration				Comments & unique characteristics	Elevators	
								At Grade	Below Grade	Elevated	Subsurface		Track # 2	Track # 1
ILLINOIS (PHASE II)	**Emerson Park**	929 North 15th Street	E. St. Louis	IL	62203	YES	816	X				Commercial Tower		
	Jackie Joyner-Kersee Ctr	1003 North 25th Street	E. St. Louis	IL	62205	NO	-	X						
	Washington Park	867 North 54th Street	E. St. Louis	IL	62203	YES	681	X						
	Fairview Heights	9290 Highway 161	Fairview Hts.	IL	62208	YES	853	X						
	Memorial Hospital	1502 Flanagan Road	Belleville	IL	62223	YES	275		X			Comm. Tower		
	Swansea	2222 North Illinois Street	Swansea	IL	62226	YES	328	X						
	Belleville	924 North Charles Street	Belleville	IL	62220	YES	287	X						
	College	2622 Carlyle Avenue	Belleville	IL	62221	YES	537	X						
	Shiloh-Scott	880 Metro Plaza Lane	Belleville	IL	62221	YES	700	X				Comm. Tower; adjacent to Scott Air Force Base		
CROSS COUNTY (PHASE II)	**Skinker**	260 North Skinker Blvd.	St. Louis	MO	63112	NO					X	Center of Skinker Tunnel	Y	
	University City-Big Bend	7000 Forest Park Parkway	St. Louis	MO	63130	NO					X	Eastern 1/3 of Big Bend Tunnel	Y	
	Forsyth	7411 Forsyth Blvd.	St. Louis	MO	63105	NO			X			West end of Big Bend Tunnel		

Station Name	Street Addresses	City	State	Zip Code	Park N Ride Lot	# Of Parking Spaces	Station Configuration				Comments & unique characteristics	Elevators	
							At Grade	Below Grade	Elevated	Subsurface		Track # 2	Track # 1
Clayton	275 S. Central Avenue	St. Louis	MO	63105	NO		X				Pedestrian Overpass to St. Louis Co. Garage	Y	
Richmond Heights	8001 Galleria Parkway	St. Louis	MO	63144	YES	57	X				Park-n-Ride		
Brentwood-I-64	8398 Eager Road	St. Louis	MO	63144	YES	926		X			Meridian Garage		
Maplewood Manchester	7911 Manchester Road	St. Louis	MO	63143	NO				X		Bus Transfer Station	Y	
Sunnen	21 Sunnen Drive	St. Louis	MO	63143	YES		X				Ped. Crossing protected by gates at Sunnen Dr; Park-n-Ride		
Shrewsbury Lansdowne I-44	7201 Lansdowne Avenue	St. Louis	MO	63119	YES	800			X		Bus Transfer Station	Y	

Appendix J–MLRFGS System Elements-Tunnel Configurations

Name or Description	East or North portal	West or South portal	Length in Feet	Ventilation System	Stand Pipes	Emergency Exits	Stations
	Mile Post	Mile Post					
Downtown Tunnel	15.34	14.60	4460	N	Y	N	Arch-Laclede's Landing; Convention Ctr; 8th & Pine; Stadium
Union Station Tunnel	13.60	13.38	1055	N	N	N	Union Station (at east end)
Kingshighway Tunnel (non-Metro-owned structure)	10.35	10.11	1100	N	Y	N	CWE (at east end)
UMSL Campus Tunnel	3.74	3.62	664	N	Y	N	
DeBaliviere Tunnel (Cross County Tunnel #1)	CC 0.03	CC 0.12	483	N	Y	N	
Skinker Tunnel (Cross County Tunnel #2)	CC 0.72	CC 0.91	1000	Y	Y	Y (At station)	Skinker
Big Bend Tunnel (Cross County Tunnel #3)	CC 1.46	CC 2.51	5500	Y	Y	Y	Big Bend; Forsyth
Eager Road Tunnel (Cross County Tunnel #4)	CC 4.60	CC 4.69	450	N	Y	N	Brentwood I-64 (at south end)

Appendix K–MLRFGS System Elements-Bridge Locations

	Milepost	Name/Description
MISSOURI BRIDGES - PHASE I	0.42	Airport Bridge
	1.31	McDonnell Blvd. Bridge
	1.84	WB I-70 Bridge
	2.00	SB I-170 & EB I-70 Bridge
	2.17	NB I-170 & Ramp 24 Bridge
	2.31	I-70 Ramp No. 26 Bridge
	2.59	Springdale Bridge
	3.09	North Hanley Road Bridge
	3.59	Geiger Road Bridge
	3.87	UMSL Garage Bridge
	4.00	East Campus Drive Bridge
	7.62	Skinker Bridge
	8.73	DeBaliviere Pedestrian Walkway (West)
	8.75	DeBaliviere Pedestrian Walkway (East)
	11.49	Vandeventer Bridge
	13.60	18th Street Bridge
	13.73	16th Street Bridge
	14.50	Spruce Street Bridge
	15.40 - 15.90	Eads Bridge (Main Spans)
ILLINOIS BRIDGES- PHASE II	18.01	St. Clair Ave. Bridge
	18.06	I-64 & Baugh Ave. Bridge
	18.77	Southern RR Bridge
	18.90	Terminal RR Bridge
	19.20	25th Street Bridge
	20.18	Alton &Southern RR Bridge
	20.90	Washington Park Pedestrian Bridge
	21.86	Harding Ditch Bridge
	22.66	79th Street Bridge
	24.61	Negro Hollow Creek Bridge
	26.06	Schoenberger Creek Bridge
	26.27	Dutch Hollow Rd. Bridge
	26.38	Llewelyn Rd. Bridge
	26.91	Schoenberger Creek Bridge
	28.96	Fullerton Rd. Bridge
	29.47	Swansea Creek Bridge
	29.65	Swansea Creek II Bridge
	29.85	IL Rte 159 Bridge
	30.17	Norfolk & Southern RR Bridge
	31.01	"B" Street Bridge
	31.25	Main Street Bridge

Appendix L–MLRFGS System Elements-Power Substations

	Substation Number	Mile post	Street Address	City	State	Zip code	Supply Voltage (KV)
MISSOURI	MO-01	15.4	610 North 2nd Street	St. Louis	MO	63102	13.8
	MO-02	14.4	949 Poplar Street	St. Louis	MO	63102	34.5
	MO-03	13.3	326 South 21st Plaza Dr.	St. Louis	MO	63103	34.5
	MO-04	12.6	540 South Ewing Avenue	St. Louis	MO	63103	34.5
	MO-05	12.0	3500 Scott Avenue	St. Louis	MO	63103	34.5
	MO-06	10.4	411 South Taylor Avenue	St. Louis	MO	63122	34.5
	MO-07	9.0	274 DeBaliviere Avenue	St. Louis	MO	63112	34.5
	MO-08	7.2	6410 Plymouth Avenue	St. Louis	MO	63133	34.5
	MO-09	5.6	7131 North Market Street	St. Louis	MO	63133	34.5
	MO-10	4.8	7750 Florissant Road	St. Louis	MO	63121	34.5
	MO-11	2.5	4500 Springdale Avenue	St. Louis	MO	63134	34.5
	MO-12	0.8	9852 Air Cargo Road	St. Louis	MO	63134	34.5
	MO-21	CC 1.8	7055 Forest Park Blvd.	St. Louis	MO	63112	34.5
	MO-22	CC 3.3	405 Corporate Drive	St. Louis	MO	63105	34.5
	MO-23	CC 4.8	8396 Eager Road	St. Louis	MO	63144	34.5
	MO-24	CC 6.1	7820 Flora Avenue	St. Louis	MO	63143	34.5
	MO-25	CC 7.5	7201 Lindenwood Avenue	St. Louis	MO	63119	34.5
ILLINOIS	IL-01	16.0	Front Street & Broadway	East St. Louis	IL	62201	34.5
	IL-02	17.0	219 North 5th Street	East St. Louis	IL	62201	34.5
	IL-03	18.5	1601 Parsons Avenue	East St. Louis	IL	62205	34.5
	IL-04	19.6	950 North 31st Street	East St. Louis	IL	62205	34.5
	IL-05	21.4	6456 St. Clair Avenue	East St. Louis	IL	62203	34.5
	IL-06	23.3	8831 St. Clair Avenue	East St. Louis	IL	62203	34.5
	IL-07	25.2	2209 Dutch Hollow Road	Belleville	IL	62223	12.47
	IL-08	27.1	1550 Flanagan Road	Belleville	IL	62223	12.47
	IL-09	28.7	2808 Old Caseyville Road	Belleville	IL	62226	12.47
	IL-10	30.6	920 North Charles Street	Belleville	IL	62220	12.47
	IL-11	32.5	700 South McKinley Drive	Belleville	IL	62220	12.47
	IL-12	32.4	2626 Carlyle Avenue	Belleville	IL	62221	12.47
	IL-13	36.2	1090 Shiloh Station Road	Belleville	IL	62221	12.47
	IL-14	37.8	872 Section Line Road	Belleville	IL	62221	12.47

Appendix M–MLRFGS System Elements-Highway Grade Crossings

Street	City	State	Mile Post	Stationing	DOT#
MISSOURI					
North Market Street	Pagedale	MO	5.7	1526+85	480278B
Plymouth Avenue	Wellston	MO	7.0	1457+20	480275F
Etzel Avenue	Wellston	MO	7.2	1446+95	480274Y
Bartmer Avenue	Wellston	MO	7.4	1439+32	480273S
Taylor Avenue	St. Louis	MO	10.5	1273+32	480261X
Newstead Avenue	St. Louis	MO	10.7	1263+38	480260R
Boyle Avenue	St. Louis	MO	10.9	1253+55	480259W
Sarah Street	St. Louis	MO	11.2	1240+25	480257H
Ewing Avenue	St. Louis	MO	12.6	1164+25	914400U
Sunnen	St. Louis	MO	CC6.28	3702+34	925075F
ILLINOIS					
Main Street	East St. Louis	IL	16.5	952+80	914401B
4th Street	East St. Louis	IL	16.7	949+00	914402H
Broadway	East St. Louis	IL	16.8	942+60	914403P
Missouri Avenue	East St. Louis	IL	16.97	896+01	917318R
St. Louis Avenue	East St. Louis	IL	17.10	902+71	917319S
Martin Luther King	East St. Louis	IL	17.22	909+42	917320L
9th Street	East St. Louis	IL	17.85	942+74	917321T
15th Street	East St. Louis	IL	18.40	971+46	917326C
18th Street	East St. Louis	IL	18.58	981+26	91874LK
37th Street	East St. Louis	IL	19.93	1052+03	917330S
St. Clair Avenue	East St. Louis	IL	20.62	1088+97	917331Y
Kingshighway (IL Rte 111)	East St. Louis	IL	20.99	1108+50	917334U
Lebanon Avenue	Belleville	IL	24.52	1294+46	917339D
Old Caseyville Road	Belleville	IL	28.50	1505+04	917347V
Shiloh Station Road	Belleville	IL	36.10	1910+00	920997E

Appendix N–MLRFGS System Elements-Signal Locations

	Milepost	Name/Description	Type
PHASE I LOCATIONS (MO)	0.04	Airport Interlocking	Signal House
	0.44	Airport East	Relay Case
	1.68	I70	Audio House
	2.98	North Hanley Interlocking	Signal House
	4.61	UM St. Louis South	Cable Junction (Retired Audio House)
	4.62	UMSL Interlocking	Signal House
	5.73	North Market Grade Crossing	Relay Case
	5.95	St. Charles Rock Road	Audio House
	7.03	Plymouth Grade Crossing	Relay Case
	7.12	Page Interlocking	Signal House
	7.26	Etzel Grade Crossing	Signal Case
	7.43	Bartmer Grade Crossing	Signal Case
	8.47	Waterman Interlocking	Signal House
	8.70	DeBaliviere Junction Interlocking	Signal House
	8.87	Forest park Interlocking “A”	Signal House
	9.02	Forest Park Interlocking “B”	Signal House
	10.53	Taylor Grade Crossing	Relay Case
	10.62	Central West End Interlocking	Signal House
	10.90	Boyle Grade Crossing	Relay Case
	11.16	Sarah Grade Crossing	Relay Case
	11.85	Grand Freight Diamond Interlocking	Signal House
	12.60	Ewing Grade Crossing	Relay Case
	12.67	Yard Interlocking	Signal House
	13.67	Union	Audio House
	14.18	Tucker Interlocking	Signal House
	15.56	Tucker Interlocking	Relay Case
	15.54	Laclede Landing Interlocking	Signal House
	15.9	Riverfront Interlocking	Signal House
	16.61	Main Street Grade Crossing	Relay Case
	16.65	4th Street Grade Crossing	Relay Case
	16.77	Fifth & Missouri Interlocking	Signal House

	Milepost	Name/Description	Type
PHASE II LOCATIONS (St. Clair Co.)	16.98	Missouri Avenue Crossing	Relay Case
	17.09	St. Louis Avenue Grade Crossing	Relay Case
	17.22	Martin Luther King Grade	Crossing Case
	17.54	RH1	Audio House
	17.85	9th Street Grade	Crossing Case
	18.41	Emerson Park Interlocking "A"	Signal House
	18.60	Emerson Park Interlocking "B"	Signal House
	19.49	Hall Interlocking "A"	Signal House
	19.82	Hall Interlocking "B"	Signal House
	19.93	37th Street Grade Crossing	Relay Case
	20.63	St. Clair Avenue Grade Crossing	Relay Case
	20.99	Kingshighway Grade Crossing	Relay Case
	21.43	RH2	Audio House
	22.94	RH3	Audio House
	23.98	Fairview Pocket Track	Signal House
	24.51	Lebanon Road Grade Crossing	Relay Case
	25.88	RH4	Audio House
	27.71	Royal Interlocking	Signal House
	28.51	Old Caseyville Road Grade Crossing	Relay Case
	29.23	RH5	Audio House
	30.74	Belleville Interlocking	Signal House
	32.47	RH6	Audio House
	34.15	College Interlocking	Signal House
	35.82	RH7	Audio House
	36.18	Shiloh Station Road Grade Crossing	Relay Case
	37.62	Scott Interlocking	Signal House
PHASE III LOCATIONS (Cross Co.)	CC0.2	Parkway Interlocking	Relay Case
	CC1.6	Big Bend Interlocking	Signal Room
	CC1.8	Big Bend Interlocking	Relay Case
	CC3.5	Enterprise Interlocking	Signal House
	CC3.7	Enterprise Interlocking	Relay Case
	CC4.0	Clayton Road Hand throw Crossover	Relay Case
	CC5.2	Brentwood Interlocking	Signal House
	CC6.3	Sunnen Grade Crossing and Audio House	Audio House
	CC7.6	Shrewsbury Interlocking	Signal House

Appendix O– Metro Policies & Procedures Applicable to the MLRFGS and the PTASP/SSP[45]

- Cross County MetroLink Extension Fire Life Safety Plan
- Cross County MetroLink Extension Emergency Familiarization Plan
- Cross County MetroLink Extension Safety & Security Certification Plan
- LRV Maintenance Program
- Metro Emergency Operations Plan
- Metro Emergency Reference System Guide
- MetroLink Operations Standard Operating Procedures
- MetroLink Operating Rules
- MetroLink Signal & Train Control Maintenance Plan
- MetroLink Communication System Maintenance Plan
- MetroLink Facilities Maintenance Plan
- MetroLink Track Construction & Maintenance Manual
- MetroLink Traction Power System Preventative Maintenance Program
- MetroLink Structures Inspection & Maintenance Manual
- Risk Management & Safety Standard Operating Procedures
- MetroLink Alignment Schematics

[45] Some documents are purposely listed without reference to edition date or revision number. This is an intentional omission since many documents change dates and revisions on different frequency cycles and at different times than this Plan.

Appendix P– Abbreviations and Acronyms

List of Abbreviations & Acronyms	
AAR	Association of American Railroads
AASHTO	American Association of State Highway & Transportation Officials
AC	Alternating Current
APTA	American Public Transportation Association
AREMA	American Railway & Maintenance Engineering Association
ATP	Automatic Train Protection
CAP	Corrective Action Plan
CBRNE	Chemical, Biological, Radiological, Nuclear, & Explosive
CCTV	Closed Circuit Television
CEO	Chief Executive Officer
CFR	Code of Federal Regulations
CMP	Configuration Management Plan
CON	Contractors
CRT	Cathode Ray Tube
DC	Direct Current
DNR	Department of Natural Resources
DOT	Department of Transportation
EAP	Employee Assistance Program
ENSD	Engineering & New Systems Development
EOPs	Emergency Operating Procedures
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FLSC	Fire / Life Safety Committee
FRA	Federal Railroad Administration
FROWM	Facility & ROW Maintenance
FTA	Federal Transit Administration, agency in the U.S. Dept Transportation
HR	Human Resources & Benefits
HSEEP	Homeland Security Exercise & Evaluation
HSPD	Homeland Security Presidential Directive
HVAC	Heating Ventilation and Cooling
ICC	Illinois Commerce Commission

List of Abbreviations & Acronyms	
ICS	Incident Command System
IDOT	Illinois Department of Transportation
IED	Improvised Explosive Device
IHA	Interface Hazard Analysis
ISAP	Internal Safety Audit Process
List of Abbreviations & Acronyms - continued	
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
KV	Kilo-Volt
LRV	Light Rail Vehicle
LRVM	LRV Maintenance
ML	MetroLink
MLO	MetroLink Operations
MLRFGS	MetroLink Rail Fixed Guideway System
MoDOT	Missouri Department of Transportation
MOW	Maintenance of Way
MP	Milepost
MPH	Miles Per Hour. Used to describe the speed of the train
MPHPS	Miles Per Hour Per Second (describe the rate of acceleration/deceleration of an LRV)
MSDS	Material Safety Data Sheet
NEC	National Electrical Code
NFPA	National Fire Protection Coding
NIMS	National Incident Management System
NIPP	National Infrastructure Protection Plan
NRP	National Response Plan
NTD	National Transit Database
NTSB	National Transportation Safety Board
OCC	Operations Control Center
OCS	Overhead Catenary System
ODP	Office of Domestic Preparedness
OHA	Operating Hazard Analysis
OPS	MetroLink Operations
PA	Public Address or Public Announcement
PAT	Passenger Assistance/Emergency Telephone
PHA	Preliminary Hazard Analysis

List of Abbreviations & Acronyms	
PPE	Personal Protective Equipment
PROC	Procurement
RAMP	Rail Activation Management Plan
ROW	Right of Way
RS	Rail Systems
RS	Rail Supervisor
RTSS	Regional Transit Security Strategy
RTSWG	Regional Transit Security Working Group
SAF	Risk Management & Safety
SAP	Substance Abuse Program
SBD	Safe Breaking Distance
SCADA	Supervisory Control and Data Acquisition
SCCTD	St. Clair County Transit District
SCIL	Safety Critical Items List
SCRC	Safety Certification Review Committee
SEC	Security
SHA	System (interface) Hazard Analysis
SOPs	Standard Operating Procedures
SSO	State Safety Oversight
SSP	System Security Plan
SSPP	System Safety Program Plan
T/O	Train Operator
TSGP	Transit Security Grant Program
TSM	Transit Service Manager
TVM	Ticket Vending Machine
UASI	Urban Area Strategic Initiative
UPRR	Union Pacific Rail Road
VDC	Volt Directional Current

Appendix Q– Glossary

Term	Definition
Accident	An unforeseen event or occurrence which causes death, injury, or damage to property
ADA Americans with Disabilities Act of 1990	Civil rights law passed by Congress in 1990 that makes it illegal to discriminate against people with disabilities in employment, public accommodations, & telecommunications
Alignment	The horizontal and vertical location or roadway as described by curves and tangents defining its position with respect to the surrounding area.
Anomaly	Deviation from nominal performance that does not cause a significant effect on system performance but does warrant investigation and / or repair.
Articulation	The flexible center portion of the car body connecting the two halves of the vehicle. Facilitates turning on curves.
Aspect	The combination of color a deposition of a fixed signal, light or lights which provides an indication to the Train Operator
At Grade	At neutral ground level, when describing transit ways or streets; the intersecting transit ways and streets are at the same elevation and may intersect (see also surface level station)
Audit	Formal or official review of procedures & and verification of compliance
Authority Having Jurisdiction (AHJ)	The organization, office, or individual responsible for approving equipment, an installation, or a procedure. NOTE: Organizations included are building and fire officials, State Safety Oversight officers, and other departments as applicable.
Authorized Speed	The maximum allowed speed for a section of track
Automatic	A term applied to a system, subsystem, or device which has the inherent capability to function without direct manual participation
Below Grade	A station constructed below the level of the nearest road but not underground (i.e., Memorial Hospital; Forsyth)
Block	A section of track of defined limits
Brake, Emergency	An irreversible slowing and subsequent stopping of the LRV activated by a depression of the Emergency Brake button in any cab of an LRV. Emergency braking provides the highest brake rate that is available from using ONLY friction and track braking systems. Dynamic braking and Slip/Slide braking systems are not utilized during an emergency brake.
Bumping Post	A structure at the end of track(s) placed to prevent rail vehicles from running off the track
Cab Signal	An aspect displayed on the Aspect Display Unit located in the Operator's cab indicating the maximum authorized train speed for

Term	Definition
	that section of track in which the train is operating. Cab signals are used in conjunction with interlocking signals.
Catenary	An overhead wire system that supplies power for propulsion and auxiliary use from a central power source to an LRV
Checked Redundancy	A characteristic of a system that ensures that the probability of any malfunction is controlled to produce a risk comparable to fail-safe.
Closed Loop	The principle of feedback control in which the response of a system is continuously compared with the controlling signal to generate an error signal.
Code	A document containing mandatory (shall) requirements on "where or when" an action or feature should be implemented. It may be adopt4ed as law (see "standard")
Consist	The number and specific identity of cars that make up a train.
Controller	The designated employee on duty in the OCC having authority over all movements on or affecting MetroLink tracks and ROW
Corrective Action Plan	A plan that describes the actions to take to minimize, control, correct, or eliminate hazards, and the schedule for implementing those actions
Coupler	A device for making electrical, mechanical, and pneumatic connections between LRV's and/or other rail equipment.
Criteria	A document or drawing constraining actions or features that are recommended and should be implemented but maybe modified or waived with rationale. Criteria may be adopted as a standard or code.
Critical	A hazard severity category defined as "Category II" failure conditions that could result in severe injury to one or more persons, and / or significant system damage
Critical Defect	A defect that judgment and experience indicate could result in hazardous or unsafe conditions for individuals using or maintaining the product or could result in failure in accomplishment of the ultimate objective.
Critical Function List	A listing of those functions whose failure would cause system degradation below an acceptable level.
Criticality	Assignment of relative importance to hardware or systems.
Crossing Gates	Crossing gate arms located at grade crossings and activated by the approach of trains, which restrict vehicle and pedestrian traffic. Crossing gates also include an arrangement of warning bells and lights.
Crossover	A track structure allowing a train to move from one track to another
Dead man Braking	A retrievable, full-service brake application that occurs upon the release of the deadpan foot-pedal or hand button, or upon depression of the deadpan foot-pedal past the second detent.

Term	Definition
Deductive Analysis	Analysis of a specific undesired event to determine possible causes of that event (Top down approach "What can cause a specific event to occur?") See Fault Tree Analysis.
Derailment	A condition that exists when the wheels of a piece of rail equipment leave the rail
Design Deficiency	Any design characteristic which does not meet specified criteria
Design Safety	Safety achieved by the integration of system design characteristics to prevent or minimize the probability to operate in an unsafe manner.
Diverge	A change in train movement from one track to another over switches set in a reverse position.
Double Track	Two Main tracks - one of which operates trains in the normal westbound direction, identified as westbound track #1; the other in the normal eastbound direction, identified as eastbound track #2.
Dwell Time	The time a train in revenue service spends alighting and discharging passengers at a stop, including opening & closing doors
Elevated Station	A station where the platform is above ground level requiring access by stairs, elevator or escalator
Emergency	A situation that is life threatening to passengers, employers, or other interested citizens; or that causes damage to any transit vehicle or facility; or results in the significant loss of services & reduces the ability of the system to fulfill its mission; A condition, situation or occurrence of serious nature, developing suddenly and unexpectedly and requiring immediate action.
Emergency Stop	The stopping of a train by an emergency application (mushroom) that, after initiated, cannot be released until the train is stopped.
Employee	Anyone employed by Metro or a Metro contractor, or personnel of another railroad while on ML ROW.
Equipment Failure	The state in which equipment no longer meets the minimum acceptable specified performance and cannot be restored through operator adjustment of controls.
Extra Train	A train not authorized by a timetable schedule. Trains used for passenger transport may be designated as "extras".
Facing Movement	The movement of a train over a switch with points facing toward the oncoming movement.
Fail Safe Design	a design principle in which each of the elements which make up a system is analyzed to determine the potential consequence of failure of the element, alone or in combination with any or all other elements of the system, to ensure that a failure or a combination of failures will not result in an unsafe condition.
Fail Safe Safety	A characteristic of a system and its elements, the object of which is to ensure that any fault or malfunction will not result in an unsafe condition
Failure	An inability or perform an intended function

Term	Definition
Failure Analysis	The logical and systematic examination of a system to identify and analyze the probability, causes, & consequences of potential and real failure.
Failure Management	Decisions, policies, & planning that identify and eliminate or control potential failures and implement corrective or control procedures following real failures.
Failure Mechanism	The process which results in a part or equipment failure
Failure Mode	The description of the manner in which a failure occurs, and the operating condition of the equipment at the time of the failure
False Occupancy	Indication of track occupancy when no train or track car is present
Fans	Mechanical device to induce airflow.
Fault Tree Analysis	A deductive analysis procedure which graphically presents undesired events to determine possible causes of that event
Fire-Life Safety Committee	Designated personnel from the local authorities, and representatives from the transit agency, who are assigned to resolve issues related to Fire-Life Safety, and others as necessary to handle technical and complex design and /or operational issues.
Fixed Guideway Transit System (The System).	An electrified transportation system, utilizing a fixed Guideway, operating on right-of-way for the mass movement of passengers along the MetroLink alignment and consisting of its fixed Guideways, transit vehicles and other rolling stock, power system, buildings, maintenance facilities, stations, transit vehicle yard, and other stationary and movable apparatus, equipment, appurtenances, and structures
Fixed Signal	A signal at a fixed location that affects the movement of a train.
Flag	A device used for relaying hand signals or to indicate conditions on the mainline, ROW or in the yard. Flags may be made of cloth or lights.
Flagging Protection	A procedure used to protect work crews, personnel and equipment from train and vehicular movements and any other obstructing activities.
Flag person	A Qualified Employee assigned to protect work crews, personnel and equipment working on or near the tracks to ensure the safe passage of trains.
Following Train	A train whose movement is in the same direction as the preceding train on the same track.
Frog	A track structure used at the intersection of two running rails to provide support for wheels and passageways for flanges, thus permitting wheels on either rail to cross the other.
General Notice	Written instruction to employees from the Chief of MetroLink Operations and / or his designee that does not directly affect the movements of trains.

Term	Definition
General Order	An order issued in writing by the Chief of MetroLink Operations that affects the movement of trains. A General Order may supplement the Rule Book and has the force of a Rule governing train operations.
Grade Crossing	A vehicular or pedestrian crossing over the track at the top-of-rail level.
Guideway	That portion of the transit line included with right-of-way fences, outside lines of curbs or shoulders, underground tunnels, cut or fill slopes, ditches, and other elements
Hand Signal	A signal given by the motion or position of a person's hand, arm, flag, or light.
Hazard	Any real or potential condition that can cause injury, illness, or death; damage to or loss of a system, property; or damage to the environment
Hazard Matrix	A quantitative measure, combining the numerical probability of occurrence with a hazard severity
Hazard resolution	The analysis and subsequent actions taken to reduce, to the lowest level practical, the risk associated with an identified hazard.
Hazardous condition	An immediate condition that could cause an accident involving personal injuries or death
Hazardous material	Any commodity or product identified or regulated by the United States Department of Transportation in Title 49 CFR parts 171 through and including part 179, and which may be transported under restriction conditions
Headway	The time interval between vehicles moving in the same direction on a particular route
High Level Platform	The area from which passengers can enter and exit an LRV through the high level doors.
Hi-rail	Maintenance of Way highway-rail equipment
Incident	An unforeseen event or occurrence which does not necessarily result in injury of property damage
Incident Command Post	The location during an emergency, selected by the person in command, for controlling and coordinating the emergency operation
Incident Commander	The person who is responsible for managing and coordinating all facets of the fire and emergency responses during a fire incident. The Incident Commander can be a designated authority staff person or a responsible fire or police representative at the scene.
Individual	A passenger, employee, contractor, or other rail transit facility worker, pedestrian, trespasser, or any person on rail transit-controlled property
Injury	Injury to a person requiring medical attention necessitating transport to a medical facility by ambulance or police vehicle for medical treatment

Term	Definition
Interlocking	An arrangement of signals and track switches interconnected so that their functions succeed each other in proper sequence to provide a route and prevent conflicting train movements, and for which interlocking Rules are in effect.
Interlocking Signals	A fixed wayside signal governing movement through an interlocking.
Investigation	The process used to determine the causal and contributing factors to an accident or hazard, so that actions can be identified to prevent recurrence
Island Circuit	A track circuit which spans the street portion of a grade crossing warning system and which, when occupied, will activate the grade crossing gates, bells and lights.
Life cycle	The phases of development of a system, typically including the concept, design, development, production and deployment efforts.
Light rail	A rail transportation system in which one or more rail vehicles are propelled electrically by overhead catenary wire upon tracks located substantially within an urban area and that are operated exclusively in the transportation of passengers and their baggage, and including all bridges, tunnels, equipment, switches, spurs, tracks, stations, used in connecting with the operation of light rail (MoDOT definition)
Light Rail Vehicle (LRV)	The passenger rail vehicle used to transport passengers on a light rail transit property.
Lock-Out/Tag-Out	A safety warning method, described by an SOP, used to indicate the traction power substations or other electrical equipment have been de-energized (turned off) for maintenance, repair, or other reasons. Locked out equipment (marked with a lock-out tag) must not be re-energized or turned on, unless properly authorized as defined in the applicable SOP.
LRV Cab	The compartment of an LRV from which manual control is achieved; the Operator's compartment.
LRV Door -High Level	An inward opening, bi-folding door. There are four on each of an LRV located approximately 39 inches above the top-of-rail. Allows for ingress/egress of an LRV at high-level platforms.
LRV Door -Low Level	An inward opening, bi-folding door located at the right front of the LRV, near the Operator Cab. Allows egress from the LRV to the ground level, or ingress from the ground level
Mainline	Tracks designated for revenue service extending from yard interlocking) to terminal station's) and governed by the authority of the Controller, signal indication or a combination thereof.
Maintenance	All actions necessary for retaining an item in or restoring it to an operable condition
Maintenance of Way (MOW)	Metro maintenance division responsible for the maintenance of the MetroLink Rail System (including: Communication, Signal, and Traction Power), and Metro Right of Way (ROW) (including: Stations, Structures, Track and Rail Facilities).

Term	Definition
Malfunction	Any anomaly or failure wherein the system, subsystem, or component fails to function as intended
Management Loss Control	An element of the system safety and security management function that evaluates the effects of potential hazards / threats considering acceptance, control, or elimination with respect to the expenditure of available resources.
Manual Block Operation	A method of operation in which train movements must be made without cab signal protection. The only employee permitted to authorize use of the Manual Block system is the Controller.
Marginal	A hazard severity category defined as "Category III" failure conditions that could result in minor injury, minor occupational illness, or minor system damage
Mean Distance Between Failures (MDBF)	The average distance in miles that a transit vehicle travels before failure of a vital component force removal of the vehicle from service.
Metro	Brand name of the Bi-State Development Agency's transit operations
Negligible	A hazard severity category defined as "Category IV" failure conditions that cause less than minor injuries, illness, or system damage
Normal Current of Traffic	On double track, the normal operation of trains will be westbound on Track #1and eastbound on Track #2.
OCC Facility	The nerve and communications center for all MetroLink operations and maintenance. Located at the Ewing Shop facility. Generally referred to as OCC.
Off-Peak Period	The period between the morning and evening peak periods when travel activity is generally lower and less transit service is scheduled
Operating Clearance	A clearance issued daily to each Train Operator providing permission to operate on the mainline, subject to the instructions of the Controller and signal indication. A current Operating Clearance must be in the possession of all trains or track cars operating on the mainline or anyone assigned flag person duties.
Operating Right-of-Way	The area within twenty (20) feet of the centerline of any track on the mainline or yard.
Operating Time	The time period between turn-on and turn-off of a system, subsystem, component or part during which time operation is as specified. Total operating time is the summation of all operating time periods.
Operation Control Center (OCC)	The designated location from which all MetroLink operations are authorized and directed.
Operational Hazard Analysis (OHA)	Identifies and evaluates hazards resulting from the implementation of operations or tasks performed by persons, considering: operation, test, maintenance, repair, transportation, handling, emplacement or removal of the system
Operational Phase	The post constructing phase where designed project function is achieved and maintenance requirements begin; aka "revenue service"

Term	Definition
Operator	That person having direct and immediate control of the movement of a train
Opposing Train	An oncoming train on the same track occupied by a rail vehicle, and operating in the opposite direction.
Oversight Agency	The entity, other than Metro, designated by the state to implement 49 CFR Part 659 and 49 CFR Part 674 once mandated (MoDOT in MO; IDOT in IL)
Pantograph	A collection arm located on the top of the vehicle which collects DC power from the overhead catenary system, the pantograph is a spring-tension mechanical assembly that can be raised and lowered electrically or mechanically from the inside of an LRV
Pantograph Ice cutter	An electrically heated device affixed over the "A" end of selected LRV(s), used to clear ice from the contract wire of the catenary.
Park and Ride Lot	Designated parking areas for automobile drivers who then board transit vehicles from these locations
Passenger	A person who is on board, boarding, or alighting from a rail transit vehicle for the purpose of travel
Passenger Operations	The period of time when any aspect of Metro's operations is initiated to with the intent to carry passengers
Passenger Station	A location where passengers board/alight LRV's.
Pedestrian Grade Crossing	An at-grade location where one (1) or more transit system tracks cross a public sidewalk or pathway used by pedestrians
Penalty Stop	An irretrievable full service brake application that occurs during activation of the emergency door release, or the Operator's failure to acknowledge a cab signal over speed warning in sufficient time.
Permissive Block	A block for which the Controller provides authority to allow the operation of more than one train or track car within the block.
Pilot	A qualified employee assigned to a train or other on track equipment when the Operator of the equipment is not qualified on MetroLink Operating Rules and Procedures.
Pocket Track	A track located between the main tracks used to store or facilitate turn-back of trains.
Preliminary Hazard Analysis (PHA)	An analysis performed to obtain an initial risk assessment of a concept or system
Program Standard	A written document developed and adopted by the oversight agencies (MoDOT & IDOT) that describes the policies, objectives, responsibilities, and procedures used to provide rail transit agency safety and security oversight
Proof of Payment	A barrier-free system of fare collection in which the customer is responsible for having valid fare media in his/her possession when on a light rail vehicle or in station areas where valid fare media is required

Term	Definition
Public Transit System	An organization that provides transportation services owned, operated, or subsidized by any municipality, county, regional authority, state, or other governmental agency, including those operated or managed by a private management firm under contract to the government agency owner
Qualified Employee	An employee who is properly trained and certified, and possesses the necessary licenses on his/her person required for his/her duties.
Qualitative	Those inductive or deductive analytical approaches which are oriented toward relative, non-measurable and subjective values
Quality Assurance	The planned and systematic pattern of all actions necessary to provide adequate confidence that the end items will perform satisfactorily in actual operations
Quality Control	The discipline which ensures the manufactures of a uniform product when specified defect limits in accordance with design requirements
Quantitative	Those inductive or deductive analytical approaches which are oriented toward the sue of numbers or symbols used to express a measurable quantity
Rail Dispatcher	A designated employee on duty at either the Ewing or 29th Street Yard and Shops having authority over movements within the yard limits.
Rail Fixed Guideway System	Any light, heavy, or rapid rail system; monorail; or automated Guideway that:
Rail Transit Agency	(1) Is not regulated by the Federal Railroad Administration
	(2) Is included in FTA's calculation of fixed Guideway route miles or receives funding under FTA's formula for urbanized areas; or
	(3) Has submitted documentation to FTA indicating its intent to be included in FTA's calculation of fixed Guideway route miles to receive funding FTA's formula for urbanized areas
	Any entity (i.e., Metro) that operates a rail fixed Guideway system
Rail Transit-controlled Property	Property that is used by the rail transit agency and may be owned, leased, or maintained by the rail transit agency
Rail Vehicle	A track car or LRV.
Redundancy	The existence in a system of more than one means of accomplishing a given function
Regular Train	A revenue train designated by timetable
Reliability	The probability that the system or sub system will perform satisfactorily for a given period of time when used under stated conditions.
Relief	The release from duty of one operator by another by virtue of schedule or special instructions
Repair	The maintenance activity which restores a failed item to operable state

Term	Definition
Restraining Rail	Rails mounted to the inside of the running rails to keep wheels in-line with the track in curves.
Restricted Speed	A speed that will permit the stopping of a train within half the range of vision, short of other trains, obstructions, improperly aligned switches, and broken rails, not exceeding 15 MPH.
Reverse Current of Traffic	On double track when the operation of trains will be opposite the normal flow of traffic; eastbound on Track #1, and westbound on Track #2.
Right-of-Way (ROW)	Land, property, and interests therein, acquired by the agency.
Rigid Switch	A track switch that must be aligned for both facing and trailing moves.
Root Cause	The underlying reason for the occurrence of a problem; The real cause or origin of an accident or injury
Root Cause Analysis	A technique used to identify the conditions that initiate the occurrence of an undesired activity or state; to find the "root cause"; the process of evaluating, assigning, and measuring root causes.
Running Rails	The rails upon which a train operates.
Safety	A reasonable degree of freedom from those conditions that can cause injury or death to personnel; damage to or loss of equipment or property; and freedom from danger [Also, in 49 CFR Part 659; *Freedom from harm resulting from unintentional acts or circumstances*
Safety Certification	An element of the System Safety Program that documents the functional working of the System Safety Program, and provides a documented database from which to validate the active processes necessary to produce a safe system, ready for revenue service. Used on new systems, facilities and extensions to operational properties.
Safety Check List	A list for examining the safety aspects of equipment, procedures and personnel
Safety Critical	A designation placed on a system, subsystem, element, component, device, or function denoting that satisfactory operation of such is mandatory to assurance of patron, personnel, equipment or facility safety. Such a designation dictates incorporation of special safety design features
Safety Devices	Protective devices which do not alter the fundamental nature of a hazard but which do control the extent of the hazard in some manner
Safety Stop	A brake test that must be made within 10 feet after a change in consist has been made, before operating an LRV or train that has been idle for more than one hour and prior to departing the yard, to ensure the brakes are operating properly.
Safety Verification	An activity of safety certification that assures a specific procedure has been followed or that specifications have been met
Scheduled Maintenance	Programmed preventive maintenance

Term	Definition
Security	Freedom from harm resulting from intentional acts or circumstances
Siding Track	A track located parallel to the mainline, used for storing, passing, or reversing the direction of trains.
Sign	A reflectorized device displaying visual information that affects the movement of trains and does not change.
Signal	A method or device capable of changing in aspect and conveying visual and /or audible information affecting the movement of a train, track car, or other, on-track equipment.
Signal Aspect	An illuminated train signal display
Signal Indication	The operating information conveyed by the aspect of a signal.
Single Track Operation	The operation of trains in both directions on a single track within specified limits.
Spot	Placing a rail vehicle or track equipment in a designated position or specific location.
Spur Track	An auxiliary track connected to the mainline or yard track, which ends at an industry or other destination away from the mainline.
Standard	A document or drawing containing mandatory (shall) requirements on "how" an action or feature should be implemented. It may be adopted as law (see code)
Station - Center Platform	A 200-foot station platform located between two tracks and that allows for the loading and unloading of passengers for trains on either track.
Station - Side Platform	A 200-foot station platform positioned to the outside of one track and that allows for the loading and unloading of passengers for trains on that track only.
Substation	A power supply station along the right-of-way that converts high voltage AC to the 860 VDC supplied to the overhead catenary for vehicle propulsion.
Subsurface	A station constructed below ground at a level below the closest roadways (below grade).
Subsystem Hazard Analysis (SSHA)	An analysis applied to some element of the system to identify hazards associated with component failures
Supervisory Control & Data Acquisition (SCADA)	A system that monitors train movements, substations, signals, switches, fire and intrusion alarms. The system is also capable of transmitting commands to interlocking and traction power substations.
Switch Indicator	A device on the switch stand or spindle indicating alignment of a hand-throw switch.
Switch Lock	A lock used to secure a switch handle, electric switch lock, route selector box, etc.
Switch Position	The switch alignment allowing for straight or diverging moves.
Switch Stand	A device by which a switch is thrown and locked in position.

Term	Definition
Switch, Dual Control	A power-operated track switch remotely controlled by OCC that can also be operated by hand when authorized.
System	A composite of people (employees, passengers, others) property (facilities and equipment), environment (physical, social, institutional), and procedures (standard operating, emergency operating, and training) which are integrated to perform a specific operational function in a specific environment
System Hazard Analysis	Inductive and deductive procedures in which hazards are identified and analyzed
System Safety	The application of management, engineering principles and techniques to achieve the optimum degree of safety within the constraints of operational effectiveness, time and cost, throughout all phases of the transit system life cycles, by identifying hazards and reducing associated risks
System Safety Analysis	Inductive and deductive procedures in which hazards are identified and analyzed
System Safety Engineering	The application of scientific and engineering principles, criteria, and techniques to identify, eliminate or control system hazards
System Safety Management	An element of management that establishes system safety program requirements and ensures the planning, implementation and accomplishment of tasks and activities to achieve system safety
System Safety Program Plan	A document developed by the rail transit agency (i.e., Metro) describing its safety policies, objectives, responsibilities, & procedures
System Security	The application of operating, technical, and management techniques and principles to the security aspects of a system throughout its life to reduce threats and vulnerabilities to the most practical level through the most effective use of available resources
System Security Plan	A document developed by the rail transit agency (i.e., Metro) describing its security policies, objectives, responsibilities, & procedures
Tail Track	A track designated for train storage at the end of the line.
Temporary Speed Restriction	A section of track within defined limits through which rail vehicles must operate at a speed indicated on the Operating Clearance, speed sign, or instructions from OCC. This restriction may include work crews operating under SOP 103.04 (Flag Protection).
Temporary Speed Restriction Sign	A sign placed adjacent to the track to indicate the entrance to or exit from a temporary speed restriction.
Test Limits	A section of track designated by the authority of the Controller that allows for system or LRV testing.
Threat	Any real or potential condition that can cause injury or death to passengers or employees or damage to or loss of transit equipment, property, and/or facilities.

Term	Definition
Time Delay Activation	A method of crossing gate activation which is based on a time delay mechanism in conjunction with a cab signal speed reduction, used at crossing gates located where passenger stations are in close proximity to grade crossings.
Timetable	The schedule for the movement of revenue trains subject to the Rules and instructions of the Controller.
Track	The parallel rails of a light rail system
Track Ballast	Selected material placed on the roadbed for the purpose of holding the track in proper alignment and providing proper drainage.
Track Car or HI-Rail Vehicle	Rail vehicles other than LRV's, which operate on the track for the purposes of inspection and maintenance that may or may not shunt the track.
Track Shunt	The condition or indication that results from the presence of a LRV, train, rail mounted equipment or other device causing occupancy of a track circuit.
Traction Power Contact Wire	An overhead electrical conductor that provides power to the LRV through direct contact with the pantograph.
Traction Power Off	To turn off electrical power (de-energize) to the catenary, messenger wire, and supporting catenary equipment. This process must be field verified and ground applied by a qualified employee.
Traction Power On	To turn on electrical power (energize) to the catenary, messenger wire, and supporting catenary equipment at which time all devices connected to it must be considered energized and live.
Traction Power System	The substations, feeder cable, contact, messenger, dropper and hanger wires, switch gear, and other equipment interfacing with public utilities or other power sources to provide power for the movement of LRV's and operation of their auxiliary systems.
Traction Power/Catenary	A system of electrified overhead wires in which the contract wire is supported from one or more longitudinal messengers either directly by hangers or by hangers in combination with auxiliary conductors or clamps.
Trailing Movement	The movement of a train over a switch whose points face in the direction the train is moving.
Train	One or more LRV's coupled together operating on the mainline and displaying headlights to the front and taillights to the rear.
Train Berth	The space designated for a train of given length to occupy when it is stopped at a station platform, in a terminal, or at some other designated location.
Train Length	The number of LRV's in a train; its overall length.
Train Operator	A qualified employee that operates LRV's in revenue or non-revenue service.
Train Line	Wire and piping routed between LRV's through couplers so that electrical signals and air may be transmitted to al LRV's. Train Lining enables all LRV's in a train consist to work as a single unit.

Term	Definition
Transit Service Manager - LR Controller	The designated employee on duty in the OCC having authority over all movements on or affecting MetroLink tracks and ROW.
Transit Service Manager - Rail Supervisor	A qualified employee who has direct control over assigned staff or equipment and is responsible for the safe and efficient performance of the rail transit system.
Tunnel	That portion of the Guideway in which the Guideway is covered
Turn back	The changing of the direction of a train.
Unacceptable Hazardous Conditions	A hazardous condition determined to be an unacceptable hazardous condition using the Hazard Resolution Matrix
Unsafe Condition or Act	Any condition which if not corrected, will endanger human life or property
Validator	A machine that stamps the ticket as to the time and date of entry
Ventilation	Air movement
Vital Function	A system subsystem, equipment, or component that provides a function critical to safety
Vulnerability	Characteristics of passengers, employees, vehicles, and or facilities, that increase the probability of a security breach.
Warning Devices	Sensors that monitor or detect conditions and provide visible and / or audible alerting signals as desired for selected events.
Wash Mode	A speed that is achieved by depressing the wash speed button on the operating console, which does not exceed 1.5 MPH.
Wayside	The items that are on or about the track area including tracks, ballast, signals, catenary poles, and other structures or equipment immediately adjacent to the right-of-way
Wayside Signal	A device conveying a visual indication to the Operator concerning condition affecting the train.
Wheel Stop	A device affixed to the rail at the end of track(s) to prevent rail vehicles from running off the track.
Yard	A system of tracks within defined limits for making up trains and storing cars
Yard Lead	Track sections connecting other sections of track. It may also connect to the mainline.
Yard Limits	Yard limits are defined as all yard and shop tracks adjacent to mainline westbound Track #1 and mainline eastbound Track #2. Both yard(s) have interlocking signals protecting movement in and out of the storage facilities.
Yard Mode	A mode of operation bypassing the protective cab signal system, achieved by depressing the Yard button on the LRV cab signal display, limiting the train to a maximum speed of 15 MPH.
Yard Stop	A specific location where trains are permitted to stop and pick up or drop off personnel. Yard stops are authorized by OCC.

Term	Definition
Yard Tracks	Tracks at the Maintenance Facility used to store, repair, and test LRV(s) or rail mounted equipment. Yard tracks are signalized at the interlocking.

Appendix R– Reference Documents and Citations

- 49 CFR Part 40 - Procedures for Transportation Workplace Drug and Alcohol Testing Programs
- 49 CFR Part 655 - Prevention of alcohol misuse and prohibited drug use in transit operations
- 49 CFR Part 659 - Rail fixed Guideway systems; State safety oversight
- 49 CFR Part 674 - State Safety Oversight
- The Drug Testing Workplace Act of 1988 (Public Law 100-690; Title 41, Chapter 10)
- U.S. Department of Transportation, Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), Millennium Edition
- The Public Transportation System Security and Emergency Preparedness Planning Guide (January 2003); Report Number DOT-FTA-MA-26-5019–03-01; Federal Transportation Administration; Washington DC
- Metro System Security Plan
- Cross County MetroLink Extension Safety & Security Certification Plan (Jan. 31, 2005)
- Bi-State Transit Safety Act; 45 ILCS 111/ (P.A. 90-273, eff. 7-30-97; re-enacted by 92-788, eff. 8-6-02; amended by P.A. 95-822, eff. 1-1-09.
- Title 7 -DEPARTMENT OF TRANSPORTATION Division 265 - Multimodal Division Chapter 9 - Rail Fixed Guideway Systems
- State Safety & Security Oversight Program Standards Manual; MO Department of Transportation, Division of Multi-Modal Operations (Railroad Section) and St. Clair County Transit District; (July 2007)
- MIL – STD-882E; 11 March 2012; Dept. of Defense; (Standard Practice for System Safety)

- Hazard Management Program Requirements Clarification Letter; Sept. 6, 2007; Office of Safety and Security; Federal Transit Administration
- Collision Hazard Analysis Guide: Commuter and Intercity Passenger Rail Service; October 2007; Office of Safety; Federal Railroad Administration; Washington D.C.

Appendix S– Internal Audit Schedule of Agency Safety Plan

AUDIT ELEMENTS	SAFETY MANAGEMENT SYSTEM (SMS) PILLARS	PTASP CHAPTER AND (SECTION)	YEAR 1	YEAR 2	YEAR 3
PILLAR I SAFETY MANAGEMENT POLICY	SMP 1				
Chapter 1 Safety Policy Statement	SMP 1	Chapter 1	X		
Chapter 1 Objectives and Programs	SMP 1	Chapter 1	X		
Chapter 2 Management Structure	SMP 1	Ch 2 (1)	X		
Chapter 2 Control Review	SMP 1	Ch 2 (2-3)	X		
Chapter 3 Emergency Management	SMP 1	Chapter 3	X		
Chapter 4 SMS Documentation & Records	SMP 1	Chapter 4		X	
PILLAR II SAFETY RISK MANAGEMENT	SRM 2				
Chapter 5 Hazard Identification General	SRM 2	Ch 5 (1.2.2)		X	
Chapter 5 Hazard Identification Facilities	SRM 2	Ch 5 (1.2.2)		X	
Chapter 5 Hazard Investigation, Evaluation/Classification Departmental Level Review	SRM 2	Ch 5 (1.3)		X	
Chapter 6 Hazard Evaluation and Analysis	SRM 2	Chapter 6		X	
Chapter 7 Accident & Incident Investigations	SRM 2	Chapter 7		X	
PILLAR III SAFETY ASSURANCE	SA 3				
Chapter 8 Safety Data Acquisition	SA 3	Chapter 8		X	
Chapter 8 Safety Performance Monitoring and Measurement	SA 3	Ch 8 (3)		X	
Chapter 8 Rules Compliance	SA 3	Chapter 8 (5)		X	
Chapter 8 Facilities and Equipment Inspections	SA 3	Chapter 8 (6)			X
Chapter 8 Maintenance Audits & Inspections	SA 3	Chapter 8 (7)			X
Chapter 8 Transit Asset management Program	SA 3	Chapter 8 (8)			X
Chapter 8 Hazardous Material Program	SA 3	Chapter 8 (9)		X	
Chapter 8 Federal, State & Local Requirements	SA 3	Chapter 8(10)		X	
Chapter 8 Drug And Alcohol Program	SA 3	Chapter 8 (11)		X	
Chapter 8 Procurement Process	SA 3	Chapter 8 (12)		X	
Chapter 9 Management of Change, Systems Modification & Co	SA 3	Chapter 9 (1,2,3)		X	
Chapter 9 Safety & Security Certifications	SA 3	Chapter 9 (4)			X
Chapter 10 Continous Improvement	SA 3	Chapter 10		X	
PILLAR IV SAFETY PROMOTION	SP 4				
Chapter 11 Safety Communication	SP 4	Chapter 11			X
Chapter 12 Competencies, Training and Certification	SP 4	Chapter 12	X		

Appendix T– Organizational Charts

[Note: In the interest of brevity, Metro has included here those departments and functions that directly or indirectly support transit operations and whose activities impact and contribute to the responsibilities outlined in this agency safety plan. We recognize that many of the departments have other functions and responsibilities within the broader Metro organization that may not be reflected on the abbreviated organizational tables included here]

Table T1 - Board and Executive Office

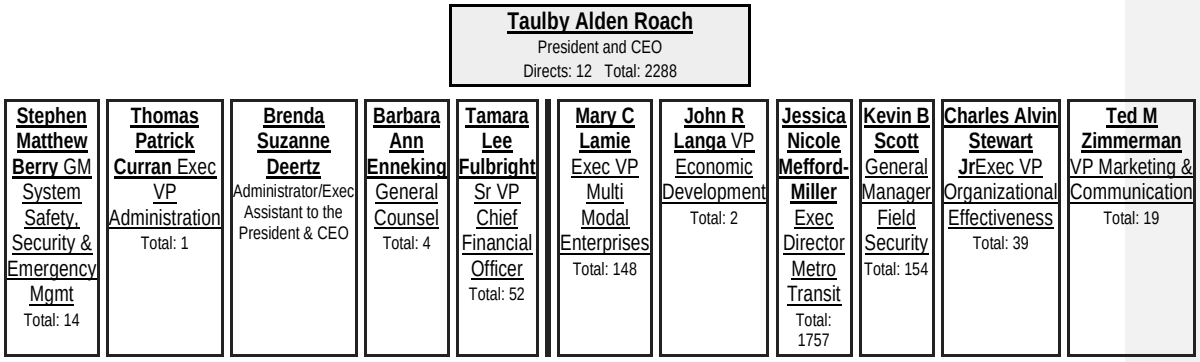


Table T2 – Metro Transit Executive Office

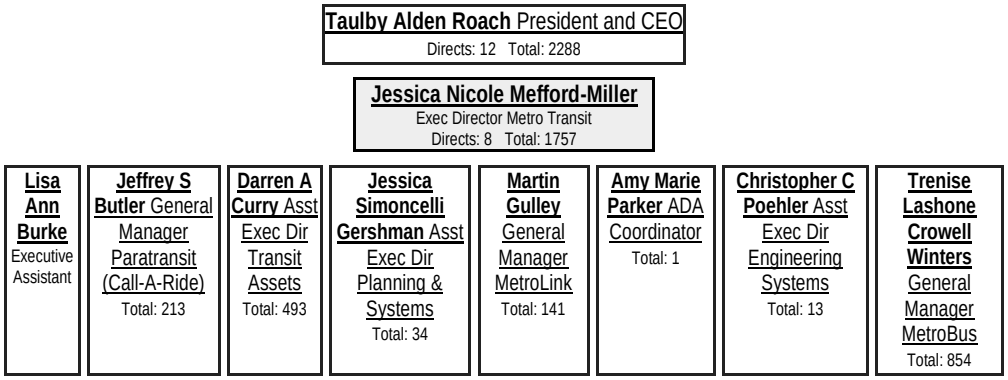
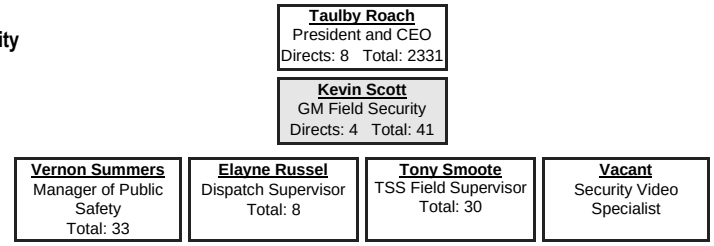
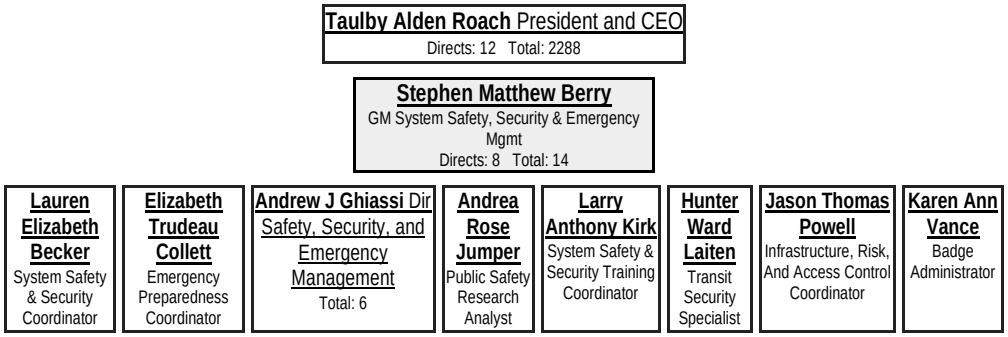


Table T3- Public Safety

3.1 Field Security



3.2 System Safety & Security & Emergency Management



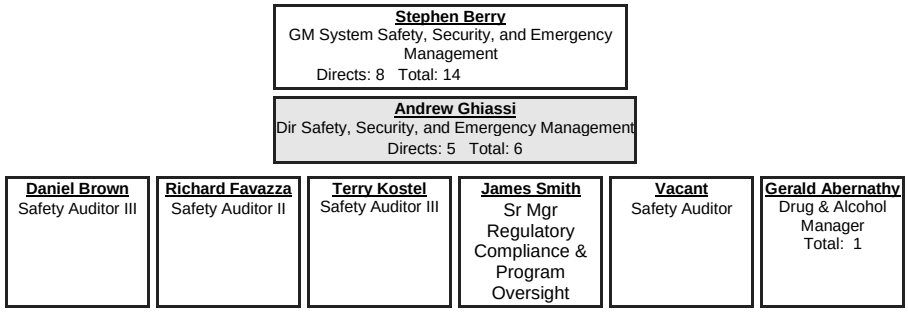


Table T4- Engineering & New Systems Development

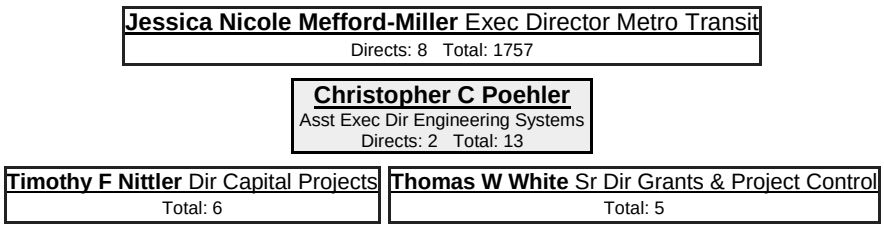


Table T5-ADA

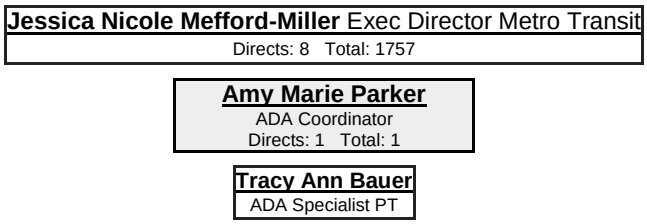


Table T6 – Planning and Systems

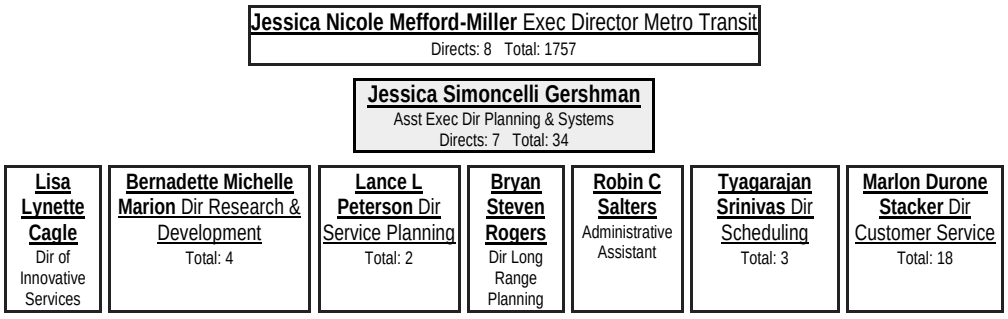


Table T7 – General Manager Call-A-Ride

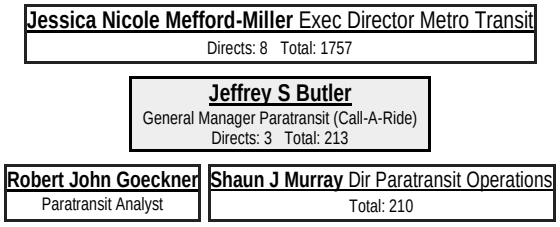


Table T8 – Asst. Exec. Dir. Transit Assets

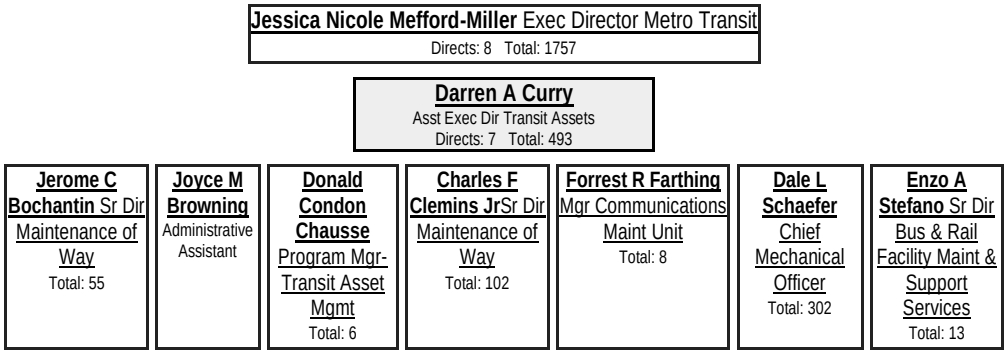


Table T9 – General Manager MetroLink

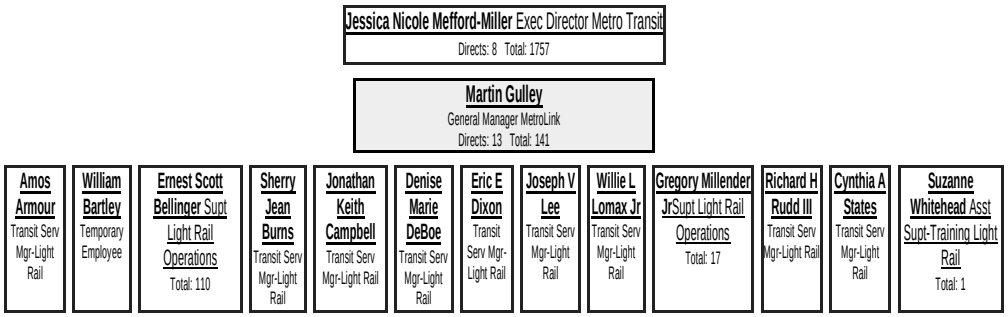


Table T10 – General Manager MetroBus

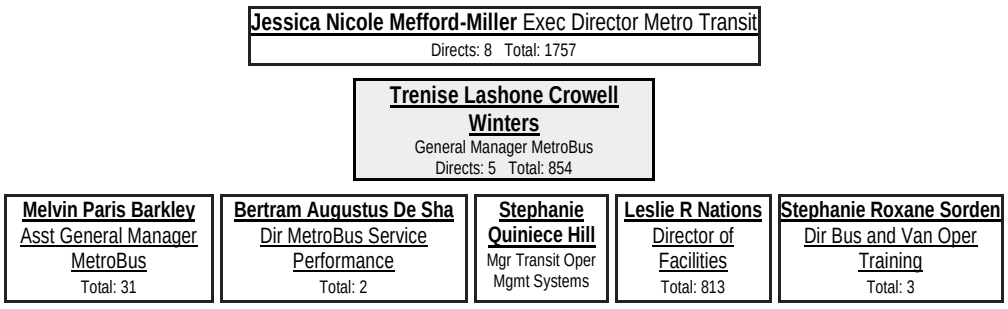
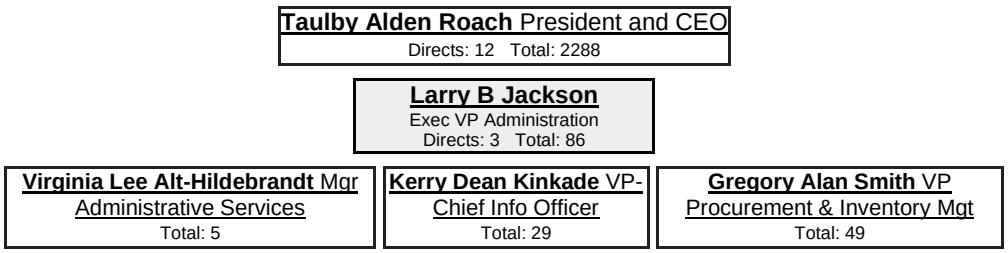


Table T11 – Executive Vice President of Administration



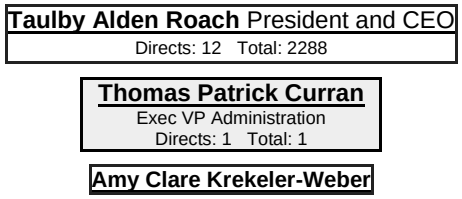


Table T12 – Executive Vice President of Organizational Effectiveness

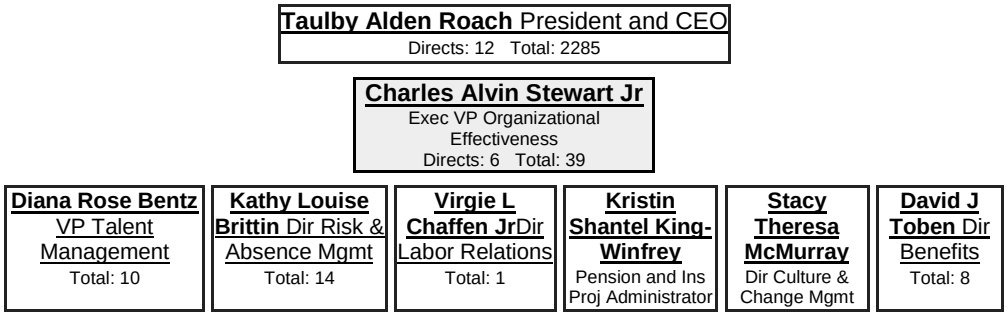
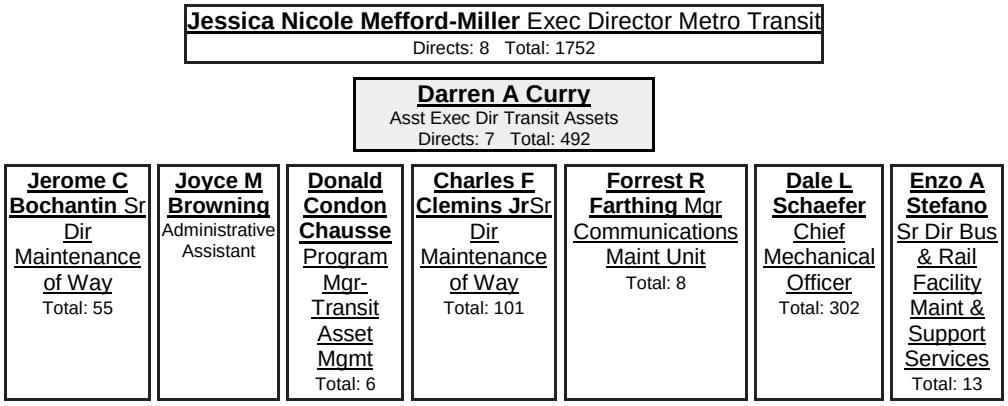


Table T13 – Maintenance of Way



Illinois Department of Transportation

Bi- State Safety Oversight Program

Stephen Berry
General Manager of System Safety, Security & Emergency Management
Bi-State Development
One Metropolitan Square
211 North Broadway, Suite 700
St. Louis, MO 63102-2759

Subject: Review of 2021 Metro Public Transportation Agency Safety Plan

April 15, 2021

Dear Mr. Berry:

The Missouri Department of Transportation (MoDOT) and Illinois Department of Transportation (IDOT), together as the Bi-State Safety Oversight Agency (BSSO), have received Bi-State Development's (BSD's) 2021 revision of the Metro Public Transportation Agency Safety Plan (PTASP) on March 23, 2021. The BSSO has reviewed the PTASP in accordance with the BSSO Prodram Standards Manual and Federal Transit Administration (FTA) requirements.

The 2021 revision of the Metro PTASP fulfills BSSO requirements and is hereby conditionally approved for use. BSSO requests that BSD make three (3) clerical edits outlined on the first page of the enclosed checklist and provide a copy of BSD's Emergency Operations Plan (EOP) when it is complete. As soon as practicable, the BSSO requests BSD to transmit a finalized copy of the PTASP with a signed executive endorsement page, documentation of BSD Board approval, and all referenced appendices.

We appreciate BSD's continued work on their PTASP and commend the Metro Safety team for enhancing its PTASP and continuing their hard work to implement safety management systems (SMS) at BSD. The BSSO looks forward to continuing this great collaboration as you continue to implement SMS in the years ahead.

Please feel free to contact us with any questions about this approval, or about State Safety Oversight matters in general.

Sincerely,

Justin Sobeck
State Safety Oversight Program Manager

Missouri Department of Transportation

Joshua Katz
State Safety Oversight Chief Safety Regulations Manager
Illinois Department of Transportation

Enclosures: BSSO BSD PTASP Conditional Approval Checklist, April 2021

Cc:
Taulby Roach, Bi-State President & Chief Executive Officer
Jessica Mefford-Miller, Bi-State Executive Director
Andrew Ghiassi, Bi-State Director of Safety
Jim Smith, Senior Manager Regulatory Compliance & Program Oversight
BSSO file

Approvals

The individuals below, submitting and signing this System Safety Program Plan/Agency Safety Plan, (SSPP/ASP) verify that it was prepared in accordance with the *appropriate and applicable* requirements and guidelines set forth by the Federal Transit Administration in 49 CFR Parts 625, 630, 655, 670, 672, 673, 674 and others, and the BSSO Program Standard; that they are authorized representatives of the Board of Commissioners of Metro Transit that their signatures attest that all items and conditions contained in this plan are understood, accepted and approved; and that they are committed to implementing the Safety Plan and achieving its safety goals and objectives.

APPROVED BY:

Board Approval

Taulby Roach, President & CEO
Accountable Executive

4/27/21
Date

Steve Berry, GM System Safety, Security, and Emergency Management
Chief Safety Officer

4/27/21
Date

Revisions/Amendments

Revision No.	Revision Date	Revised Sections
1	06/19/2020	Initial Submission
2	01/01/2021	Organizational charts, Emergency Management, Hazard Management

2.1 Safety Management Policy Statement

Table A Safety Management Policy Statement

The management of safety is one of our core business functions. Metro is committed to developing, implementing, maintaining, and constantly improving processes to ensure that all our transit service-delivery activities take place under a balanced allocation of organizational resources, aimed at achieving the highest level of safety performance objectives and meeting established standards. All levels of management and all employees are responsible for the delivery of this highest level of safety performance.

Metro's commitment is to:

- **Support** the management of safety by providing appropriate resources resulting in a culture that fosters safe practices, encourages effective employee safety reporting and communication, and actively manages safety with the same attention to results as other Metro management systems;
- **Integrate** the management of safety among the primary responsibilities of all officers, directors and employees;
- **Define** clearly for all staff, officers, directors and employees alike, their responsibilities for Metro's safety performance and the performance of our safety management system (SMS);
- **Implement** hazard identification and analysis activities, safety risk evaluation activities, and an employee safety reporting program as fundamental sources for safety data, in order to eliminate or mitigate the safety risks of the consequences of hazards resulting from Metro operations or activities to a point which is consistent with our acceptable level of safety performance;
- **Ensure** that no action will be taken against any employee who discloses a safety concern through the employee safety reporting program (unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures has occurred);
- **Comply** with, and wherever possible exceed, federal and state legislative and regulatory requirements and standards;
- **Ensure** that sufficient skilled and trained people are available to implement safety management processes;
- **Provide** all staff with adequate and appropriate safety-related information and training; ensure they are competent in safety management matters; and allocate to employees only tasks commensurate with employee skills;
- **Establish and measure** our safety performance objectives against realistic and data-driven safety performance indicators and safety performance targets consistent with the National Public Transportation Safety Plan;
- **Continually improve** Metro's safety performance through management processes that ensure appropriate safety management action is taken and is effective; and
- **Ensure** externally supplied systems and services to support Metro operations are delivered meeting our safety performance standards.

Accountable Executive

VISION

"Now more than ever, Metro is committed to meeting the needs of our team members, customers, and community. We are driven to deliver service that is safe, secure, and attractive. We are combining reliable performance with cutting edge programs to make Metro a mobility system of choice for residents and visitors across the St. Louis region."

Jessica Mefford-Miller
Executive Director, Metro Transit

METRO TRANSIT OPERATIONS UPDATE

July-March FY21

Bi-State Development
Board of Commissioners
Operations Committee
May 21, 2021

PERFORMANCE

Metro Transit Operations At-A-Glance

YTD FY21 Performance Measures	MetroBus Fixed Route + Special Services	FY21 vs. FY20	MetroLink	FY21 vs. FY20	Call-A-Ride	FY21 vs. FY20
System Ridership	8,559,500	(-48%)	4,030,400	(-56%)	307,600	(-11%)
Missouri	7,518,500	(-48%)	3,140,300	(-58%)	307,600	(-11%)
Illinois	1,041,000	(-41%)	890,100	(-50%)		
Revenue Miles	10,775,600	(-20%)	2,078,800	(-9%)	3,164,000	(-12%)
Revenue Hours	774,400	(-21%)	91,300	(-7%)	181,900	(-9%)
On-Time Performance	90.8%	(-0.2%)	97.9%	(-0.4%)	94.9%	1%
MetroBus + MetroLink 12-Month Rolling Average Fare	$0.99	(-6.6%)	Call-A-Ride 12-Month Rolling Average Fare		$0	(-100%)

Financials	YTD FY21 Actual	YTD FY21 Budget	Budget Adherence
Expenses (Transit)	$219,130,500	$310,178,400	(-6%)
Passenger Revenue	$13,082,500	$38,501,000	(-55%)
Farebox Recovery Ratio	6.0%	12.4%	(-52%)

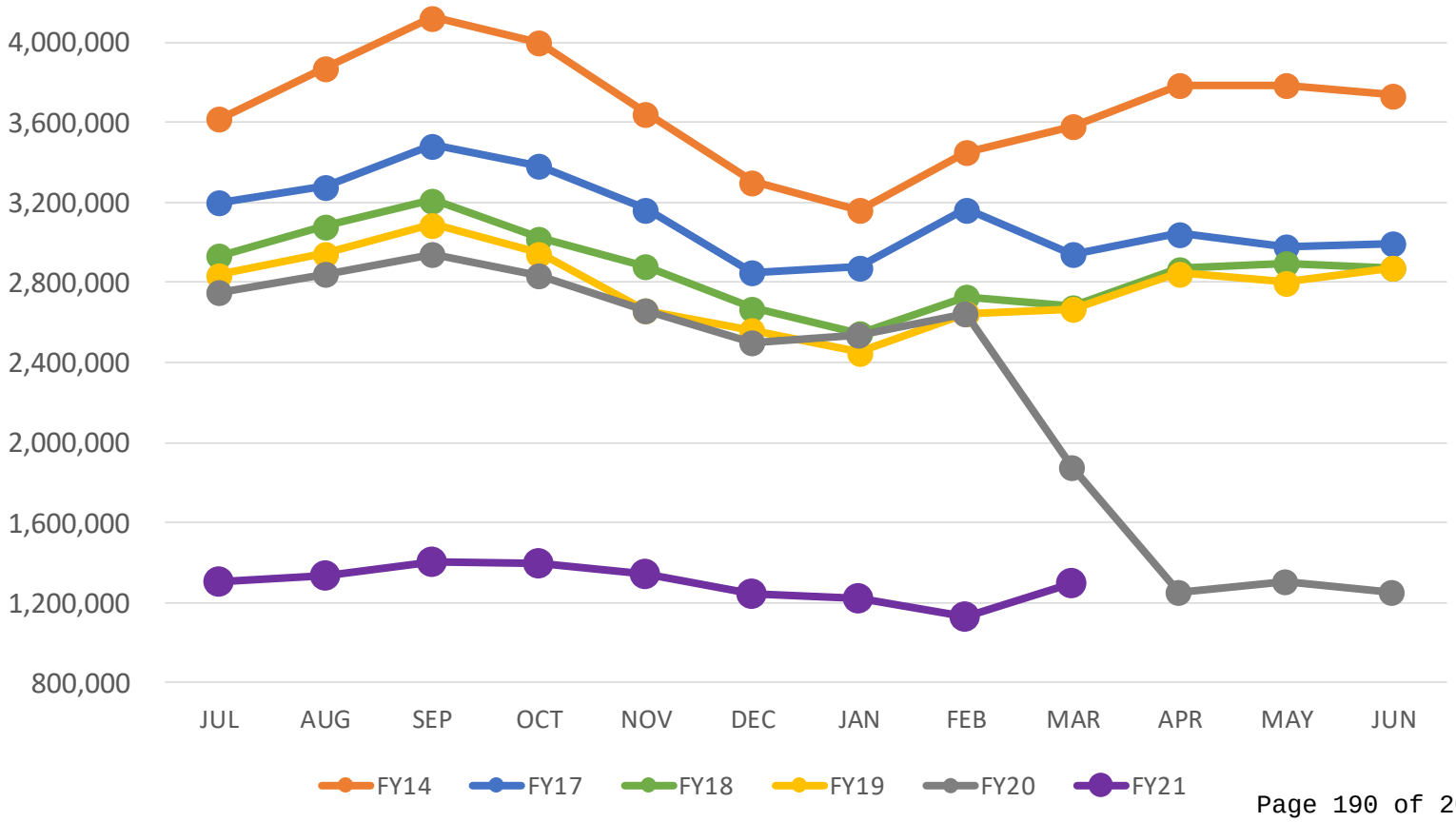
RIDERSHIP TRENDS

Fiscal Year Summary

Recent Fiscal Year Ridership Trends vs. Peak Ridership Levels FY14 metro

- *March 2021 marks nearly one full year of COVID-era transit activity and operations. As Metro tracks recovery, it should be noted that COVID-era figures from FY20 have begun to mix into the year-over-year calculations.*
- *For example, though no significant ridership recovery is detected, March FY21 system ridership actuals are only down by (-34%) from March FY20, while March standardized ridership, at nearly 1.3 million passenger trips, stands slightly above average compared to standardized monthly ridership over the last year. See the March '20 and March '21 ridership data points in the chart below for reference.*
- *On March 15, MetroBus service levels were increased to nearly 90% of pre-COVID service levels, which contributed to ridership stability. However, March also suffered from driver-operator shortages that led to a pattern of missed trips, particularly for those routes originating from the Brentwood facility. Missed trips due to operator runs-not-out continue to impact service through April 2021.*
- *Towards the end of the month, daily MetroLink ridership matched ridership from the previous year. Metro is monitoring special events like Cardinals and Blues games. Attendance at these games is still low, but as the regional vaccination rate continues to climb upwards through the spring into the summer, there is opportunity build ridership during these events.*
- *At the start of the pandemic in FY20, Call-A-Ride ridership saw a steep drop. Into the summer, those numbers increased to near pre-COVID ridership levels. Not unexpectedly, this month sees Call-A-Ride ridership up by nearly (25%)*

STANDARDIZED FIXED-ROUTE RIDERSHIP (TOTAL SYSTEM)



The Path to Recovery Key Takeaways

1. **Welcoming the Public Back to Transit**– With a stable and effective COVID-19 mitigation program in place, widespread availability of vaccines, and business resuming more normal operations, Metro is welcoming the public back to transit

2. **Service Stabilization** – After gradual and strategic COVID-19 response, Metro has reached service stability for the foreseeable future, including consistent 15-minute weekday schedules on its highest-demand bus routes.

3. **Modernizing the Metro fleet**- The Metro fleet is undergoing a tremendous revitalization. Revenue vehicle maintenance and replacement is the largest component of Metro's FY22-24 capital budget, exceeding $272M.

4. **Customer-Focused Investments** – Metro is working to deliver an excellent customer experience through its programs and partnerships. Metro's next generation fare collection program is moving forward quickly. Software and equipment development will begin in summer 2021, and staff will present the public with recommended fare policy, structure, and pricing, also in summer 2021.

WELCOMING OUR CUSTOMERS BACK

Employee Vaccination

With a stable and effective COVID-19 mitigation program in place, widespread availability of vaccines, and business resuming more normal operations, Metro is welcoming the public back to transit. Over the past fourteen months, Metro developed and is maintaining a comprehensive COVID-19 mitigation program. Employee vaccination has been a central feature of Metro's recent COVID-19 mitigation efforts.

BSD is executing a comprehensive vaccine management program inclusive of vaccine events, an employee incentive program, and marketing and communications program. These efforts are aimed to ensure all team members understand the importance of the COVID-19 vaccination. All vaccine communication is designed to ensure coordinated communication and messaging; foster transparency and trust through partnerships; considers the range of health literacy; and prioritizes equity. We are focused in increasing our vaccination rate amongst operators through targeted messaging, peer communication, and by connecting employees with information from medical experts.

BSD's ongoing vaccine-related internal communications have included:

- Frequent email and text updates
- Videos and photos displayed on messaging boards at all operating facilities
- Posters placed at all operating facilities
- FAQs and other training provided to all managers and supervisors
- One-on-one interaction between supervisors and all employees encouraging vaccination
- On-site vaccination appointment scheduling assistance at all operating facilities
- A virtual employee town hall featuring Cigna's Dr. Michael Howell, which addressed frequent vaccine questions and hesitations
- Two series of vaccine registration postcards mailed to team member homes

BSD began offering vaccines to team members through a partnership with the East Side Health District and Illinois National Guard. Initial doses of Pfizer vaccines were provided to 778 active BSD team members at our Illinois MetroBus Facility on February 19, 22 and 26. Second doses of the Pfizer vaccine were provided to these individuals on March 12, 15 and 19.

BSD is now working with St. Louis County Health Department to support vaccination events for employees and their families at Missouri Metro facilities in May – June 2021. Following these on-site vaccination campaigns, BSD will continue vaccination messaging and will support the vaccination incentive program for team members who vaccinate off-site.

RESTORING EQUITABLE, SUSTAINABLE SERVICE

On March 15, 2021, **Metro resumed operating at 89% and MetroLink at 94% of the pre-pandemic levels from one year prior.** This service program aligns with the principles that guided the 2019 *Metro Reimagined*, including: providing frequent, more direct service; scheduling tighter connections between vehicles/modes to reduce overall travel time; matching service to community demand; improving customer experience for special markets like individuals with disabilities or those with recurrent healthcare trips; and recent understanding of transit demand throughout the COVID-19 pandemic. Metro continues to focus its service frequency on the corridors with highest demand and strongest retention of core ridership, and these priority routes coincide with areas that have a denser population of Black residents, a higher instance of zero-vehicle households, and lower average household incomes.

Metro will continue to operate this service level through FY22. This service program reflects customer demand, anticipated future increases of economic activity and regional travel, and available operational resources. Metro continues to explore new models of service delivery, testing out travel modes that can fill geographic gaps and span of service. Metro plans to measure success of each mode through tracking ridership, customer and stakeholder feedback, and seeking to evaluate the *value* of services provided.

Metro continues to work collaboratively with microtransit vendor Via to monitor and adjust service to support sustained ridership growth. On May 3 the Via Metro STL service areas were expanded to include more communities in North and Southwest St. Louis County. In North County, service was added from Glasgow Village to Calverton Park. To make it easier for customers to travel during evening hours, the North operating hours were adjusted to begin and end earlier, now operating from 8 p.m. to 1a.m. The Via Metro STL service in Southwest St. Louis County was expanded to additional key destinations, including St. Luke's Des Peres Hospital, Dougherty Ferry Assisted Living Facility, St. Louis County Library Grand Glaize Branch and more. The service continues to operate from 5 a.m. to 10 p.m., seven days a week.

CALL-A-RIDE FARE COLLECTION

In March 2020, Metro temporarily suspended cash fare collection aboard its Call-A-Ride (CAR) paratransit service. Unlike MetroBus, CAR cash fare collection required the hand-to-hand exchange of currency between customers and operators, putting both groups at increased risk of infectious disease transmission. As part of Metro's COVID-19 recovery and Next Generation Fare Collection programs, Metro has now developed a safer mechanism for CAR cash fare collection. In spring 2021 cash-only fare boxes are being installed on all CAR vehicles, and **CAR cash fare collection will resume on June 14, 2021**.

MODERNIZING THE METRO FLEET

The Metro fleet is undergoing a revitalization at the largest scale of our generation. Revenue vehicle maintenance and replacement is the largest component of Metro's FY22-24 capital budget, exceeding $272M. Goals of Metro's fleet replacement plan include:

- Delivering a comfortable, clean and cost-effective ride for customers
- Replacing light rail vehicles (LRVs) for the first time in MetroLink's history
- Methodically reducing Metro's carbon footprint
- Achieving a bus life cycle of 12-14 years and 600,000 miles
- Achieving a Call-A-Ride van life cycle of 3 years

Light Rail Vehicle (LRV) Replacement

Metro's fleet of 87 light rail vehicles (LRVs) is comprised of four series procured in phases which correspond to beginning of service, system expansion, and increased service level:

Sub Fleet Series	Quantity	Start Year	Average Age	Miles (M)	Miles/train (M)
1000	31	1992/1993	28.08	50.77	1.64
2000	10	1999/2000	21.08	16.73	1.67
3000	24	2000/2001	20.5	40.17	1.67
4000	22	2004/2005	16.08	28.46	1.29
Fleet	**87**		**22.15**	**136.12**	**1.56**

*Figures are FY20 year end

Metro is in the midst of implementing an LRV fleet rehabilitation and replacement program inclusive of strategy, specifications, and budget for the modernization of the LRV fleet. The initial phase of Metro's LRV replacement program included an independent assessment of the existing fleet to prescribe a replacement and rehabilitation schedule. This assessment concluded that of the Series 1 LRVs have completed their useful life based on their condition, including increasing corrosion and structural related repairs; increasing lifecycle costs due to technology obsolescence; and lower reliability in comparison to Series 2 – 4 LRVs.

To maintain a state of good repair, the Metro fleet management strategy replaces one-third of the fleet every ten years, assuming a 30 year lifecycle. This strategy introduces more current equipment on a regular basis and allows Metro the ability to better leverage recent technological advances such as wifi capabilities. The strategy defines long term capital replacement costs and also allows for possible fleet size modifications, such as adding an extension, to better facilitate long term funding planning.

Metro will soon embark on conceptual design, development of technical specifications, and procurement of new LRVs. This process requires engagement with an LRV Engineering Consultant, and subsequently an LRV Manufacturer. We anticipate completing LRV specification in early 2022, and initiating an LRV procurement in spring 2022. Delivery of the first in a series of 24 LRVs would likely occur 2 – 4 years from issuing a notice to proceed to the selected manufacturer. Delivery timeline is dependent on the manufacturer, the presence of opportunities to partner on a peer contract, and availability of capital funding.

Bus & Van Replacement Program

Metro is committed to continuing to operate efficient, reliable equipment, providing our customers with a comfortable experience, and minimizing our carbon footprint. Metro's planned transition from diesel to electric-powered vehicles is a monumental stride towards creating a more sustainable region by selecting equipment and energy sources that will reduce greenhouse gas emissions. Key milestones in the bus replacement program include:

- Metro's fleet replacement plan includes deliveries each year of a combination of clean diesel and a minimum of five battery electric buses.
- Reducing bus life cycle from 15 years and 800,000+ miles to 12-14 years and 600,000 miles requires additional capital investment, but delivers more reliable, modern and cost-effective vehicles.
- Metro has received fourteen 60' battery electric buses built by New Flyer and four 40' battery electric buses built by Gillig.
- Charging equipment has been installed at the Brentwood MetroBus Facility, and is undergoing commissioning.
- Inductive charging stations have been installed at the North Broadway Transit Center, and are undergoing commissioning.
- Mechanic training is complete. Operator training will occur May – June.
- The 60' battery electric bus sub fleet will begin service on the #70 Grand in June – July.
- Gillig will begin production of six 40' battery electric buses in July 2021.
- Gillig will begin production of fifteen 35' clean diesel buses in October 2021.
- Metro and SCCTD are working with IDOT to finalize a 5-year procurement schedule for Illinois buses, which will be awarded in late summer 2021.
- Battery electric charging infrastructure at the Brentwood MetroBus facility can be expanded in up to four phases to accommodate up to 102 battery electric charging dispensers.
- Metro received 42 Call-A-Ride vans in 2021, and a second order of 40 vans is awaiting availability of Ford chassis and semiconductors to complete this build schedule. Metro is pursuing completion of this schedule alongside exploring alternative van options.

DELIVERING CUSTOMER FOCUSED INVESTMENTS

Next Generation Fare Program

Metro has identified the fare collection system as a pain point for some customers, and is striving to make the experience of planning and paying for a person's transit trip as simple and user-friendly as possible. As part of coordinated efforts to create a seamless, convenient, and straightforward customer experience, Metro is updating its Fare Program in 2021-22. Metro's Next Generation Fare Program will play an integral role of achieving key agency goals, such as: supporting post-pandemic ridership

stabilization; leading with a customer-centric approach to our operations; and prioritizing equity in the services we offer.

Metro's next generation fare collection system will include several features that differ from today's offerings. The new Fare Program will have: 1) an electronic faring component, serving as the backbone of the program upon which mobile ticketing and an account-based tap card will sit; 2) a new farebox, likely for cash only; and 3) a new ticket vending machine, with a smaller physical footprint and simplified fare options.

The new fare program will create more options for a robust Employer Pass program, through which employers of various sizes can easily purchase and distribute transit passes to their employees through electronic methods. The program will also enable Fare Capping, so that riders who pay per ride are not charged additional fares once they incur the equivalent cost of an unlimited transit pass. Fare-capping policies create a de-facto payment plan for low-income riders, for whom it can be a burden to pay the up-front cost of an unlimited pass like a semester or monthly pass.

Staff has concluded a selection process for consultant services and equipment for electronic faring platform and validators. Fare price restructuring is being modeled, evaluated, and confirmed, and will be brought to the general public for comment and feedback in summer 2021. Staff will present the Board of Commissioners with recommendations for a revised fare policy, structure and pricing following public comment in fall 2021.

Bi-State Development Agency
Operations Committee
Open Session Agenda Item
May 21, 2021

From:	Jessica Mefford-Miller, Executive Director Metro Transit; Jessica Gershman, Assistant Executive Director for Planning & System Development
Subject:	**Pilot Fare Programs to Promote Access, Equity, and Ridership**
Disposition:	Information
Presentation:	Jessica Mefford-Miller, Executive Director Metro Transit; Jessica Gershman, Assistant Executive Director for Planning & System Development

Objective:

To present to the Operations Committee, for information only, an overview of proposed promotional fare programs to begin in June 2021, for the purposes of generating long-term transit customers and increasing equitable access to transit service. The three promotional programs are Gateway Go youth fare discounts, No-Fare on fixed route for ADA paratransit riders, and a pilot One-Day Pass discount. These promotional fare discount programs are designed to: incentivize ridership and an increased number of trips per rider; provide more equitable access to transit service; and allow staff to explore aspects of Metro's proposed update to its Fare Program forthcoming in 2021.

Background:

As Metro moves through recovery from the COVID-19 pandemic – which has led to an approximately 50% decline in ridership – the agency continues to concentrate on keeping employees and customers safer, on stabilizing service and delivering more customer-focused investments, and on building back services and programs that enhance equity. Additionally, a planned update to Metro Transit's Fare Program in FY22 will recommend and seek BSD Board approval on the restructuring and iterative pricing changes to transit fare, establishing new levels for both full fares and discounts for various services and ridership groups. This updated Fare Program would be guided by the following principles: ridership stabilization; fiscal responsibility; customer and community focus; and prioritizing equitable fares and access to transit service.

Both the current recovery conditions and the development of a Fare Program update are setting the stage to explore fare discount programs that could reduce barriers and enable more people to ride the fixed route system (MetroBus and MetroLink). While Call-A-Ride (CAR) paratransit service has largely sustained its pre-pandemic level of demand, there is currently excess capacity on bus and light rail modes.[1] Therefore, testing fare programs that benefit targeted groups of riders will focus on enticing more fixed route ridership over the second half of 2021. A promotional fare mechanism, outlined in BSD Board Policy Chapter 90, states that the "Agency may offer experimental or promotional fares to attract new passengers or provide an incentive to passengers

[1] Call-A-Ride will resume collecting cash fares onboard its vans in June 2021, after suspending fare collection for over a year due to COVID-19 safety concerns with the cash collection methods that were formerly used. Newly installed fareboxes on vans will make cash fares – which comprise the majority of paratransit fares – safe and feasible to collect again, starting at $2/ride (which is double the current base fixed route fare). Resuming fare collection on Call-A-Ride is expected to have the effect of lessening some demand, particularly from passengers riding more because fare is not a barrier.

to increase their use of the transit system." The BSD CEO may authorize these promotional programs for up to 180 days.

Like all transit agencies across the country, Metro's percentage of farebox recovery has declined as ridership has dropped, particularly over the last year due to the effects of COVID-19. Since public transportation is most efficient when operating costs are divided across a larger ridership base, and because Metro Transit currently has capacity for greater demand on its fixed route modes, the agency is obliged to explore different methods for attracting new and former riders to the system. One such method has been to stabilize service – restoring consistent, 15-minute frequency in March 2021 on the ten busiest MetroBus routes in the network, which contributed to modest month-over-month increases in boardings on those most popular routes.

Another method for encouraging ridership growth is offering market-specific reduced fare programs. Lowering barriers to accessing transit by making the system easier to use and more affordable has many benefits: increases the potential pool of committed, long-term customers; improves economic outcomes for current and new riders; and exposes more St. Louisans to the benefits of our regional transit system. For example, in a 2019 end-of-program survey of 500 Gateway Go participants (age 13-25), 65% indicated that they used their half-price card every day, with an additional 12% saying they used it a few times a week.

Analysis:

In order to increase equitable access to transit service while generating long-term transit customers, Metro staff plan to explore three promotional fare programs starting in June 2021:

Gateway Go – Youth Fare Discount Program

This year's Gateway Go Program would offer half price fare discount to youth between the ages of 13 and 25 during the period of June through August 2021. Based upon recommendations from the report of the 2015 Ferguson Commission, Metro piloted this discounted youth transit pass program in the summers of 2018 and 2019 to expand access to opportunity for young people throughout the St. Louis region. The objective has been to help youth reach services and jobs more easily and affordably, without being contingent upon the young person's employment or enrollment in school. The reduced fare offered through this seasonal, youth-oriented program also aims to engender new customers and demonstrate the benefits of transit to a next generation of riders. During the program's first two summers, over 2,880 Gateway Go cards were distributed, and youth who participated took a total of 105,568 trips to access jobs, educational opportunities, cultural attractions, and other services around the St. Louis region.

Discounted youth fares are an important tool for racial and socioeconomic equity. Existing disparities in the St. Louis region have been compounded by the unprecedented pandemic and depressed economic conditions. Transit serves as a vital tool to provide access to opportunities and resources, in particular for a generation that is newer to the workforce. Half fare pricing not only expands the long-term horizons for youth, but also increases consistent ridership for our public

transportation system. Additionally, this program aligns with other important regional initiatives, including the City of St. Louis' Youth Summer Jobs program.

While Metro did not operate the Gateway Go program in 2020, due to the challenges of the COVID-19, in 2021, the program will have the added feature of offering these discounted passes electronically through the Masabi mobile ticket pilot program. While the agency will absorb the cost of any "lost" passenger revenue due to fare discount, cost sharing with various partners is being pursued. Program costs are expected to total approximately $180,000. Additionally, the Gateway Go program will bring new and additional customers to transit who are not currently regular riders, offsetting some concerns about program costs.

No-Fare on Fixed Route for ADA Paratransit Cardholders

This pilot fare program would make fixed route (MetroBus and MetroLink) free to customers who are eligible for paratransit. Eligible individuals with disabilities who possess a valid Reduced Fare ID currently pay half price to ride on fixed route modes. The goal of such a no-fare program is to encourage customers for whom fixed route is an option to shift from paratransit service, which is far more costly to operate than fixed route, and is strained by higher demand. A June 2021 launch for this pilot program is ideal so that it would coincide with the resumption in cash fare collection aboard Call-A-Ride, and would allow sufficient time to test this pilot before the Metro Fare Program update is formally shared for review and approval with the BSD Board later in 2021.

Details of the benefits to the customer and to the agency include:

- Decreased demand and strain on CAR paratransit resources;
- Potential annual cost savings to the agency upwards of $500,000, assuming a minimum of a 2.5% shift in trips from CAR to fixed route – based on pre-pandemic figures of paratransit operating costs, less the amount of passenger revenue not collected from ADA customers on bus/train.
- Existing programs including Travel Training and partnerships, along with marketing and communication could further increase shifts from CAR to fixed route.
- Increased ridership on fixed route, where excess capacity exists;
- Cost savings for customers (from $2/ride on CAR to no-fare on bus/rail);
- Increased flexibility and independence for customers;
- Compatible with the intent of Americans with Disabilities Act (1990), such as inclusion and full participation in society.

The program would utilize Metro's existing procedure to register eligible ADA customers with smart cards, such that even though the customer would not owe fare to ride bus or light rail, he/she would still be required to tap and validate the ride. This will help the agency learn about the utilization of the program and plan for potential future phases.

Board Policy Chapter 90 Transit Operations, Section 90.010 Transit System Fares, C. Promotional Fares.

Pilot Discount to Metro's One-Day Pass

This promotional fare program aims to provide an equitable substitute for the Two-Hour Transfer paper pass, while also encouraging new and former customers to ride transit, by reducing the cost of a One Day Pass to $5. Metro's current One-Day "Adventure Pass" is an unlimited ride fare product, currently sold at $7.50/pass at the Metro Store in Downtown St. Louis and at Ticket Vending Machines (TVMs) at all major transfer centers. Unlimited passes – like the Two-Hour Transfer Pass, the One-Day or the Monthly passes – are time-bound but otherwise provide discounted fares for the transit system's most committed riders. They are an especially valuable type of fare product on a system like Metro Transit and a region like St. Louis, where land use and economic patterns make it difficult to reach many destinations without transferring between multiple vehicles along a full transit trip.

Early in the COVID-19 pandemic, Metro temporarily suspended the sale and use of paper Two-Hour Transfer Passes, because of safety concerns about viral transmission with the contact required between operator and customer for paper transfers. Metro's emergency fare solution has been to institute $1/One Ride tickets on MetroBus, which does not require close operator-passenger interaction. However, the offering of a more affordable One-Day Pass would provide a contactless substitute for the paper Two-Hour Transfer Pass, which had been priced at $3/pass. The reasons for pricing the promotional discount at $5 include: it approximates the cost of roundtrip travel (multiplying twice the cash base train fare of $2.50/ride); it offers a simple fare option that does not require coins/change; it is less expensive than paying cash for roundtrips that require multiple transfers.

Staff has worked in collaboration with Four Nines Technologies, a firm specializing in transit fare collection, to enumerate and model the revenue impacts of an array of fare structure and pricing scenarios in the draft Fare Program update. For all iterations of this fare modeling, their recommendations suggest lowering the One-Day Pass in order to attract more riders. Metro experiences a low volume of sales of One-Day Passes, and so the modeling shows that even an increase in One-Day Pass use of 65% would likely only contribute a small proportion of overall ridership. However, Metro would work this summer to increase the utilization of the One-Day Pass by coordinating with local governments and service providers to make this fare type more readily available to those customers who would benefit most from the discount.

Committee Action Requested:

None. This is presented for information and discussion only.

Funding Source:

Funding is accommodated within Metro's Operating Budget.

Board Policy Chapter 90 Transit Operations, Section 90.010 Transit System Fares, C. Promotional Fares.

Bi-State Development Agency
Operations Committee Meeting
Open Session Agenda Item
May 21, 2021

From:	Jessica N. Mefford-Miller, Executive Director Metro Transit
Subject:	**Contract Award – Light Rail Vehicle Professional Engineering Consulting Services**
Disposition:	Approval
Presentation:	Jessica N. Mefford-Miller, Executive Director Metro Transit; Darren Curry, Assistant Executive Director for Transit Assets

Objective:
To present to the Operations Committee, for discussion and referral to the Board of Commissioners for approval, a request to authorize the President & CEO to enter into a contract with Hatch LTK not to exceed **$7,190,996** for light rail vehicle (LRV) professional engineering consulting services for Bi-State Development.

Background: Metro will partner with an LRV Engineering Consultant and LRV Manufacturer to ensure the successful procurement and delivery of the first LRV replacement fleet. The LRV Manufacturer is ultimately responsible for delivery of the new LRVs, however, with the Consultant acting as a technical extension of the LRV Maintenance department, Metro is responsible for defining and managing the overall procurement program including the technical requirements, schedule, and terms and conditions. Metro intends to retain the professional services of a qualified, responsible and responsive LRV Consultant with a demonstrated history of successfully delivering the intended scope, deliverables and support, cost effectively and on schedule.

Key tasks and deliverables shall include:

1. Conceptual Design –Addresses current and possible future LRV requirements including:
    - Vehicle performance – defining speed, strength, capacity, and other technical requirements
    - Infrastructure interfaces – defining electrical requirements, weight and size limitations, and other physical, mechanical or electrical interfaces
    - Operator and passenger amenities – defining operator controls, passenger information systems, cameras, and other human interface items
    - Potential alternatives
        - Extended LRV – evaluate the feasibility of operating a single extended length LRV in lieu of Metro's standard 2 car consist
        - Autonomous Operation – evaluate the feasibility of operating autonomously, possibly in restricted or limited modes
        - Joint Procurement – evaluate the feasibility of entering into a joint procurement with a similar rail transit system to leverage economies of scale

2. Industry Review – Metro's high level station platforms are unique among light rail transit properties and may require potential LRV Manufacturers to modify existing LRV designs or offer an atypical rail vehicle. The industry review will provide an opportunity to gauge LRV Manufacturer interest, solicit feedback regarding Metro's Conceptual Design, and refine the technical specification requirements.

3. Technical Specification and Terms and Conditions – Completion of the Conceptual Design and Industry Review tasks will culminate in issuing the LRV Manufacturer Request for Proposal which will include Metro's Technical Specification as well as contractual Terms and Conditions.

- LRV Manufacturer Selection – The LRV Manufacturer offerings will undergo evaluation, negotiation, a Buy America conformance audit, and eventually a recommendation for award.
- Procurement Technical Program Management – Metro anticipates awarding a contract to an LRV Manufacturer for the design and delivery of one-third of the current LRV fleet. Delivery of LRVs is anticipated to occur within 3-4 years of contract award. Metro will utilize the LRV Consultant as a technical extension of the LRV Maintenance staff responsible for all program management and technical aspects of the procurement.

Solicitation:

On February 25, 2021, Bi-State Development (BSD) issued solicitation 21-RFP-198978-CG Light Rail Vehicle (LRV) Professional Engineering Consulting Services. The solicitation was issued to seek proposals from qualified vendors to provide LRV Professional Engineering Consulting Services. A Disadvantaged Business Enterprise (DBE) Goal was not recommended for this project. The contract period of performance will consist of five (5) base years.

This procurement was conducted in accordance with the Brooks Act, (Federal Government Selection of Architects and Engineers; Public Law 92-582, 92nd Congress H.R. 12807, October 27, 1972) and will result in a Cost-Plus Fixed Fee contract.

The ***Brooks Act*** requires that:

- proposals be evaluated;
- price be excluded as an evaluation factor;
- negotiations be conducted with only the most qualified offeror; and,
- failing agreement on price, negotiations with the next most qualified offeror be conducted until contract award can be made to the most qualified offeror whose price is fair and reasonable.

Board Policy Chapter 50.010, Section E.1.d., requires the Board of Commissioners to approve Procurements which exceed the amounts budgeted or otherwise approved by the Board of Commissioners for such project, function or service.

Analysis:

A virtual pre-proposal conference was held on March 12, 2021 with potential bidders. The pre-proposal conference was documented as Amendment One and provided to all registered bidders. In response to Solicitation 21-RFP-198978-CG, two (2) proposals were received on April 6, 2021 from Hatch LTK and STV, Inc. to be evaluated based on the offeror's responses to the evaluation criteria presented in the soliction as shown below:

1. Contract Data Requirements List 1a – Project Management Plan: 42%
2. Personnel Skills & Capabilities: 28%
3. Firm Experience & References: 15%
4. Sample Deliverables: 15%

The April 2021 evaluation process consisted of a team of six (6) individuals representing the areas from Light Rail Vehicle Maintenance and Engineering teams. The evaluation team identified Hatch LTK as the highest-ranking firm to support the agency Light Rail System.

Firm	Technical Scores	Ranking of Firms
Hatch LTK	2580	1st
STV Inc.	2371	2nd

The total maximum points were 2998 points.

Based on the above scores and per the Brooks Act Method of procurement, the committee determined that Hatch LTK is the most qualified firm to provide services to BSD in support of the scope of work identified in the solicitation.

Committee Action Requested:

Management recommends that the Operations Committee accept and forward to the Board of Commissioners for approval, to enter into a contract with Hatch LTK, for an amount not to exceed **$7,190,996** for five (5) base years.

Funding Source:

Section 5307 (federal formula), Section 5339 (federal state of good repair), Prop M and St. Clair County Transit District funds as programmed within FY22-24 capital budget.

Board Policy Chapter 50.010, Section E.1.d., requires the Board of Commissioners to approve Procurements which exceed the amounts budgeted or otherwise approved by the Board of Commissioners for such project, function or service.

Bi-State Development Agency
Operations Committee Meeting
Open Session Agenda Item
May 21, 2021

From: Jessica Mefford-Miller, Executive Director of Metro Transit
Subject: **Contract Award – Electronic Fare Collection System**
Disposition: Approval
Presentation: Jessica Mefford-Miller, Executive Director of Metro Transit

Objective:
To present to the Operations Committee, for discussion and referral to the Board of Commissioners, a request for approval to award a contract for the Electronic Fare Collecting System to the highest ranking firm selected by the evaluation committee.

Background:
New mobility services in the private sector have rapidly changed – and continue to change – the transportation landscape by expanding the types of travel options available to riders using an internet-enabled smartphone. There is evidence to indicate that such new mobility services, and particularly the convenient, customer-facing technologies they utilize, have contributed in part to public transit ridership declines across the United States. These services have expanded in popularity among transit riders and non-transit riders alike, particularly in metropolitan areas. Metro is now striving to better match the mobility service to the market demand by exploring these new transportation technologies in the St. Louis region.

The COVID-19 crisis also spurred change across operations and fare collection. Agencies had to rethink how fare collection is handled and adopt processes that minimize the interaction between operators and riders.

Metro is implementing this project as part of the agency's commitment to innovation and exploration of new ways to improve mobility access and efficiency, as well as in response to increasing demand from both funding partners and customers for more convenient ways of procuring public transit service.

The goal of this procurement is to enter into a contractual relationship with an experienced vendor or team with the capability of providing an account-based electronic fare collection system including options to help the cash preferred and unbanked customer. Key tasks and deliverables for this extensive hardware, software and support program include:

1. **Professional Services**
   A. Project Management
   B. Application Security Management
   C. Installation
   D. Testing
   E. Training
   F. Marketing Support
   G. Payment Processing

Board Policy 50, Purchasing – Section 50.010 Procurement and Contract Administration E.1.a. The Board of Commissioners shall approve the following Procurements: Competitive Negotiation Procurements which exceed $500,000.

2. **Software**
   A. Electronic Ticketing Solution
      i. Electronic ticketing via mobile device: Transit App integration
      ii. Handheld validation
   B. Back Office Support
      i. Fare management software platform (customer, administrative, retail, and partner websites)
      ii. Reporting
      iii. Solution hosting

3. **Hardware**
   A. Onboard bus validators
   B. Platform validators
   C. Smart cards

Analysis:

On January 14, 2021, Bi-State Development **(BSD)** issued solicitation 21-RFP-181974-CG Electronic Fare Collecting System. The solicitation was issued to seek proposals from qualified vendors to provide an account-based electronic fare collection system. A Disadvantaged Business Enterprise **(DBE)** goal was not recommended for this project. The contract period of performance, consists of three (3) base years and two (2) option years. In response to the solicitation, ten (10) proposals were received from the below firms:

Bytemark Inc.	Delarrok Inc|Cubic Transportation
Flowbird Group	INIT
Masabi	Modeshift Inc.
Moovel	Scheidt & Bachman
Solari Corp.	SPX Corporation/GenFare

Technical Proposals were forwarded to the evaluation team for scoring on April 8, 2021, and initially evaluated based on the offeror's responses to the evaluation criteria presented in the solicitation. The maximum points that could be achieved were 100 points: Technical Proposal 60%, Cost Proposal 20%, and Presentations/Demonstrations 20%.

The evaluation team was comprised of seven (7) staff members representing the areas of Information Technology, Customer Service, Innovative Services, Revenue Operations and Maintenance, Passenger Revenue, MetroBus, and System Safety, Security & Emergency Management.

The proposals were scored in accordance with the evaluation requirements specified in the solicitation package. Cost was evaluated using a pre-determined formula whereby the lowest cost received the maximum score of 20 points. Each cost thereafter-received points based on a formula, which assigns points in such a manner that is inversely proportionate to increasing cost.

During the consensus meeting, the evaluation team recommended the top four firms below be invited to give presentations/demonstrations on their proposals.

Delarrok Inc|Cubic Transportation
Flowbird Group
Masabi
SPX Corporation/GenFare

Committee Action Requested:

Management recommends that the Operations Committee approve and forward to the Board of Commissioners for approval, the request that the President & CEO enter into a contract for three (3) base years with two (2) options years with the highest ranking firm whose proposal provide the Agency with the best value based on the most advantageous offer, technical and cost factors, the quality of services to be performed, their conformity with the scope of services and the firm suitability to the requirements of the Agency's entities involved in the not to exceed amount of $3,500,000.00 ($3.5 million dollars).

Funding Source:

Section 5307 (federal formula) and Prop M (as programmed within FY22-24 capital budget) and St. Clair County Transit District funds (pending approval).

Bi-State Development Agency
Operations Committee
Open Session Agenda Item
May 21, 2021

From: Jessica Mefford-Miller, Executive Director Metro Transit
Subject: **Title VI Procedures and Analyses Updates**
Disposition: Approval
Presentation: Jessica Gershman, Asst. Exec. Dir. Planning & System Development

Objective:
To request that the Operations Committee accept, and forward to the Bi-State Development (BSD) Board of Commissioners for approval, a set of updates to Metro's Title VI analyses for the Board's consideration, awareness, and approval. Metro Transit's Title VI program is designed to ensure fair and equitable access to public transportation services and amenities, regardless of race, income, or English language proficiency. BSD staff periodically modify the Title VI program to reflect changing resources, markets, and requirements. Metro staff must present analysis results on an ongoing basis for all service changes that meet the threshold of a major service change; and submit Title VI service performance monitoring results to the Board as a standalone agenda item.

Background:
Title VI of the Civil Rights Act of 1964 states that "No person in the United States shall, on the ground of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance" (42 U.S. Code Section 2000d). All organizations receiving Federal Transit Administration (**FTA**) funding are subject to Title VI and U.S. DOT's implementing regulations (49 CFR Part 21).

The Title VI program includes policies and procedures that protect objective and equitable decision-making regarding the allocation of transit system benefits submitted to the FTA every three years. The law protects against unintended outcomes that may result from facially neutral decisions and policies. Following its review of the last Title VI program submission, FTA made several recommended modifications to strengthen this program. Per FTA guidance, Metro developed and received BSD Board approval (April 2020) for updated policies regarding major service changes, disparate impacts (on minorities), and disproportionate burdens (on low-income populations).

With these policies in place, Metro staff have updated procedures for conducting service and fare equity (SAFE) analysis, which determine the adverse effects, if any, of these changes on minority and low-income populations. An adverse effect is defined as a geographical or time-based reduction in service, which includes but is not limited to the span of service, frequency, route segment elimination, rerouting, route elimination, or amenities. In practical application, if analysis demonstrates that a proposed service change will have a disparate impact or disproportionate burden, Metro can only proceed with the change if there is substantial justification, and Metro can show there are no alternatives with less impact.

Analysis:
Staff have executed the SAFE analysis updates by utilizing the newly updated Title VI policies, and have applied that procedure to the most recently scheduled major service change, which was

Metro Reimagined in late 2019. Any temporary emergency service changes that occurred as a result of the COVID-19 pandemic were exempt from this analysis per FTA guidance.

The equity analysis of that major service change found that routing and service changes under the *Metro Reimagined* plan did not have adverse effects on minority or low-income populations. Metro examined neighborhood shifts in service coverage and service frequency using a person-weighted trip metric. The *Metro Reimagined* service change prioritized and reallocated investment to high-ridership and high-performance corridors. For this reason, any adverse effects were offset by overwhelming service gains to minority and low-income neighborhoods. Current policy establishes a disparate impact or disproportionate burden when protected groups (Minority and Low-Income) bear adverse effects by 5% or greater than unprotected groups; for each group, the adverse impact score was actually negative, falling well below their respective thresholds and therefore not causing any adverse impacts.

Additionally, staff have updated the monitoring of transit service and key operational metrics, which, according to Title VI guidelines, must be monitored on an ongoing basis, and any disparities in those metrics on routes that primarily serve minority and low-income populations must be noted. Metro staff examined average vehicle age, on-time performance, passenger loads, and access to service, finding no disparity in service quality on the basis of race/ethnicity or income level. Metro also examined distribution of shelters and benches – historically located based on ridership volume and local government/stakeholder request – and found that the placement of these amenities should be prioritized in low-income areas.

Committee Action Requested:
Management recommends that the Operations Committee accept, and forward to the Board of Commissioners for consideration, awareness, and approval, these SAFE analysis and monitoring updates as part of Metro's Title VI program.

Funding Source:
Funding is accommodated within the Operating Budget.

Bi-State Development Agency
Operations Committee
Open Session Agenda Item
May 21, 2021

From: Ted Zimmerman, Vice President Marketing and Communications
Subject: **Marketing & Strategic Planning Services**
Disposition: Approval
Presentation: Ted Zimmerman, Vice President Marketing and Communications

Objective:
To present the Operations Committee for approval and referral to the Board of Commissioners, a request for authorization to award Contract 21-RFP-186973-MD Marketing & Strategic Planning Services for a five-year period.

Background:
On February 15, 2021, Bi-State Development **(BSD)** issued Solicitation 21-RFP-186973-MD-Marketing & Strategic Planning Services to retain a qualified firm to provide marketing and creative services, brand management counsel, media strategic plan development and tactical solutions for BSD marketing.

The successful firm will assist in the development and implementation of external and internal marketing activities for BSD, Metro Transit, St. Louis Downtown Airport and the St. Louis Regional Freightway.

A Disadvantaged Business Enterprise **(DBE)** Goal was not recommended for this project. The contract period of performance includes three (3) base years and (2) two option years.

Analysis:
In response to the solicitation, five (5) proposals were received, reviewed and forwarded to the evaluation team which consisted of individuals representing Metro Transit, St. Louis Regional Freightway, St. Louis Downtown Airport and BSD's Marketing/Communication division.

The proposals were scored in accordance with the evaluation requirements specified in the solicitation package. Upon completion of the individual scoring, the cost proposals were reviewed and evaluated.

The table below provides overall results representing the cost and consensus technical scores combined. As a result, Werremeyer Creative is the highest-ranking firm.

Firm:	Cost Score	Consensus Technical Score	Overall Total Scores
WERREMEYER	**123.93**	**275.36**	**399.29**
DOVETAIL	**159.33**	**208.21**	**367.54**
BROWN SMITH WALLACE	**104.56**	**209.64**	**314.20**
RESEARCH ASSOCIATE	**175**	**107.14**	**282.14**
ELASTICITY	**148.84**	**127.86**	**276.70**
Total Possible Points	**175**	**325**	**500**

On April 28, 2021, BSD requested a best and final cost from Werremeyer Creative resulting in a final contract cost of $2,128,500.00.

Werremeyer's cost is fair and reasonable in comparison with others that submitted proposals, and has provided exceptional service to Bi-State Development in the past. Werremeyer Creative is also registered as a DBE vendor with Bi-State Development.

Committee Action Requested:
Management recommends the Operations Committee accept, and forward to the Board of Commissioners for approval, the request that the President & CEO enter into a 5-year contract with the highest-ranking firm, Werremeyer Creative, whose proposal is most advantageous to BSD with price and other factors considered, in the not to exceed amount of **$2,128,500.00.**

Funding Source:
This contract is funded 100% through operational funds.