



METRO Green Line LRT Extension (SWLRT)



System Safety and Security Management Plan

Revision 02-00 | October, 2015

Prepared by the
Metropolitan Council



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Southwest LRT Project
Management Signature Form

**System Safety and
Security Management Plan**

Rev. 02-00

October 2015

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Management Plan Approval

Date: 11/9/2015

Document Title: VIII-A-15A Safety and Security Management Plan (SSMP) (PMP Appendix 15-A), Revision 02-00

Signature: This New Starts document / Management Plan was electronically Approved in e-Builder by Project Management Team member Craig Lamothe on 20151102 153404 GMT

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Acronym list

ACRONYM	DESCRIPTION
ADC	Advanced Design Consultant
BOMA	Business Owners Management Association
CCIL	Critical/Catastrophic Items List
CCLRT	Central Corridor Light Rail Transit, Green Line
CCTV	Closed Circuit Television
DHS	Department of Homeland Security
EMS	Emergency Medical Services
EOP	Emergency Operating Procedures
EPMS	Electronic Project Management System
FBI	Federal Bureau of Investigation
FFGA	Full Funding Grant Agreement
FLSSC	Fire Life Safety and Security Committee
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GSA	Government Services Administration
HA	Hazard Analysis
HCRRA	Hennepin County Regional Railroad Authority
HVAC	Heating, Ventilation and Air Conditioning
ICE	Independent Cost Estimate
LRT	Light Rail Transit
LRV	Light Rail Vehicles
Council	Metropolitan Council
MIL-STD	Military Standard
MnDPS	Minnesota Department of Public Safety
MSDS	Material Safety Data Sheets
MTPD	Metro Transit Police Department
NTSB	National Transportation Safety Board
OEMP	Operations Emergency Response Plan
OMF	Operations and Maintenance Facility
PD	Project Development
PHA	Preliminary Hazard Analysis
PHL	Preliminary Hazard List
PMP	Project Management Plan
QAP	Quality Assurance Plan
SEPP	Security and Emergency Preparedness Plan
SOP	Standard Operating Procedures
SWLRT	Southwest Light Rail Transit
SPO	Southwest LRT Project Office
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSO	State Safety Oversight
SSPP	System Safety Program Plan
SSPS	System Safety Program Standard

SSRC	Safety and Security Review Committee
TSA	Transportation Security Administration
TVA	Threat and Vulnerability Analysis

1 OVERVIEW

This Safety and Security Management Plan (SSMP) documents technical and management strategies for organizing, controlling, and influencing safety and security throughout the design, construction, procurement, testing, activation and acceptance of the Southwest Light Rail Transit (LRT) Project (METRO Green Line Extension). It identifies the processes to be used by project personnel to certify that Southwest LRT is safe and secure for passenger service, including activities to:

- Conduct analyses of hazards, threats and vulnerabilities;
- Establish project safety and security design criteria that reflect applicable codes, standard regulations and recommended practices, as well as the results of the hazard and threat and vulnerability analyses;
- Verify conformance with project safety and security requirements in design, construction, integrated testing, pre-revenue operations, and project acceptance;
- Monitor and maintain required construction safety and security levels;
- Ensure the selection, hiring, training and certification of qualified operations, maintenance and dispatch personnel;
- Ensure emergency response capabilities for Metro Transit and Southwest LRT operations, maintenance and dispatch personnel and for local emergency responders; and
- Address other elements required for the provision of complete safety and security systems.

This SSMP also describes how implementation of these requirements will be overseen, as well as the management structure for both implementation and oversight. This SSMP has been developed according to the most recently available Federal Transit Administration (FTA) guidance: “Safety and Security Management Guidance for Major Capital Projects,” FTA C 5800.1, August 1, 2007.

This SSMP includes the following material:

- Overview;
- Chapter 1: Introduction; Commitment and philosophy to actively sustain safe and secure transit operations;
- Chapter 2: Integration of the safety and security function during design, testing, and start-up phases;
- Chapter 3: Integration of the safety and security function during design, testing and start-up phases of the project
- Chapter 4: Assignment of organizational safety and security responsibilities;
- Chapter 5: Hazard and Threat Management;
- Chapter 6: Development of safety and security design criteria;
- Chapter 7: Process for ensuring qualified operations and maintenance personnel;
- Chapter 8: Process for verifying conformance and issuing final safety and security certification;
- Chapter 9: Construction safety and security management activities;
- Chapter 10: Implementation schedule for meeting State Safety Oversight Agency (SSO) requirements and approvals;
- Chapter 11: Federal Railroad Administration (FRA) coordination;

- Chapter 12: Department of Homeland Security (DHS) and Transportation Security Administration (TSA) coordination; and
- Chapter 13: Referenced Management Plans.

Southwest LRT SSMP Revision 02.00 covers safety and security activities through Project Development (PD) and the Engineering Phase. References to plans, procedures, and activities that are in process are also included in this SSMP. Additional detail on safety and security management activities to be performed during later project phases will be included in the Construction revision of this SSMP.

The following are attachments to the SSMP.

- Attachment 15-A1 contains the Southwest LRT Project Description.
- Attachment 15-A2 contains the Southwest LRT Project Office Organization Chart.
- Attachment 15-A3 SWLRT Physical Hazards Analysis (PHA)
- Attachment 15-A4 SWLRT Threat and Vulnerability Analysis (TVA).

Note this attachment is a placeholder noting the location of the actual TVA. For security reasons, the TVA is maintained in the Southwest Project Office by the Southwest LRT Director of Transit Systems Development Design and Engineering.

2 INTRODUCTION: COMMITMENT AND PHILOSOPHY TO ACTIVELY SUSTAIN SAFE AND SECURE TRANSIT OPERATIONS

2.1 Safety and Security Policy Statement

It is the policy of Metro Transit and all other participating organizations, that the Southwest LRT (METRO Green Line Extension) be designed and constructed in full compliance with all requirements and regulations for safety and security established by the FTA, the DHS, the TSA and other local, state and Federal agencies and industry associations. Safety and security are top priorities in conducting all work on Southwest LRT from engineering and design through construction, integrated testing, activation and final project acceptance. This SSMP explains the process and strategies to be used during Southwest LRT design and construction to ensure safety and security in all project activities.

The Southwest LRT Project leadership is committed to making certain that applicable safety and security requirements and regulations are addressed in Southwest LRT design criteria and standards, and that a formal and verified certification process will be conducted to ensure that all construction, including procurement, installation, and testing/inspection, complies with the approved design, and that activation and integrated testing also verify compliance with safety and security requirements. The Southwest LRT Project will not be placed into passenger service until it is verified to be operationally safe and secure as specified in the Southwest LRT Safety and Security Certification Program and supporting plans and procedures.

All persons assigned to conduct work on the Southwest LRT Project are required to comply with the requirements of this SSMP, as well as the plans, procedures, and instructions referenced by this SSMP. Responsibility for developing, implementing and maintaining this SSMP rests with Metro Transit's General Manager and will be carried out for safety functions by the Metro Transit Director of Rail and Bus Safety, and for security functions by the Metro Transit Police Department (MTPD) Chief of Police.

The Metro Transit Director of Rail and Bus Safety has been assigned the authority to ensure that the system safety related requirements of this plan are implemented properly by all project participants. Further, the Southwest LRT construction safety and security manager is responsible for compliance with construction safety and security on Southwest LRT. The Metro Transit Director of Rail and Bus Safety will bring any safety issues Southwest LRT that are not being resolved in a timely or acceptable manner to the attention of the Southwest LRT Project Office (SPO) Project Director and/or project leadership for timely resolution.

Similarly, the MTPD Chief of Police will bring unresolved security issues to the attention of the Southwest LRT Project Director and/or project leadership for timely resolution.

2.2 Purpose

The primary purpose of the Southwest LRT SSMP is to document the approach to be used by Metro Transit, working through the Southwest LRT Project, to ensure that safety and security are designed and built into Southwest LRT, and that a final, formal safety and security certification is issued for Southwest LRT prior to revenue service. The SSMP defines the roles and responsibilities of Metro Transit, including Southwest LRT Project Office (SPO) staff, the Advanced Design Consultant (ADC) and contractors in developing, implementing, and complying with project safety and security requirements. This SSMP also explains how SPO expects to manage required coordination with external agencies, including FTA, Federal Railroad Administration (FRA), the State Safety Oversight Agency (SSOA), the Minnesota Department of Public Safety (MnDPS) and DHS/TSA to ensure that all required approvals, sign-offs and acceptances are in place prior to the initiation of revenue service.

The organization, procedures and processes laid out in this SSMP ensure that:

- Safety hazards and security threats/vulnerabilities are identified from high-quality data by competent individuals, and analyzed by appropriate methodologies;
- Project management personnel have accurate and timely information to support decisions when managing risk, whether it arises from hazards, vulnerabilities, cost, schedule, or performance;
- Design criteria fully address basic safety and security requirements and regulations, and additionally identify hazard resolutions and threat mitigations;
- Necessary levels of safety and security are maintained during construction;
- Safety and security elements of the operating system are constructed as designed;
- Safety and security elements are included during integrated testing, project activation and acceptance;
- Southwest LRT has an acceptable Safety and Security Certification Plan (SSCP); and
- Southwest LRT is addressed in the LRT System Safety Program Plan (SSPP) and the Security and Emergency Preparedness Plan (SEPP), in full compliance with the requirements of FTA's SSOA and MnDPS, before the start of revenue operations.

2.3 Scope of Safety and Security Management Plan (SSMP)

This SSMP applies to all activities performed for this Project during the Project Development (PD), Engineering, Procurement and Construction, Inspection and Testing, and Start-up and Integrated Testing phases. This SSMP encompasses the following equipment, facilities, plans, and procedures:

- **System-wide Elements** including the Southwest LRT Light Rail Vehicles (LRVs); track, train control, communications, and traction power systems; grade crossing and traffic control systems; voice, data, and closed circuit television (CCTV) systems; fare collection equipment; central instrument houses; fire protection and suppression systems; and auxiliary vehicles and equipment.
- **Fixed Facilities** including the 15 Southwest LRT stations and the deferred Eden Prairie Town Center Station and the Southwest LRT operation and maintenance facility. Equipment

installed in these fixed facilities, such as Heating, Ventilation and Air Conditioning (HVAC), escalators, elevators, lighting etc., is considered part of the facility.

- **Safety, Security, Systems Assurance, Operations Plans, Maintenance Plans and Procedures** including controlled versions of items such as the SSMP, the Safety and Security Certification Plan (SSCP), the System Safety Program Plan (SSPP), the Security and Emergency Preparedness Plan (SEPP), Operations Emergency Response Plan (OEMP), Accident/Incident Investigation Plan, operating rules and procedures, training programs, accident/incident investigation reporting procedures, employee certification programs, emergency operating rules and procedures, emergency drills and exercises, and the results of any pre-revenue readiness assessments conducted. Existing operations encompass all of these plans and procedures; they will be updated to accommodate the Southwest LRT.

Figure 1, Safety and Security Plans Chart, provides a short description of the function of these management plans.

Figure 1: Safety and Security Plans

Plan Name	Acronym	Description
Safety and Security Management Plan	SSMP	Documents the processes for maintaining safety and security in Project phases up to revenue service.
Safety and Security Certification Plan	SSCP	Documents the processes and activities undertaken to ensure that the Southwest LRT is operationally safe for revenue service
Operations Emergency Management Plan	OEMP	Establishes the response process and responsibilities for various Metro Transit departments, employees, and outside agencies in the event of a rail emergency
Security and Emergency Preparedness Plan	SEPP	Documents the processes and policies for integrating security and threat mitigation into all levels and operations at Metro Transit.
System Safety Program Plan	SSPP	Documents how system safety and hazard mitigation is integrated into Metro Transit LRT revenue service operations.

This SSMP applies to all project phases established for the Southwest LRT Project. Once fully safety and security certified for revenue operations, the LRT SSPP will govern safety and security of the operating LRT system. This SSMP also provides for the revision of the existing LRT SSPP and SEPP for submission to the SSOA, MnDPS, and receipt of approval prior to the start of revenue operations on Southwest LRT.

The SSMP provides for the establishment of mechanisms to track any restrictions to full safety and security certification into revenue operations and until full resolution. Metro Transit, assisted by SPO staff, will ensure that all consultant designers and contractors comply with the requirements of this SSMP and the Southwest LRT SSCP and will review and approve key elements of the work that are conducted as specified by these plans.

Two committees that address safety and security issues; (1) the Southwest LRT Safety and Security Review Committee (SSRC) and (2) the LRT Fire Life Safety and Security Committee (FLSSC). From Project Development (PD) to Revenue Operations, the Director of Rail and Bus Safety and the MTPD Chief of Police, or designees, serve as co-chairs on both committees and share information, recommendations and ideas through their shared membership.

Key managers from the SPO and Metro Transit will serve on the Southwest LRT Project SSRC, which guides, advises and assists Metro Transit's Director of Rail and Bus Safety and the MTPD Chief of Police in implementing the Southwest LRT SSCP. Metro Transit has two FLSSCs; one for light rail and one for commuter rail. Issues related to Southwest LRT will be handled in the LRT FLSSC. Membership on these committees includes personnel from all participating organizations, as well as local and county police and fire departments.

2.4 Goal

The goal of the SSMP is to ensure that safety and security are built into all project phases, and that these considerations are defined, designed, specified, and verified. The SSMP will document this effort, comprising updates of existing supporting plans and development of new plans that will include the Southwest LRT. As delivery of the Southwest LRT progresses, The FLSSC in conjunction with the Metro Transit Director of Rail and Bus Safety, the Chief of Police and SPO will determine what drills will be appropriate, given the configuration, alignment, etc. Drills and exercises conducted in the past have included collision with pedestrians, collision with automobiles, broken catenary wire, rescuing a disabled train, and single tracking operations. Specific drills and exercises will be detailed in the final year of construction and will be implemented through the LRT FLSSC.

2.5 Objectives

The objectives of the SSMP are to define a process that applies system safety and security requirements to the design, construction, testing and inspection, and start-up of the Southwest LRT Project and to define the responsibilities for implementing this process. This process will ensure that the Southwest LRT Project achieves the goal expressed in Section 2.4 above and:

- Provides mechanisms for the formal identification, consideration, elimination or control of hazards and vulnerabilities to passengers, employees, project personnel, emergency responders, and the general public;
- Verifies that design documents, including drawings and specifications, are in conformance with the safety and security requirements contained in the Southwest LRT Project Design Criteria and Design Standards;
- Verifies that the procurement, installation, and construction, including testing and inspection, of systems and facilities comply with the design;
- Ensures adequate safety and security during all project construction, procurement, installation and testing activity;
- Verifies that the start-up test and integrated test results comply with design, safety, and security requirements; and
- Certifies that the completed Southwest LRT Project meets safety and security requirements and is ready to begin revenue service.

3 INTEGRATION OF THE SAFETY AND SECURITY FUNCTION DURING DESIGN, TESTING AND START-UP PHASES OF THE PROJECT

3.1 Safety and Security Activities

This SSMP identifies key activities that must be performed to ensure a final, formal safety and security certification prior to beginning revenue service. The goal of this certification is to provide evidence that the rail system is operationally safe and secure to enter revenue service, and to verify that all safety and security requirements have been met. The SSMP also ensures safety and security in all activities performed for Southwest LRT, including construction, integrated testing, and activation.

For Revision 02-00 of this SSMP, Southwest LRT is completing environmental impact studies and is preparing for the Construction Phase.

Critical activities that have been performed to date include the following:

- Development of Southwest LRT Project Safety and Security Policy Statement (See Section 2.1 above);
- Creation of Southwest LRT Project Safety and Security Responsibilities Matrix (See Figure 4);
- Development of draft Southwest LRT fire and life safety criteria, using the criteria for the successful and safety-certified METRO Blue Line and METRO Green Line as a starting point for Southwest LRT;
- Use of Hazard and Vulnerability Resolution and Tracking System using the approach established for the Blue and Green Lines (Green Line Project MIL-STD 882D); and
- Completion of a Preliminary Hazard Analysis (PHA) and a Threat & Vulnerability Analysis (TVA) on the Preliminary Design Plans (30% Plans) under the direction of Metro Transit Director of Rail and Bus Safety.

Important activities to be completed include:

- Continue to hold LRT Fire and Life Safety and Security Committee (FLSSC) meetings for the Southwest LRT Project with appropriate public safety agencies;
- Developing the Southwest LRT SSCP;
- Creating the Southwest LRT SSRC; and
- Updating the SSPP and the SEPP for Southwest LRT.

3.2 Safety and Security Activities Matrix

The Safety and Security Activity Matrix (Figure 2) for Southwest LRT lists key safety and security activities by project phase. In carrying out these activities, all involved personnel including Metro Transit, SPO, contractors and consultants, are required to fully support and participation in the Southwest LRT safety and security programs.

Certain key responsibilities associated with the Construction, Integrated testing and Pre-revenue Operations phases will be developed during the Engineering Phase of the project. Some of the

activities are not phase-specific and may span two or more project phases, as shown in Figure 2 below. Key activities for each phase of the project to be performed for safety and security, include:

- **Project Development (PD):** Metro Transit established the organizations to manage safety and security along with the Southwest LRT’s policy statement. It also established key safety and security committee participants. Finally, it identified and delivered to the design team the codes, standards, regulations and requirements necessary to ensure safety and security for Southwest LRT.
- **Engineering:** Key activities will occur to ensure that the design team adequately identifies and addresses all safety and security requirements for Southwest LRT. In addition, the SSCP will be developed, including the safety certifiable items list and the data base process to be used to verify the design. Safety and security analyses will be performed, with the results incorporated into the design. Finally, design certification will be provided to ensure that contracts and technical specifications and drawings developed for Southwest LRT to effectively address the identified safety and security requirements.

Activities will be performed to ensure that Southwest LRT is constructed, inspected, tested and evaluated in such a manner as to ensure compliance with contracts, technical specifications and drawings. Construction Safety and Security Plans will be developed and implemented. A testing program will also be conducted to evaluate integrated systems operations and to ensure the readiness of personnel and emergency responders.

- **Construction:** During completion of construction, final safety and security certification will be issued, and a final verification report will be prepared. Any restrictions on full safety and security certification will be tracked until they are resolved.

Figure 2: Safety and Security Activities Matrix by Phase

Activity	Project Development (PD)	Engineering	Application for FFGA/ Construction
Develop and update SSMP	X	X	X
Conduct Threat and Vulnerability Analysis (TVA) and Preliminary Hazard Analysis (PHA) workshops via Advanced Design Consultant (ADC).	X		
Establish Southwest LRT participation on FLSSC	X	X	X
Deliver final Safety and Security Certification Report to State Safety Oversight Agency (SSOA)			X (Pre-Revenue Service)
Track and Close-out Restrictions to Safety and Security Certification			X Revenue Service
Establish design criteria and design standards	X		
Prepare safety and security policy statement	X		
Establish SSRC		X	
Establish safety and security certification approach	X		
Prepare SSCP		X	

Activity	Project Development (PD)	Engineering	Application for FFGA/ Construction
Verify that appropriate codes, guidelines, and standards are identified to provide a basis for safety and security considerations in the design criteria	X		
Design Review at 60% and 90% Advanced Design and Engineering Levels for Safety and Security Considerations	X		
Develop Preliminary Critical/Catastrophic Items List (CCIL)		X	
Develop and implement the Construction Hazard and Vulnerability Resolution and Tracking System		X	
Identify any additional and required safety and security test and evaluation requirements		X	X
Prepare Project Construction Safety Plans			X
Prepare PHA and TVA Final Reports	X		
Develop and complete Design Conformance process via Electronic Project Management System (EPMS)	X	X	
Conduct review, as appropriate, of proposed Southwest LRT operating procedures and rules			X
Implement SSCP through SSRC		X	X
Verify that facilities, systems and equipment are constructed, manufactured, inspected, and tested in accordance with safety and security requirements in the design criteria, the contract specifications, and drawings (including all engineering changes), using the EPMS database verification process			X
Verify that necessary tests, including systems integration tests, are performed and demonstrate compliance with project safety and security requirements			X
Verify that required safety, security and emergency response plans, standard and emergency operating and maintenance procedures, and rules are developed			X
Verify that training documents have been developed for project partners and contract personnel, volunteers, and emergency response personnel, and training and certification are required and provided to ensure the readiness of Southwest LRT operations and maintenance personnel			X
Verify the emergency preparedness and operational readiness of the Southwest LRT Project and its local emergency responders are verified prior to its initiation into revenue service.			X
Update LRT SSPP, SEPP and OEMP for the Southwest LRT Project			X (Pre-Revenue Service)

Figure 2 reflects current project assumptions and may be subject to change.

3.3 Procedures and Resources

Several key plans will serve as a basis for procedures, and as resources for managing safety and security activities for Southwest LRT. The latest revisions of these plans are maintained by the

Director of Rail and Bus Safety and by the MTPD Chief of Police and are available upon request. These include:

- Metro Transit LRT SSPP;
- Metro Transit SEPP;
- Metro Transit LRT OEMP;
- Northstar SSCP;
- METRO Blue Line SSCP; and
- METRO Green Line SSCP.

The Advanced Design Consultant (ADC) scope included services for a PHA and TVA workshop. The ADC, in coordination with the SPO, led these analyses and provided technical support under the direction of the Director of Rail and Bus Safety.

As explained in the Southwest LRT Project Management Plan (PMP) the Director of Rail and Bus Safety and the MTPD Chief of Police will coordinate safety and security resources during design to support Southwest LRT within the design guidelines and performance control processes established for Southwest LRT. During construction, procurement, testing, activation, and acceptance of the Southwest LRT Project, safety and security activities will be closely associated with the Quality Assurance Program (QAP), the Construction Management Program, and the Testing Program Plan established for Southwest LRT. The resources and procedures supporting these activities are discussed in the following PMP sections:

- PMP Chapter 4: Basis of Design;
- PMP Chapter 5: Design Management;
- PMP Chapter 8: Construction Management;
- PMP Chapter 13: Quality Assurance; and
- PMP Chapter 16: Testing and Start-up Program.

3.4 Interface with the Project Management Plan (PMP)

This SSMP is an extension of the Southwest LRT PMP. PMP Section 15, System Safety and Security, refers to the SSMP for details regarding Southwest LRT's implementation of requirements related to safety and security. The relationship of the SSMP to the Southwest LRT PMP and to other key project plans and procedures are illustrated in Figure 3, Document Hierarchy. As shown in this figure, the primary elements of Southwest LRT safety and security program are addressed in this SSMP, the Southwest LRT SSCP (developed during the Engineering Phase), the Metro Transit SEPP, the Contractor Construction Safety and Security Plans (developed during the Engineering Phase), and in the contractor procedures and instructions referenced in these plans.

The SSMP defines the overall project safety and security program. The Safety and Security Certification Program for the Southwest LRT Service, which complies with the requirements of this SSMP, will define the specific safety and security program elements and reference appropriate procedures and instructions that define how specific tasks and activities are conducted and

documented. The Contractor Construction Safety and Security Plans, also in compliance with this SSMP, will define Southwest LRT’s construction safety and security program.

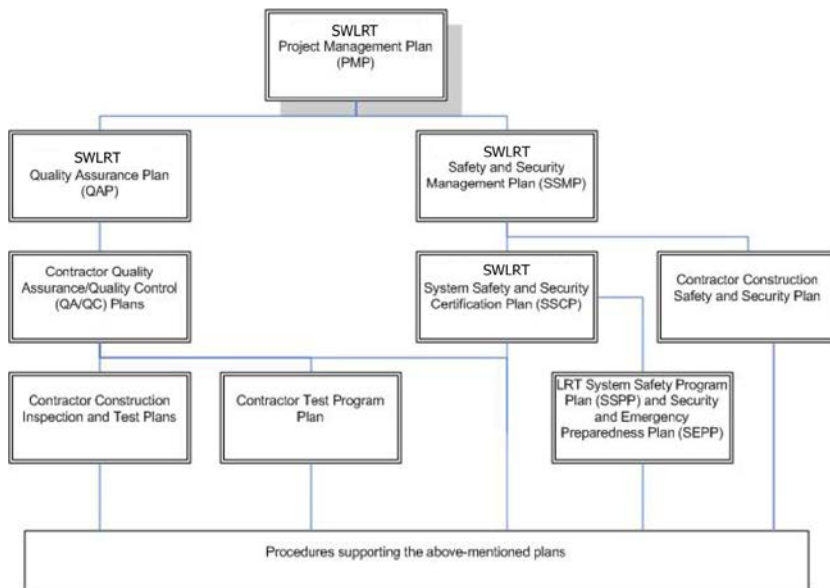
Plans and procedures that are closely related to and consistent with the implementation of Southwest LRT safety and security program include the Southwest LRT QAP, the Contractor QAP’s, Contractor Construction Inspection and Test Plans, and the Test Program Plan. The Inspection and Test Plans define the inspections and tests that will be performed during the Construction Phase of Southwest LRT. The Test Program Plan defines the program for performing system and integrated tests during the Startup and Testing Phase of Southwest LRT.

These plans will be developed during the Engineering and Construction project phases. These documents will be included or referenced in a subsequent revision of the PMP and the SSMP.

The Director of Rail and Bus Safety has been assigned the authority to ensure that the safety-related requirements of this plan are implemented properly by all project participants. The Director of Rail and Bus Safety will bring any safety issues that are not being resolved in a timely or acceptable manner to the attention of the SPO Project Director and/or project leadership for timely resolution. Similarly, during the Construction Phase, the Manager of Construction Safety & Security will highlight and pursue unresolved construction safety and security issues with the SPO.

The MTPD Chief of Police will bring unresolved security issues to the attention of the Southwest LRT senior management for timely resolution.

Figure 3: Document Hierarchy



4 ASSIGNMENT OF SAFETY AND SECURITY ORGANIZATION RESPONSIBILITIES

4.1 Responsibility and Authority for Safety and Security Management Plan (SSMP)

Chapter 2 of the Southwest LRT PMP (Management Organization, Approach, and Responsibilities) provides an overview of the management requirements and systems that are being used for the efficient and effective implementation of Southwest LRT. Many of the roles and relationships among the cooperating organizations are delineated in the state enabling legislation (Minnesota Statutes 174.35, 174.80–174.90 and 473.399–473.3998), memoranda of understanding, grant agreements, and partnership agreements.

In addition, throughout the implementation of the Southwest LRT Project, the Metro Transit Director of Rail and Bus Safety and the MTPD Chief of Police will coordinate with Southwest LRT senior management to ensure that safety and security activities are being addressed in design, construction, integrated testing, activation, and acceptance, as specified in project safety and security plans and procedures as specified in the Southwest LRT PMP.

The Southwest LRT SSMP outlines coordination for safety and security issues between Southwest LRT and external agencies, such as the rail transit SSOA, and the TSA. This SSMP is intended to be a living document, much like its parent PMP, and will be updated, as appropriate, to reflect project decisions and events.

Figure 4 is a matrix describing the responsibilities and authorities for the safety and security activities identified in Chapter 3 of this SSMP. The terms used in the matrix to describe the specific activities being performed by organizations with designated roles and responsibilities for safety and security are defined below.

4.2 MATRIX TERMINOLOGY

- Perform: Responsible for implementing the activity
- Participate: Responsible for involvement in the activity
- Primary Support: Responsible for being the principal source of organizational and resource expertise for the entity performing the activity
- Support: Responsible for providing expertise to the entity performing the activity
- Facilitate: Responsible for arranging access to resources necessary to perform the activity
- Review: Responsible for assessing the activity
- Incorporate: Responsible for adopting the activity

Figure 4: Safety and Security Roles and Responsibilities Matrix

Activity	Construction Safety Manager	Construction Contractor	Metro Transit Safety	Metro Transit PD	SPO
Develop and update SSMP	Support		Participate and Review	Support	Perform
Develop Scope of Work (SOW) for PHA and TVA			Support	Support	Perform
Develop Southwest LRT Construction Emergency Response Plan	Support	Support	Support	Support	Perform
Establish fire and life safety and security design criteria and design standards			Support	Support	Perform
Prepare Safety and Security Policy Statement	Support	Support	Perform	Perform	Incorporate
Establish FLSSC	Participate	Participate	Perform	Support	Participate
Establish SSRC			Perform	Support	Participate
Prepare SSCP			Perform	Support	Incorporate
Prepare Procedures to Implement SSCP			Perform	Review	Primary Support
Verify that appropriate codes, guidelines, regulations, and standards are identified to provide a basis for safety and security considerations in the Engineering criteria			Review	Review	Perform
Design Review at appropriate design levels (30%, 60%, and 90%) for Safety and Security Considerations			Participate	Participate	Perform
Develop Critical/Catastrophic Items List (CCIL)			Perform	Participate	Support
Develop and implement Hazard and Vulnerability Resolution and Tracking System			Primary Support	Support	Perform

Activity	Construction Safety Manager	Construction Contractor	Metro Transit Safety	Metro Transit PD	SPO
Identify (as appropriate) any additional and required safety and security test and evaluation requirements	Support	Support	Participate	Participate	Perform
Perform strategic planning to design an effective approach to implementing the SSCP and to developing the Final Verification Report			Perform	Participate	Primary Support
Prepare Project Construction Safety and Security Plan	Primary Support	Support	Review	Review	Perform
Conduct PHA and TVA Workshop			Primary Support	Participate	Perform
Develop and Implement Design and Construction Verification Database Process	Support		Support		Perform
Implement SSCP through SSRC			Perform	Support	Primary Support
Verify facilities, systems and equipment are constructed, manufactured, inspected, and tested in accordance with safety and security requirements in the design criteria, contract specifications, and drawings (including all engineering changes)	Support	Support	Support	Support	Perform
Verify that necessary tests, including systems integration tests, are performed and demonstrate compliance with project operations safety and security requirements	Support	Support	Support	Support	Perform
Verify that required safety, security and emergency response plans, standard and emergency operating and maintenance procedures, and rules are developed			Perform	Support	Support
Verify appropriate training has been developed for other agencies and contract personnel, volunteers, and emergency response personnel			Perform	Support	Primary Support
Verify the emergency preparedness and operational readiness of Southwest LRT and its local			Perform	Primary Support	Support

Activity	Construction Safety Manager	Construction Contractor	Metro Transit Safety	Metro Transit PD	SPO
emergency responders are verified prior to its initiation into revenue service					
Update LRT SSPP, SEPP and OEMP			Perform	Perform	Review
Prepare and Issue Final Safety and Security Certification Verification Report			Perform	Support	Support
Track and Close-out Restrictions to Safety and Security Certification			Perform	Support	Support

4.3 Approach to Safety Responsibilities

The Director of Rail and Bus Safety coordinates safety activities with SPO. While documentation will be obtained verifying that all Southwest LRT elements are safe and secure for passenger operations, the activities to be performed by the Director of Rail and Bus Safety will focus on Southwest LRT Project rolling stock, passenger stations, right-of-way, systems and the operation and maintenance facility. These activities will be specified in the Southwest LRT SSPP.

The Director of Rail and Bus Safety will also be responsible for ensuring that the LRT SSPP and the OEMP are updated as necessary, and will obtain the appropriate approvals and sign-offs from the Minnesota Department of Public Safety (MnDPS). The LRT FLSSC will serve as an important means by which public safety agencies (police, fire, Emergency Medical Services) can offer comment on design, and to participate in development of interagency emergency response plans and procedures.

Working with SPO, and through the SSRC and other designated committees such as the Rail Activation Committee, the Director of Rail and Bus Safety will also ensure that project safety elements are addressed in integrated testing, activation, and final project acceptance. The SPO will maintain a safety and security database process in its EPMS. The database will be maintained to track the certification of individual safety and security elements and items, and the certification process will also track integrated test results and pre-revenue system performance assessments. The MTPD Chief of Police is responsible for coordinating security throughout all project phases.

The Director of Rail and Bus Safety chairs the Southwest LRT SSRC. This Committee carries out Southwest LRT’s safety and security certification process, serving as a review board for activities, analyses, and reports on safety and security issues and ultimately driving the safety and security certification process.

SPO will have in its organization a Construction Safety Manager (who reports to the New Starts Program Director) to develop and implement a construction safety and security program. This manager will maintain compliance with the program including related plans developed by each of the construction contractors.

4.4 Approach to Security Responsibilities

Security requirements in design are addressed using the same process specified for safety requirements. The Metro Transit Chief of Police works with SPO to determine how construction site security will be addressed.

Planning with local jurisdictions is also important as the Southwest LRT Line enters into the revenue service phase. The MTPD Chief of Police is responsible for leading and coordinating security matters on the Southwest LRT Project and will coordinate with the Metro Transit Director of Rail and Bus Safety, providing advice and otherwise ensuring that security issues are adequately addressed in the LRT SSPP and OEMP. This position is responsible for all revisions to and implementation of the SEPP.

The MTPD Chief of Police will coordinate with the Director of Rail and Bus Safety regarding all Southwest LRT Project security issues, requirements, and threat and vulnerability assessments. The MTPD Chief of Police will support all committees established by the Director of Rail and Bus Safety to address safety and security issues, and will facilitate discussions on safety and security related issues in the LRT FLSSC. As the agency senior security professional, the MTPD Chief of Police is the primary security contact, ensuring that all security issues are handled appropriately, including memoranda of understanding, community policing, fare enforcement, and contact with other police and security-related agencies.

4.5 Safety and Security Related Committees

4.5.1 LRT Fire Life Safety and Security Committee (FLSSC)

The LRT FLSSC was established in 1999 to facilitate the exchange of information, including safety and security planning to minimize the fire and life safety and security hazards to patrons, employees and property. Original efforts were directed solely toward the METRO Blue Line. The FLSSC has evolved to include METRO Green Line, and as the Southwest LRT Project progresses, this forum will address Southwest LRT issues.

Although anyone serving the public in an official capacity in safety and/or security may participate in the FLSSC, members of the FLSSC typically include responsible individuals from the consultant and the public safety agencies (fire, police, and EMS) of the communities along the line. Especially noteworthy is the membership of various police and security personnel on the committee. Experienced security personnel have a rich background in safety, security and emergency response. The LRT FLSSC benefits from the active participation of the municipalities and authorities having jurisdiction in the areas where LRT lines operate and are planned to operate.

The FLSSC provides input to and comments on the fire protection, emergency preparedness plans and procedures, safety plans and security plans. The advantage of having security participation in FLSSC activities is that security professional evaluate plans with an eye toward the potential for intentional damage or injury. Moreover, security personnel have considerable experience in all-hazards emergency response.

The FLSSC will participate in the planning, performance and evaluation of emergency simulations on the system. Some of these exercises will be discussion-based (tabletop) drills, others may take the form of familiarization exercises, and yet others will be operations-based (full-scale) exercises.

The FLSSC has no enabling authority. However, membership includes fire marshals, police, and building officials, who retain such authority and so can apply this to Southwest LRT should the need arise. A complete listing of membership on the LRT FLSSC is maintained by the Director of Rail and Bus Safety.

4.5.2 Southwest LRT Safety and Security Review Committee (SSRC)

The Southwest LRT SSRC will be established during the Engineering phase of the Project to support the performance of the safety and security certification process for the Southwest LRT line. This committee, which includes members from Minnesota Department of Transportation (MnDOT), SSOA, SPO, and Metro Transit, will receive, review and approve all safety/security certification documents issued for Southwest LRT, and will ensure compliance with regulations and other safety and security standards, guidelines, codes and recommended practices identified for Southwest LRT. The Director of Rail and Bus Safety chairs this committee.

The Southwest LRT Project will generally follow the process used during the safety and security certification of previous Metro Transit LRT projects. This decision was made pursuant to readiness reviews from the FTA and SSOA that were generally complimentary of the certification process applied to LRT. The plans and procedures for the certification of the Southwest LRT Project will be included or referenced in a future revision of this SSMP.

SSRCs were active for the METRO Blue and Green Lines, as well as the Northstar project, which included commuter rail and LRT elements. The SSRC approach to safety and security certification will be applied to the Southwest LRT Project. Committee membership will include Southwest LRT design and construction management, Rail Operations management, safety management and MTPD with the Metro Transit Chief of Police as chair. Subject matter experts in safety, security, project management, operations, project engineering, and the SSOA Program Manager participate as appropriate and required.

4.6 Additional Security Endeavors

MTPD has staff as member of the Hennepin, Ramsey, Dakota and Washington County Chiefs of Police Associations. Metro Transit is also a member of the county mutual aid pacts, including Ramsey and Hennepin counties. Additionally, Metro Transit is represented on other local groups such as Minneapolis Downtown Security Council, Business Owners Management Association (BOMA) in St. Paul and the Law Enforcement Terrorism Task Force sponsored by the FBI. Mutual aid pacts are on file at the (MTPD) and available for review.

5 HAZARD AND THREAT MANAGEMENT

5.1 Hazard Management and the Safety and Security Program Plan (SSPP)

Hazard management, in the context of the Southwest LRT Project, involves the process of defining the system, identifying hazards that affect it, evaluating those hazards, and resolving them. The approach to be used by Southwest LRT is defined in the existing LRT SSPP and follows the process described in MIL-STD 882, which has been approved by Minnesota Department of Public Safety (MnDPS). The LRT SSPP will be updated before Southwest LRT begins revenue service, and will include this process, required by and approved by the MnDPS (according to its System Safety Program Standard which in turn complies with 49 CFR 659) .

Using this process, hazard analyses (HA) performed by the technical equipment manufacturers (i.e., failure modes and effects, operating and support, etc.) as part of their program for furnishing safely operating equipment will be incorporated into the overall effort. Whenever possible, HA requirements for Southwest LRT will be identified by specification. Further, the Advanced Design Consultant in coordination with the SPO has performed a PHA that evaluates the line from an integrated system perspective, drawing from industry experience. The PHA followed the qualitative-probability-and-severity HA technique: for each hazard, the probability and severity of the most credible reasonable mishap was assigned; next, the combination of probability and severity yielded a risk index; finally, this risk index was classified according to the SSPP (and MIL-STD-882) guidelines.

Whether performed by contractors, equipment manufacturers or members of the Southwest LRT Safety and SSRC, the HA approach specified for the Southwest LRT relies on the identification, categorization and resolution of hazards and vulnerabilities.

- **Identification:** During this phase of the process, hazards are identified using methods established by SPO. Typically, identification of hazards begins with the generation of a list of top-level hazards called a Preliminary Hazards List (PHL). The PHL is the first step in the HA process, and includes a general listing of Category I and II Hazards typically found in contemporary LRT systems.

The PHL identifies generic accident scenarios that may be associated with Southwest LRT systems and sub-systems, components, procedures, and their subsequent interrelationships, providing an overview of the types of issues that must be considered in the design. It also defines requirements for additional and more detailed analysis regarding the presence of hazardous conditions and the possibility for loss. In preparing a PHL, input from operating and maintenance personnel, lessons learned from similar projects, and the assessments of design engineers and construction specialists, is generally sufficient to create an initial listing. The PHL provides the foundation for other safety and security analyses that may be performed for Southwest LRT.

- **Categorization:** Identifying hazards provides little assurance that they will be properly resolved unless they are adequately evaluated and highlighted to those having the decision-making responsibilities. Not all hazards are of equal magnitude, frequency, or importance. Categorization involves assessing of the severity of the scenarios identified in the PHL, should they occur, against the likelihood that the scenarios will actually occur. This may be reported in nonnumeric (qualitative) terms, or in numeric (quantitative) terms. Once each hazard is evaluated for “severity” and “probability,” these risk indices

are classified using the Risk Assessment Matrix, which then yields classifications of: unacceptable, undesirable, acceptable with review, and acceptable.

As explained in the LRT SSPP, the final classification of the hazard in the matrix identifies guidelines as to acceptability of the risk. Figure 5 provides an example matrix. This activity then allows for comparison and prioritization.

Figure 5: Preliminary Hazard Analysis

PROBABILITY CATEGORIES			
Descriptive Word	Level	Within Specific Individual Items	Within a Fleet or Inventory
Frequent	A	Likely to occur frequently. Having a probability of occurrence greater than 10^{-1} .	Continuously experienced
Probable	B	Will occur several times in life of an item. Having a probability of occurrence less than 10^{-1} but greater than 10^{-2} .	Will occur frequently
Occasional	C	Likely to occur sometime in life of an item. Having a probability of occurrence less than 10^{-2} but greater than 10^{-3} .	Will occur several times
Remote	D	Unlikely but possible to occur in life of an item. Having a probability of occurrence less than 10^{-3} but greater than 10^{-6} .	Unlikely but can reasonably be expected to occur
Improbable	E	So unlikely it can be assumed occurrence may not be experienced. Having a probability of occurrence less than 10^{-6} .	Unlikely to occur, but possible

SEVERITY CATEGORIES		
Description	Category	Definition
Catastrophic	I	Death, system loss (> 6 hr), or severe environmental damage
Critical	II	Severe injury, severe occupational illness, major system or environmental damage
Marginal	III	Minor injury/occupational illness, or minor system or environmental damage
Negligible	IV	Less than minor injury, occupational illness or environmental damage

HAZARD CLASSIFICATION MATRIX				
Frequency	I Catastrophic	II Critical	III Marginal	IV Negligible
(A) Frequent	UN	UN	UN	A/R
(B) Probable	UN	UN	UD	A/R
(C) Occasional	UN	UD	UD	A
(D) Remote	UD	UD	A/R	A
(E) Improbable	A/R	A/R	A/R	A

Legend : Risk Index	Hazard Classification
IA, IA, IC, IIA, IIB, IIIA	Unacceptable (UN)
ID, IIC, IID, IIIB, IIIC	Undesirable – decision required (UD)
IE, IIE, IIID, IIIE, IVA, IVB	Acceptable with review (A/R)
IVC, IVD, IVE	Acceptable (A)

- **Resolution:** The benefit of the Risk Assessment Matrix is the ability and flexibility to prioritize hazards and vulnerabilities and to assign required actions for their resolution. This prioritization allows the Director of Rail and Bus Safety to coordinate with the SPO Project Director to ensure the expenditure and allocation of critical project resources where they are most needed. Use of the Risk Assessment Matrix holds program management and technical engineering accountable for the risk of the system during design, testing and operation, and the residual risk upon delivery.

The ability to adequately eliminate or control safety risk is predicated on the ability to accomplish the necessary tasks early in design. For example, it may be more cost effective and technologically efficient to eliminate a known hazard by changing the design, compared against retrofitting a rail vehicle fleet in operational use. Identified hazards and vulnerabilities are resolved through the Reduction Order of Precedence, which encompasses five categories of activities that can be performed to resolve hazards and vulnerabilities. These categories, in descending order of effectiveness, include:

- **Design Change:** Eliminate the hazard through a fundamental design change (e.g., grade separate to eliminate a railroad at-grade crossing).
- **Engineered Safety Features:** Fixed, active devices (e.g., full-time, redundant backups, interlocks, pressure relief valves, vital fail-safe circuitry).
- **Safety Devices:** Fixed, passive, protective barriers (e.g., guards, shields, suppressors, personal protective equipment. Training and discipline in use of Safety Devices, or obvious reason for their use, is necessary.)
- **Warning Devices:** Visible/audible alarms to trigger avoidance or corrective responses (e.g., signals, lights, signs, and horns).
- **Procedures and Training:** Formal or informal training, checklists, certification or experience requirements, personal protective equipment use.

For the Southwest LRT Project, the PHL and PHA occurred during Project Development (PD) using the 30% Engineering Plans thereby providing a basis for Engineering.

5.2 Threat Management and the Security and Emergency Preparedness Plan (SEPP)

Threat management involves the identification, analysis and resolution of vulnerabilities associated with intent to inflict damage or injury in a transit system environment. The Metro Transit SEPP complies with the requirements set out in the revised 49 CFR 659. The process documented in the current plan has been developed according to the FTA SEPP Guide, and in compliance with the MN Rail Safety Oversight System Safety Program Standard. The current revision of the SEPP is revised annually and reviewed and approved by the SSOA.

A Threat and Vulnerability Analysis (TVA) workshop was conducted during Project Development using the 30% Engineering Plans to assess threat levels and probabilities associated with the Southwest LRT Project. See Attachment 15-A4 for the preliminary TVA. Output and recommendations from the TVA will be presented to project management for incorporation in design, as appropriate.

In addition to state safety oversight from MnDPS, Metro Transit interfaces with local and national law enforcement agencies and associations. Examples of local external agencies include the seven county area public safety agencies such as Minneapolis Police, Minneapolis Fire, Hennepin County Sheriff's Office, Airport Police, Airport Fire, Veterans Administration Police, Bloomington Police, Bloomington Fire and Minnesota State Patrol. Examples of national agencies include Federal Bureau of Investigation (FBI), Federal Protective Services, National Guard, National Transportation Safety Board (NTSB), Government Services Administration (GSA), International Association of Chiefs of Police, and the Joint Terrorism Task Force. MTPD and other Council staff are also active in the Regional Transit Security Working Group.

6 DEVELOPMENT OF SAFETY AND SECURITY DESIGN CRITERIA

6.1 Safety and Security Design Criteria Approach

The criteria developed for the METRO Blue Line were revised for the METRO Green Line. SPO, with the participation of major Metro Transit stakeholders, revised these criteria further to support the Southwest LRT Project. These criteria benefited from various hazard and threat analyses, industry best practices, as well as comprehensive multidisciplinary design reviews that were conducted for the Blue Line and Green Line projects.

6.2 Technical Specification Approach

The Director of Rail and Bus Safety will identify the safety and security certifiable elements for Southwest LRT. These elements are defined by the FTA as: “Facilities, equipment, procedures, training programs or other components considered critical to the safety and security of a system, and whose inclusion in Southwest LRT must be certified by the grantee using appropriate verification procedures.” Grouping by project elements may also be an option, as this may allow for more efficient, logical tracking of the items. SPO will provide technical support for the certification process.

The Director of Rail and Bus Safety, drawing on resources including SPO, will define Southwest LRT organizational categories – known as elements – that can be further sub-divided to support recognition of individual sub-elements and items with the potential to affect safety and security. To ensure the comprehensiveness of this certification, the Director of Rail and Bus Safety, and the SPO, will break down the identified safety and security certifiable elements into their component items. These items, organized by element, will be documented in a Critical/Catastrophic Items List (CCIL). The CCIL comprises critical safety design criteria and design changes. Each CCIL item will in some way correspond to a hazard or threat identified in the PHA or TVA. The process of breaking down certifiable elements into a CCIL will occur during Engineering.

Prior to the initiation of revenue service, a Certificate of Compliance will be issued by the SSRC for each identified safety and security certifiable element, verifying its conformance with safety and security requirements and its readiness for revenue service.

The PHA and TVA were prepared under the supervision of the Director of Rail and Bus Safety to identify major issues and performance requirements for project components. As explained in Chapter 5 of this SSMP, results of these analyses will be presented to the LRT FLSSC and to key SPO staff. The intent is to highlight the results of the analyses and to influence design in order to incorporate hazard and threat mitigation recommended by the analyses. In addition, as general safety and security codes, standards and regulations are translated by SPO’s designers to specific requirements for each identified project component, the Director of Rail and Bus Safety and SPO will be available to provide support in referencing, reviewing and/or interpreting the safety and security design criteria.

Prior to the completion of the Engineering Phase, SPO will finalize the CCIL. The CCIL will provide the foundation for the design verification activities to be completed prior to the start of construction (discussed in Chapter 8 of this SSMP).

6.3 Design Reviews

Design review occurs throughout Project Development (PD) and Engineering phases. Participants evaluate and compare design deliverables (i.e., plans, specifications, schedules, and cost estimates) against the applicable design criteria and project configuration. The objective of design reviews is to obtain concurrence and/or comments by affected stakeholders prior to completing the documents for construction contract bidding. Safety and security elements are assessed during these reviews.

During the PD Phase, numerous SPO working sessions have been held with stakeholders. Those participating in the review include MnDOT, MTPD and Metro Transit departments including Safety, Vehicle Maintenance, Rail Operations, Bus Operations, Engineering and Facilities and Service Development. These personnel bring experience in operations and maintenance and lessons learned from similar projects to ensure that engineering of project facilities and equipment will satisfy operational, maintainability, and safety considerations. Several of these sessions include attendance and participation of the System Safety Oversight Agency (SSOA) Manager. Topics for discussion include various safety and security for grade crossings, station areas, and other employee and public facilities along the system. The EPMS is used to track comments, responses and action items that result from these reviews. Ongoing reviews will be performed by the SPO project team and the Southwest LRT SSRC to ensure that comments are appropriately incorporated into the construction bid packages.

In a parallel activity, the LRT FLSSC is participating in the Southwest LRT process. The LRT FLSSC provides input and comments on the fire protection, emergency preparedness plans and procedures, safety plans and security aspects of the LRT operation. This committee also reviews design specifications, drawings and other relevant documentation for Metro Transit facilities and system elements with an eye toward established criteria, Federal, State and local regulations, codes and standards relating to fire/life safety and security. SPO staff are invited to LRT FLSSC meetings to provide overall design and other project updates, as has been done with the Blue Line, Northstar and Green Line projects. Recommendations and comments are submitted to SPO through committee minutes as well as by direct dialogue with Southwest LRT design team during committee meetings.

The Director of Rail and Bus Safety coordinates with SPO on appropriate agenda items as they apply to the Southwest LRT Project, and especially as they affect safety and security of LRT operations in the metro region.

6.4 Technical Baseline

SPO has a change control process that requires the evaluation, coordination, and approval or disapproval of changes in the configuration of an item after establishment of a configuration baseline. The baseline consists of approved or conditionally approved technical documentation for an item as set forth in drawings and associated lists, specifications, and referenced documents. Characteristics of the technical baseline include:

- Drawings are uniquely numbered and specifications follow a standard format;
- Specification paragraphs are numbered and identified;
- Complete drawing lists are established and the total number of drawings, the titles of drawings, the revision status, and the drawing approval dates are recorded;
- Changes to approved drawings or specifications are required to be made in accordance with established procedures;
- Permanent files are maintained of contract documents which include historical information relating to project changes; and
- As Southwest LRT is implemented, the change control process will evolve to include the documentation of the completed changes reflected in “as-built drawings”.

6.5 Deviations and Changes

Changes to project configuration and standards may be identified during the course of Southwest LRT implementation. SPO has established procedures for the identification, documentation, review, and approval of all changes and modifications to the design. During the Engineering and Construction phases, ultimate authority for making changes resides with the SPO. This responsibility extends to SPO’s consultants and construction contractors. Final “as-built” documents will be prepared by the SPO’s ADC based on information provided during construction. Chapter 8 of the Southwest LRT PMP describes this process in detail.

Generally, changes will be controlled to maintain integrity with Southwest LRT’s original design configuration developed during PD. During Engineering, change control procedures will be established to ensure that potential design changes are reviewed and responded to by appropriate personnel. Proposed changes will be evaluated in terms of impact to budget, schedule, system operation, safety and security, and will be properly documented as to rejection or incorporation in Southwest LRT. Independent cost estimates (ICE) will be developed for all changes as a check and balance. Change orders will be tracked in SPO’s EPMS.

6.6 Testing and Activation Planning

Planning for management of LRT Integrated Testing and Revenue Service Start-up Phases, including operations and maintenance, will be conducted prior to the end of Construction. Planning for the implementation of Integrated Testing and System Start-up Phases will be completed prior to the end of Construction (considering updated site conditions or design revisions). The resultant testing and start-up program is discussed in Chapter 16 of the Southwest LRT PMP. The Director of Rail and Bus Safety, MTPD Chief of Police, and the Southwest LRT SSRC will support this activity through meetings, workshops, participation in testing as might be appropriate, and the submission of formal comments.

7 PROCESS FOR ENSURING QUALIFIED OPERATIONS AND MAINTENANCE PERSONNEL

7.1 Personnel Requirements

Staffing requirements for operating the Southwest LRT Project will be developed during the Construction Phase of Southwest LRT. Titles, responsibilities of each title, and qualification and training requirements for each title will be established in conformance with project requirements.

A start-up schedule for the Southwest LRT service will be prepared during Engineering. The LRT Operations and Maintenance organization will be enhanced such that it is staffed with personnel to meet key milestones described as follows:

- Delivery and acceptance of the first Light Rail Vehicle (LRV);
- Completion of all construction and procurement contracts;
- Start of system verification testing;
- Start of pre-revenue operations testing; and
- Start of the training program.

For Southwest LRT, the staffing of operators and supervisors will be consistent with the new train service. Similarly, the maintenance personnel staffing will be developed considering the additional maintenance load based upon the number of LRV's purchased for this project, the number of track miles and associated systems, and the stations. The existing operations management for the current LRT will remain intact (perhaps with some enhancements) and will assume management of new personnel.

7.2 Plans, Rules and Procedures

From a system safety perspective, it is critical that the same rules, signals, and procedures govern train movement and wayside/train operator interaction for all LRT alignments. The Southwest LRT will use the existing operations and maintenance plans, rules and procedures developed for the Green Line. These documents are available to FTA for review.

Given the need for consistency among Metro Transit LRT lines, Southwest LRT will also be designed and built commensurate with the concepts outlined in the Metro Transit Light Rail Transportation Maintenance and Operations Plan. This plan:

- Defines the service and operating characteristics;
- Defines the operating and maintenance policies and objectives;
- Provides a general overview of operations from which rules and procedures will be prepared;

- Includes normal and emergency operations, describes system equipment to be used for controlling operations;
- Describes a maintenance philosophy; and
- Outlines interaction between LRT operating and maintenance functions.

The following documents will be updated for Southwest LRT operations, for implementation during integrated testing:

- Rulebook;
- Standard Operating Procedures (SOPs) (includes emergency procedures);
- Maintenance Manuals; and
- Operations and Maintenance training programs.

All operating and maintenance plans, rulebooks, SOPs, etc. are maintained by Metro Transit Rail Operations. Maintenance of the conformed documents and configuration thereof is accomplished under the direction of the Deputy Chief of Operations – Rail. The library of LRT operating documents is located at the Franklin Avenue Operations and Maintenance Facility (OMF).

Position description and qualification statements are available for each Metro Transit position. They specify core competencies and qualifications for each job classification. Metro Transit recognizes that the importance of consistency of staffing (in how they are trained and evaluated as well as in how they respond) is especially important in front line personnel.

The LRT OEMP, the LRT Accident/Incident Investigation Plan, SSPP, and OEMP will be updated for submittal to the State Safety Oversight Agency (SSOA) for revenue service implementation. These plans are required by the SSOA through its System Safety Program Standard (SSPS) which in turn complies with 49 CFR 659, the State Safety Oversight Rule.

7.3 Training Program

At a minimum, training for each group will cover the following topics:

- | | |
|---|---------------------------------------|
| • Operators and supervisory personnel; | • Maintenance personnel; |
| • Rulebook; | • Operations and maintenance manuals; |
| • SOPs/Emergency Operating Procedures (EOPs); | • Systems layouts and controls; |
| • Vehicle operation; | • Rulebook; |
| • System characteristics; | • Work safety requirements; |
| • Simulated service; | • Emergency procedures; |
| | • Simulated service. |

The detailed staffing organization and training schedule, and the staffing budget based on the schedule, will be subject to adjustment as the system startup plan is finalized. A complete training

plan will be developed during the Construction Phase that will more fully outline these training requirements. A schedule for implementation of the plan will be prepared that provides for timely completion of functions necessary for the successful start of revenue service.

The Green Line training program will be used as a basis for the Southwest LRT training program. Training curriculums are maintained by the manager of the department responsible for giving the training and are reviewed and updated as conditions warrant. Training, licensing, and certification requirements for each title are identified in the individual title descriptions. Employee files contain evidence that each employee has the appropriate qualifications, licenses, certifications, and training for his/her title and responsibilities. Copies of training materials for operations and maintenance personnel are available to FTA for review.

In addition to training required by title, all employees, consultants, and contractor personnel who will be authorized to work within fouling distance of the track must receive LRT On Track Safety training and have evidence of this training on their person (or have their name in the training database) when they are within any Southwest LRT Right of Way (ROW).

7.4 Emergency Preparedness

Metro Transit conducts drills on its existing LRT system and will extend them to cover the Southwest LRT Project when it goes into revenue operation. Metro Transit will perform the following:

- Annual emergency preparedness drill (scenario and location varies each year);
- Tabletop drill exercises; and
- Emergency field training procedure exercises.

Formal reviews (After Action Reviews) follow each drill and lessons learned are incorporated into improvements in incident response and resolution procedures. These lessons learned are incorporated into operations and status is tracked through the corrective action process. All corrective action plans are submitted to the SSOA and updated monthly.

Discussions by the FLSSC will form the basis for emergency drills and exercises conducted for Southwest LRT. This plan will be documented in an OEMP for Southwest LRT. In accordance with FTA emergency preparedness guidelines, the Plan will include exercises designed to drill those emergencies that are more probable to occur along this particular alignment. Familiarization for local Fire Departments and Police Departments will also be conducted for Southwest LRT. Drills exercising the training of these personnel will be incorporated into the emergency preparedness program for the Southwest LRT Project.

7.5 Public Awareness

Metro Transit will partner with local communities and lead or participate in the following public safety and awareness programs:

- **Transit Watch:** Metro Transit's Transit Watch Program (See Something, Say Something), is ongoing and provides the public a conduit to report suspect activities in and around the LRT system.

The program will be expanded to include the Southwest LRT service. Metro Transit Police have

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partnerships with other law enforcement agencies and community organizations. Officer deployment is based upon citizen and operator input as well as crime data. This program includes a tip line.

- **Operation Lifesaver:** Metro Transit has a strong partnership with Operation Lifesaver. Operation Lifesaver is a non-profit, international continuing education program established to end collisions, deaths and injuries at places where roadways cross train tracks, and on rail road ROW. This public education program will be an important vehicle for public awareness and training for new Southwest LRT service, and will be enhanced by the techniques that have been in place since before the revenue operating date of the Blue Line.
- **Targeted Outreach:** Metro Transit's targeted communication and outreach during the project will be coordinated under the direction of the SPO Assistant Director for Administration, Communication and Outreach. Outreach for Metro Transit generally is coordinated by Metro Transit's Department of Customer Service and Marketing. These staff members regularly engage the public and employees on issues of safety relative to light rail. SPO will engage the community on design related issues and will continue to work with the community during construction, testing and start of revenue operations. After revenue service begins, communication and outreach will transition to Metro Transit's Department of Customer Service and Marketing in partnership with Metro Transit safety staff.

Construction communication will focus on informing people about construction activities, responding to concerns and educating the public and employees on issues of safety relative to light rail construction and operations. Audiences include, as appropriate, transit riders, businesses, employees, residents, youth and the general public. SPO will seek advice from the Council's Transportation Accessibility Advisory Committee on communicating construction and safety issues to the numerous service agencies and non-profits that work with persons with disabilities.

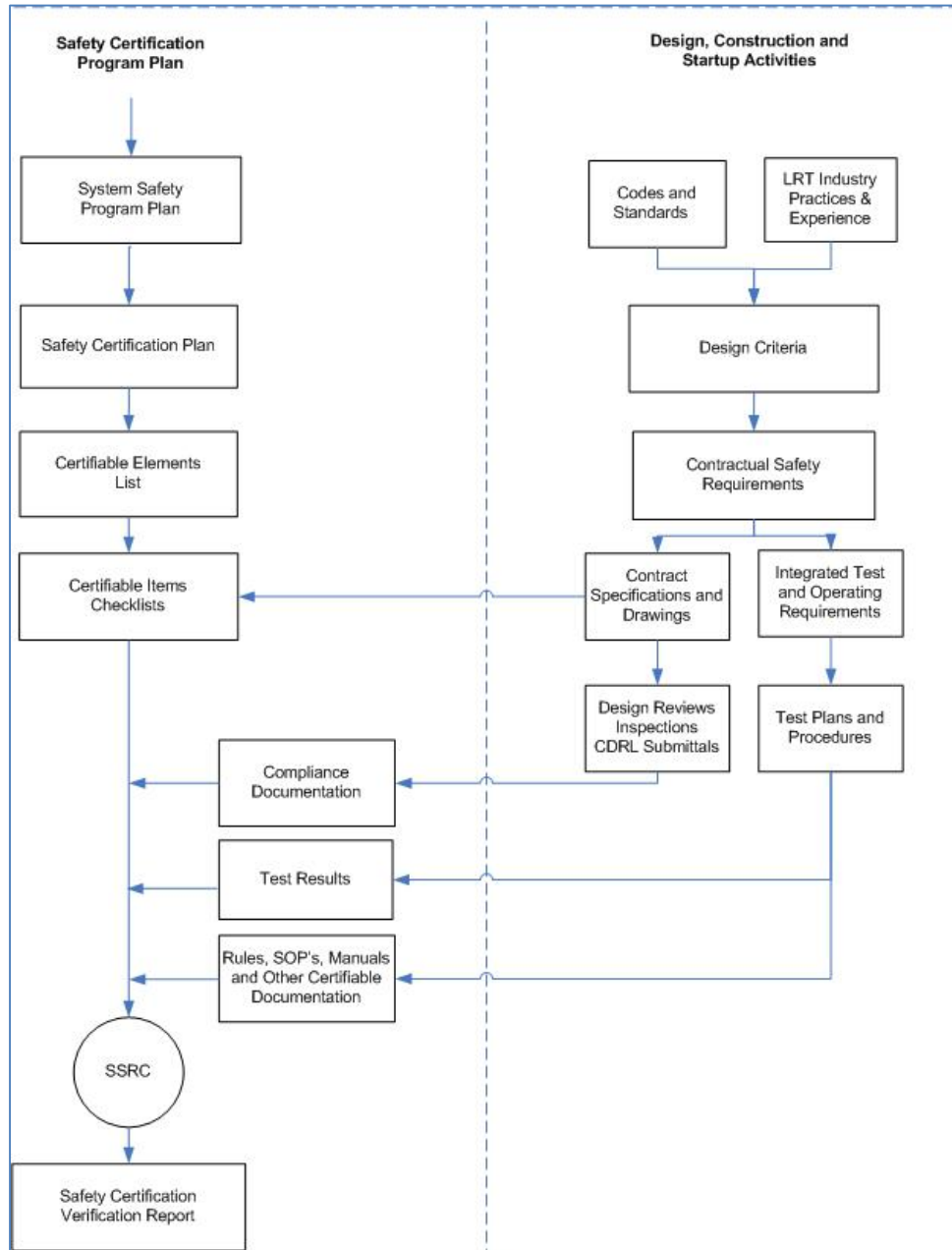
Examples of outreach activities include:

- Youth outreach through presentations to schools and youth centers and brochures focusing on safe crossing of tracks, etc.;
- General adult outreach through brochures, videos and attendance at community fairs and festivals, etc.; and
- Accessible transportation safety outreach to promote safety for persons with disabilities with particular focus on the large number of agencies meeting the needs of this community located along Southwest LRT.

8 PROCESS FOR VERIFYING CONFORMANCE AND ISSUING FINAL SAFETY AND SECURITY CERTIFICATION

Details regarding the application of safety and security requirements during the Engineering, Construction, Integrated Testing and Activation Phases of the Southwest LRT Project will be addressed in the Southwest LRT Safety and Security Certification Plan (SSCP). Figure 6 provides a visual representation of this process.

Figure 6: Safety and Security Certification Process



8.1 Design Verification Process

Design verification began in Project Development; risks have been effectively identified, evaluated and controlled. During the latter part of Engineering, the Advanced Design Consultant will finalize the Critical/Catastrophic Items List (CCIL). As explained in Chapter 6 of this SSMP, the CCIL is a composite tracking system that will be used to verify that all aspects of the construction work, from design and construction through integrated testing, have met the safety and security standards of Southwest LRT that are defined in the design criteria and that are considered necessary for safe and secure operations.

Based on the CCIL, the Advanced Design Consultant will work with SPO to integrate the list into the EPMS database. In addition to identifying the specific safety and security requirements, the database enables tracking of references to the contract documents, specifications, manuals, criteria or other material including the item, and where, in the larger design, testing, inspection, assurance, and acceptance process, the critical safety and security requirements for each CCIL are referenced.

To complete the design verification process, the Advanced Design Consultant, working cooperatively with the SPO, the SSRC and the quality assurance staff, will populate the database with the relevant design verification information. Methods to accomplish this activity include document reviews, contract deliverable reviews, audits, inspections, and random sampling to ensure verification of the final specification with the safety and security requirements. The database will reflect certifiable elements and items, the requirements, the method of verification, the date, and the individual performing the verification. Also, the database will identify if the verification was audited or reviewed.

This database will enable the Southwest LRT Project to:

- Verify that an acceptable safety and security level is designed in all project elements;
- Document that the design and specifications require compliance with all applicable safety codes and regulations; and
- Certify projects in a consistent manner.

Additionally, this process ensures that all safety and security related design review comments have been successfully resolved, and that the results of safety and security analysis have been appropriately addressed. Upon completion of the verification, the Director of Rail and Bus Safety reviews the database for the appropriate certifiable elements and will present findings to the SSRC.

8.2 Construction Verification Process

During the Construction Phase, the Advanced Design Consultant, working with the SPO Construction Management Team, the SSRC and SPO quality assurance staff, will manage the construction specification conformance process. The purpose of this process is to verify that the as-built facilities, installed systems, and acquired vehicles and equipment conform to the safety and security related requirements contained in specifications and other contract documents, including changes approved during the Engineering Phase.

The EPMS database will track construction verification in a manner consistent with that applied during design verification. It will provide the “other half” of the CCIL conformance, because it (1) identifies the tests and verification methods necessary to ensure that the as-built configuration contains the safety and security-related requirements identified in the applicable specifications and other contract documents, and (2) provides documentation that the delivered project meets those requirements.

For facilities and systems, certifications, inspector reports, job photos, or other evidence may be submitted as documentation. Any contractor submittal used for verification needs to be approved, typically by the resident engineer. Representatives of the SSRC and/or the Advanced Design Consultant and SPO agency staff may also conduct final walk-through inspections of all as-built facilities. Additional walk-throughs and inspections may be performed by local fire department and city officials (i.e., fire marshals and building officials).

Safety and security requirements that are not verified by available documentation or demonstration are tracked to resolution by the Director of Rail and Bus Safety through the SSRC. As appropriate, additional safety and security analysis may be performed. Throughout this verification process, the Southwest LRT SSRC will use the EPMS database reporting system to review the status of “open items” including deviations from the approved design, non-conformances, change orders, and other measures.

Upon completion of the verification process, the Southwest LRT SSRC will consider for approval the status provided by the SPO and, if appropriate, issue the Certificates of Compliance for the appropriate certifiable elements.

8.3 Testing Verification Process

During the Construction and Integrated Testing phases, a comprehensive test program will be followed to ensure that all elements of Southwest LRT provided under construction, procurement and installation contracts conform to the specifications. As explained in Section 16 of the Southwest LRT PMP, this program will be documented in a Test Program Plan, developed by the SPO in coordination with Rail Operations and the Director of Rail and Bus Safety. The test plan will comprise all the requirements for final testing, verification of system readiness, and verification that the system is in compliance with all applicable regulations and requirements for revenue operations.

The SPO in coordination with the Director of Rail and Bus Safety and Metro Transit Rail Operations will verify that integrated tests, acceptance tests, and other inspections are conducted to ensure that safety and security requirements have been effectively addressed. As documented in the CCIL and supporting database information, safety and security design criteria may require specific performance tolerances, reliability measures, or installation techniques which must be verified through testing, inspection or other means.

Working with SPO, Rail Operations will also coordinate the review of test plans, test procedures, and the results of all tests including design verification, technical operational evaluation, technical data and requirements validation and verification. As far as possible, the SPO with assistance from the Advanced Design Consultant, and members of the Southwest LRT SSRC (or appropriate

representatives) will participate in systems integration and pre-revenue testing activities where the safety and security of passengers and/or employees may be affected. In this capacity, these safety and security team members will review the implementation of integrated test plans and procedures for system verification and demonstration for both acceptance and system-level tests for safety and security features, such as: sprinkler systems, alarms, emergency management panels, fire management panels, ticket vending machines and CCTV systems.

Open items identified during testing will be documented and tracked to resolution by the Director of Rail and Bus Safety through the SSRC. Aspects of Southwest LRT that deviate from the design configuration and standards will be reviewed to identify hazards and vulnerabilities along with any other hazards and vulnerabilities identified during the course of design, construction, and testing activities. All identified hazards and vulnerabilities will be documented, evaluated and tracked to resolution by the SSRC.

Upon completion of the testing/inspection process, the Southwest LRT SSRC, using established procedures, will review and issue the Testing/Inspection Certificates of Compliance for the appropriate certifiable elements.

8.4 Operational Readiness Reviews

Prior to the Operational Readiness date, the SPO will support readiness reviews conducted by oversight agencies, including the FTA and the SSOA. Details related to the performance of these reviews, including associated activities such as development of operations and maintenance plans and procedures, training of personnel, and performance of emergency drills will be added to this Section of the SSMP in a future revision. The aim of the readiness reviews is to measure compliance with documented plans as well as to confirm that there are no unacceptable hazards or threats.

8.5 Final Safety and Security Certification and Verification Report

Upon completion of the activities required to verify the design, construction, testing and operational readiness of the project, the Southwest LRT SSRC will have received, reviewed and approved the issuance of Certificates of Compliance. The Director of Rail and Bus Safety, with support from the SSRC and SPO, will package these certificates together. Based on a complete set of required certificates, the Director of Rail and Bus Safety will prepare a Certification Letter to the Metro Transit General Manager stating that Southwest LRT is safe and secure for revenue operations. Upon the receipt of supporting evidence from the Director of Rail and Bus Safety, the General Manager will transmit a letter to the SSOA stating that Southwest LRT is operationally safe and secure for revenue service. Copies of this letter will be provided to SPO, and to FTA as appropriate.

Prior to revenue operations, the results of the Southwest LRT safety and security certification process will be documented in a Safety & Security Certification Verification Report, prepared under the direction of the Director of Rail and Bus Safety. This report will summarize the safety and security readiness of Southwest LRT for revenue service, and identify any exceptions and/or operational mitigations and the schedule and responsibility for addressing them. Before revenue service begins, all certifiable elements must be verified, or mitigations documented and communicated in writing to

all affected parties. Mitigations include engineering modifications, rules or procedures that must be in place to ensure safe operations until the certifiable element can be completed.

At the current time, it is anticipated that this report will include the following elements:

- Letter of Safety and Security Certification;
- Executive Summary;
- Introduction;
- Design;
- Construction;
- Integrated Testing;
- Contractor Training;
- Operations and Maintenance Manuals;
- Operations and Maintenance Training;
- Public Safety Agency Familiarization;
- Emergency Drills;
- Passenger Vehicles;
- Certificates of System Safety and Security;
and
- Safety and Security Certification Audits.

This report will be submitted to the Minnesota Department of Public Safety (MnDPS), SPO and FTA.

8.6 Endorsement by Transit Management

It is the policy of Metro Transit to ensure that the Southwest LRT Line is operationally safe for revenue service. Further, these detailed and comprehensive SPO processes will be verified using the safety and security process established for Southwest LRT and documented in the Southwest LRT SSCP.

9 CONSTRUCTION SAFETY AND SECURITY MANAGEMENT ACTIVITIES

Southwest LRT PMP Chapter 8 describes the approach to be taken for Southwest LRT construction management. The focus on safety and security begins at the start of each Southwest LRT design and construction contract. The specifications for each contract issued for bid relating to construction (or design and construction) will include a section requiring a Contractor Safety Plan and a Contractor Security Plan. The contractor may combine these plans into a single safety and security plan containing the required elements for both areas. The plan(s) must be approved by the SPO Manager of Construction Safety or designee prior to the issuance of a Notice to Proceed (NTP) with the contract.

9.1 Construction Safety Management Activities

For Southwest LRT contracts, the Council will create a contract specification similar to Green Line Specification Section 01 35 29, "Health, Safety, and Emergency Response," which delineates the safety requirements that a contractor must comply with if awarded the contract for work. It states that the contractor or subcontractor "shall comply with all provisions, regulations and recommendations issued according to the Occupational Safety and Health Administration (OSHA), and with law, rules, regulations of other authorities having jurisdiction, with regard to all matters relating to the safety and health of workers and the general public."

The Southwest LRT Construction Phase is vastly different from operations and, as such, is governed by different rules, procedures, and policies. Construction sites are especially hazardous. Each contractor must submit a single or joint plan for how the work will be accomplished while preserving safety and security.

The contractor is required to prepare a project safety and health program along with a Site-Specific Safety Plan to ensure that, while on the work site and in the conduct of construction activities, contractor and subcontractor personnel comply with the specified safety practices, codes, and regulations. Southwest LRT may involve several separate contracts. Each contract will require the contractor to address safety and security in a plan prior to the start of construction activities. The contractor may choose to address safety and security in a single plan or in separate plans.

9.1.1 Construction Safety Required Submittals and Time Frames

Following the award of a contract but prior to the start of construction activities, the contractor shall submit the following to the SPO Construction Manager or designee:

- Contractor's Safety and Health Program;
- Contractor's Site-Specific Safety Plan;
- Contractor's principal point of contact for safety issues, including the contractors designated competent person based on the work being performed.

The contractor will be required to submit the following to the SPO Construction Manager on a regular basis during the course of construction:

- Accident reports – immediately orally, and in writing no later than 24 hours after each occurrence;
- Inspection reports – weekly;
- Minutes and attendance sheets of safety training, meetings and related communications – biweekly;
- Notices from public authorities – as soon as possible but no later than 24 hours after receipt by the contractor.
- A compilation of accidents on a monthly basis; and
- Material Safety Data Sheets (MSDS) for all substances as received by the contractor.

Whenever construction operations encounter or expose an abnormal condition that may indicate the presence of a hazardous substance, the contractor shall immediately discontinue construction activities near the abnormal condition and notify the Construction Manager or designee.

9.1.2 Contractor's Site-Specific Safety Plan

The contractor's Site-Specific Safety Plan shall contain a commitment to and responsibility for providing a safe and healthful project. It must also include, at a minimum:

- Training of site supervision;
- Emergency evacuation of employees, including hospital routes and tornado shelters;
- Cold and hot weather work;
- Weekly toolbox meetings;
- Safety and health project orientation for workers;
- Ongoing safety and health training for workers;
- Providing safety and health information to the general public;
- Specific assignments of safety and health-related roles and responsibilities;
- Safety and health inspections;
- Accident-related record keeping, investigation and surveillance;
- Disciplinary action;
- Schedule of safety related meetings and training;
- General work rules addressing hazards common to all types of construction and site-specific work rules addressing the hazards of the work at hand;
- An Emergency Action Plan addressing all types of emergencies with that the contractor may reasonably expect to encounter; and
- A procedure for identifying how and under what circumstances job hazard analyses shall be conducted.

9.2 Construction Security Management Activities

For Southwest LRT contracts, the Council will create a specification similar to Green Line Specification Section 01 35 53, "Security Procedures," which delineates the requirements that a contractor must comply with regard to security. Compliance with the site security portion of the Contractor's Safety Plan will require the contractor to develop and submit a Site Security Plan to SPO prior to contract commencement. The Site Security Plan shall accommodate the following requirements and must be amended as needed to resolve SPO objections.

9.2.1 Contractor's Security Related Submittals and Timeframes

The contractor shall be responsible for the security of the site and work, from the date of contract commencement to contract completion. This shall include protection of offices, workshops, equipment, materials and work from damage by vandalism, fire, and theft.

MTPD police will be available for occasional consultation and security audits for security activities on Council property.

The contractor will be required to submit a Security Report with each Application for Payment, including the following, at a minimum:

- Documentation of security issues discussed at safety meetings during the most recent period;
- Security incidents, including date, time, location, and contractor and Project personnel involved with theft, vandalism, trespassing, and emergency services calls; and
- List of security staff working on the site during the most recent period.

SPO will require that the contractor update the Security Plan and submit to the Construction Manager or designee for review every six months to reflect changes in security procedures.

9.2.2 Contractor Security Plan

The contractor's Security Plan shall be submitted to and reviewed by the Southwest LRT Construction Manager or designee prior to commencement of work at the site. The Security Plan will include at a minimum:

- Contractor's principal point of contact concerning security issues;
- Emergency telephone numbers for police, fire, ambulance, and private security companies involved in Southwest LRT, including non-emergency numbers, and phone numbers for key contractor and subcontractor personnel;
- Requirement that security issues be discussed at each safety meeting; agenda item list to be included in all safety meetings, including toolbox meetings;
- Procedures for enforcing compliance with security requirements and plan for discipline and corrective action for violation of workplace restrictions listed below;
- Rules for access to offices, staging and storage areas, and vehicles, and sign-in requirements for offices and checkpoints, including classification of personnel authorized for access to restricted areas;

- Descriptions of security signage, fencing, and electronic security systems;
- Diagrams of staging areas, storage areas, and office space to be equipped with security systems or to be observed by security staff;
- Procedures for quality assurance audits by Metro Transit police; and
- Documentation of closeout procedures.

9.2.3 Site Security Requirements

SPO may require the contractor to properly secure construction areas including temporary office buildings, storage, staging and parking areas.

MTPD, the Construction Manager or designee, and SPO quality personnel will periodically inspect and audit site security to confirm compliance with requirements of the contract documents. The contractor shall provide access to the Site for MTPD officers, law enforcement officials, and emergency responders.

9.2.4 Site Workplace Restrictions

The following items or actions are prohibited while on the Site or on the Council property:

- Firearms or lethal weapons;
- Alcoholic beverages, illegal depressant or stimulant drugs, and being under the influence thereof;
- Sabotage, vandalism, or negligently operating equipment or vehicles;
- Fighting;
- Theft or unauthorized removal of tools or materials;
- Failure to use sanitary facilities;
- Entering unauthorized areas;
- Violating safety rules;
- Making false statements or falsifying records or reports;
- Horseplay;
- Littering;
- Negligently damaging property of the Council, contractor, or subcontractor; and
- Failure to submit to security inspection.

Failure to comply with the above restrictions will be cause for dismissal or denial of access.

9.3 Safety and Security Incentives

At this time, Southwest LRT does not anticipate providing safety or security incentives during construction.

10 IMPLEMENTATION SCHEDULE FOR MEETING STATE SAFETY OVERSIGHT AGENCY (SSOA) REQUIREMENTS AND APPROVALS

10.1 Applicability

This section of the SSMP addresses Southwest LRT's activities to coordinate with the Minnesota State Safety Oversight Agency (SSOA) to ensure compliance with 49 CFR Part 659 requirements with the initiation of revenue service. This section is only required for rail fixed guideway systems meeting the definition specified in § 659.5:

“Any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, or automated guideway that:

- is not regulated by the FRA; and
- is included in the FTA's calculation of fixed guideway route miles or receives funding under FTA's formula program for urbanized areas (49 U.S.C. 5336); or
- has submitted documentation to FTA indicating its intent to be included in FTA's calculation of fixed guideway route miles to receive funding under FTA's formula program for urbanized areas (49 U.S.C. 5336).”

The Southwest LRT Project falls under the jurisdiction of the SSOA. The State Safety Oversight Program has been in place since the early stages of the Blue Line project, and Metro Transit maintains an active and collaborative relationship with the SSOA.

10.2 Coordination

The SSOA resides in the Minnesota Department of Public Safety (MnDPS), coordinated by the Captain of the East-side Command, Minnesota State Patrol. MnDPS is assisted by an independent contractor that provides technical advice and carries out various tasks including audits and pre-revenue assessments.

MnDPS has been part of the system safety and safety certification process at Metro Transit since 2002, including the grand openings of the Blue Line and the Green Line. MnDPS receives agendas and minutes for the LRT FLSSC and the SSRC and participates as appropriate. The SSOA receives periodic updates from SPO staff on design and construction. It also participates in FTA monthly and quarterly meetings as appropriate. The SSOA is also notified of and receives reports on accidents or incidents that have occurred on the Blue Line and Green Line. This same level of rigor, participation and collaboration will be applied to the Southwest LRT Project.

11 FEDERAL RAILROAD ADMINISTRATION (FRA) COORDINATION

At the project level, the Southwest LRT Project falls under State Safety Oversight Agency (SSOA) jurisdiction. Although the FRA and SSOA are typically mutually exclusive jurisdictional authorities, there are some cases where FRA has an interest.

In the case of a transit system located on dedicated tracks adjacent to active freight trackage, FRA's concern is that the operations of a freight railroad in close proximity to a heavy or LRT line (i.e., common corridor operations) could present risks for each. For example, a freight train derailment that encroaches on the transit line or an LRV evacuation of passengers near freight rail track. In addition, workers on the freight railroad might not realize the need to protect against transit vehicles, and vice versa.

Common corridors are transportation corridors carrying both general freight railroad traffic and passenger trains of non-FRA-compliant equipment (heavy or LRT). FRA-compliant commuter rail equipment is not included in this study, since it is covered by existing regulations. The FRA has defined three types of common corridors:

1. **Shared track**, in which the heavy rail or transit vehicles operate on the same tracks used by freight trains. FRA has written regulations governing this type of operation, in which temporal separation (no simultaneous operation) is required in most cases. This condition does not apply to Southwest LRT Project
2. **Shared right-of-way (ROW)**, in which the transit vehicles run on separate tracks, but separation between the centerline of the freight track and the centerline of the passenger track is less than 25 feet. Tracks separated by less than 25 feet are defined as "adjacent" by FRA, and certain worker protection rules apply on adjacent tracks. FRA also defines "less than 30 feet" as the distance at which tracks are "non-insular" and operators are therefore subject to certain railroad regulations. This condition applies to the Southwest LRT Project.
3. **Shared corridor**, in which transit and freight operators share a transportation corridor, but tracks are separated by at least 25 feet and no more than 200 feet. FRA believes that intrusion by derailed freight or transit cars onto a parallel railroad track is unlikely beyond 200 feet. This condition applies to the Southwest LRT Project.

In addition, FRA defines "shared minor facilities" as follows:

- Rail/highway crossings where transit line and general railroad system share crossing protection;
- Level crossings (diamonds) between transit tracks and general railroad system tracks; and
- Shared movable bridges.

Also, where transit operations share highway-rail grade crossings with conventional railroads, FRA expects both systems to observe its signal rules.

The SPO is coordinating with the FRA and the FRA has provided the SPO with a preliminary jurisdiction determination indicating that the Southwest LRT will be an urban rapid transit operation.

The FRA identified five shared crossings with freight rail that will fall under its purview. The FRA identified certain regulations set forth in 49 CFR Part 211 that Metro Transit's operations must follow. Metro Transit may petition the FRA for a waiver of these FRA regulations. FRA will seek FTA's views whenever an urban rapid transit operation petitions FRA for a waiver of its safety rules. In granting or denying any such waiver, FRA will make clear whether its rules do not apply to any segments of the operation so that it is clear where FTA's rules do apply.

The SPO will continue to coordinate with the FRA for the shared success of this common corridor interface, including implementation of required mitigations and obtaining FRA waivers.

12 DEPARTMENT OF HOMELAND SECURITY (DHS) AND TRANSPORTATION SECURITY ADMINISTRATION (TSA) COORDINATION

12.1 Department of Homeland Security (DHS) Activities

SPO anticipates that, similar to current practice, interface with DHS will be managed by the MTPD Chief of Police, and supported by the security participants in the FLSSC. Currently, Metro Transit Police are members of the Hennepin, Ramsey, Dakota and Washington County Chiefs of Police Associations. Metro Transit Police also participate on Law Enforcement Terrorism Task Force sponsored by the Federal Bureau of Investigation (FBI).

12.2 Transportation Security Administration (TSA) Activities

The LRT FLSSC includes TSA participation through the TSA Lead Inspector, Surface Transportation, and Security Inspection. TSA has been represented at LRT and Northstar FLSSC meetings as well as at Threat and Vulnerability Analysis (TVA) workshops and emergency preparedness exercises.

As noted earlier in this SSMP, the FLSSC facilitates emergency response exercises. LRT FLSSC members will participate in the planning, performance and evaluation of emergency simulations on the system. Some of these exercises will be discussion-based (tabletop) drills, others may take the form of familiarization exercises, and yet others will be operations-based (full-scale) exercises. Some scenarios will have a safety (accidental injury or damage) perspective, while others will have a security (intentional injury or damage) perspective. Some will accommodate both perspectives.

13 REFERENCED MANAGEMENT PLANS

The chart below lists the acronym, date and revision number for management plans referenced in this SSMP. These plans are revised on an as-needed basis. Staff should always use the most recent revision as a guide.

Plan	Acronym	Date	Rev
Central Corridor Safety and Security Certification Plan	Central Corridor SSCP	October 2012	Rev 2
LRT Accident/Incident Investigation Plan		April 2014	Rev. 9
Metro Transit Security and Emergency Preparedness Plan	SEPP	January 2014	Rev.12
Rail Transit Operations Emergency Management Plan	OEMP	February 2014	Rev. 9
Safety and Security Preparedness Plan	SSPP	April, 2014	Rev. 11
Southwest LRT Project Management Plan	PMP	November 2014	Rev. 01.00
Transportation Maintenance and Operations Plan		March 2009	Rev 18

