AGENCY SAFETY PLAN
(ASP)

MILWAUKEE STREETCAR SYSTEM

August 2022
Version 5

Milwaukee Streetcar System
City of Milwaukee

841 N. Broadway Ave.
Milwaukee, WI 53202

Operations & Maintenance Facility
450 N. 5th St.
Milwaukee, WI 53203

DOCUMENT REVISION LOG

Milwaukee Streetcar System (MSS) Agency Safety Program Plan

Each revision to the Agency Safety Program Plan shall be issued with a revision log requiring an authorized signature and date of revision

Version No.	Revision Date	Remarks	Authorized Signature
1	November 2017	SSPP Initial Draft	
Version 1 Revised	March 2018	After SSO Comments And Approval	
3	August 2018	SSPP Revised Pre-Operations	
4	January 2020	Revised to follow New guidelines (ASP)	T Mulcahy
5	August 2022	ASP Annual Revision New guidelines	T. Mulcahy

ASP Approvals

Milwaukee Streetcar System (MSS) Agency Safety Program Plan

The City of Milwaukee's Department of Public Works (DPW) is the rail transit agency (RTA) for the Milwaukee streetcar system (MSS). This document is the agency safety plan (ASP) established for MSS, as required by the Federal Transit Administration (FTA) Public Transportation Agency Safety Plan (PTASP) rule (49 CFR Part 673). In addition to complying with the PTASP rule, this ASP complies with requirements of FTA's State Safety Oversight (SSO) Program rule (49 CFR Part 674) and the SSO program standard for the Wisconsin Department of Transportation (WisDOT) rail transit safety oversight program.

These signatures certify compliance with WisDOT's SSO program standard and FTA's PTASP rule, and signify approval of this version of the ASP:

Jerrel Kruschke   Date: 11-07-22

Jerrel Kruschke, MSS Accountable Executive
Commissioner, City of Milwaukee DPW

Brian P Hinkle   Date: 11-05-2022

Brian Hinkle, MSS Chief Safety Officer
City of Milwaukee DPW

See **Appendix G** for approval by the MSS Board of Directors, the City of Milwaukee Common Council

Contents

1.0 SYSTEM SAFETY POLICY STATEMENT

Safety is a core value of the Milwaukee Streetcar System (MSS, a.k.a. The Hop). MSS is committed to developing, implementing, and continuously improving processes to ensure the safety of its employees, patrons, and the public. MSS supports a robust safety culture and aims to achieve the highest level of safety performance to meet or exceed all established safety standards.

MSS employs a safety management system (SMS) through its agency safety plan (ASP): a formal, top-down, organization-wide, data-driven approach to managing safety risk and assuring the effectiveness of safety risk mitigations. The SMS approach helps MSS direct prioritization of resources and safety activities.

Starting with the DPW Commissioner (our Accountable Executive), all levels of MSS management and frontline employees are responsible for delivery of the highest level of safety performance for the system, through the following commitments:

Executive Commitment to Safety

The Accountable Executive leads the development of an organizational culture that promotes safe operations and providing appropriate resources to ensure safe practices, improve safety, and encourage effective employee safety reporting and communication.

Communication and Training

Employee engagement is crucial to a functioning SMS, and agency-wide communication enables greater awareness of safety objectives and performance targets. All levels of management commit to proactively engage with employees to keep honest lines of safety communication open throughout the organization.

Employee Safety Reporting

All MSS employees are encouraged to use the MSS employee safety reporting program to identify hazards or voice other safety concerns. No action will be taken against an employee using this program unless it involves an illegal act, gross misconduct or negligence, or a deliberate or willful disregard of MSS rules, policies, and procedures. Managers have the responsibility to verify that safety risk mitigations put in place are appropriate and effective.

Further details about the MSS commitment to safety are included throughout the ASP. All employees are encouraged to review the ASP, discuss safety concerns, and keep the Hop safe for all.

Respectfully,

Jerrel Kruschke

Date: 11-07-22

Jerrel Kruschke, MSS Accountable Executive
Commissioner, City of Milwaukee DPW

Brian P Hinkle

Date: 11-05-2022

Brian Hinkle, MSS Chief Safety Officer
City of Milwaukee DPW

Terry Mulcahy

Date: 11/7/2022

Terry Mulcahy, MSS General Manager
Transdev Rail Services

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2.0 PURPOSE, GOAL, AND OBJECTIVES

2.1 PURPOSE

The efficiency and effectiveness of the Milwaukee Streetcar System (MSS) operations is dependent upon the proficiency and well-being of its employees while optimizing the use of its capital resources. To ensure preservation and security of these resources, MSS has adopted a comprehensive Agency Safety Program Plan (ASP) as a model for a Safety Management System (SMS) and continuous improvement in safe operations.

The ASP serves as a guideline in the development, establishment, implementation, and consistently improving strategies and processes to ensure MSS achieves the highest practicable level of safety. The MSS has adopted the principles and methods of SMS as the basis for enhancing the safety of its system for the customers it serves, its employees, the public, and others who may come into contact with the system. It is a living document subject to review and periodic updating as conditions change and new risks are identified.

Specifically, the ASP:

a. States the Milwaukee Streetcar System commitment and philosophy to take a proactive approach to safety risk management that is outcome focused and emphasizes safety performance
b. Establishes and manages safety activities to serve as strategies to address priority safety risks based on identification of safety hazards
c. Integrates the safety function throughout the MSS organizational structure
d. Defines organizational safety and security responsibilities
e. Provides for the documentation and verification of safety hazards to allow analysis of the risks and enable MSS to mitigate the potential of accidents occurring
f. Evaluates safety activities to assure continued development and advancement of proactive mitigation of hazards that might lead to unsafe activities or an unsafe environment for employees or customers of MSS Build situational awareness within MSS that leads to effective risk-informed decision making to improve training and preventive maintenance activities designed to minimize risk and improve safety and reliability for all MSS operations

System Safety Defined: System safety is defined as a coordinated effort between the RTA and the MSS team (both operating personnel and support contractors) to apply hazard identification across the organization that allows management of safety risks throughout all areas of MSS operations. The safety of passengers and employees is a priority and fostering an organizational culture to encourage proactive safety reporting and safety risk management is the task of the RTA and MSS team. Creation of a SMS approach as the basis of system safety for MSS will provide the necessary organizational structure, activities, and tools to manage safety proactively and optimally.

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Authority: The Chief Safety Officer (CSO) is responsible for the development and implementation of policies and procedures to ensure the safety objectives of MSS are met.

In addition, the FTA, through the issuance of 49 CFR, Part 659, Rail Fixed Guideway Systems: State Safety Oversight, created a state-managed oversight program for rail transit safety and security. The State of Wisconsin has designated the Wisconsin Department of Transportation (WisDOT), Bureau of Transit, Local Roads, Railroads, and Harbors, as the oversight agency for MSS operations. The Federal Compliance/SSO Manager (SSO) is the responsible person within WisDOT to oversee the MSS ASP. The MSS ASP was developed and is administered in accordance with the provisions established by the FTA and the State of Wisconsin.

Scope: The ASP applies to all MSS operations and departments and to all activities that involve the design, operation, and maintenance of the MSS including any system extensions. Each MSS department or operation is charged with the responsibility for the implementation and success of the plan.

Because of the confidential nature of MSS security measures the MSS System Security and Emergency Preparedness Plan (SSEPP) is maintained separately from the ASP. The ASP describes policies, objectives, responsibilities, and procedures in providing a coordinated effort for the personal safety of employees and customers of MSS.

Program Review and Updates: The ASP is reviewed at least annually to ensure the plan remains current and effective in meeting the purpose and goals of an effective SMS. Line extensions, significant changes in operational practices, or other events may cause a review at any time. The focus of the review is to:

   a. Evaluate current safety activities and strategies for appropriateness
   b. Refine data collection and hazard identification activities to assure focus of safety initiatives are current to this risk analysis
   c. Identify new safety initiatives which may be required
   d. Define any organizational responsibilities for accomplishing the revised safety activities that may be required
   e. Incorporate any organizational, operational, or legislative changes that may be required
   f. Assure WisDOT SSO review for any changes to the ASP.

The CSO is responsible for the ASP review process. The review is conducted in consultation with all departments or operations affected by the ASP.

Revisions are drafted by the operations contractor staff and are then reviewed by the CSO acting under the authority of the City of Milwaukee Commissioner of Public Works, and in close coordination with the Streetcar System Manager (SSM) and the operations contractor's General Manager (GM). Recommended revisions will be sent to the City of Milwaukee Commissioner of Public Works for approval.

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Upon acceptance of a revised ASP, the document will be sent to the WisDOT Federal Compliance/SSO Manager for final review and approval.

2.2 GOAL

The goal of the MSS is to design, construct, test, and operate a streetcar system that attains an optimum level of safety, exceeding the norm of other streetcar operations in the United States. This goal is reflected in the planning, design, construction, operations, and maintenance phases of MSS. The ASP is directed toward achieving this goal though implementation of a Safety Management System (SMS) approach to MSS. The CSO is responsible for ensuring that this goal and following objectives are achieved. Regular reports will be prepared quarterly that outline the MSS safety performance and how the MSS is meeting its goals and objectives. Reports will be circulated to appropriate safety committees and management. Results will be communicated throughout the organization.

2.3 OBJECTIVES

The primary objectives of the ASP are to use the principles of a SMS approach to develop a safety culture which values communications among employees and management based on mutual trust and a shared perception of the importance of safety and vigilance in identifying and resolving safety issues. The objectives are designed to support the SMS, which is defined as a formal, top-down, organization-wide, data-driven approach to managing safety risk and assuring the effectiveness of safety risk mitigations. MSS recognizes the importance of leadership and an organizational culture in ensuring safety policies, rules, and business processes are effectively implemented and continuously improved on to assure the safety of our employees, our passengers, and the MSS environment.

Specific objectives are as follows:

a. Use of data and analysis to aid in identification, evaluation, risk management, and elimination or control of hazards to employees, customers, and the public.
b. Development of safety as a core value of the MSS organization with clear roles, responsibilities, and accountability as well as effective communications of safety principles.
c. Development of the safety culture through continued learning, safety awareness and responsiveness to safety issues, and involvement of all employees in the safety program and feedback mechanisms designed to continually improve safety performance.
d. Development of committed leadership that consistently prioritizes safety in its communications, policies, and allocation of resources as well as being actively engaged in questioning, assessing, and resolving safety hazards and latent safety issues to continuously improve safety throughout the organization.

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e. Development of a working environment which meets or exceeds all government and industry occupational health and safety standards and practices with the result of the safe and effective operation and maintenance of all MSS property and equipment.

f. Development of a safe environment that optimizes the experience of our customers and other members of the public.

3.0   SYSTEM DESCRIPTION AND MANAGEMENT STRUCTURE

3.1   GENERAL HISTORY AND DESCRIPTION OF MILWAUKEE STREETCAR SYSTEM

The Milwaukee Streetcar project originated from the Milwaukee Connector Study that was initiated to carry out transit recommendations from previous transportation planning efforts that took place during the 1990's. At the onset, the Milwaukee Connector Study was focused on evaluating transit improvements in and around downtown Milwaukee. However, the study area expanded after a series of meetings with the public in 2000 showed a need to connect people to places, not only in downtown, but also to surrounding neighborhoods. During the 2000's many different routes were evaluated, and various types of transit technologies were explored.

In January of 2004, the Milwaukee Connector Study Steering Committee comprised of representatives from the Wisconsin Center District, Metropolitan Milwaukee Association of Commerce, Milwaukee County and the City, approved a two-route system that would use guided bus technology, referred to as Guided Street Tram. An east-west line extended from Miller Park to downtown and continued northeast to the University of Wisconsin-Milwaukee. The other route ran southeast along Fond du Lac Avenue from Burleigh Street into downtown and the Third Ward. Resolutions supporting this system were approved by the Milwaukee Common Council and the Milwaukee County Board. However, the respective resolutions were vetoed due to concerns about cost.

Then, in the spring of 2007, the Milwaukee Connector Study Steering Committee initiated the next phase of the study with a refocused effort to connect downtown with adjacent neighborhoods using streetcar technology. At the same time, a bus rapid transit route that would connect the Milwaukee County Grounds to the west with downtown and the University of Wisconsin-Milwaukee to the east was also being evaluated.

In February 2009, the project sponsors held public scoping meetings to introduce the new project phase of the Milwaukee Connector Study. Shortly thereafter, in March 2009, the Federal Omnibus Appropriations Act of 2009 split $91.5 million in Interstate Cost Estimate (ICE) funding reserved for the results of the Milwaukee Connector Study. It directed 60% of the money to the City for a downtown fixed rail circulator and 40% of the money to Milwaukee County for energy efficient buses.

Since the legislation was passed, the City completed the Alternative Analysis (AA) phase with the selection of a locally preferred alternative in the spring of 2010. Preliminary engineering was completed in the spring of 2011.

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The locally preferred alternative, constructed between 2016 and 2018 is a modern streetcar system. Figure 1 depicts the initial MSS constructed. The system runs in travel lanes in the street, in the center lane in some areas and in the outside travel lane in others. Several sections are off-wire. There are two routes: Phase 1 Route and the Lakefront Line.

The Phase 1 Route includes 4.04 roundtrip revenue miles and 17 stations. It operates in both directions on Ogden Avenue from Burns Commons to Jackson Street and on Jackson to Kilbourn. At Broadway and Milwaukee, the tracks separate to form a one-way couplet on adjacent streets, operating southbound on Broadway to St. Paul Avenue, and northbound on Milwaukee to Kilbourn. At the south end of the couplet, the streetcar operates in both directions on St. Paul Avenue, with the alignment traveling west from the couplet to the Milwaukee Intermodal Station at 4th Street. The primary terminus is the Operations and Maintenance Facility (OMF), located on 4th Street, ½ block north of St. Paul Avenue.

The Lakefront Line will include 1.91 miles of roundtrip operations, with 8 stops. Approximately 2/3 of the track and 5 of the 8 stations are shared with the Phase 1 Route. The Lakefront line will operate in the downtown on the Milwaukee and Broadway couplet track, interlined with the Phase 1 Route. At the south end of the couplet off Milwaukee, the Lakefront Line will turn east on Michigan Street toward the waterfront and the Downtown Transit Center, looping around to Clybourn Street and connecting back to Milwaukee Street.

Figure 1 Initial Milwaukee Streetcar System
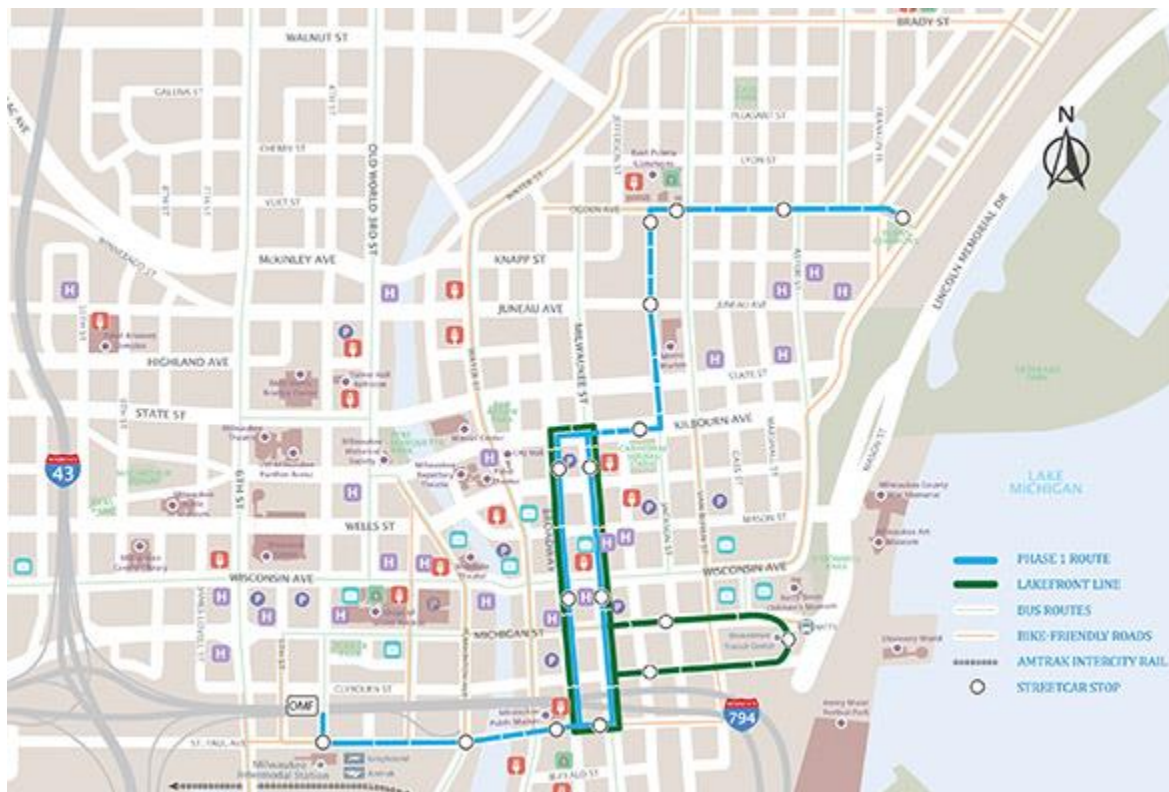
3.1.1 INITIAL SCOPE OF STREETCAR SERVICES

Service Levels: The fleet size for the initial Milwaukee system is 5 trains. The system service levels are based on the Phase 1 route shown in figure 1 above, and the Lakefront Line route also shown in figure 1. This two-route service is planned to operate 7 days per week with 15-minute frequencies during the day and 20-minute frequencies during early morning, late evenings and weekends. The 15-minute service on the Phase 1 Route requires 3 vehicles operating. The frequency for the Lakefront Line will be based on actual travel times, but the goal is 15 minutes throughout the service day, with a single vehicle operating. The fleet will maintain a minimum of 1 spare vehicle. Service levels are subject to change over time to accommodate demand and to optimize efficiency.

Ridership: Initial ridership on the Phase 1 M-Line was estimated to be 1,850/day and 595,000/year (320-day annualization factor) based on ridership modeling performed in 2015. During the first full year of operation in 2019, total actual ridership on the M-Line was 760,321 or 2,083/day. Ridership on the M-Line is projected to increase by approximately 20% by 2030. Initial ridership on the Lakefront Line is estimated to be approximately 100,000/year and would be expected to grow at a similar rate as the Phase 1 M-Line. Total system ridership in 2030 is expected to experience additional growth based on further system expansion that may be implemented.

Off Wire Vehicle Operations: The City of Milwaukee operates the vehicle without an Overhead Contact System (OCS) for two sections of the line with Jackson and Kilbourn off-wire and the Lakefront Line section to the Downtown Transit Center (stops 11L to 13L) off-wire. Vehicles are required to lower their pantograph at platforms and switch to the on-board power. Overhead wire is not to be installed in the OMF. Provisions for charging batteries in the OMF are included in the design for the facility. Figure 2 is a representation of the system with the areas without overhead wire highlighted.

Figure 2 Off-Wire Operations
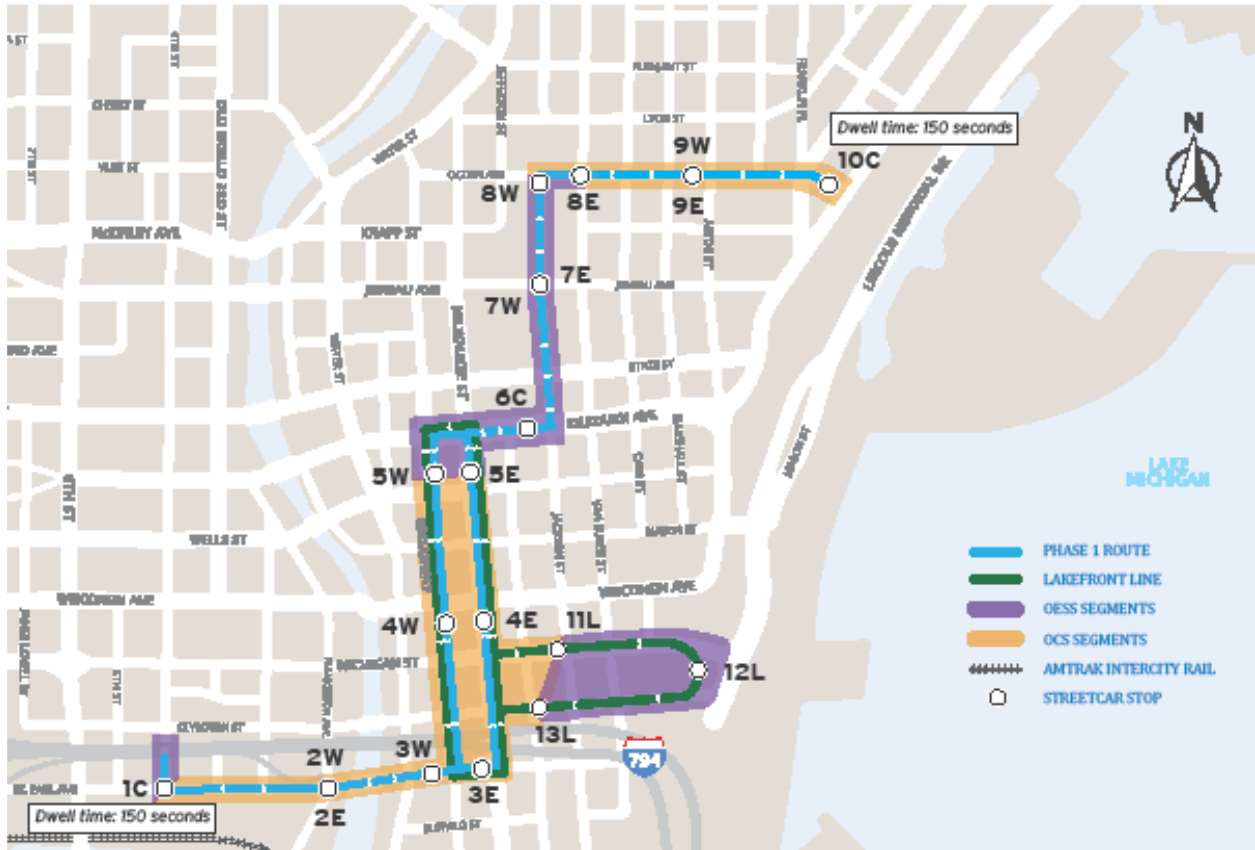
The streetcar vehicles use batteries to allow the operation of the off-wire portion of the system. The Brookville vehicle OESS is able to recharge while on wire to support the off-wire operations. Operations on and off-wire are compliant with Brookville's recommendations to preserve all warranty rights for the City.

The vehicle operator is required to lower or raise the pantograph as appropriate for each section of the route. Raising of and lowering of pantograph takes little time and does not impact planned dwell times at stops where this is occurring. Rules and procedures have been implemented by the Operations and Maintenance Contractor (OMC) to assure that the pantograph will always be in the correct position. The On-board Energy Storage System (OESS) can only be activated if the pantograph is down. The OMC in coordination with Brookville requirements provides initial and in-service training on pantograph positioning due to its importance to safe operation.

3.2 PHYSICAL PLANT

Vehicles: MSS took delivery of five (5) Brookville Liberty Streetcars, beginning in March 2018 with the final vehicle delivered in late September 2018. The vehicles are 20 meters long and 2.45 meters wide and are 70% low floor with level boarding planned for the low floor section of the vehicle. Curb height at loading is 14 inches. The Brookville

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vehicles include an OESS which includes batteries to power the vehicle when the overhead wire is not available.

The vehicle is heated and cooled to accommodate local climate conditions. Seating is in a typical configuration for a low floor vehicle, with groups of seats clustered in the vehicle's two outside modules, and a large multi-purpose area that accommodates multiple uses in the center suspended module which is low floor and will have level boarding. The vehicles are equipped with a hydraulic height control system that accommodates Americans with Disabilities Act (ADA) tolerances for level boarding. The vehicle interior has at least two designated wheelchair spaces and meets all other ADA requirements. Policies have been established to accommodate bicycles (bicycle racks are provided) and other larger carry-on-items such as strollers onto the streetcar vehicles.

Maintenance Facility: The Operations and Maintenance Facility (OMF) is located at 450 N 5th St, beneath the elevated I-794 freeway. The terminus of the Phase 1 Route is at the OMF. Operators turn into the tail track at 4th Street and layover at this location. Drawings that illustrate essential components of the OMF are located in Appendix A .

The OMF houses the streetcar vehicles when not in use and serves as the location for all light-duty daily maintenance activities and as the streetcar operations center. All employees report to duty at the OMF daily. At the beginning of each day, operators maneuver the vehicles to exit the OMF and enter 4th Street.

The OMF, including the yard, is large enough to accommodate the fleet of five vehicles and an additional three vehicles if the fleet is expanded. If growth occurs beyond the eight-vehicle capacity, additional track can be added across 4th street and under the freeway to accommodate approximately another six streetcars. The OMF includes three maintenance bays: one with a pit work area, one with upper-level mezzanine access, and one with a wash track. The facility is specifically designed for maintenance of low-floor streetcars, with a large mezzanine work area adjacent to the rooftop inspection platform. Vehicle lifting if accomplished using portable lifts and the inspection pit is provided for underbody work. Wheel truing, major accident repair, large-scale painting, and other "heavy" maintenance is contracted out and generally performed off site. Trucks need to be transported off site for truing of the wheels. A forklift is used to load/unload complete trucks onto a flatbed truck for transport to the outside facility. It is available for other heavy lifting activities. The facility includes storage for parts, materials, and portable equipment, maintenance desk, operations offices, and operator support areas. The Operations and Maintenance Contractor (OMC) incorporates recommendations contained in the American Public Transportation Association (APTA) Standard RT-FS-S-003-02 for Station, Shop & Yard Inspection and Maintenance in developing their maintenance procedures, inspections, and practices.

Revenue and Non-Revenue Track: Phase one uses both single embedded track and double embedded track over portions of the route. Vehicles operate with the flow of traffic except during sections at both the north and the south terminus where the cars operate in a bi-directional right-of-way (ROW). A short section of non-revenue

embedded track provides access to the OMF. The Lakefront Line will operate on single embedded track in traffic right-of-way except for the portion of the line which operates in the Couture development project.

There are seven switches in the operating system, four are manual spring-loaded switches and three are powered switches that are automatically controlled. Switches into the OMF are manual switches. All switches have heater boxes to assure safe operation in all weather conditions.

The OMC is responsible for periodic inspection and maintenance as required for the track and switches. The OMC will incorporate recommendations contained in the APTA Standard RT-FS-S-002-02 for Rail and Track Inspection and Maintenance as appropriate in developing their maintenance procedures, inspection, and practices.

Traction Power: The traction power system includes three elements: three substations that convert 13.2 KV high voltage primary service for WE Energies to the nominal 750 volts DC required to operate the streetcars, Overhead Contact System (OCS) that provides the positive circuit to carry DC power from substations to the streetcars, and the running rails that act as the negative return circuit from streetcars back to the substations. The substations are located along the corridor to assure adequate power coverage needed to operate the Brookville Streetcar. The Traction Power Substation (TPSS) located at the OMF is a grounded system and consists of a pre-fabricated unit that is 44 feet in length and 14 feet wide. The two other TPSS are located strategically along the Phase one route are grounded systems in pre-fabricated units that are 32 feet long and 14 feet wide.

The single-wire OCS system is designed to minimize visual impacts on the surrounding community. Figure 2 above shows the approximate locations where OCS and off-wire sections are. The OCS system is kept under tension which means support poles must have very specific strength and foundation requirements which precludes the use of ordinary street lighting poles. Poles are approximately 28 feet tall and installed at intervals ranging from 80 to 100 feet. Some are customized with special lighting in the historic district on St. Paul Street.

The OMC is responsible for periodic inspection and maintenance as required for the OCS and TPSS. The OMC will incorporate recommendations contained in the APTA Standard RT-FS-S-006-03 Rev-1 for Traction Electrification Distribution System Inspection, Maintenance, and Testing to guide their procedures as appropriate in developing maintenance procedures, inspection, and practices for the OCS system. The OMC will incorporate recommendations contained in the APTA Standard RT-FS-S-004-03 Rev-1 Traction Electrification Substation Inspection, Maintenance, and Testing and APTA Standard RT-FS-S-005-03 Rev 1 Traction Electrification Stray Current Corrosion Control Equipment Inspection and Maintenance to guide their procedures as appropriate in developing maintenance procedures, inspection, and practices for the TPSS equipment.

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Stations: Stations include platforms, shelters, transit system information, and related features. All the platforms are designed to maximize accessibility. The system meets the ADA standards for boarding with a 14 –inch platform height that accommodates level boarding. ADA compliant ramps provide access to the platforms. Tactile warning strips have been placed at the platform edge and at the bottom of ramps to the platforms.

There are 17 stations in the Phase 1 route with three stations serving both directions. Stations are located approximately 750 to 1500 feet apart. Stations include both curb lane and median configurations.

A typical station of each type is shown in Appendix A.

Fare Collection: During initial operations, MSS has not imposed fares in an effort to build ridership. When and if fares are implemented, ticket vending machines will be installed on each platform and/or a mobile ticketing system will be implemented. On-board validators are expected to be installed to validate mobile ticketing fares or fares from a cash card for riders without access to a mobile ticketing device. Efforts will be made to coordinate transfers from the Milwaukee County Transit System (MCTS). Appropriate measures are anticipated to be taken to enforce fare payments.

Public Safety Equipment: Vehicles have cameras for Public Safety and insurance records. Camera feeds on the vehicles are stored on a hard drive on the vehicle and downloaded regularly to a secure system at the OMF. Incidents or accidents on board the vehicle result in supervisors pulling hard drives immediately after the event to archive the record. Additionally, Smart Kiosks are anticipated to be installed at or near each platform that will incorporate surveillance cameras to monitor each platform with live feeds provided to the Milwaukee Police Department as well as the OMF.

The City public safety personnel regularly monitor stops, vehicles, and fare enforcement (when implemented) on board the vehicles. Because the MSS uses City radio communications equipment and systems, first responders are in direct contact to enhance the safety and security of the MSS.

Onboard Communications: Vehicles are equipped with a passenger information system that provides for audible next stop announcements, operator announcements, and other system-wide bulletins as required. The system also provides announcements to patrons on the station platform from external speakers on the vehicle.

Automatic Vehicle Locator (AVL) System: Vehicles are equipped with GPS-based AVL systems that allow dispatchers to monitor vehicle locations in real time. The AVL system also allows passengers to monitor vehicle locations in real time as well as monitor real time arrival predictions and be advised of any service bulletins through a variety of platforms. Smart Kiosks are anticipated to be installed at or near each platform that will provide, in addition to other public content, the real time arrival predictions. Infrastructure has been installed at each platform to accommodate power and

communication connections to the Smart Kiosks with minimum disruption to station platforms.

3.3 SYSTEM MAINTENANCE ACTIVITIES

Streetcar Maintenance: The OMC performs the general vehicle maintenance activities in the OMF. Off-site maintenance is used to address wheel truing, painting, significant body repair, and other heavy-duty maintenance.

Inspections, preventive maintenance, and overhauls of the streetcars occur at regular intervals and are described in further detail in the MSS Rail Fleet Management Plan. Preventive maintenance is defined as those maintenance tasks performed to minimize the possibility of future equipment failure, reduce or minimize wear rates, replace consumable parts, and satisfy warranty requirements. A basic preventative maintenance program combined with rugged design of the vehicles ensures high reliability and availability. The vehicle supplier (Brookville) provides specific requirements for the vehicle preventive maintenance. Typical levels of cleaning, inspection, and preventive maintenance are as follows:

1. Daily Inspection and Service (daily after conclusion of Revenue Service). Check safety-related systems, correct defects found and those reported by streetcar operators, interior and exterior cleaning, and removal of any graffiti.
2. 30-Day Preventive Maintenance. Inspect for wear and damage: friction brake systems, resisters, lights, traction motors, and auxiliary motors, pantograph shoes, control functions, and door operator. Liquid levels will also be checked, and lubrication will occur as well as changing filters, washing seats, windows, and floors.
3. 90-Day Preventive Maintenance. Perform 30-day work. Inspect, lubricate, and adjust as appropriate: brake actuators, air or hydraulic valves, door mechanisms, and check wheels for profile and wear.
4. 180-Day Preventive Maintenance. Perform 30- and 90-day work. Inspect and adjust controls and brake resistors, inspect suspension, detail wash all interior surfaces, clean light fixture lenses or lamps, wash roof, and clean underside of the streetcar.
5. 360-Day Preventive Maintenance. Perform 30-, 90-, and 180-day work. Inspect and service communicators, bearings, gearboxes (lubricate), truck/car-body connections, and journal bearings.

Maintenance is performed as recommended by the specific supplier of the particular component of the streetcar. Heavy overhaul-type work is based on recommendations from the streetcar supplier and typically include traction motors, gearboxes, control groups, trucks, door mechanisms, brake actuators, air compressor, and air comfort systems. If spare units can be obtained, the OMC performs unit change outs with actual rebuilding done by contractors. The Life Cycle of the streetcar vehicles is defined in the Rail Fleet Management Plan and assumed to be approximately 30 years.

Track-work Maintenance: The track structure and switches are observed by the streetcar operator as they traverse the line. Additionally, OMC trained personnel inspect the track and switches weekly as outlined in the APTA recommendations on track maintenance. Based on these inspections, the following work is completed on a weekly basis:

1. Correct defects found by inspections
2. Adjust, repair, and lubricate switches
3. Clean flange ways, any track drains, and general track area as needed.

Traction Power Maintenance: The traction power system consists of three major subsystems, power supply substations converting commercial high voltage AC to DC power; the OCS composed of poles, wires, and fittings; and the streetcar tracks, functioning as the return circuit. Maintenance and repair work on this system is the responsibility of the OMC as previously indicated.

Substation Inspections and Maintenance: The OMC makes daily visual inspections of each TPSS. The OMC performs general housekeeping of the substations, inside and outside, weekly. Proper ventilation of the TPSS enclosures is the focus of the daily and weekly inspections. Causes of failures will always be investigated.

The OMC uses the appropriate APTA standard to guide their inspection and maintenance practices and procedures for the TPSS. Additionally, the OMC uses recommendations of the TPSS supplier to guild their practices. Generally, the OMC performs semi-annual functional checks on all devices, switches, and breakers in the TPSS units. Electrical insulation tests are performed, the condition of the ground mat checked, and the unit thoroughly cleaned. Contact tips are checked and dressed, or if necessary, replaced. Substation batteries are be checked, cleaned, and serviced.

OCS Inspection and Maintenance: The OMC assures streetcar operators and maintenance personnel are trained to visually recognize OCS defects and improper power system operations. Operators and maintenance personnel report these so that corrective action can be taken. The OMC uses the appropriate APTA standard to guide their inspection practices and procedures for the OCS. The OMC performs a thorough visual inspection of the OCS system quarterly. This work requires personnel with specific training in electrical maintenance. The work may occur during times when the streetcar is not operating or, if during operations, appropriate safety measures will be taken.

The OMC performs a detailed yearly inspection to include checking the integrity and tightness of all hardware and fittings, checking insulators mechanically and cleaning them as required, checking section insulators for damage, checking freedom of movement of bracket arms, and checking streetcar wire running surface condition, alignment, and height. The electrical integrity of the overhead line insulation is also tested annually.

After a major OCS problem, such as a downed contact wire or a pole damaged or moved by a collision, the OMC, or their subcontractor, using its familiarity with the OCS system, will install temporary OCS to permit resumption of streetcar operations until permanent repairs can be made. In such cases, the height and alignment of the contact wire beyond the immediate area of the problem will also be checked.

Return Circuit Maintenance: A weekly visual inspection of the return circuit is carried out as part of the track inspection previously discussed. This includes checking for frayed cables and broken connections to rails and special work. A detailed mechanical and electrical inspection is performed yearly. Cable condition, bolted connection tightness, weld integrity, and general electrical continuity are checked. In case of derailment, the integrity of the return circuit should be checked before resumption of streetcar operation.

Streetcar Station Maintenance and Cleaning: Streetcar stations include shelters and other associated furnishings. Services required are minimal and fall into two categories: custodial and repairs.

Custodial Services

Personnel involved in this function are concerned with keeping stations clean and safe. They follow set routines and procedures and respond to incidents when needed. Equipment and materials used include sweepers, scrubbers, hand cleaning tools, and specialized chemicals. Each station is cleaned three times weekly; however, graffiti removal requires immediate attention and may be noted by Streetcar Operators or any other MSS personnel. Cleaning includes platform sweeping, snow removal, graffiti removal, garbage collection, and replacement of consumables as required (light bulbs other than City streetlights).

Repair Services

This category of station maintenance work is related to general facility repairs, primarily to the platform paving. These tasks require higher skill levels than custodial services. Contract services may be used to repair shelters, platforms, or railings when needed.

3.4 SYSTEM OPERATIONS ROLES

MSS Organization Chart Identifying Reporting Relationships for the Milwaukee Streetcar Project

(Detailed Org Chart located in Appendix B)

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                    │ RTA Board of Directors       │
                    │ (Common Council)             │
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     │ Director of     │                      │ Chief Safety Officer/│
     │ Operations      │                      │ SMS Executive        │
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     ┌────────┴────────────┐
     │ Streetcar System    │
     │ Manager             │
     └────────┬────────────┘
     ┌────────┴────────────┐
     │ Operations &        │
     │ Maintenance         │
     │ Contractor          │
     └────────┬────────────┘
     ┌────────┴────────┐
     │ General Manager │
     └────────┬────────┘
  ┌───────────┼────────────────────────┐
┌─┴──────────┐ ┌───────┴────────┐ ┌─────┴──────────────┐
│ Operations │ │ Maintenance    │ │ Maintenance        │
│ Manager    │ │ Manager        │ │ Contractor         │
└─┬──────────┘ └───────┬────────┘ └────────────────────┘
┌─┴──────────┐    ┌────┴───────┐
│ Training   │    │ Technicians│
│ Manager    │    └────────────┘
└─┬──────────┘
┌─┴──────────┐
│ Supervisors│
└─┬──────────┘
┌─┴──────────┐
│ Operators  │
└────────────┘
```
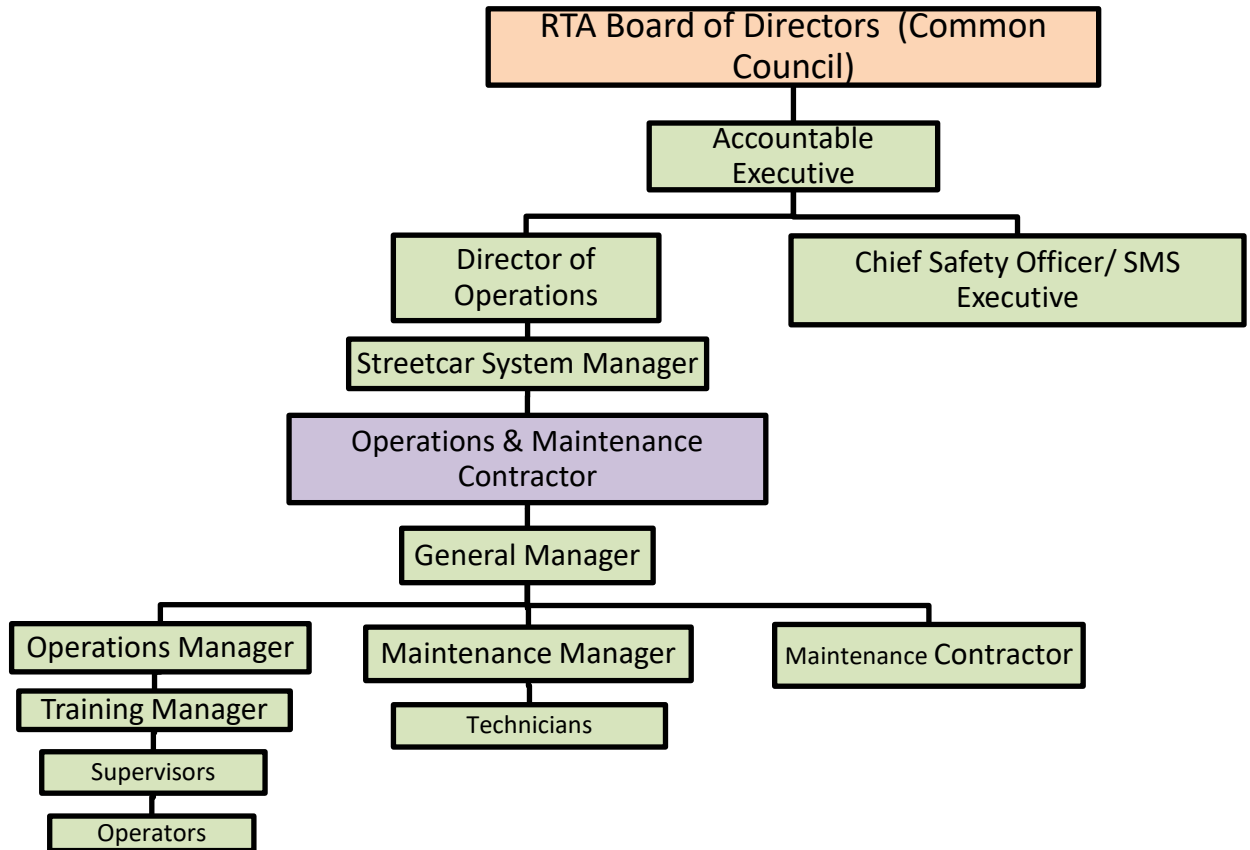
The RTA has overall responsibility for assuring and providing for the safety and security of the public and its' personnel in accordance with the ASP. The above organizational chart identifies by position and current occupant the reporting relationships for the MSS.

   a. The RTA is vested with the primary responsibility for the activities of the Milwaukee Streetcar System and the overall safety performance. The Commissioner of Public Works (CPW) is the position managing the Department of Public Works. The CPW also acts as the Accountable Executive and is ultimately responsible for carrying out the Agency Safety Plan (ASP) as well as the MSS Transit Asset Management Plan.

   b. The Chief Safety Officer (CSO) reports directly to the Accountable Executive and is adequately trained (under 49 CFR part 672) and responsible for the overall safety program of the MSS. This position has been delegated responsibility by the City for management of the safety and security certification program. He or she is also responsible for overseeing achievement of the MSS safety and

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security goals and supporting objectives and assuring SMS goals guide the overall Safety and Security Program. Additional responsibilities include serving as Chair of the Safety Review Committee (SRC); developing City safety and security policies and procedures regarding MSS operations; overseeing the implementation of the safety and security certification program through design, construction, integrated testing and operational readiness activities; overseeing hazard analyses and threat and vulnerability analyses throughout MSS construction, startup, and operation; advising the City on any safety or security issues that have not been resolved; coordinating with the MSS management team to assure the safety culture desired by the City in MSS operations is achieved; and investigating and reporting any incidents and accidents as required to the SSO and FTA; serving as the principal contact with the State Safety Oversight Manager for WisDOT. This position will also Chair the Safety Review Committee once MSS is in revenue operations. This position also is responsible for coordination of safety and security issues related to MSS with City of Milwaukee Emergency Management and Homeland Security Office, City of Milwaukee Police Department, City of Milwaukee Fire Department, and Federal Department of Homeland Security. This position may not serve in other operational or maintenance capacities.

c. The <u>Streetcar System Manager</u> (SSM) is responsible for the overall management of the MSS and its day-to-day functioning. This responsibility includes serving as the decision making authority for overseeing the operations and maintenance contractor providing day to day operations of the system; development of policies, budgets, and capital programs for the MSS; development of expansion plans for the system, coordination with contractors and consultants on development activities; participating as an active member of the SSRC, the FLSSC, and the System Review Committee (SRC); assure all activities of the operations and maintenance contractor are accomplished; and assure all FTA and WisDOT reporting requirements are met. Additionally, this position assists the City in advancing streetcar issues within the City, with the State, with the FTA, and with the general public and stakeholders of the system.

d. Key Staff
   1. The OMC <u>General Manager</u> (GM) will assure all OMC pre-start activities are accomplished, assure all staff selection, hiring, and training occurs on schedule to perform system testing and pre-revenue operations, and assume overall management responsibility for the Operations and Maintenance contract requirements.
   2. The OMC will designate an experienced individual who will be the <u>Training and Safety Manager</u> (TM). The designated person shall be responsible for ensuring that the MSS complies with the appropriate Federal, State, and local safety requirements including provisions of 49 CFR Part 674 – Rail Fixed Guideway Systems, State Safety Oversight (including but not limited to: Agency Safety Program Plan ("ASP") and System Security Plan

("SSP"), Accident/Incident Investigation Plan, Emergency Management Plan, etc.) and 59 U.S.C. Section 5329 Public Transportation Safety Program. The Safety and Security Officer function may be combined with other manager responsibilities.

3. Operations Manager
4. Maintenance Manager

e. The OMC supervisors, dispatch center personnel, and operations and maintenance employees play a critical role in the safety and security of the MSS. It is expected that the safety culture desired by the MSS will be maintained by the contractor to assure an effective and safe experience occurs for the employee group as well as for the customers they serve.

3.5   SAFETY COMMITTEES

3.5.1   Committees During System Startup

During initial system startup, safety and security committees were formed to oversee implementation of the Safety and Security Management Plan (SSMP). These committees included the Safety and Security Review Committee (SSRC), the Fire-Life Safety and Security Committee (FLSSC), and the Rail Activation Working Group (RAWG). After initial startup responsibilities concluded, the RAWG was disbanded and the FLSSC and SSRC were consolidated into the Safety Review Committee (SRC) – see section 3.6.2, below – established to provide feedback and input on safety and security matters upon the start of revenue operations.

The SSRC and FLSSC began during system design and continued throughout the project until all open safety/security certification items were closed, mitigated, and transferred to an operational hazard log for the start of revenue operations.

The RAWG began work prior to integrated testing and continued until the start of revenue service, when all open safety and security certification items were closed, mitigated, and transferred to an operational hazard log.

- The Safety and Security Review Committee (SSRC) is a multi-disciplinary working group serving as the high-level committee to address all safety and security issues and oversee the management of the Safety and Security Certification Plan (SSCP) and the certification process during initial startup, including review and approval of all safety/security certification documents. The SSRC maintains a hazard log, tracking all open hazards to resolution. The CSO serves as chair of the committee; the SM serves as vice-chair.
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  The SSRC oversees the Preliminary Hazard Analysis (PHA) and Threat and Vulnerability Analysis (TVA) processes and makes acceptance decisions of any low risk (acceptable with review), and recommendations to the City Commissioner of Public Works on acceptance of any moderate risk (undesirable). The SSRC will

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also review the Safety and Security Certification and Verification report (SSCVR) before it is finalized for presentation to the Accountable Executive for approval and issuance of a letter to the SSO.

Committee membership is meant to assure representation of the following functional areas: System Safety, System Security, Design, Engineering, Construction, Streetcar Operations, Vehicle Manufacturing, Streetcar Maintenance, and Vehicle Maintenance. Representatives from WisDOT and FTA's Project Management Oversight Contractor (PMOC) will be invited to all committee meetings.

The SSRC will be responsible for review of all safety and security certification issues, hazard resolutions, threat mitigations, certification documentation, and for tracking of all open items related to safety and security certification. The SSRC will also be responsible for assessing all proposed changes to, or deviations from, the approved design criteria to assure the proposed change will not degrade the level of safety or security provided in the approved criteria.

The SSRC will initially meet every quarter. Meeting frequency will likely go to monthly or bi-weekly during the later stages of construction, and to weekly or more often, during testing and through the start of revenue operations. Formal minutes, including an updated Action Item List, will be issued no later than 5 working days after each meeting.

The SSRC will be responsible for issuing all element certifications. The SSRC will be responsible for producing the SSCVR and for approving or recommending approval of the City Commissioner of Public Works, all "Exceptions" and "Mitigations/Controls" to full safety and security certification. The SSRC will remain an active committee, regardless of how much past the start of revenue operations, until all approved "Exceptions" and "Mitigation/Controls" have been resolved to the satisfaction of the Streetcar Manager, the Streetcar Safety Manager, and the SSRC.

- Fire-Life Safety and Security Committee (FLSSC): This committee serves as an advisory liaison among City, Milwaukee Fire Department (MFD), Milwaukee Police Department (MPD), and other emergency response agencies (ERA's), and the contractors (e.g., operations and maintenance, safety and security, design, and construction managers). The FLSSC reviews standards and safety-security related designs and tests to verify fire-life safety code and regulation compliance. In addition, the FLSSC addresses preparedness issues and reviews variances.
  Issues discussed at FLSSC meetings will be entered onto an Action Item Log and addressed until resolution. Each meeting will have an agenda forwarded to members at least two weeks before the date of the meeting and minutes will be issued no later than two weeks after the meeting and will

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include an updated Action Items List. The FLSSC will meet at least quarterly, but more often as the need for their review and action increases. After startup of revenue service, the committee's functions will be assumed by the SRC.

- Rail Activation Working Group (RAWG): The RAWG responsibilities include all aspects of system integration testing, startup, and pre-revenue operations, including developing (or overseeing the development of) the Rail Activation Plan (RAP), Systems Integrated Test Plan (SITP), integration test and emergency drill procedures, training plans and course syllabuses, operating and maintenance plans, course and maintenance manuals, Standard Operating Plans (SOPs), Operating Rule Book, Emergency Operating Procedures (EOPs), Pre-Revenue Operations (PRO) plans, and all other elements required for preparing for revenue operations and conducting of safe and secure revenue operations.
The RAWG will review the preliminary testing and startup certifiable elements and certifiable items and modify or expand them as necessary to assure all elements needed for safe and secure revenue operation are appropriately developed, tested, and certified.

The RAWG will initially meet monthly and increase meeting frequency as needed due to level of activity. Agendas will be issued prior to each meeting and Minutes, including an Action Item List, will be produced within one week after the meeting.

3.5.2   Safety Review Committee (SRC)

When MSS entered revenue operations and all activities required of the SSRC, FLSSC, and RAWG were completed, the activities of the SSRC and FLSSC were assumed by the Safety Review Committee (SRC). The CSO serves as chair of the SRC, and the TM (OMC) serves as the vice-chair. Members of the SRC include the SSM, OMC staff including the GM, OM, and MM, as well as an equal number of front-line employees represented in the Joint Safety Committee

As chair, the CSO will provide the committee with a direct line of communications with the Accountable Executive. The SSM, who is a member of the SRC, will assure implementation of the recommendations of the SRC through City policy, as required. SRC members should be people who are most familiar with the operations of the system and will be expected to be familiar with the principles of a Safety Management System (SMS) and the ASP. The OMC Training Manager (TM) will help facilitate the incorporation of the ASP into all aspects of MSS operations and services. The TM acts as a resource for the operations, maintenance, and administrative staff, and is responsible for the administration of the ASP, with assistance from management as required. Additional support will come from the CSO as needed.

The SRC will have the authority and responsibility to:

1. Assist staff in performing accident/incident investigation(s) when requested.

2. Ensure that all major accidents/incidents, hazards, and internal safety issues are reviewed and resolved. They may conduct internal safety reviews and inspections.
3. Work with operations and maintenance staff on a regular basis to ensure all ASP requirements are being implemented and that ASP goals and objectives are being achieved.
4. Develop corrective action plans that result from accident/incident investigations, hazard analyses, and safety reviews and audits, and tracking corrective actions through fruition to ensure all identified deficiencies are adequately eliminated or controlled.
5. Ensure recommendations are followed upon and corrected.
6. Report unacceptable hazardous conditions to MSS management.

The SRC activities will be coordinated with the GM (OMC), a member of the SRC, working with the TM (OMC) who will gather input and resolve issues with the committee members prior to signing off on primary documents. The Milwaukee Police and Fire departments will be involved and informed of operational safety and security issues as needed.

To fulfill an SMS approach to safety, the SRC will be informed regularly of collected MSS safety data to insure they can develop and document strategies to address priority safety risks and then focus on measurement of the effectiveness of the risk-control strategies and achieve the safety outcomes desired by the committee.

3.6 SAFETY AND SECURITY COMMITTEE FOR EXTENSIONS

Once MSS entered revenue service operations and all activities required of the SSRC were completed, the SSRC was replaced with the Safety Review Committee (SRC). The Committee is Chaired by the Chief Safety Officer (CSO) and supported by the Training Manager (TM) as the Vice Chair. Members of the Committee include the Streetcar System Manager (SSM), the General Manager (GM) of the OMC, the Operations Manager (OM) for the OMC, the Maintenance Manager (MM) for the OMC, as well as staff members involved in safety, security, operations, maintenance, and training. The CSO, as Chair of the Committee, provides the committee with a direct line of communications with the Commissioner of Public Works. The SSM, who is a member of the SRC, assures implementation of the recommendations of the Committee through City policy as required. These people are most familiar with the operations of the system and are expected to be familiar with the principles of a Safety Management System and the MSS Agency Safety Plan (ASP). The TM helps facilitate the incorporation of the ASP into all aspects of MSS operations and services. The TM acts as a resource for the operations, maintenance, and administrative staff, and is responsible for the administration of the ASP, with the assistance from management as required. Additional support comes from the CSO as needed.

The SRC has the authority and responsibility to:

1. Assist staff in performing accident/incident investigation(s) when requested.

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2. Ensure that all major accidents/incidents, hazards, and internal safety issues are reviewed and resolved. They may conduct internal safety reviews and inspections.
3. Report unacceptable hazardous conditions to MSS management.
4. Work with operations and maintenance staff on a regular basis to ensure all ASP requirements are being implemented and that ASP goals and objectives are being achieved.
5. Develop corrective action plans that result from accident/incident investigations, hazard analyses, and safety reviews and audits, and tracking corrective actions through fruition to ensure all identified deficiencies are adequately eliminated or controlled.
6. Ensure the RTA and MSS team are immediately notified of hazards of imminent danger or as other problems are identified or arise.
7. Ensure recommendations are followed upon and corrected.

The SRC activities are coordinated with the GM, a member of the SRC, working with the TM who gathers input and resolves issues with the committee members prior to signing off on primary documents. MPD and MFD are involved and informed of operational safety and security issues as needed depending on the particular issue. Information previously deemed important to the FLSSC should be provided at SRC meetings.

To fulfill the desire of MSS to implement a Safety Management System (SMS) approach to safety, the SRC is informed regularly of the safety data collected by the MSS to insure they can develop and document strategies to address priority safety risks and then focus on measurement of the effectiveness of the risk-control strategies and achieve the safety outcomes desired by the committee.

3.7 SAFETY INTEGRATION AND LINES OF AUTHORITY FOR SAFETY

The organization structure of the MSS provides that the Commissioner of Public Works is directly responsible for the safety function and has the CSO reporting directly to them. As can be seen in the organization chart in section 3.4, the MSS organization is a small one with limited layers between the line employee and the top of the management organization. Because of this, integration of the safety function into the culture of the organization is not stymied by layers of personnel. Management will be able to convey and receive information more easily, identify safety concerns, conduct internal audits and inspections, develop recommendations and corrective action plans to address safety concerns, track and verify the implementation of recommendations and corrective action plans, and report, on a regular basis to management. This should provide a fertile environment to implement a SMS program.

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3.8   SAFETY PERFORMANCE GOAL MEASURES

These performance measures are estimates based on the NTD data from the previous three years of revenue service.

Performance Measures Per every 100,000 miles		Target Total	Target Per 100,000 miles
FATALITIES		0	0
INJURIES		1	1
SAFETY EVENTS	Accidents	6	6
	Incidents	12	12
	Occurrences	24	24
SYSTEM RELIABILITY (Mean Distance between failures)		3200	31.25

4.0   ASP PLAN REVIEW AND MODIFICATIONS

4.1   ANNUAL ASP REVIEW

The Accountable Executive has delegated the authority for the development, implementation, and management of the ASP to the CSO and the OMC with primary responsibility of implementing the ASP, a requirement of the OMC with oversight and review by the CSO. Annual review of the ASP is mandatory and specific responsibilities of the OMC within the ASP framework include, but are not limited to:

- **f.** Prior to September of each year notify the CSO of any recommended changes to the ASP for review and approval by the SRC
- **g.** Revisiting the ASP annually to reflect changes in organizational structure and new systems that require significant changes in MSS operation
- **h.** Review progress on goals and objectives
- **i.** Refine and improve on the current goals and objectives of the SMS program
- **j.** Identify new tasks or objectives to respond to system growth or any new regulations that effect MSS safety and security
- **k.** Identify any additional or emerging safety or fire/life safety-related tasks and responsibilities.

On-going review and revision of the ASP ensures the document remains current. This process assures at least an annual review of the ASP in accordance with 49 CFR Part 659 and 49 CFR Part 674. The review will assure that MSS conducts a complete and thorough review of its ASP annually and transmits that review to the SSO no later than November 30 each year.

4.2 ASP CONTROL AND UPDATE PROCEDURES

The FLSSC and the SRC are meeting regularly during the year and are expected to identify and make recommendations to improve safety and security of MSS and its operations. Further, the CSO, the TM, the SSM, and the GM are responsible for routinely reviewing the system operations and making recommendations on improvement of safety and security performance and taking issues raised by employees of MSS to the FLSSC or the SRC for review and suggestions for improvement. Last, any time it is determined that unsafe conditions or practices present an immediate and serious hazard, the GM, SSM, CSO, or TM has the authority to order such conditions or practices halted and recommend procedural changes to correct the issue. Any of the update procedures outlined may result in changes to the ASP that require updating of the document.

4.3 ASP REVIEW AND APPROVAL BY THE STATE OVERSIGHT AGENCY

The Streetcar System Manager (SSM) for the RTA will provide direct interface with the state oversight of WisDOT. The SSM will provide notification to the State Safety Oversight Manager for WisDOT of all changes to the ASP so that they can be reviewed and approved. In addition, if no changes are required, the State will be notified as well. The reporting timeframes outlined in WisDOT's Program Standard will be followed in all cases. In addition, all requests from the state for revisions, additional information, or other items should be directed through the SSM to the City of Milwaukee so the appropriate response can be formulated using the internal procedures outlined.

4.4 ASP CHANGE MANAGEMENT

As outlined in 4.2, the ASP can be modified according to internal updates and modifications procedures to address other requirements under 49.CFR Part 673. Changes and updates can also occur as required or as mandated by changes in other relevant safety program requirements . The CSO will ultimately be the one to coordinate these changes with the State and will maintain the current version of the ASP. All documents shall include a version history log that will clearly identify version and revision histories.

5.0 ASP IMPLEMENTATION – TASKS AND ACTIVITIES

5.1 OVERVIEW

The ASP provides the foundation for a continuing safety effort for the MSS that begins with acceptance of new facilities and equipment and continues throughout the lifetime of the equipment and operations. An SMS approach to safety occurs with safety data review and analysis, hazard identification and safety risk evaluation activities, development of safety risk mitigations, and planning and organized training to manage safety issues, and constant feedback on the success of the safety effort to support continuous improvement in the MSS safety program. In essence, implementation of the

ASP is required of all levels of management and of each employee supporting MSS operations to ensure safety is an integral and continuous part of MSS planning, design, specification, test, operation, maintenance, construction, procurement, and disposal activity. When successful, each MSS function and operation will be directed to the protection of passengers, employees, local responders, the community served by MSS, and MSS property.

5.2 SYSTEM SAFETY FUNCTION

Section 3.4 System Operations Roles outlines key personnel within the rail safety function and Section 3.5 Safety Committees outlines the committees organized within MSS for rail safety or committees to be created at the start of revenue operations within MSS for safety issues.

Methodology Used by the System Safety Unit. The intent of the MSS is to develop a rigorous SMS approach to safety with the goal of developing a proactive culture and approach to safety. The MSS will use data collection and analysis to identify issues, hazard management and resolution to develop specific approaches to safety which minimize risk, periodic inspections by the safety and management team to ensure the safety culture and safety approach are being accomplished, regular meetings of the FLSSC and SRC to insure feedback from the employee and public safety groups are integrated into the safety approach and procedures, training approaches and programs for new hires and current employees that insure understanding and an approach to job performance that includes safe practices and procedures are routine, and regular drills and reviews to insure public safety and operations personnel are current and effective in their approach to safe operations.

5.3 SAFETY RESPONSIBILITIES OF OTHER DEPARTMENTS

The CSO along with the SSM, GM, and TM with input from the SRC and the FLSSC are responsible for management and implementation of the ASP. While ultimate responsibility for the safe operation of the MSS resides with the Accountable Executive, he has designated the CSO as responsible for assuring the safety culture desired by the City is achieved at MSS. The management team outlined in the ASP is responsible for ensuring a reasonable level of safety for passengers, employees, the general public, emergency response personnel, and MSS property commensurate with MSS goals and further consistent with rule-making bodies, funding agencies, and local authorities. The ASP incorporates all regulatory and standards requirements. The ASP outlines the MSS safety goals and objectives and the means required to meet them. Generally, it specifies safety activities and system safety tasks, establishes requirements for performing them, and provides measures for management from the Accountable Executive level down to monitor and control the system safety program.

- System Safety Scope. In order to implement the MSS safety goals and objectives the scope of the ASP includes all MSS operations and contractors; applies to all activities which involve construction, procurement, installation, and testing of equipment and facilities; includes all operations, including transportation,

maintenance, and support activities; and includes the environment in which the MSS operates, including areas of public access and adjacent property. The ASP charges all employees and contractors to be knowledgeable of his or her responsibility for implementation of this ASP and for the overall success of the program as applicable. The ASP requires the coordination, integration, communication, and cooperation among all employees of MSS, all City departments supporting MSS, all contractors and organizations supporting MSS relative to matters of safety. Last, the ASP encompasses all fixed facilities, equipment, vehicles, and employee activities and applies to all who come in contact with MSS, including interface with local, state, and federal governmental entities, regulatory agencies and departments, professional organizations and citizen's groups concerned with safety.

- Transit Safety Interfaces and Coordination. The scope and complexity of safety activities for MSS require coordination and cooperation of other City departments and outside local, State, and Federal agencies. To achieve the goals of this ASP, it is imperative that this coordination be accomplished by identifying internal and external interfaces with MSS.

  Internal to the City, the Budget Management Division of the Administrative Department will work with the DPW to include budget authorization for the safety and security functions required for MSS. The Office of the City Attorney will provide legal services to DPW and the MSS as needed for safety and security issues. The Office of Emergency Management and Homeland Security will provide coordination for emergency planning, disaster preparedness, and response training for MSS under the direction of the CSO and the SSM. MPD and MFD will provide security and safety services as required as well as providing emergency response and containment for accidents and incidents related to MSS operations. Last, DPW will provide coordination of traffic signals, radio communications, and street cleaning, snow removal, and street repairs related to the safe operations of the MSS.

  The OMC will be required to provide the TM position as well as providing safety programs and training for all operations personnel, including development of safety manuals, documentation, and regular audit requirements. Additionally, the OMC will develop the appropriate safety training materials and provide the required training on safety issues for all their employees. Further, the OMC will assure at least quarterly meetings of the SRC occur and are documented. Last, the OMC will assure any of their outside contractors follow the appropriate safety requirements and documentation.

  Safety communications with the SSO at WisDOT will include accident/incident coordination, notification, investigation, reporting, corrective action reports, monthly and annual activity reports, submittals as required, and submittal of and coordination with the ASP and annual updates as required. Additionally, DPW and the CSO and SSM will coordinate as appropriate to assist the SSO in any safety review activities requested.

Safety communications and notifications as required will occur with the FTA and National Transit Database (NTD) safety and incident reports will be made monthly and annually as required. DPW and the SSM and CSO will coordinate as appropriate to assist the FTA with any safety reviews as they occur. They will also follow through with any corrective actions that may need to occur as a result of a review.

5.4   SAFETY RESPONSIBILITY LIST

	Safety Program Functions	Responsible Party
1.	SRC Committee Meetings	CSO and TM
2.	FLSSC Committee Meetings	CSO
3.	Track Audit Inspections	OMC Maintenance, TM approvals
4.	OMC Facility Audit Inspections	OMC Maintenance, TM approvals
5.	Safety Audits	CSO
6.	Safety Certifications	CSO
7.	Monthly and Annual Safety Reporting	GM, CSO, SSM
8.	Emergency Drills	CSO/SRC
9.	Training	GM, TM, SSM
10.	Accident and Incident Investigations	CSO, OMC, SRC, MFD, MPD
11.	Standard Op. Procedures	GM
12.	Development of ASP	CSO, OMC, SSM
13.	ASP Revisions	CSO, OMC, SSM
14.	State Safety Oversight	SSO
15.	National Safety Rulemaking	FTA
16.	Hazard Analysis	CSO, SRC
17.	Operations and Maintenance	GM, SSM

6.0 HAZARD MANAGEMENT PROCESS

6.1 OVERVIEW

The MSS uses a SMS approach to hazard management and, as a guideline, the general approach for Safety Risk Management outlined in the current version of the National Public Transportation Safety Plan, as a model to our approach for hazard management. MSS uses the hazard tracking log for tracking of identified hazards, recommendations for mitigation, target implementation dates, and close out dates. Additionally, MSS provides copies of the current log to the SSO monthly and conducts quarterly meetings with the SSO to discuss hazard management efforts.

6. 2 HAZARD MANAGEMENT PROCESS

The hazard management process is the primary tool used by MSS to ensure the safety of our rail transit activities, passengers, employees, facilities, and vehicles. The process provides the ability to identify and report hazards at every level of service, to assess for potential impacts on the system, and to mitigate as practicable and appropriate.

6.2.1 HAZARD IDENTIFICATION

Hazard identification discovers conditions in the MSS system that, if not altered, has the potential to cause accidents, injuries, or other losses. All employees are charged with the responsibility of identifying and reporting conditions that have the potential to cause accidents, injuries, or other losses whenever possible. These conditions may be found in the form of physical hazards, unsafe actions, and policies that create or fail to recognize hazards. There may also be employees who, through periodic field observations, review of incident or accident data, or performance and complaint records, are identified as needing counseling, re-training, termination, or other action as deemed appropriate to mitigate the hazard their performance has created.

Potentially hazardous conditions may also be identified through other means, including:

1. Reports from passengers and other individuals through contact with customer service, supervisors in the field, or management personnel.
2. Reports from operators and other supervisors in the field regarding hazards associated with MSS vehicles, schedules, routes, policies and procedures.
3. Reports from maintenance personnel regarding equipment and facilities hazards.
4. Review of the MSS daily occurrences log.
5. Investigation and review of accidents and incidents by safety personnel.
6. Collection and analysis of accident statistics and risk management information system data regarding safety, accident rates, and claims reports, including trend analysis.
7. Audits performed by knowledgeable MSS safety personnel.
8. Checklist audits performed by MSS management team.
9. Information, experiences, and ideas from other City support departments.
10. Observations of facilities and operations hazards, by MSS personnel.

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11. Results from drills, exercises and emergency response to accidents and incidents.
12. Industrial Hygiene Surveys (if a survey should be conducted).
13. FTA, the SSO agency, and other oversight authorities, if applicable.

6.2.2   HAZARD CLASSIFICATION

Hazard categorization involves classification of hazards in terms of severity and probability. The United States Department of Defense document Standard Practice for System Safety, MIL-STD-882E, establishes system safety criteria guidelines for determining hazard severity and probability. MSS has adopted the Risk Assessment and Hazard Risk Index matrixes for use in the hazard categorization process. The evaluations are made by the TM and CSO.

Hazard classification for severity

Hazards are rated in terms of their effects on employees, passengers, and/or MSS. The hazard categorization system is used to determine the acceptability of assuming a risk associated with a hazard, the necessity of implementing corrective measures to eliminate or reduce the hazard, or a combination of both. System safety, schedule, probability of occurrence, mitigating factors, potential losses and impact on publicly perceived safety are considered in the analysis.

Severity categories are defined below.

CATEGORY	TYPE	DESCRIPTION
I	CATASTROPHIC	May result in: Death or major system loss. Requires: Immediate cessation of unsafe activity or operation.
II	CRITICAL	May result in: Severe injury or illness or major system damage. Requires: Immediate action, up to and including immediate cessation of unsafe activity or operation
III	MARGINAL	May result in minor injury, illness, or system damage. Requires: Counteraction or control of unsafe condition
IV	NEGLIGIBLE	May result in no, or less than minor, injury, illness, or system damage. Requires: minor or no mitigation

Hazard classification for probability

The probability that a hazard will occur during the planned life expectancy of the system element, subsystem or component can be described qualitatively, in potential occurrences per unit of time, events, population, items, or activity. A qualitative hazard probability may be derived from research, analysis, and evaluation of safety data derived from operating experience of the MSS or historical safety data from similar systems. Supporting rationale for assigning a hazard probability is documented in hazard analysis reports. Responsibility for evaluating and assigning hazard probability ratings is the responsibility of the TM or CSO.

A standard qualitative hazard probability ranking is shown in the Chart below:

Qualitative Hazard Probability Ranking			
DESCRIPTIVE WORD	LEVEL	SPECIFIC INDIVIDUAL ITEM	FLEET OR INVENTORY
Frequent	A	Likely to occur frequently	Continuously experienced
Reasonably Probable	B	Will occur several times in life of an item	Will occur frequently
Occasional	C	Likely to occur sometime in life of an item	Will occur several times
Remote	D	Unlikely but possible to occur in life of an item	Unlikely but can reasonably be expected to occur
Improbable	E	So unlikely, it can be assumed occurrence may not be experienced	Unlikely to occur, but possible

Hazard risk assessment

Hazard risk is assessed to determine the necessary action to correct or document acceptance of identified hazards, a system of determining the level of risk involved has been adopted. This risk assessment activity will be incorporated in formal System Safety Analysis. In turn, this will enable management to properly understand the amount of risk involved by accepting the hazard relative to what it will cost (schedule, dollars, operations, etc.) to reduce the hazard to acceptable level.

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The following matrix identifies the Risk Assessment Index based upon hazard category and probability and the criteria for defining further action based upon that index.

HAZARD RISK ASSESSMENT MATRIX AND CRITERIA

	Hazard Severity			
HAZARD FREQUENCY	CATEGORY I	CATEGORY II	CATEGORY III	CATEGORY IV
Frequent (A)	1A	2A	3A	4A
Probable (B)	1B	2B	3B	4B
Occasional (C)	1C	2C	3C	4C
Remote (D)	1D	2D	3D	4D
Improbable (E)	1E	2E	3E	4E

Hazard Risk Index	Criteria by Index
1A, 1B, 1C, 2A, 2B, 3A	Unacceptable
1D, 2C, 2D, 3B, 3C	Undesirable
1E, 2E, 3D, 3E, 4A, 4B	Acceptable with review
4C, 4D, 4E	Acceptable without review

1. **Unacceptable Hazardous Conditions** - means a condition that may endanger human life or property. This condition cannot remain as is but must be mitigated.
2. **Undesirable** - means that the hazard should be mitigated, if at all possible, within fiscal constraints. However, it may be mitigated at a later time.
3. **Acceptable with review** - means the system safety function must determine the risk associated with not mitigating the hazard.
4. **Acceptable without review** - means that the hazard can remain.

The Hazard Risk Assessment matrix translates Hazard Severity and Probability (items dealt with routinely by the TM, CSO, and SRC) into a Risk Assessment that may be used for Risk Management.

Hazard Resolution/Safety Risk Mitigation

After identification and assessment of a hazard, action may be taken as appropriate to eliminate or mitigate the hazard. The SRC is the principal body for assessing and resolving identified hazards within MSS.

If a formal assessment is conducted by the SRC, with assistance of the TM and CSO, the Risk Assessment Index is used to assist the decision-making process in determining whether a hazard should be eliminated, controlled, or accepted in terms of severity and probability. As hazards are identified as result of the risk assessments, the following various means are employed by MSS to reduce the risk to acceptable level, including:

1. Elimination or minimization of the risk through design change. If possible, the hazard will be eliminated through design change. If an identified hazard cannot be eliminated, the hazard will be reduced to an acceptable level, as defined by the Risk Assessment Index, through design selection.
2. Incorporate Safety Devices. If identified hazards cannot be eliminated or their associated risk adequately reduced through design selection, that risk is reduced to an acceptable level through the use of fixed, automatic, or other protective safety design features or devices. If used, provisions shall be made for periodic functional checks of safety devices.
3. Provide Warning Devices. When neither design nor safety devices can effectively eliminate identified hazards or adequately reduce associated risk, warning devices are used to detect the condition and to produce a timely warning signal to alert personnel of hazard. These warning systems are standardized within like types of systems to minimize the probability of incorrect personnel reaction to the signals.
4. 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 to control the hazard. Procedures may include the use of personal protective equipment. Precautionary notations shall be standardized. For MSS employees, tasks and activities judged critical by the SRC, with the help of the CSO and TM, may require certification of personnel proficiency.

The SRC, with the help of the CSO, TM and appropriate design team members, is the principal body for tracking identified hazards within the MSS to final resolution. The CSO and the appropriate design team members maintain logs that detail resolution activities to date and the current status of the hazard-open or closed.

Safety Assurance

MSS monitors for continued effectiveness in reducing risks the following: Resolved or mitigated hazards, Safety performance monitoring and measurement items, Management of change processes, and continuous improvement processes. Key staff including Managers have the responsibility to verify that the safety risk mitigations put in place are appropriate and effective. This will be presented to the SRC as part of the established Hazard Management process.

6.3   COORDINATION WITH WISCONSIN DEPARTMENT OF TRANSPORTATION

To ensure an ongoing role in the oversight of MSS's hazard management process, MSS maintains a Hazard Tracking Log (APPENDIX C) which reflects the consolidation of

information in the hazard management process. The Hazard Tracking Log contains all hazards identified through the various methods applied by MSS. The Hazard Tracking Log is submitted monthly to WisDOT.

MSS attends quarterly SSO meetings with WisDOT to review the Hazard Tracking Log and the other MSS activities associated with the hazard management process.

MSS also conducts quarterly SRC meetings, which WisDOT may attend as a non-voting member when available.

During application of the hazard management process, for any hazard identified as an "unacceptable hazard condition," as defined in Section 6.2 of this ASP, the SSM will notify the SSO within 24 hours. In addition, the CSO will investigate following the basic procedures identified in Section 10 of this ASP. At the conclusion of the investigation, a report will be provided to WisDOT for review and comment. Any corrective action plans developed as a result of the investigation will be reviewed and approved by WisDOT. WisDOT retains the authority to request a status briefing on any unacceptable hazardous condition investigation.

7.0   SAFETY CERTIFICATION

As the operator of the streetcar line, the MSS SSM and CSO will certify that subsequent extensions and related phases are operationally ready to enter safe revenue service. For purposes of defining the threshold at which a safety certification is required; MSS agrees any capital project that requires a system modification (ex. track alignment, addition of new overhead wire, addition of track wayside control signals, etc.) will require and follow the established safety certification process.

As determined by the SRC for extensions or major capital projects, a Safety and Security Certification Plan (SSCP) shall be employed for the projects requiring safety certification. The SSCP should address the following:

1. Introduction describes the authority, purpose, objectives, definitions, responsibility and scope of the SSCP.
2. Program management provides an overview of project participants and their roles and responsibilities in implementing the SSCP.
3. Certification processes and procedures describe activities to implement the SSCP.
4. Hazard and vulnerability management outlines methods that may be used to identify, evaluate, and resolve hazards and vulnerabilities in a systematic manner.
5. The documentation section describes responsibilities for safety and security certification documentation and documents.
6. An explanation of the periodic reporting requirements and final certification reports.

The goals of the safety certification program are to verify that identified safety requirements have been met and to provide evidence that the new operational segments/phases are safe to use for revenue service. Accordingly, the objectives of the safety certification program are to document that:

1. Facilities and equipment have been constructed, manufactured, inspected, installed, and tested, in accordance with safety requirements in the design criteria and contract documents.
2. Operations and maintenance procedures and rules have been developed and implemented to ensure safe operations.
3. Training documents have been developed for the training of operating personnel, and emergency response personnel.
4. Transportation and maintenance personnel have been trained and qualified/certified.
5. Emergency response agency personnel have been prepared to respond to emergency situations in or along the MSS right-of-way.
6. Safety related system integration tests have been conducted.

Each critical system element receives a written safety certificate. When all required system elements are certified, a system-wide safety certificate is issued along with a safety verification report. Final authority to approve certification of extensions for revenue service rests with MSS. The SSO shall be notified whenever there is a safety certifiable element and coordination with the SSO shall occur in accordance with WisDOT's rail transit safety oversight program.

Formal certification is by the Project Engineer, Design Engineer(s) and the SRC that the project has been constructed in accordance with the contract plans and specifications. Specific safety related items are identified for final certification and are verified by site inspections and/or acceptance testing. Items are tracked by a conformance checklist with individual sign-off completion. The checklist serves as a log of items.

8.0   MANAGING SAFETY IN SYSTEM MODIFICATIONS

MSS ensures that modifications to the existing system that have a safety impact are subject to a formal review process. Review of proposed modifications for new hazards and safety risks that may be introduced takes place using the hazard management process outlined in Section 6.

The OMC is responsible to coordinate changes to existing systems, including vehicles, track way, OCS, TPSS, signals, and switches. Again, a review of the modification for safety issues should occur using Section 6 as appropriate and using the SRC with CSO and TM support if needed. All changes are reflected in a modification log for each system or subsystem. Modification will be disseminated through various means.

The Configuration Management Plan for the MSS outlines the process for managing change in either the physical assets or in the operational procedures and uses change requests and a change control log to document and track change requests.

Train Orders and Bulletins. Operations personnel are informed of changes or modifications through either Train Orders or Bulletins. Permanent modifications or changes shall be written into the recertification program and be accepted as a normal condition of operation. Appropriate modification of the SOPs occurs when required and training of the affected personnel occurs as warranted.

Memorandum. The OMC may elect to address modifications or changes to the MSS in memo form. The OMC will ensure information posted has been read and understood by operations personnel prior to operating under a modified or changed system condition. Training of affected personnel may also be required as warranted.

Tracking. The OMC ensures any hazards associated with system modifications are reviewed by the CSO. Hazards are added to the Operational Hazard Log as required.

9.0   SAFETY DATA ACQUISITION

Roles and Responsibilities. The OMC monitors the safety performance of MSS operations. One of the keys to a successful SMS program is utilization of data to determine and analyze where potential hazards exist and to be proactive in eliminating the threat to the safety of passengers, employees, or the public in contact with MSS operations. The CSO is responsible for compiling and analyzing all safety data to determine if safety performance meets established safety goals. The CSO is assisted in this effort by the TM. This data includes injuries to passengers, OMC personnel, and the public; potentially hazardous equipment failures; unacceptable hazardous conditions; and rules and procedure violations. The Accountable Executive directs a plan to address safety deficiencies identified during this process. A reporting system for identifying and monitoring safety-related items has been established. To close out each incident, safety verification activities and results are reviewed and audited by the GM and reviewed by the CSO. The CSO is responsible for providing safety data to the SRC for review.

Data Acquisition. The CSO is responsible for information regarding accidents, incidents, hazardous conditions, and MSS operations which are obtained from different reporting mechanisms. These include but are not limited to: Accident/Injury Reports and Investigations, Incident Reports, and Employee/Occupational Injury reports.

The SSM is responsible for information regarding Operations and Performance data, including the Daily HOP log, Operator and Supervisor Reports, maintenance data, analysis of vehicle records, and procurement contracts.

Both the CSO and SSM are responsible for data from other rail transit agencies, the SSO, and the FTA (including NTD).

Data Analysis. Tracking of hazard related data is used to identify trends. These trends are further analyzed and/or investigated to determine causal factors. It is the responsibility of the CSO with the assistance of the TM to facilitate this analysis and provide findings to the SRC as part of the regular reporting process. This is accomplished by interviews with personnel in the affected department(s) and analysis of pertinent documentation. Identified hazards are submitted with corrective action recommendations or request for corrective action development. Utilization of the Hazard Management Process described in Section 6 is appropriate as part of the hazard analysis and review.

Streetcar safety performance reports will be submitted annually to WisDOT by the SSM with the assistance of the CSO and TM. The report contains injury data regarding passengers, OMC personnel, and customer/public accidents and incidents. The report is the basis for the formulation of safety performance measures and targets. Safety performance measures and targets will be approved by the SRC, in coordination with WisDOT and the Metropolitan Planning Organization (MPO) prior to submission of the initial ASP and subsequently upon request. The report outlines strategies for the achievement of the stated safety objectives of MSS.

Coordination with State and MPO All coordination with the State will take place through regular meetings with the WisDOT SSO.

The Southeastern Wisconsin Regional Planning Commission (SEWRPC), as the Metropolitan Planning Organization (MPO) for the seven-county southeastern Wisconsin area, will integrate MSS performance targets and performance plans into SEWRPC's VISION 2050, the regional land use and transportation system plan for Southeastern Wisconsin, and the regional transportation improvement Program (TIP). The Commission will include a description in the TIP of how the programmed projects promote the achievement of the highway and transit performance targets, including the established regional transit safety performance targets.

Consistent with the Cooperative Agreement for Continuing Transportation Planning for the Southeastern Wisconsin Region, entered into on January 21, 2020, and the Performance Measure Cooperation Written Documentation, finalized on April 26, 2018, the Commission will cooperatively establish performance targets, share data, and prepare system performance reports in coordination with the Wisconsin Department of Transportation (WisDOT) and transit operators.

As part of this cooperative process, transit operators will share transit safety performance data and targets with SEWRPC to assist with the development of initial regional safety performance targets for consideration by transit operators in the Region. SEWRPC will coordinate with transit operators on the development of the regional transit safety performance targets, to be completed by January 20, 2021. The transit

safety performance targets will be integrated into VISION 2050 and the TIP by July 20, 2021.

Internal Communication using Safety Promotion MMS will convey information on hazards and safety risks relevant to employees' roles and responsibilities through train orders, general notices, bulletins, memos, and other methods as outlined in Section 8.

10.0 ACCIDENT/INCIDENT NOTIFICATION, INVESTIGATION AND REPORTING

10.1 OVERVIEW

A separate Accident/Incident Investigation Plan (AIP) serves as the detailed guide for MSS in dealing with accidents. The initial AIP was developed with the guidance of the APTA guidance for Rail Transit Accident/Incident Investigation Document APTA-RT-OP-S-002-02 Rev 2 dated March 31, 2012. Subsequent revisions will be made using the most current published version of the APTA guidance. The OMC will follow the procedures as noted in the most current approved Accident/Incident Investigation Plan.

10.2 AIP MAINTENANCE

The AIP is reviewed annually by the GM and approved by the SRC, and reviewed, approved, and adopted by the SSO. The current approved Accident/Incident Investigation Plan shall be made available to all required parties.

10.3 CAP (CORRECTIVE ACTION PLANS)

MSS develops corrective action plans (CAPs) to be developed for the following:

• Investigation Reports From the RTA, WisDOT, FTA, or NTSB
• Internal Safety Audits From the RTA
• Three Year Audits from WisDOT, or FTA's triennial audit of the WisDOT SSO program
  CAPs may also be developed in response to hazard identification and analysis, risk
  assessment, and risk monitoring, by either the RTA or WisDOT.

Each CAP must identify:

• The hazard or programmatic deficiency
• The action to be taken by the RTA
• An implementation schedules
• The individual(s) and department(s) responsible for the implementation• Any
  other critical information, such as interim/short-term steps taken while awaiting
  longer-term mitigations to be implemented.

Depending on the source of the CAP, a separate development, review, and approval process has been defined including for investigations (internal safety audits, and

triennial reviews and audits by the WisDOT SSO program. Each of these processes for the different sources of CAPs includes a process for the WisDOT SSO program to negotiate changes to proposed CAPs and addition of CAPs, as needed, as well as approval of the CAPs. The WisDOT SSO program may request changes (or additions) to a CAP. A request for a change or addition might stem from an event's root cause, an identified programmatic or organizational deficiency, or whether the CAP fully resolves the issue(s) identified – such a determination would be based on experience from risk monitoring, or a previously implemented CAP. The WisDOT SSO program expects that RTA CAP assignments have agreement with the responsible parties regarding content and due date for any CAP. Should there be a disagreement with the content or due date for any CAP developed for the WisDOT SSO program, that disagreement should be noted upon submission to WisDOT. Recommendations received from FTA, or the NTSB may be developed into CAPs, as determined by WisDOT, or as jointly determined by WisDOT and the RTA.

MSS maintains a CAP monitoring process and tracking document to be updated and provided monthly to the WisDOT SSO program. The tracking document must include, at minimum, documentation of monthly updates by individual CAP, and any progress towards closure or revision to the due date (with an explanation of due date changes) until the CAP is closed. The content, scope, person responsible, or due date of each CAP cannot be changed once approved without prior notification and formal approval from the WisDOT SSO program. All open (or recently closed) CAPs will also be discussed at quarterly meetings with the RTA . When a CAP is ready for closure, the RTA is required to provide the evidence used (or explanation) for closure and the date that closure was achieved. CAPs may also be agreed to be closed as part of the quarterly meetings, and evidence or explanation of closure will be documented as part of those meetings. The CAP closure documentation will be used as part of the WisDOT SSO program risk monitoring activity and will be included in the annual internal data and information analysis report (described in Section 1). During the Revision 5.0 April 10, 2018 74 WisDOT SSO Program Standard triennial reviews and audits by the WisDOT SSO program of the RTA, all of the CAPs (investigations and all audits) during the previous three-year internal audit cycle will be verified (as described in Section 5). CAP closures may also be reviewed during any on-site visits as part of, or between, quarterly meetings.

11.0   EMERGENCY RESPONSE PLANNING/COORDINATION/TRAINING

MSS has a System Security and Emergency Preparedness Plan (SSEPP) integrated into MSS operations planning documents. Key elements of the Plan are as follows:

1.   Ensure proper notification of emergencies is implemented within MSS operations as well as with emergency responders as appropriate.
2.   Regular coordination with the Safety Review Committee (SRC) on emergency planning activities, development of tabletop drills, and development of emergency drills. These drills will occur at least annually, as directed by the CSO.

3.   MSS staff will develop appropriate training programs for staff and first responders which will be outlined for feedback from the SRC prior to implementation.
4.   Directs MSS staff to coordinate planning and activities with other appropriate entities (ex. City Office of Emergency Management, Homeland Security, Milwaukee County Office of Emergency Management, other regional emergency planning groups and committees) to support integration of MSS rail response resources and emergency response requirements into regional emergency planning and preparedness programs.
5.   Develop an emergency awareness program, signage, and outreach for MSS passengers and others who are around the system.

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11.1   Responsibilities for Emergency Preparedness

MSS is integrated into City operations and communication systems and has coordinated and developed training for all emergency service agencies that might respond to calls on or about MSS property. These training activities, tabletop drills, and emergency drills emphasize to responders how to work around the streetcars, the tracks, the traction power system (including the overhead contact system) and how to coordinate with MSS employees.

Continuity of operations is planned and developed in the Safety and Security Emergency Preparedness Plan (SSEPP), a controlled document. Further MSS responsibilities for emergency preparedness are also discussed in the SSEPP.

11.2   Coordinated Schedule

MSS emergency preparedness activities are discussed regularly as an agenda item for the SRC. The SSEPP and the ASP are updated annually, and the emergency operations plan is distributed to the appropriate public safety agencies and staff. The TM manages this process and coordinates with the CSO as appropriate.

11.3   Emergency Exercises

Joint emergency response and streetcar drills will be scheduled annually. They will be coordinated with the SRC and CSO and organized by the TM. The SRC, CSO, and TM will recommend procedural changes where necessary as plans and exercises evolve. An invitation will be made to the SSO each time they are conducted.

11.4   Emergency Procedures

The SSEPP and the emergency operating procedures developed as part of the standard operating procedures outline specific emergency response procedures. They form the basis of training for the staff of MSS as well as the first responders that may be called on in emergencies. After action reports are compiled by the CSO and the TM during drills and in all cases where an emergency response has occurred. They are transmitted to the SSO in all cases.

11.5 EMERGENCY TRAINING

All staff of the OMC will be trained in the emergency procedures during the initial hiring of staff. There will also be ongoing training for staff of MSS. Additionally, regular meeting of the SRC will occur and additional training needs will be identified by the committee as review of drills and incidents occur. Follow-up revisions will be made to training procedures if required and additional training will occur as recommended by the committee.

11.6 FAMILIARIZATION TRAINING

Emergency response is not just an internal MSS function; it includes police and fire personnel and public works divisions. MSS coordinates training of these personnel as outlined previously. Additionally, coordination occurs with County and Homeland Security personnel through the emergency response offices of both the City and County of Milwaukee. These personnel, through drills and instruction are made familiar with streetcar features, emergency exits and shutoff procedures, electrical system functions and features, and OMF emergency procedures. Training of these first responders assures MSS of the best possible outcome in the case of an emergency. MSS provides video instruction and in person training opportunities to first response agencies on an ongoing basis.

12.0 INTERNAL SAFETY AUDIT PROCESS

12.1 OVERVIEW

An internal audit will be completed by the CSO every three years to review and determine if the elements specified in the MSS ASP are being implemented as intended. Any deficiencies or findings will be documented and will be addressed by MSS. This MSS Triennial review will specifically include the elements identified in this ASP and the safety and security elements identified in the SSEPP.

Safety audits will include system safety elements outlined in the Internal Safety/Security Rail Audit Program Plan:

1. Executive Approval (Policy Statement)
2. Purpose, Goals and Objectives
3. Management Structure
4. Plan Review and Modification
5. Plan Implementation- Tasks and Activities
6. Hazard Management Process
7. Safety Certification
8. Managing Safety in System Modifications
9. Safety Data Acquisition
10. Accident/Incident Notification, Investigation and Reporting
11. Emergency Response Planning/Coordination/Training
12. Internal Safety Audit

13. Rules Compliance/Procedures Review
14. Facilities and Equipment Inspections
15. Maintenance Audits/Inspections
16. Training and Certification Review/Audit
17. Configuration Management
18. Compliance with Local, State and Federal Regulations
19. Hazardous Materials
20. Drug and Alcohol Program
21. Procurement

Security audits will include the following elements:

1. Policy Statement and Authority for SSEPP
2. Description of Purpose for SSEPP
3. Clearly Stated Goals for SSEPP
4. Identifiable and Attainable Objectives
5. System Description/Organizational Structure
6. SSEPP Control and Update Procedures
7. Threat and Vulnerability Process

An audit report will be prepared annually by MSS documenting its activities and findings over the calendar year. This report will be submitted to the SSO for review and approval. In this report the CSO must certify compliance of the MSS with its ASP or define the areas of non-compliance with an appropriate corrective action plan. This position is not directly responsible for the management supervision of the Operations personnel who report directly to the OM, therefore providing independence from conflicts that might occur in smaller organizations with the exception of the training and certification review section which, if reviewed, will be conducted by the CSO.

12.2 SCOPE OF ACTIVITIES

The objectives of the internal safety audit process are to ensure effective SMS implementation across all safety objectives, provide a mechanism for determining the effectiveness of the MSS ASP, and assess its level and quality of implementation. Specifically, internal safety audit objectives are to:

1. Verify that safety programs have been developed/implemented in accordance with ASP requirements.
2. Assess the effectiveness of the MSS's system safety programs.
3. Identify program deficiencies.
4. Identify potential hazards in the operational system and weaknesses in the system safety programs.
5. Verify that corrective actions are being developed, implemented and tracked to closure to address deficiencies and potential hazards.
6. Recommend improvements to the MSS ASP.
7. Provide management with an assessment of the status and adequacy of the system safety program.

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8. Assure continuing evaluation of safety-related programs, issues, awareness and reporting.

Based on a careful review of these objectives and the activities addressed in the ASP, all MSS organizational units and functions are subject to the internal audit process.

12.3 AUDIT PROCESS

The CSO is responsible for developing and distributing the audit procedures, and to assure that audits are conducted in a cooperative and professional manner. The procedures include a process for resolving problems or disagreements with findings. The department to be reviewed will be informed in advance of the audit and provided with information regarding the items covered in the audit. Findings are communicated to the department to ensure implementation of corrective action plans. Critical deficiencies are communicated to senior management immediately or no later than during the exit briefing/interview.

12.3.1 Cycle/Schedule

During each three-year internal audit period, all elements of the ASP will be covered. Approximately one-third (1/3) of the functional areas will be audited each year, per the internal audit schedule.

12.3.2 Checklists and Procedures

The CSO will use checklists and procedures, as outlined in the Internal Audit Plan. The WisDOT SSO may be invited to observe each internal safety audit conducted. These checklists will reflect the items and areas of MSS being audited.

12.3.3 Audit Reporting

The MSS will prepare an annual audit report of the status of all findings, corrective action plans, and recommendations resulting from the previous year's audit. This report is distributed to all appropriate levels of management upon request. At minimum, the report contains a brief overview of the audit activities performed, all checklists, and any findings, recommendations or concerns identified. Additionally, a schedule of next year's audits and an update of the three-year schedule will be included. The report will be delivered in draft form to WisDOT SSO for a period of review and comment prior to finalization, including any Corrective Action Plans (CAPs) developed through the audit. MSS will formally track the CAPs to document the status in accordance with the established process in this document.

13.0 RULES COMPLIANCE/PROCEDURES REVIEW

13.1 OVERVIEW

Operational and maintenance procedures necessary for passenger and employee safety are identified in a number of documents. They include rulebooks for employees, the ASP, the standard and emergency operating procedures, bulletins, minutes from

SRC meetings, and review documents created in response to accident and incident investigations.

13.2 REVIEW OF RULES AND PROCEDURES

The GM is responsible for assuring documents related to passenger and employee safety are reviewed and updated as required. The TM, SSM, and CSO may also initiate review of these documents if appropriate.

Document are maintained to ensure that they have been updated and all operations and maintenance personnel affected by any change are notified of said change and any associated training.

13.3 PROCESS FOR ENSURING RULES COMPLIANCE

The employee rulebook describes management's expectations regarding compliance with rules established for passenger and employee safety. Accident and incident investigations, routine supervision, and the employee complaint process are all tools MSS uses to assure rules compliance by staff. Documentation of employee failure to comply and retraining, if appropriate, are additional tools to assure rules compliance.

13.4 COMPLIANCE TECHNIQUES – OPERATIONS AND MAINTENANCE PERSONNEL

MSS compliance techniques include the following:

1. Evaluations during probationary periods and routinely thereafter for employees
2. Supervisors and managers are responsible for assuring compliance of all operations and maintenance personnel in safety procedures established for passenger and employee safety.
3. Supervision of the system occurs during operational hours.
4. Data is collected on operations and maintenance throughout operational hours.
5. MSS has cameras on board streetcars, automatic passenger counting to track passenger data, and global positioning technology, all allowing automated verification of these specific issues. This technology is supplemented with regular supervision observations.

13.5 DOCUMENTATION

Information collected on operations and maintenance personnel and their effectiveness in accomplishing passenger and employee safety are documented in their personnel files. Both acceptable and unacceptable levels of performance are documented as well as training activities.

14.0   FACILITIES AND EQUIPMENT INSPECTIONS

14.1   FACILITIES AND EQUIPMENT SUBJECT TO INSPECTION

Section 3.3 of this ASP documents the maintenance inspection program for the facilities and equipment of MSS. Included in the inspection procedures are inspection of the equipment related to safety.

14.2   REGULAR INSPECTION AND TESTING

A regular cycle of inspections for streetcars, the OMF, the stations, the track, the TPSS, and the OCS has been developed based on manufacturer's recommendations as well as using APTA standards for each facility as appropriate. The routine cycle for these inspections is dictated by the recommendations of the manufacturer.

Regular MSS inspections include:

- Daily Vehicle Manufacturer inspection
- Daily MSS operator pre-trip (prior to each trip)
- Daily MSS operator post-trip (at conclusion of each trip)
- Daily MSS operator interior walk-through (at terminal stations)
- Daily station inspection sweep
- Biweekly track inspection
- Monthly yard inspection
- Monthly OMF fire system inspection
- OCS Inspection
- TPSS inspection
- Yearly OSHA OMF audit

Additional inspections of equipment, facilities, and systems may be performed as needed.

Inspection forms exist for each type of facility or piece of equipment and records of these inspections are kept for review. Additionally, observations of defective equipment are reported whenever observed and operators of streetcars are required to report defects on their streetcar after each shift. These are reviewed by maintenance personnel and defects are repaired as soon as practicable. If a vehicle is deemed unsafe to operate because of a defect, it is taken out of service for repair. If inspections and observations identify a hazardous condition, it is addressed using the hazard management process required by the SMS, employed by this ASP.

14.3   CHECKLISTS

Written checklist and inspection forms are used for inspection of facilities and vehicles. Written procedures have been developed to guide these inspections using the APTA

guidelines where appropriate as well as recommendations from the vehicle manufacturer. (See Appendix D)

14.4 COORDINATION WITH HAZARD MANAGEMENT PROCESS

According to principals of SMS, anyone can report a hazard. If a hazard is identified, including during any inspection activity, it is reported to MSS management, who address, evaluate, and resolve each issue using the hazard resolution process identified in the ASP. Outside resources and the SRC are used as appropriate in this process and the hazard log is updated to include this identified hazard and resolution.

15.0 MAINTANANCE AUDITS/INSPECTIONS

15.1 SYSTEMS AND FACILITIES SUBJECT TO MAINTENANCE PROGRAM

As previously indicated, Sections 3.3 describes the systems and facilities subject to maintenance activities. They include the OMF, the track, the TPSS, the OCS, all vehicles operated by MSS, fare collection systems (when implemented), communications systems, and stations. Manufacturer's recommendations and use of APTA standards, where applicable, guide the maintenance program's preventative maintenance procedures and dictate the inspection cycle for each system and facility. Records of all completed preventative maintenance are maintained, and spot audits are conducted to ensure correct procedures are followed in a timely manner and quality is adequate.

15.2 RESOLUTION OF AUDIT/INSPECTION FINDINGS

Defects identified are addressed as they occur and vehicles with safety critical defects are held out of service until repairs are completed. Completed repairs are tracked by the Maintenance Supervisor and reported so they can be reviewed by the General Manager or Streetcar System Manager. Preventative maintenance is monitored by the Maintenance Supervisor and tracked in routine reports provided by the OMC to the City.

15.3 CHECKLISTS
Checklists used by maintenance personnel performing inspections on MSS systems and facilities are filed and retained after defects are closed in accordance with MSS records retention policies. (Appendix E provides an example of a facility checklist)

16.0 TRAINING AND CERTIFICATION

16.1 OVERVIEW

Safety training is conducted on MSS facilities, equipment, and vehicles. All training materials (onboarding and retraining) for all MSS personnel and contractors include a

copy of the current safety management policy from this ASP. Operating rules are prepared by the OMC and issued to affected personnel. The TM oversees the creation and delivery of training programs and maintenance of records. The GM and OM maintain SOPs, Rules, and all records on file at the OMF. The CSO periodically completes reviews and performs oversight activities associated with the training programs. Safety-critical activities or functions may require special training and/or certification. Ongoing training may be included in regular safety meetings. Training documentation is retained at the OMF.

Refresher training is held at least annually for employees. Retraining is completed when situations related to employee performance warrant it. Emergency responders take part in training drills that occur at least annually. Training documentation and records are retained at the OMF.

16.2 OPERATIONS PERSONNEL TRAINING

All Streetcar Operators are required to successfully complete the streetcar Operator Development Program prepared by the OMC (approved by the City). The program covers Standard Operating Procedures and Operator Rules that govern the streetcar alignment and operation. The program includes evaluation by qualified Operators and Supervisors using an Observation Report Form. New Operators must meet all criteria satisfactorily prior to solo operation of the Streetcar. Each Operator is certified with both written and practical testing to demonstrate operational readiness.

Each operator is given an annual recertification course on the rules and procedures and will recertify with written and practical testing. The recertification consists of a written test, a supervised observation of operation over the entire alignment, and a practical demonstration of troubleshooting techniques. Any person who fails the annual recertification course is provided additional training and held out of revenue service until such time as they successfully complete the recertification course.

Updated training materials will be developed under coordination by the OM/TM and Supervisors prior to the opening of any new rail extension or major modification to the existing streetcar line. Operations personnel will be certified by written and practical testing.

Streetcar operators are subject to periodic in-service evaluation by Streetcar Supervisors who monitor their compliance to rules and procedures outlined in the Rule Book and SOPs. Supervisors must complete an Observation Report Form after completion of in-service evaluations and review the information in the report with the Operator. Operators found to be in violation of any rule or procedure may be subject to progressive discipline. The OMC records all violations and determines and administers any necessary disciplinary actions, retraining, and re-instruction.

16.3 Maintenance Personnel Training

Maintenance requirements, methods, and procedures for MSS equipment and systems are described in the MSS Maintenance Training Program (matrix), developed for the

training and certification of maintenance personnel. Use of personal protective equipment, use of emergency equipment, and safety instructions are included within the training program.

Maintenance personnel are trained to operate streetcars within the shop and yard limits. They are trained to operate hi-rail equipment, heavy equipment, or other specialized vehicles/equipment/apparatus, and will be certified by both written and practical testing in order to document the employee's knowledge of safety and operating procedures and skill in the proper and safe operation and procedures. Each employee must re-certify annually in the proper and safe use of the equipment/vehicles with written and practical testing. Any person who fails the annual recertification course is provided additional training and held out of service until such time as they successfully complete the recertification.

16.4 Employee Safety Certification Program

Safety training is conducted on all MSS equipment. Operating rules and SOPs are issued by the OMC to all operating personnel and contractors. The rule book and SOPs are revised and approved internally by the OMC on an annual basis. The CSO ensures that SOPs are reviewed and approved annually.

16.5 Safety Training

Safety materials are developed for the training and certification of operators and maintenance personnel. Identification of protective devices and emergency equipment are included in training documentation and instruction. In addition, safety posters and notices are used, as appropriate, to enhance awareness during all phases of system operations. Proficiency demonstrations and certifications are required for all operators and maintenance personnel as outlined in section 16.1, 16.2, and 16.3. Safety meetings are conducted to address concerns as needed.

The CSO reviews the safety training program annually to ensure that training materials and programs remain consistent with SMS and the needs of MSS.

16.5.1 EMPLOYEE SAFETY PROGRAM

MSS is committed to a dedicated employee safety program covering all applicable federal, state and local regulatory requirements to ensure a safe and healthy work environment.

The Accountable Executive is ultimately responsible for ensuring that SMS is effectively implemented through MSS. The CSO has the authority and responsibility to ensure day-to-day implementation and operation of the SMS and does not serve in other operational or maintenance capacities. The OMC leads day to day efforts to ensure that employees are aware of job-related hazards through an ongoing process of training, job briefings and departmental notices located throughout all affected areas.

The employee safety program requires all employees to complete safety training consisting of the following:

Initial – Part of the requisite on-boarding of all new employees

Annual – A yearly review of rules, qualifications, process and procedures, SOP's

Re-training – required after any negative event in which a deviation from proper process was documented

Periodic – management directed mandatory training (ie: policy changes, educational, new hazard identification) or any training management deems necessary to maintain a safe and efficient work environment

New – Introduction of new products, services or materials

The TM has the responsibility to assure employees are complying with local, state and federal safety requirements through the internal audit process and periodic inspections. These records are continually reviewed and updated to maintain a safe work environment and meet all required aspects of regulatory compliance. The CSO and SSM will also review and audit compliance with these training requirements.

16.5.2 WORKING ON OR NEAR MSS PROPERTY

The OMC requires all employees, contractors *(internal and external)* and any other persons who perform work on or near any track or high voltage system area, to attend the required Roadway Worker Protection Program. This includes anyone performing any form of work that may encroach within 50 feet of track or TPSS or may impact rail service. Such parties will be required to obtain a SAAR permit and successfully complete the Roadway Worker Protection Program.

16.5.3 HAZARDOUS MATERIAL TRAINING AND EDUCATION

The OMC provides training to employees in basic, safe work practices and hazard identification. Employees exposed to chemicals and /or overexposed to physical agents receive training in use and care of personal protective equipment and hazards and safe handling methods for chemicals.

16.6 Emergency Response Personnel Training

Training to familiarize fire, police, and emergency service personnel with special streetcar and facility requirements is coordinated through and conducted in conjunction with the MSS. Emergency response training may include agency-specific procedures and training and is certified and submitted to the SRC. Emergency preparedness and response drills are developed by the TM and CSO according to the National Incident Management System (NIMS) guidelines and approved by the SRC. Training classes, drills, and after-action reviews are conducted with emergency service personnel and MSS personnel to:

1. Ensure the adequacy of MSS emergency plans and procedures.
2. Ensure readiness of MSS personnel to perform under emergency conditions.
3. Ensure effective coordination between MSS and emergency response personnel and agencies.

16.7 TRACK ACCESS PERMITTING

Construction safety and operations management are privately contracted in accordance with City procedures. Contractors not part of the construction or operations activities associated with MSS must seek approval in writing to perform work on or near MSS right of way through the City of Milwaukee DPW permitting process. Once the DPW permitting process is complete, contractors must also complete the MSS Streetcar Alignment Access Request (SAAR) permit and training process, which is documented in MSS SOPs.

The construction contractor or OMC must ensure that the requesting party follows all applicable safety requirements, including those established by MSS, the Manual on Uniform Traffic Control Devices (MUTCD), and OSHA.

16.7.1 PERMIT WAIVER FOR EMERGENCY SITUATIONS

Permitting in emergency situations may be waived, when necessary, with proper notification to OMC. Waiving of SAAR permit will be assessed by the GM.

16.7.2 CONSTRUCTION ZONE PERMITTING DURING EXTENSION WORK

During extension construction, permitting in the specified construction zone will be coordinated by the prime construction contractor for MSS.

16.7.3 ENFORCEMENT OF SAFETY REQUIREMENTS FOR WORK NEAR ALIGNMENT

All access, whether permitted or emergency access, is subject to safety enforcement to assure compliance with federal, state, and local laws.

16.8 EMPLOYEE SAFETY REPORTING PROGRAM

Employees are provided every opportunity and encouraged to report safety conditions to senior management including, but not limited to, the following methods:

- Employee Hotline Number (Transdev 866-850-3033)
- Anonymous safety suggestion box, located at OMF lunchroom
- Open door policy
- Reports to Dispatch
- Joint Safety Committee

Employees who report safety conditions are protected, as detailed in the active version of the OMC employee handbook. Reports may be made anonymously, at the employee's discretion. Employee reports will be entered on the Event Log, evaluated for follow-up, appropriate action taken, and a resolution communicated to all personnel. Self-reporting does not exempt employees from following policies and procedures, also

as detailed in the OMC employee handbook. Violations will be evaluated according to MSS rules and procedures. Notification of actions taken in response to reports submitted will be made as detailed in section 8.0 using a combination of train orders, bulletins, general notices, memorandums, or Safety Committee meeting minutes.

16.9 RECORD KEEPING

Records of all training activity provided by the OMC to employees, contractors, or City employees are maintained by the OMC at the OMF. Records of all training activity by City employees are maintained according to City recordkeeping policies and may be requested from the relevant oversight entity.

17.0 CONFIGURATION MANAGEMENT

17.1 OVERVIEW

Configuration Management is a key component of SMS and provides a process to track any deviation from the baseline configuration of the system and its component parts as they occur. Its purpose is to assure there is a process for making and approving changes, those changes are communicated and documented, and an acceptable level of system safety is maintained for passengers, employees, and property. Further, this plan will assure changes to MSS that affect safety are proactively addressed and evaluated, and appropriate steps taken to assure their implementation is consistent with MSS goals and SMS objectives.

17.2 PROCESS FOR CHANGES

To manage configuration changes MSS has established and documented engineering and operational practice baselines, incorporating design criteria, as-built drawings and specifications, safety and security certified operation and maintenance plans (including training and qualification requirements), and other related practices.

Except in cases of emergency, the SMS process for identification, review, approval, implementation, documentation, and dissemination of changes to the established baseline is as follows:

1. A change or modification that results in a deviation from the established baseline will be identified and assessed. This assessment is submitted to the SRC.

2. Before implementation, the SRC will review the assessment and recommend action to the Accountable Executive. The SRC reports the final disposition to all affected parties. Each submission will be memorialized in the SRC meeting minutes.

3. Each submission will be added to the Configuration Management Log, to be maintained by the OMC.

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4. The Accountable Executive has final authority to determine whether a change will be implemented.

The intent of this section is to track, document, and manage MSS configuration throughout its life cycle, thereby ensuring safety critical systems, facilities, and operating practices are continually maintained.

18.0 HAZARDOUS MATERIALS

The Occupational Safety and Health Program is directed towards achieving a safe working environment for employees and minimizing the likelihood of injuries. The program emphasizes the recognition, evaluation, and control of hazards in the occupational environment. The MSS has established a HAZCOM (Hazard Communication) program to help ensure that employees are provided adequate safeguards from injury and illness that could result from improper handling, use, and storage of hazardous materials. The program ensures MSS compliance with the Federal Hazard Communication Act (29 CFR 1910.1200).

18.1 HAZARDOUS MATERIALS CONTROL

The MM is responsible for reviewing the Safety Data Sheets (SDS) for all chemicals and hazardous materials that are being considered for purchase or use within MSS. The MM is responsible to monitor employees to ensure correct protocol is followed per the SDS for each product. The MM is responsible for keeping all SDS current and available at the OMF to all affected employees.

18.2 PERSONAL PROTECTIVE EQUIPMENT

The OMC will review and approve all personal protective equipment (PPE) to be used by their personnel in accordance with applicable industry standards. The CSO provides oversight of PPE selection and use.

19.0 DRUG AND ALCOHOL TESTING PROGRAM

MSS is committed to a drug and alcohol-free workplace. The OMC has primary responsibility for administering the Drug and Alcohol Testing Program in accordance with 49 CFR Parts 40 and 655. The OMC employs a zero-tolerance Drug and Alcohol Policy.

All OMC employees are initially trained during on-boarding and annually on the Drug and Alcohol Policy and issued a copy of the policy and acknowledgement receipt that must be signed. This policy is in compliance with USDOT regulations, including pre-employment, post-accident, reasonable suspicion, and random testing. All OMC safety-sensitive employees are placed in a random testing pool.

The City of Milwaukee RTA does not have any employees that perform safety sensitive functions for MSS. For that reason, there are no employees in the random testing pool.

20.0   PROCUREMENT

Procurement of services, supplies, materials, and equipment for MSS follows applicable federal guidelines to enhance system safety and minimize risk. The procurement process includes review by the SSM or GM. The CSO ensures a potential procurement will not introduce a new hazard(s) or can be mitigated.
All procedures related to safety and procurement are subject to internal and external audits that may be conducted for MSS.

21.0   RECORDKEEPING

The RTA is responsible for maintaining all SMS documentation, including SMS documentation not included or referenced elsewhere in this document. SMS documentation will be maintained electronically for no less than 3 years from the time of creation. All SMS documentation will be available to applicable federal and state oversight agencies upon request.

22.0   APPENDICIES AND REFERENCES

APPENDIX A   COMPONENT DRAWINGS
APPENDIX B   DETAILED ORGANIZATION CHART
APPENDIX C   HAZARD TRACKING LOG
APPENDIX D   INTERNAL SAFETY/SECURITY RAIL AUDIT PROGRAM PLAN
APPENDIX E   FACILITY INSPECTION CHECKLIST
APPENDIX F   ABBREVIATIONS / DEFINITIONS
APPENDIX G   COMMON COUNCIL APPROVAL

APPENDIX A

COMPONENT DRAWINGS (SECTION 3.2)

OMF COMPONENTS

Figure 1 Track Layouts and Configuration
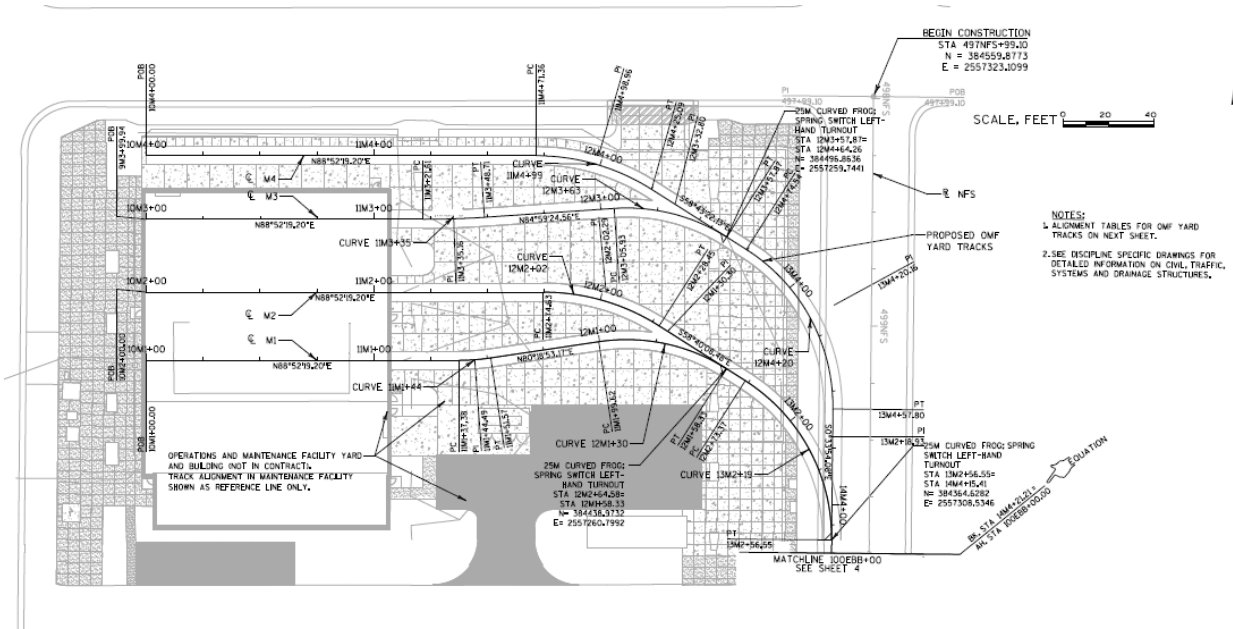
Figure 2 Operations and Maintenance Facility Interior Floorplan
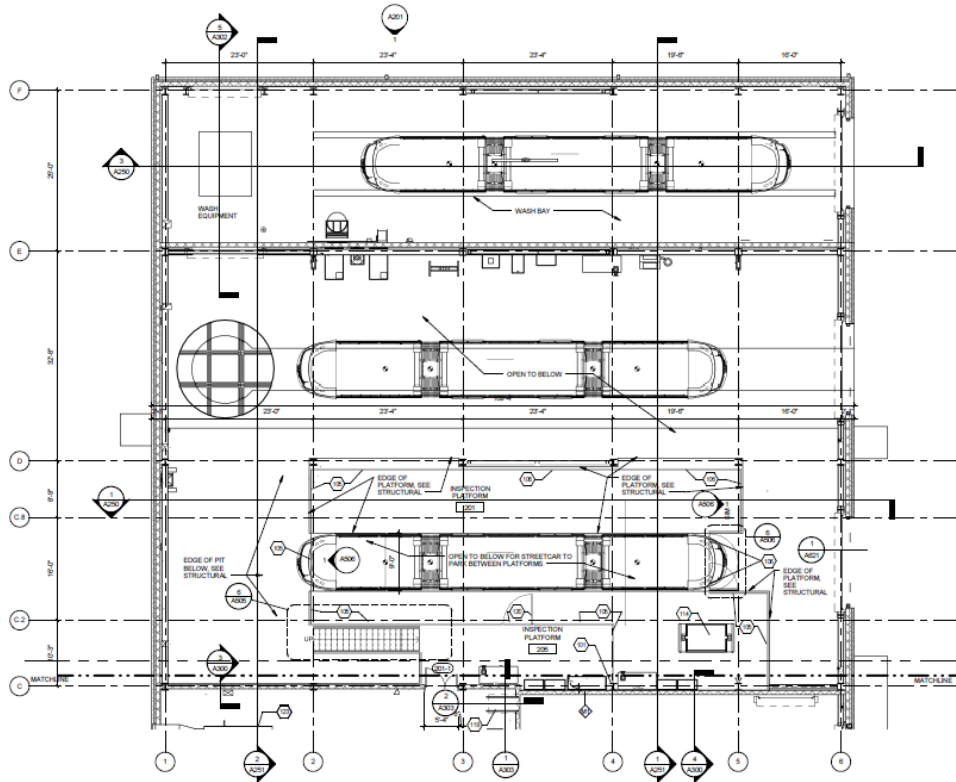
PLATFORM LEVEL SECTOR B

Figure 3 Upper Mezzanine Area of Facility
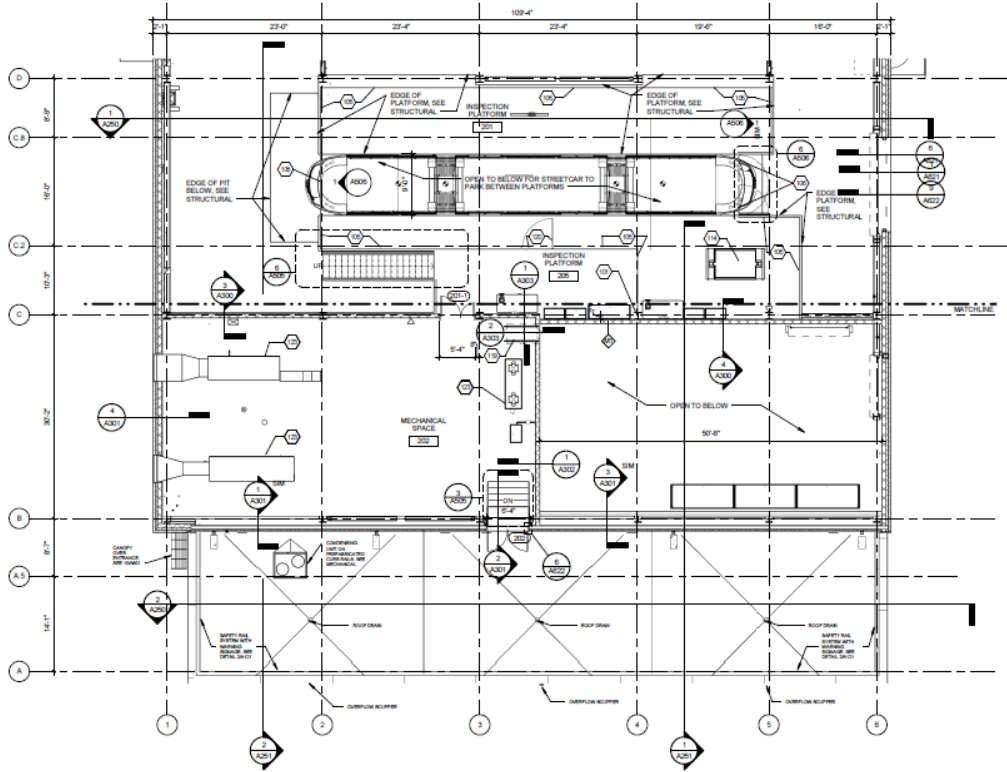
PLATFORM LEVEL FLOOR PLAN

Figure 4 Curb Lane Station
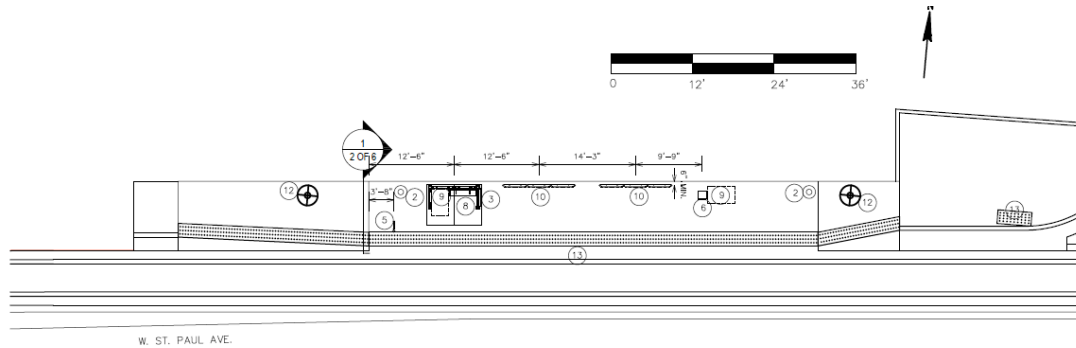
STOP PLATFORM 2W

GENERAL NOTE: DIMENSIONS ARE TO CENTERLINES, UNLESS OTHERWISE NOTED

W. ST. PAUL AVE.

KEY

1. CONCRETE BOLLARD; SEE 10 THRU 13/SHEET 6 OF STOP DETAILS
2. TRASH RECEPTACLE, SEE 4&5/SHEET 6 OF STOP DETAILS
3. LCD AD DISPLAY; NOT IN CONTRACT
4. STAIR HANDRAIL, SEE 1&3/SHEET 6 OF STOP DETAILS
5. STREETCAR BLADE SIGN, SEE 1 THRU 3/SHEET 5 OF STOP DETAILS
6. TICKET DISPENSER; NOT IN CONTRACT
7. PIPE GUIDERAIL, SEE 7&8/SHEET 6 OF STOP DETAILS
8. STANDARD SHELTER w/BENCH, SEE SHEETS 1 THRU 4 OF STOP DETAILS
9. 30" x 48" ADA CLEARANCE
10. LEANING RAIL, SEE 4,6&7/SHEET 5 OF STOP DETAILS
11. BIKE RACK LOCATION; NOT IN CONTRACT
12. OCS POLE
13. 24" TACTILE WARNING STRIP
14. REMOVABLE PIPE GUIDERAIL; SEE DETAIL 6/SHEET 6 OF STOP DETAILS

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Figure 5 Median Station

N. BROADWAY

KEY

1 CONCRETE BOLLARD; SEE 10 THRU 13/SHEET 6 OF STOP DETAILS

2 TRASH RECEPTACLE, SEE 4&5/SHEET 6 OF STOP DETAILS

3 LCD AD DISPLAY; NOT IN CONTRACT

4 STAIR HANDRAIL, SEE 1&3/SHEET 6 OF STOP DETAILS

5 STREETCAR BLADE SIGN, SEE 1 THRU 3/SHEET 5 OF STOP DETAILS

6 TICKET DISPENSER; NOT IN CONTRACT

7 PIPE GUIDERAIL, SEE 7&8/SHEET 6 OF STOP DETAILS

8 STANDARD SHELTER w/BENCH, SEE SHEETS 1 THRU 4 OF STOP DETAILS

9 30" x 48" ADA CLEARANCE

10 LEANING RAIL, SEE 4,6&7/SHEET 5 OF STOP DETAILS

11 BIKE RACK LOCATION; NOT IN CONTRACT

12 OCS POLE

13 24" TACTILE WARNING STRIP

14 REMOVABLE PIPE GUIDERAIL; SEE DETAIL 6/SHEET 6 OF STOP DETAILS

STOP PLATFORM 4W
GENERAL NOTE: DIMENSIONS ARE TO CENTERLINES, UNLESS OTHERWISE NOTED

9'-6"   19'-1"   20'-5"   9'-7"   5'-10"

APPENDIX B

Detailed Org Chart (Section 3.4)

Milwaukee Streetcar System Organizational Chart
(August 2022)

Jerrel Kruschke
Commissioner
Dept of Public Works
Interim

Brian Hinkle
Chief Safety
Officer

Andrew Davis
Lockward
DPW Streetcar Manager

Shannon Billingsley
Safety Manager/Training
Transdev

Danielle Rodriguez
DPW Director of
Operations

Nicole Quezaire
Manager of Operations
Transdev

Terry Mulcahy
General Manager
Transdev

Jacob Shields
Service Manager
Brookville
Services

Rodney Barnes
Maintenance
Supervisor
Brookville
Services

Amanda
Armbruster
HR Generalist
Transdev

Tanika
Neely
Supervisor
Transdev

Supervisor
Anthony
McKissick
Transdev

Supervisor
Carlos Williams
Transdev

Vacant
Supervisor
Transdev

Vacant
Supervisor
Transdev

Vacant
Supervisor
Transdev

Tyus Stoltenburg
Maint. Technician
Brookville
Services

Marcus Darden
Facilities Maintenance
Manager
Transdev

Pippa Benning
Streetcar Operator
Transdev

Delora Dillon
Streetcar Operator
Transdev

Anthony Strong
Streetcar Operator
Transdev

Tammy Reynolds
Streetcar Operator
Transdev

Jody Sanford
Maint. Technician
Brookville
Services

Facilities Maintenance
Technicians
Transdev

Roland Holtz

Jonathan Babalola
Streetcar Operator
Transdev

Jacqueline Williams
Streetcar Operator
Transdev

Don Perket
Maint. Technician
Brookville
Services

Robert Franson

Brady Watts
Streetcar Operator
Transdev

Jessica Steen
Streetcar Operator
Transdev

Danny Hunt

Andrea Dunomes
Streetcar Operator
Transdev

Tamikia Green
Streetcar Operator
Transdev

Thomas West

Transdev 21 – Brookville 4

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APPENDIX C

							Operational Hazard Tracking Log					
No.	Hazard Description	Potential Cause	Effect on System	Initial Hazard Risk Index	Responsible Party	Date	Potential Mitigation(s)	Action Taken	Final Hazard Risk Index	Status	Date of Action	Comments
2018-37	Fall hazard from Mezzanine at OMF	unsafe work environment, Lack of fall protection, Lack of signage	Disruption of service. Serious injury.	II-B	City/Transdev	12/18/2018	Install additional signage/markings, Install tie off points, Maintenance personnel working procedures	Install additional signage/markings, Install tie off points, Maintenance personnel working	IV-D	Mitigated	1/31/2019	Closed out in initial Safety and Security Committee Meeting by voice vote
2019-1	Traffic congestion 200 W St. Paul	Impatient drivers	Accident/injury	III-C	City/Transdev	11/25/2019	Monitor events-Operator reporting					
2019-2	Streetlights out on alignment	unknown	low visibility	III-D	City	11/27/2019	city to repair	request to es for investigation	III-C	Mitigated	1/8/2020	Process in place for immediate reporting for repairs
2020-2	Construction Cranes near alignment	Construction	damage/disruption dropped loads or	III-D	City/Transdev	1/8/2020	Monitor					

- **No**. – refers to the number assigned to the hazard by MSS.

- **Description** – refers to a brief narrative summary of the hazard – what it is; where it is located; what elements it is comprised of; etc.

- **Date Identified** – refers to the date the hazard was identified by MSS.

- **Source** – indicates the mechanism used to identify the hazard, i.e., operator report, near-miss, accident investigation, results of internal safety or security audit, rules compliance or training program, maintenance failure, facility or vehicle inspection, trend analysis, formal hazard analysis, etc.

- **Assessment Results** – refers to the hazard severity and hazard frequency ratings initially assigned to hazard by the MSS.

- **Recommendations** – refers to the actions recommended by the MSS to address the hazard and to bring it into a level of risk acceptable to management.

- **Status** – refers to the status of the recommendations. Status may be designated as: not started, open, in progress, or closed.

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APPENDIX D

STREETCAR INSPECTION CHECKLIST (SAMPLE)

Inspection checklist	Daily	Bi-weekly	Monthly	Semi-annual	Annual	270,000 miles and above
Cleaning	x					
Lights	x					
Wipers/fluid	x					
Horn	x					
Doors	x					
Brakes	x					
Track brakes	x					
Vehicle car body	x					
Underframe-inspect visually	x					
Sunshade	x					
Cab controls-operators desk	x					
Propulsion	x					
HVAC	x					
Train communication	x					
Truck-visual inspection	x					
Sanding system - check operation	x	x				
Gearbox- examine oil	x	x				
Gearbox-check oil level	x	x				
lifting points-inspect visually	x	x				
Windows-inspect visually	x	x				
Interior lighting-check operation	x	x				
Exterior lighting-check operation	x	x				
Fire extinguisher-inspect visually	x	x				
Paintwork-inspect visually	x	x				
Front and side Panels-inspect visually	x	x				

Event Recorder- check operation	x	x				
Event recorder-download data	x	x				
Pantograph-inspect carbons, tension, wiring	x	x				
Wheels-inspect visually	x	x	x			
Wheels-check geometry	x	x	x			
Axle-check fasteners	x	x	x			
Primary suspension-check height	x	x	x			
Reinforcement support- check fasteners	x	x	x			
Levelling element-visual inspection	x	x	x			
Sanding system-examine and check	x	x	x			
Wheel flange system-check operation	x	x	x			
Wheel flange system-clean spray nozzles	x	x	x			
Windshield wiper and washer- inspect visually	x	x	x			
Cab-inspect visually	x	x	x			
Obstacle deflector-check operation	x	x	x			
Obstacle deflector-check bearings	x	x	x			
Handrails and wheelchair area-inspect visually	x	x	x			
Flooring-inspect visually	x	x	x			
Articulation Bellows-inspect visually	x	x	x			
Coupler-inspect visually	x	x	x			
Battery-inspect visually	x	x	x			
Battery-check electrolyte level	x	x	x			
Compressor - inspection	x	x	x			
Gearbox-replace oil	x	x	x	x		
Master controller-cleaning	x	x	x	x		
Master controller-change switches	x	x	x	x		
Windshield wiper and washer-grease	x	x	x	x		
Cab-body-inspect joints	x	x	x	x		
Electrical cabinets-inspect visually	x	x	x	x		
Electrical cabinets-clean	x	x	x	x		
Electrical cabinets-check tightness of lugs	x	x	x	x		

Grounding system-check electrical resistance	x	x	x	x		
High speed circuit breaker-basic inspection	x	x	x	x		
High speed circuit breaker-check fasteners	x	x	x	x		
Lightning arrester-inspect visually and clean	x	x	x	x		
Auxiliary power supply-inspect visually	x	x	x	x		
Auxiliary power supply-check fasteners	x	x	x	x		
Intercommunication hose-inspect visually	x	x	x	x		
Upper articulations-inspect visually	x	x	x	x		
Forging lower articulations-inspect visually	x	x	x	x		
Battery-Check individual cell voltage	x	x	x	x		
Battery-clean in installed location	x	x	x	x		
Battery-check electrolyte level	x	x	x	x		
Compressor-semi-annual inspection	x	x	x	x		
Traction motors-inspect visually	x	x	x	x		
Traction motors-grease bearings	x	x	x	x		
Power equipment box-clean	x	x	x	x		
Brake resistors- inspect visually	x	x	x	x		
Brake resistors-clean	x	x	x	x		
Brake resistors-check fasteners	x	x	x	x		
Wheel flange greasing system-clean piping	x	x	x	x	x	
Motor gearbox coupling-check condition	x	x	x	x	x	
Gearbox-verify contact between gear teeth	x	x	x	x	x	
High speed circuit breaker-partial overhaul	x	x	x	x	x	
Upper articulations-main inspection	x	x	x	x	x	
Forging lower articulations-main inspections	x	x	x	x	x	
Battery capacity test	x	x	x	x	x	
Compressor-main inspection	x	x	x	x	x	
Damper-change at 270,000 miles	x	x	x	x	x	x
Battery-check electrolyte density at 270,000 miles	x	x	x	x	x	x

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Traction converter box-replace traction inverter fan at 270,00 miles	x	x	x	x	x	x
Traction converter box-Replace auxiliary converter fan at 270,000 miles	x	x	x	x	x	x
Windshield and cab windows-change at 270,00 miles	x	x	x	x	x	x
rotation stop-change 300K	x	x	x	x	x	x
Secondary suspension dampers-change silent blocks 300K	x	x	x	x	x	x
Wheel flange greasing system-clean compact unit 300K	x	x	x	x	x	x
Structure-inspect riveted joints 300K	x	x	x	x	x	x
Underframe-weld check 300K	x	x	x	x	x	x
Ventilation ducts-clean 300K	x	x	x	x	x	x
High speed circuit breaker major overhaul 300K	x	x	x	x	x	x
Dampers-analysis on test machine 300K	x	x	x	x	x	x
Coupler-overhaul 300K	x	x	x	x	x	x
Motor bearing-replace 300K	x	x	x	x	x	x
Truck frame-verification of dimensions and welding 300K	x	x	x	x	x	x
Traction motor-replace folding seats 300K	x	x	x	x	x	x
Traction converter box-overhaul 300K	x	x	x	x	x	x
Wheel bearing-change grease and check bearing 300K	x	x	x	x	x	x
Pneumatic panel-replace 300K	x	x	x	x	x	x
High speed circuit breaker- major overhaul at 540,000 miles	x	x	x	x	x	x
Traction motor-major overhaul at 720,000 miles	x	x	x	x	x	x
Wheel bearing-change at 720,000 miles	x	x	x	x	x	x
Secondary suspension dampers-change at 720,000 miles	x	x	x	x	x	x
Secondary vertical suspension dampers-change at 720,000 miles	x	x	x	x	x	x
Wheel flange greasing system-replace metering pump at 720,000 miles	x	x	x	x	x	x
Wheel flange greasing system-replace solenoid valve at 720,000 miles	x	x	x	x	x	x

Grounding installation-change at 720,000 miles	x	x	x	x	x	x
Gearbox -overhaul at 900,000 miles	x	x	x	x	x	x

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APPENDIX E

FACILITY INSPECTION CHECKLIST (SAMPLE)

Air Compressor

Air Quality

Back Flow Inspection Sprinkler

Boiler Inspection Elevator

Bridge Inspection

Bus Washer

CCTV Systems

Exhaust System

Fire Extinguisher(s)

Fire Systems

Forklift Inspection

Garage Door

HVAC system

Hydraulic Oil Pump

Lighting

Mezzanine Fall Protection

Overhead Crane (2 ton)

Overhead Crane (7 ton)

Portable Hoist Inspection

Server Room Systems

Shelter Inspection

Solvent Tank

Wash Bay Water Systems

Waste Oil System Inspection

APPENDIX F

MSS ABBREVIATIONS

ADA	Americans with Disabilities Act
AIP	Accident/Incident Investigation Plan
APTA	American Public Transportation Association
ASP	Agency Safety Plan
AVL	Automatic Vehicle Locator
CAP	Corrective Action Plan
CFR	Code of Federal Regulations
CPW	Commissioner of Public Works
CSO	Chief Safety Officer
DPW	Department of Public Works
EOP	Emergency Operating Plan
ERA	Emergency Response Agency
FLSCC	Fire Life Safety and Security Committee
FTA	Federal Transit Administration
GM	General Manager
HAZCOM	Hazard Communication
MCTS	Milwaukee County Transit System
MFD	Milwaukee Fire Department
MM	Maintenance Manager
MPD	Milwaukee Police Department
MPO	Metropolitan Planning Organization
MSS	Milwaukee Streetcar System
MUTCD	Manual on Uniform Traffic Control Devices
NIMS	National Incident Management System
NTD	National Transit Database
OCS	Overhead Contact System
OESS	On-board Energy Storage System
OM	Operations Manager

OMC	Operations and Maintenance Contractor
OMF	Operations and Maintenance Facility
OMP	Operations and Maintenance Plan
PHA	Primary Hazard Analysis
PMOC	Project Management Oversight Contractor
PPE	Personal Protective Equipment
PRO	Pre-Revenue Operations
RAC	Rail Activation Committee
RAP	Rail Activation Plan
RAWG	Rail Activation Working Group
ROW	Right-Of-Way
RTA	Rail Transit Agency
SAAR	Streetcar Alignment Access Request
SDS	Safety Data Sheets
SITP	Systems Integrated Test Plan
SMS	Safety Management Systems
SOP	Standard Operating Procedure
SRC	Safety Review Committee
SSCP	Safety and Security Certification Plan
SSCVR	Safety and Security Certification and Verification Report
SSEPP	System Security and Emergency Preparedness Plan
SSM	Streetcar System Manager
SSMP	Safety and Security Management Plan
SSP	System Security Plan
SSO	State Safety Oversight (WisDOT)
SSRC	Safety and Security Review Committee
TM	Training Manager
TPSS	Traction Power Substation
TVA	Threat and Vulnerability Analysis
WisDOT	Wisconsin Department of Transportation

Definitions listed in WisDOT Program Standards

[WisDOT SSO Program Standard – Revision 5.0 (April 2018) (wisconsindot.gov)](#)

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Definitions listed in 49 CFR 673

https://www.ecfr.gov/current/title-49/section-673.5

Definitions listed 49 CFR 674

https://www.ecfr.gov/current/title-49/section-674.7