

Sound Transit Agency Safety Plan



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REVISION TABLE

Date	Revision Summary	Revision Number
06/2020	Original Issue	0.0

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ABBREVIATIONS AND DEFINITIONS

Abbreviations and Acronyms

APP	Accident Prevention Plan
APTA	American Public Transportation Association
ASP	Public Transportation Agency Safety Plan
CAP	Corrective Action Plan
CCB	Change Control Board
CEO	Chief Executive Officer
CFR	Code of Federal Regulations
CRB	Configuration Review Board
DECM	Design, Engineering and Construction Management Division
EAMS	Enterprise Asset Management System
EMP	Emergency Management Plan
FLSSC	Fire/Life Safety and Security Committee
FRA	Federal Rail Administration
FTA	Federal Transit Administration
LLR	Link Light Rail
MOW	Maintenance-of-Way
NTSB	National Transportation Safety Board
OSHA	Occupational Safety and Health Administration
PHA	Preliminary Hazard Analysis
RCW	Revised Code of Washington
ROW	Right-of-Way
SDS	Safety Data Sheets
SOAP	Senior Oversight and Approval Panel
SOP	Standard Operating Procedure
SSCP	Agency Safety and Security Certification Plan
SSDCC	Safety and Security Design and Construction Committee
SSMP	Safety and Security Management Plan
SSOC	Safety and Security Operations Committee
ST	Sound Transit (Central Puget Sound Regional Transit Authority)
STX	ST Express
TLLR	Tacoma Link Light Rail
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation
WUTC	Washington Utilities and Transportation Commission

Definitions

Accident: an Event that involves any of the following: A loss of life; a report of a serious injury to a person; a collision of public transportation vehicles; a runaway train; an evacuation for life safety reasons; or any derailment of a rail transit vehicle, at any location, at any time, whatever the cause.

Accountable Executive: Single, identifiable person who has the ultimate responsibility for carrying out the Public Transportation Agency Safety Plan of a public transportation agency; responsibility of carrying out the agency's Transit Asset Management Plan; and control and direction over the human and capital resources needed to develop and maintain both the agency's Public Transportation Agency Safety Plan in accordance with CFR 673.

Agency: Sound Transit.

Cause: The combination of simultaneous and sequential factors without any of which the accident or incident could not have occurred.

Chief Safety Officer: an adequately trained individual who has responsibility for safety and reports directly to a transit agency's chief executive officer, general manager, president, or equivalent officer.

Collision: An impact between on-track equipment consists while both are on rails and where one of the train consists is operating under train movement rules or is subject to the protection afforded to trains. This definition includes instances where a portion of a consist occupying a siding is fouling the main line and is struck by an approaching train. It does not include impacts occurring while switching within yards, as in making up or breaking up trains, shifting or setting out cars, etc.

Contractor: An entity that performs tasks required by this part on behalf of the oversight or rail transit agency.

Corrective action plan: A plan developed by a Rail Transit Agency that describes the actions the Rail Transit Agency will take to minimize, control, correct, or eliminate risks and hazards, and the schedule for taking those actions. Either a State Safety Oversight Agency or FTA may require a Rail Transit Agency to develop and carry out a corrective action plan.

Derailment: A derailment occurs when on-track equipment leaves the rail for a reason other than a collision, explosion, highway-rail crossing impact, etc.

Drill: A type of operations based emergency exercise that is used to test a specific function or capability in a single agency or organization. Drills are commonly used to provide training on new equipment, validate procedures, or practice and maintain current skills.

Emergency: A serious event that consists of any unwanted operational, civil, natural phenomenon, or security occurrence that could endanger or adversely affect people, property, or the environment.

EAMS: EAMS platform is the Agency's asset management system and supports the organization, business practices, and tools used to coordinate and control the Agency's asset management activities.

Event: Any accident, incident, or occurrence.

Exercise: An activity designed to promote emergency preparedness; evaluate emergency operations, policies, plans, procedures, and facilities; train personnel in emergency management and response duties; and demonstrate operational capability. Exercises may be discussion or operations based. Discussion based exercises include seminars, workshops, tabletop exercises, and games. Operations based exercises include drills, functional, and full-scale exercises.

Fatality: The condition involving a person who dies as a result of an injury incurred during railroad operations or resulting from an occupational illness, if death occurs within 180 days of most recent diagnosis.

Hazard: Any real or potential condition that can cause injury, illness, or death; damage to or loss of the facilities, equipment, rolling stock or infrastructure of a public transportation system; or damage to the environment.

Hazardous Condition: A set of circumstances that if not identified and corrected has or shall result in personal injury or property damage.

Hazardous Material: Any substance that, due to its chemical, physical, or biological nature, causes safety, public health, or environmental concerns that would require an elevated level of effort to manage.

Highway-Rail Crossing: A location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at a grade.

Highway User: Automobiles, busses, trucks, motorcycles, bicycles, farm vehicles, pedestrians, or any other mode of surface transportation motorized and un-motorized.

Incident: An event that involves any of the following: a personal injury that is not a serious injury; one or more injuries requiring medical transport; or damage to facilities, equipment, rolling stock, or infrastructure that disrupts the operations of a transit agency.

Injury: Harm to a person resulting from a single event, activity, occurrence, or exposure of short duration.

Investigation: The process of determining the causal and contributing factors of an accident, incident, or hazard, for the purpose of preventing recurrence and mitigating risk.

National Public Transportation Safety Plan: The plan to improve the safety of all public transportation systems that receive Federal financial assistance under 49 U.S.C. Chapter 53.

NTSB: The National Transportation Safety Board, an independent Federal agency.

Near Miss: A near miss is an unplanned event that did not result in injury, illness, or damage – but had the potential to do so.

Occurrence: An event without any personal injury in which any damage to facilities, equipment, rolling stock or infrastructure does not disrupt the operation of a transit agency.

Operations/Maintenance/Emergencies Procedures: This includes all plans and procedures related to system, fire and life, occupational and construction Safety Programs.

Personal (or bodily) Injury: A condition identified through a verbal statement from a passenger, directly observed, or through the filing of a claim.

Physical Plant: Stations and any other fixed structures.

Public Transportation Agency Safety Plan: Documented comprehensive agency safety plan for a transit agency that is required by 49 CFR 673.

Qualified Employee: An individual who is competent in a task because of training, and to whom the authority and responsibility to perform a specific assignment has been given by management.

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

Rail Transit Agency (RTA): means any entity that provides services on a rail fixed guideway public transportation system.

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

Risk mitigation: A method or methods to eliminate or reduce the effects of hazards.

Safety risk management: A process within a Rail Transit Agency's Safety Plan for identifying hazards and analyzing, assessing, and mitigating safety risk.

Serious injury: any injury which:

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

Safety: Freedom from harm resulting from unintentional acts or circumstances

Safety Culture: The product of individual and group values, attitudes, perceptions, competencies and patterns of behavior that can determine the commitment to, style and proficiency of the public transportation agency.

Safety Management System (SMS): Formal, top-down organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency's safety risk mitigation. SMS includes systematic procedures, practices and policies for managing risks and hazards.

Security: Freedom from intentional danger or harm.

State Safety Oversight Agency: An agency established by a state that meets the requirements and performs the functions specified by 49 CFR 674.

System: The combination or interrelation of hardware, software, people, and the operating environment.

System Life Cycle: All phases of the system's life including design, research, development, test and evaluation, production, deployment (inventory), operations and support, and disposal.

System Safety: The application of management and engineering principles and techniques to optimize all aspects of safety, within the constraints of operational effectiveness, time, and cost, throughout all phases of a system life cycle.

Trespassers: Persons who are on that part of railroad property used in railroad operation and whose presence is prohibited, forbidden or unlawful.

Unsafe Condition or Act: Any condition or act that endangers life, health and/or property or decreases the degree of safety normally present.

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0.0 INTRODUCTION

This document is Sound Transit’s (ST) Public Transportation Agency Safety Plan (ASP) for the bus and rail systems: Link light rail (LLR), Tacoma Link light rail (TLLR), and ST Express (STX). Sound Transit works to fulfill the mission and vision of transforming the map of the Central Puget Sound, all the while connecting more people to more places. It is Sound Transit’s responsibility to design, build, maintain and operate our service modes to keep employees, contractors, customers and communities safe. The ASP provides a high-level overview of the Sound Transit Safety Management System (SMS) and processes, developed in accordance with 49 CFR 673. This document is to be used by staff, informing them of documented processes and procedures, a reference to functional safety protocols, and overall as a safety resource.



Figure 1. Sound Transit’s Mission and vision

This plan establishes accountability and responsibility at the top levels of the organization, evidenced by the Board approval and CEO commitment to the Safety Management Policy statement, which includes commitment to necessary resources to sustain and improve the Sound Transit safety culture. This document serves as the framework for the Sound Transit SMS (Figure 2), and maps all processes and procedures that support it.

This Plan acts like the hub of a wheel, linking subsidiary plans, manuals, and other safety documentation as spokes to the overall processes and components of SMS to create feedback and continuity into the system. A Safety Management System Implementation Plan has been developed to outline developing processes and procedures, opportunities to consolidate process documentation, and other activities associated with implementation.

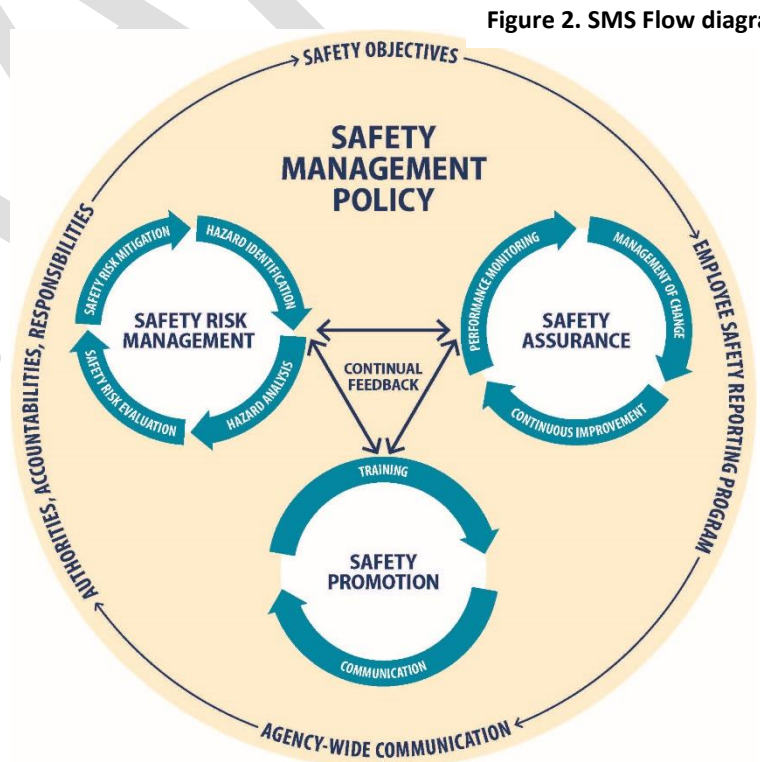


Figure 2. SMS Flow diagram

0.1 ST BACKGROUND

The Central Puget Sound Regional Transit Authority (Sound Transit) was authorized by the Washington legislature and codified in the Washington State Law (Revised Code of Washington Chapter 81.112 – Regional Transportation Authorities). Sound Transit was created in 1993 to plan, build and operate the commuter rail, light rail, express bus services and facilities for the Central Puget Sound region, to serve the counties of King, Pierce and Snohomish. On November 5, 1996, voters within the 3-

county Sound Transit district approved an increase in local taxes to fund the local share of Sound Move investments.

Board of Directors

Sound Transit is governed by an 18-member Board made up of local elected officials proportional to the population included in the Sound Transit district. Three members are from Snohomish County; 10 from King County; and 4 from Pierce County. The last seat is held by the Washington State Secretary of Transportation.

The Board establishes policies and gives direction and oversight. It is empowered under state law to identify ballot measures for voter approval of regional transit projects and maintains the Long-Range Plan that identifies potential projects to submit to voters.

At critical milestones of every voter-approved project, the Board makes key decisions by adopting budgets, identifying alternatives to include in environmental review, selecting the preferred alternative, determining the final project to be built and establishing baselines for project scope, schedule and budget. The Board also approves major contracts.

The Board and its committees work in open, regularly scheduled meetings. There are three Board committees: the Executive Committee, the Rider Experience and Operations Committee, The System Expansion Committee, and the Finance and Audit Committee.

Delegation of Authority and Accountability in SMS

The Board of Directors has delegated the authority and accountability for day-to-day operation and safety of Sound Transit to the Chief Executive Officer (CEO). The Executive Director of Operations oversees activities of FTA regulated Tacoma Link Light Rail, Link Light Rail, ST Express, and the FRA regulated Sounder Commuter Rail.

The Sound Transit CEO has designated the Chief Safety Officer (CSO) as the SMS Manager and delegated the CSO authority for the day-to-day Agency oversight of safety for all operating systems. The CSO is a direct report to the CEO and The CSO is responsible for the implementation and operation of the Agency's SMS.

This ASP will be approved for implementation under Sound Transit authority and accepted by the Chief Executive Officer and the ST Board of Directors.

0.2 SCOPE AND PURPOSE

Scope

The ASP applies to the Link light rail, Tacoma Link light rail, and ST Express services. The Sounder commuter rail (SCR) safety program requirements are documented in the current [SCR System Safety Program Plan \(SSPP\)](#), which is being modified to comply with the FRA 49 CFR 270 rule. Future iterations of the ASP elements and the SCR safety plan elements will be integrated.

The SMS applies to all agency activities and duly applies to all employees and the safety oversight of our contracted activities. Contractors, consultants, and partners are required to meet applicable FTA, LNI, or other minimum requirements in establishing safety plans in accordance with any federal or state legislation and contractual obligations, and these plans should be in alignment with Sound Transit's ASP.

The methods and processes contained in the ASP are applicable to all phases of the rail and bus transit system life-cycle.

Sound Transit's Link Light Rail and ST Express operating partner, King County Metro (KCM) has developed an Agency Safety Plan that governs the activities of KCM's organization and as it relates to their safety management processes and operating practices for the ST owned service.

Sound Transit's ST Express operating partners, King County Metro (above), Pierce Transit, and Community Transit have also developed Agency Safety Plans to comply with CFR 673. These plans will be referenced as appropriate in alignment with contract responsibilities and activities.

The scope of this plan is audited for compliance, in cooperation with our partners to ensure full implementation of the safety management system throughout the ST organization and ST owned services.

Purpose

ST's ASP will incorporate all the elements of our safety programs, referencing documents of record, and aligning all safety processes under one umbrella. The SMS will help increase effectiveness, check that the processes are working as intended, and unite departments in a common objective. The system will also shift from lagging to leading or preventive indicators, changing the behaviors and the actions taken to correct gaps within the system.

The SMS is intended to work in conjunction with the other ST management systems, including: environmental, asset management, quality, and information security. Additionally, Security and Emergency Management remain part of our Safety Processes, and will play a major role in the policies and procedures developed for FTA compliance.

0.3 ORGANIZATIONAL CHART

The ST Organizational Overview has been included in this plan in Appendix 2. Additional organizational charts can be provided upon request. Organizational charts are updated on a quarterly basis, and are retained on the ST intranet site, [The Hub](#).

0.4 SYSTEM DESCRIPTION

System descriptions for LLR, TLLR, and STX have been included in Appendix 1.

0.5 SAFETY GOALS

The goal of SMS is to provide the agency a process-focused approach to managing safety risk to the optimum level – as low as reasonably practicable (ALARP). This goal is reflected in the safety activities integrated during the planning, design, construction, operation, and maintenance phases of transit projects and services. The expected outcomes of SMS include:

- A continuously improved safety culture
- Meeting and exceeding safety targets to provide the highest level of safety (ALARP)
- Meeting applicable requirements of regulatory agencies
- Effectively monitoring and measuring safety performance
- Ensuring mitigations are effective and validated

1.0 SAFETY PLAN

This section incorporates ST’s conformance with 49 CFR 673 including establishing safety performance targets, review and update of this document, emergency management protocols and coordination with planning stakeholders.

1.1 SAFETY PERFORMANCE MEASURES AND TARGETS

Sound Transit’s safety performance measures are based on the measures established under the National Public Transportation Safety Plan. Numbers and rates were calculated using the National Transit Database (NTD) Time Series data. Proposed targets are below in Figure 3.

Per 100k VRM	Rail Mode		Bus Fixed Route Mode	
	5 year avg	Target	5 year avg	Target
Fatalities (#)	0.4	0	0.4	0
Rate	0.01	0.00	0.01	0.00
Injuries (#)	12.3	11.7	9.1	8.7
Rate	0.82	0.8	0.16	0.2
Safety events (#)	12.7	12.1	9.1	8.7
Rate	0.96	0.9	0.16	0.2
System Reliability*	45	42.7	533.5	506.8

Figure 3 *System Reliability is measured by mechanical failures per revenue mile.

1.2 CONFORMANCE WITH FTA GUIDELINES

This ASP addresses all requirements and standards as set forth in the FTA’s Public Transportation Safety Program and the National Public Transportation Safety Plan. ST will comply with any minimum safety performance standards and will monitor any FTA standards that may be established through the public notice and comment process, and will revise the ASP according to the process listed in section 1.4.

1.3 REGULATORY OVERSIGHT AND ACKNOWLEDGEMENT

The State Safety Oversight Agency for Sound Transit’s rail mode is the Washington State Department of Transportation (WSDOT). ST will submit its ASP to WSDOT per the schedule below received March 23, 2020. This schedule will be removed for final submission, and Sound Transit will submit subsequent revisions per the guidelines in section 1.4.

Task	Responsible Party	Due Date
Initial Agency Safety Plan Submission	Sound Transit	1/21/20
Verbal comments	WSDOT	2/21/20
Second Agency Safety Plan Submission	Sound Transit	3/16/20
Formal review with FTA checklist	WSDOT	4/6/20
Final Agency Safety Plan Submission	Sound Transit	5/11/20
Agency Safety Plan Approval for ST to seek executive approval	WSDOT	6/1/20
*Accountable Executive and Board approval of Agency Safety Plan	Sound Transit	7/1/20
Agency Safety Plan final approval and transmission to FTA	WSDOT	7/17/20

1.4 REVIEW AND UPDATE OF ASP

The ASP is assessed at least annually by the Safety Department to certify it compliance, make necessary updates, corrections and modifications in accordance with ST practices and WSDOT Program Standard guidance. The Program Manager – Safety Management System is responsible for initiating, developing, and revising the ASP on behalf of Sound Transit, as well as confirming compliance with regulation. The Program Manager will seek feedback from affected departments, management review, operational partners, and internal safety audits to determine if any changes are needed. Updates to the ASP may be initiated due to changes to the WSDOT Program Standard, system expansion, major system modifications, audit results, operating procedures or environment, procedures, instructions, or rules affecting safety.

Changes, excluding nominal administrative changes, will be presented to the Chief Executive Officer for adoption by the Board of Directors. The Program Manager – Safety Management System will update the revision table indicating a review and certification of compliance has taken place.

Following the ASP review, the Safety department will provide the revision to WSDOT for compliance review and final approval. The revised ASP is submitted annually on or before February 15th to meet requirements set forth by the WSDOT Program Standard rev Nov. 2018. The Employee and Transit Safety Director is responsible for notifying WSDOT of any changes or modifications to the ASP or any significant safety issues. WSDOT is responsible for reviewing the ASP to ensure the plan meets the Program Standard requirements. Any WSDOT recommendations to enhance or modify the ASP will be considered and the ASP will be revised accordingly.

1.5 EMERGENCY MANAGEMENT AND PREPAREDNESS PROGRAM

Excerpt:

It is the policy of Sound Transit to fully support an on-going Emergency Management program. The Sound Transit Emergency Management Plan has been developed to define Sound Transit's commitment to implementing and administering an emergency program for all operations within Sound Transit that achieve the highest practical level of preparedness and response for our customers, employees, and members of the community impacted by Sound Transit's operations and services. It is Sound Transit's policy to work in coordination with impacted jurisdictions and agencies in which Sound Transit operates.

The Agency's emergency response activities are documented in a designated Security Sensitive Information (SSI) Emergency Management Plan; the objectives of the program are documented in 0.3.1.

OBJECTIVES OF THE EMERGENCY MANAGEMENT PLAN

Emergency response objectives are established based on the following priorities:

1. Life Safety
2. Incident Stabilization
3. Property Preservation

Emergency response objectives include:

- **Organization**
 - Provide a means for departments to quickly determine their roles and responsibilities.

- Link and coordinate processes, actions, and the exchange of critical information into an efficient and real-time overall response planning system.
- Provide a starting point for training personnel and partner agencies in Sound Transit's emergency response planning.
- **Authority and Decision Making**
 - Serve as a reference guide to determine Sound Transit's authority and appropriate level of response, emergency controls, and coordination that should be activated when incidents or disasters occur, using the Incident Command System (ICS).
- **Response Operations**
 - Provide guidelines for using Sound Transit resources to implement a comprehensive emergency response.
- **Recovery Operations**
 - Support departments and employees in developing emergency response plans.
- **Emergency Management – Save, Promote, Minimize, and Restore**
 - Save lives and prevent injuries.
 - Promote an effective action in responding to emergencies.
 - Minimize loss of property.
 - Restore conditions to normal and with minimal confusion.

EMERGENCY ROLES AND RESPONSIBILITIES

Sound Transit emphasizes the importance that all levels of the organization understand their responsibilities during emergencies. A description of responsibilities for the Board of Directors, Executive Department, Public Safety Division and Law Enforcement, Communications, Legal, Finance, Information Technology, and coordination with First Responders is documented in section 3.0 of the Emergency Management Plan, marked as Security Sensitive information (SSI).

Each Sound Transit department will develop procedures to fulfill the responsibilities outlined in this section, highlighting which department representatives will mobilize to the incident scene, while others will mobilize to the designated coordination center, depending on incident location and level.

1.6 CERTIFICATION OF COMPLIANCE

Sound Transit will certify that this Agency Safety Plan meets the requirements of 49 CFR 673, 49 CFR 674, and the WSDOT Program Standard. Sound Transit will certify this ASP initially and annually thereafter through the FTA's Certification and Assurances process.

1.7 COORDINATION WITH PLANNING STAKEHOLDERS

Sound Transit disseminates and makes available safety performance targets to the regulatory authorities (State), Puget Sound Regional Council (PSRC) and other stakeholders to aid in the planning process. ST will provide a complete copy of this ASP to PSRC and WSDOT, highlighting the proposed performance targets to aid in their planning process. Future revisions will be shared with both organizations.

2.0 SAFETY MANAGEMENT POLICY

The SMS components lay the foundation of ST's safety culture, and specifically the Safety Management Policy component provides the context for the SMS as a whole. This component documents ST's commitment to safety, which defines our objectives, accountabilities and responsibilities.

POLICY STATEMENT

Sound Transit is committed to implementing a safety management system that consistently fulfills the highest expectation of our customers through the delivery of high quality service without adverse effects to the safety of passengers, employees, contractors, emergency responders and the public and complies with applicable legal regulations, industry best practices and other requirements.

We continue to develop and embed a safety culture in all our activities that recognizes the importance and value of effective safety management and acknowledges at all times that safety is paramount.

Sound Transit's overall objective is to proactively manage safety hazards and their associated safety risk, with the intent to eliminate unacceptable risk in our transit operations. To that end, we will continuously examine our operations for hazards, and apply lessons learned and process improvement to our capital program to ensure that our system growth is influenced through operational experience. We have established a non-punitive employee safety-reporting program, trained staff on SMS principles, and strive for continuous improvement of our safety performance.

All levels of management and all employees are accountable for the delivery of the highest level of safety performance, starting with the Accountable Executive: Sound Transit's CEO. ST will integrate the management of safety among the general responsibilities of all employees, as defined in all ST job descriptions.

As required by the Federal Transit Administration, we have established annual safety performance targets to help us measure the safety of our transit system. In addition to our overall safety objective, we will continue to track and trend leading and lagging indicators to ensure the success of our system, identify opportunities for improvement, and actively track and follow-up on voluntary hazard identification reports.

The Board of Directors has memorialized the Chief Executive Officers responsibilities and overall Sound Transit commitment to safety in [Resolution No. R2017-13: Safety Policy](#), which can be found on the Hub in its entirety.

Chief Executive Officer

Chair of the Board of Directors
Sound Transit

Date

Date

2.1 SAFETY MANAGEMENT POLICY COMMUNICATION

Sound Transit's Safety Policy will be distributed to all personnel via internal communications and will be incorporated into the New Hire Orientation process. Contractors will be provided a direct communication of this policy statement. Additionally, through ST bi-annual SMS awareness refresher training the policy statement will be shared with all staff. For more information on Training and Communication, please see Section 5.0 Safety Promotion.

2.2 EMPLOYEE REPORTING PROGRAM AND FEEDBACK

Sound Transit has developed a process for employees to report hazards, unsafe conditions and near miss occurrences to management. Employees are encouraged to report transparently, but Sound Transit affords protection from punitive measures by providing employees the opportunity to submit reports transparently or anonymously.

ST is aware that different concerns need different feedback. Below are the reporting methods with a description of appropriate reporting channels.

1. Is this a non-emergency employee safety concern? Contact the [Employee Health and Safety Group via the Employee Safety Hotline \(206-903-7379\) or the EHS Group email \(safetygroup@soundtransit.org\)](#) to address employee related safety concerns. The Employee Health and Safety group will route the concern to the appropriate safety discipline.

Examples include:

- Floor Captain Program
- Regulatory compliance
- Safety trainings
- Reporting a hazard, incident, near miss, unsafe act or unsafe condition.

ST Feedback: Feedback is provided directly through email to the reporting party, summarizing the status, actions taken to address the reported issue, and final resolution.

2. Is this a Sound Transit Facilities concern? Enter an [EAM](#) ticket via ST Hub (ST Links>EAM).

Examples include:

- Maintenance of building/ST properties (e.g. office moves, furniture moves, maintenance requests, building heating/cooling, ST-owned transit facilities, etc.).
- Nonemergency safety concerns (e.g. trip/fall hazards).
- Spills: ESMS-304 Assessing and Responding to Spills (does not mention EAMs)

ST Feedback: Feedback is provided through the EAM system or email, providing status information, and actions taken to address the reported issue.

3. If this is a concern that you would like the Employee Safety Committee to review and follow through on your behalf, you may add your concern to the [ESC issue log](#). You may contact a member of the [ESC](#) directly if you would like your request to remain private.

Examples include:

- Ongoing or unaddressed safety concerns
- Suggestions for improvement of safety programs

ST Feedback: Feedback is provided directly through email to the reporter, summarizing the status, actions taken to address the reported issue, and final resolution.

These methods of reporting are all part of the hazard identification subcomponent, and the larger Safety Risk Management process documented in Section 2.0. Reported safety concerns will follow the process documented in Section 3.0.

Reporting to Senior Management

Generally, concerns are resolved at the Safety Department, Facilities, and Employee Safety Committee level; however, employees have the option of reporting safety conditions directly to senior management via the Safety and Security Operation Committee (SSOC) Issue Notification Process (Figure 4).



Figure 4. Simplified SSOC Issue Notification Process

Members of the SSOC include the Chair: Direct of Employee and Transit Safety, the co-Chair: System Security Manager, among other managers and directors from Risk Management, Design Engineering and Construction Management, and Operations as are documented in the [charter](#). The Chair reports directly to the CSO.

Standards of Conduct and Workplace Misconduct

ST has outlined its Standards of Conduct and Examples of Workplace Misconduct within the [Employee Handbook](#). These sections specifically describe employee behaviors that result in disciplinary actions. Each employee receives an electronic or hardcopy of this handbook at the start of their tenure. The handbook is updated periodically, and is available via the Hub.

2.3 SAFETY ACCOUNTABILITIES AND RESPONSIBILITIES

In order to achieve the ASP goals, all Sound Transit personnel need to be involved and have ownership for safety. Specifically, taking into consideration the safety implementations of their decisions in their respective roles. All ST employees have general safety-related tasks under the ASP as documented in the following section.

2.3.1 ORGANIZATIONAL ROLES AND RESPONSIBILITIES

Chief Executive Officer (CEO)

The Sound Transit CEO is the Accountable Executive and is responsible for reviewing and approving the ASP, ensuring the agency SMS is implemented, resourced, and continually improves. The CEO may delegate risk management decisions to the Chief Safety Officer, however, they are ultimately responsible for accepting safety risks or hazards at ST. Specifically, the ST CEO is responsible for:

- Control and direction over human and capital resources needed to develop and maintain both the ASP and the Transit Asset Management Plan
- Designate a Chief Safety Officer
- Ensure that Sound Transit’s SMS is effectively implemented throughout Sound Transits public transportation system
- Ensuring action is taken to address substandard performance in ST’s SMS

- Sound Transit's Safety Performance
- Ultimate responsibility for carrying out ST's ASP
- Carry out ST's TAM Plan
- Establishment and implementation of the ASP

Chief Safety Officer (CSO)

The CSO has been designated by the Accountable Executive as the SMS Manager. This position directly reports to the Accountable Executive, and is adequately trained to perform their duties. Training requirements for this position are included in Section 5.2 The CSO is responsible for the assuring adequate resources are available for the full implementation of SMS. The CSO is also responsible for:

- Day-to-day Implementation an operation of ST's SMS
- Ensure action is taken to address substandard performance in ST's SMS
- Advise Accountable Executive on SMS progress/Status
- Communicate safety information and safety performance
- Ensure ST policies are consistent with the ASP Goals
- Advocating for a safety culture

Agency Leadership

ST Leadership is responsible for:

- Implementation and operation of the SMS as it applies to their respective business units
- Accountable for business unit oversight, day-to-day operations and maintaining compliance with the ASP
- Modification of policies to align with the implementation of the ASP and other regulations

Deputy Chief Executive Officers

The Deputy Chief Executive Officers (DCEO) are Chairs of the System Expansion and Service Delivery Council and Business Administration Councils and members of the Executive Council with the CEO.

Executive Council

Addresses the agency's highest-priority issues and strategic questions to advise and recommend on necessary executive decisions both externally to customers, voters, communities, partners, and the Board of Directors, as well as internally to the organization; forum to understand CEO direction and coordinate timely, clear expectations with two leadership Councils

System Expansion & Service Delivery Council

Supports external agency business functions primarily related to system expansion and service delivery, and external affairs (e.g., Government and Community Relations, and Communications); serves as a meaningful governing body to advise and recommend on key agency decisions impacting capital project delivery, operations, the customer experience, and safety.

Business Administration Council

Supports internal ST business functions, including cross-cutting, end-to-end processes; serves as a meaningful governing body to advise and recommend on key agency decisions related to these areas, driving work to unify and automate core enterprise processes and workflow, and ensure exceptional internal customer service.

Key Staff

Key staff are responsible for overseeing safety in their primary job function through:

- Compliance with the programs and processes identified within the ASP
- Support development, implementation and operation of SMS within the ASP
- Maintenance documents that support the implementation of the ASP
- Review and investigate employee reports and implement corrective actions, as appropriate, in a timely manner
- Investigate employee injuries and document findings of investigations in the reporting system
- Verify ASP compliance and report deviations to the safety department

2.3.2 OPERATING CONTRACT RELATIONSHIPS

LINK LIGHT RAIL – KING COUNTY METRO

The LLR operation, safety, and maintenance day-to-day activities are contracted out to King County Metro, through an Intergovernmental Agreement (IGA). King County Metro will maintain a PTASP that documents their day-to-day administration of Link Light Rail activities, and internal processes for the agency that is supported by the IGA and this ST ASP.

KCM Safety is responsible for administration of LLR system safety within KCM by the Managing Director of Safety and Security through the KCM Superintendent of Rail Safety. KCM Safety is responsible for development, implementation, and administration of safety programs within the agency, including LLR. KCM Safety maintains and updates a System Safety Program Plan and are in development of their Public Transportation Agency Safety Plan. For the purposes of initial submission, the System Safety Program Plan is included in the submission of Sound Transit's ASP.

KCM Rail Operations and Maintenance are responsible for the safety of LLR employees, including safety leadership, interpretation of policies and work rules, enforcement of rules and policies, and are education of staff relative to safe work practices/procedures. KCM Rail Operations and Maintenance is directed by the KCM Division Director of Rail. The primary responsibility of the KCM Division Director of Rail is the overall direction of all KCM rail operations including development of operations and maintenance programs, and oversight of all contracted services for rail-related tasks. The KCM Division Director of Rail meets regularly with the ST Executive Operations Director - Light Rail to discuss all aspects of the LLR system.

ST EXPRESS – KING COUNTY METRO, COMMUNITY TRANSIT, PIERCE TRANSIT

The regional bus day-to-day activities for operation, safety, and maintenance are contracted to three different agencies: Pierce Transit, Community Transit, and King County Metro. In coordination with and oversight by the ST Express Operations Manager, these agencies administer individual PTASPs that apply

to the ST Express regional operations. Safety assurance activities and contract oversight activities are tools to assure the safety of the system and ensure best-in-class safety systems in the Pacific Northwest.

SOUNDER COMMUTER RAIL- BNSF, AMTRAK, STACY & WITBECK INC.

Sounder commuter rail falls outside of the scope of this plan. A complete description of the roles and responsibilities of Sound Transit, BNSF, Amtrak, and Stacy & Witbeck Inc are included in the current SCR System Safety Program Plan.

2.4 PLAN IMPLEMENTATION

The ASP focuses on the activities that are required to provide a high level of safety. The ASP elements include the long-term approach to implement Safety Management Systems within ST. The ASP also delineates activities to be performed by the safety committee to ensure its involvement on a continuing basis.

This ASP outlines the methods to assure that safety is an integral and continuous part of all life-cycle activities of a transit system. The ASP complies with all state and federal laws and mandates by systematically monitoring all phases of operation.

ST's intranet, the HUB, that includes information on various functions within the agency including safety. The intranet is the prime method of communication to employees of updates or revisions to the Safety Management Policy. Training is provided on a bi-annual basis, and is documented thoroughly in the Safety Training Plan (**in development).

Additionally, the Sound Transit SMS Implementation Plan serves as the living implementation plan for Sound Transit's Safety Management System. It specifies current SMS processes and procedures and describes the activities and actions needed to implement the ASP.

2.5 SMS DOCUMENTATION AND RECORDS

This ASP is a controlled and managed by the Safety Department, as described in section 1.4. ST maintains SMS-related documents, records, and other information as dictated by regulatory compliance and best practice. All documents and records are maintained in the ST SharePoint that provide original dates, revisions dates, and permissions to ST employees for access to this critical documentation.

ST is required to maintain all versions of documents related to the ASP, including those related to implementation of the SMS, and results from SMS processes and activities, for a minimum of three years from creation. ST acknowledges that not all departments and divisions have yet developed full documentation to support these requirements of the ASP however, a document inventory is in development to track and monitor progress during implementation.

2.6 ACCESS TO SMS DOCUMENTATION AND RECORDS

This ASP contains links to documents accessible to ST personnel to facilitate use of these processes and procedures in day-to-day work. Links herein are not accessible to external users, but all SMS documentation and records will be made available to Federal and State entities on request.

3.0 SAFETY RISK MANAGEMENT

Safety Risk Management (SRM) is integrated into pre-revenue activities such as agency design requirements and criteria, design development, specification preparation, equipment selection, construction, through revenue procedures and operations. The SRM process is used to identify, analyze, evaluate, and mitigate safety risk of the overall system.

Staff applies methods of hazard identification, assessment and resolution to minimize or eliminate hazards during design and construction, as specified in the [Agency Safety and Security Management Plan](#), [Agency Safety and Security Certification Plan](#), and [Construction Safety and Security Manual](#).

The SRM process also applies to operational, maintenance, and other employee safety activities, changes to the existing ST system, modifications, new extensions, new procedures, and organizational changes. The methodology for Employee Health and Safety management is documented in the Accident Prevention Program (APP), as referenced in Section 3.4. Hazards are assessed and evaluated primarily by the safety department with a focus in collaborating with the affected department(s).

This process directly interacts with the Safety Assurance process, as documented in Section 4.0, so that risk treatments (mitigations) can be evaluated for effectiveness over time. Feedback between the two processes is essential to ensure that risk mitigation does not introduce additional hazards into the system.

Safety Risk Management Databases

Safety and Security Information Management System (SSIMS)¹

A Safety and Security certification database has been developed to update and track project Certifiable Items and provide users with continual interface and capabilities to report the certification status for the design, construction, testing, and pre-revenue phases of the project. This database is called the Safety and Security Information Management System (SSIMS). Project documentation is assembled and maintained in the project Safety and Security Certification records on SSIMS SharePoint. Contents of the records include the following:

- Certifiable Items list;
- SSIMS Forms for each Certifiable Item;
- Support documentation;
- Scanned Certificates of Conformance for all certifiable elements; and
- Scanned System Certificate of Conformance for the project.

Safety Metrics Application

The Employee and Transit Safety System Division capture and analyze operational safety data in the Safety Metrics application. The Safety Metrics application is comprised of several modules that track safety data such as “events” (i.e. accidents, incidents), audit findings, Corrective Action Plans (CAPs), hazards, etc.

¹Section 5.1, Agency Safety and Security Certification Plan

3.1 HAZARD IDENTIFICATION

Hazard identification is initiated during the planning phase of a project and continues into operations. Ongoing operational hazard monitoring and measurement of these identified hazards happen during the safety assurance process.

Generally, hazard identification is performed in two phases, pre-revenue and transition to/through revenue service.

Pre-revenue Hazard Identification

Hazards identified during the pre-revenue stage can be derived from:

- Preliminary Hazard Analysis (PHA) workshops
- Operational Hazard Analysis (OHA) workshops and report
- Consultation with Authorities Having Jurisdiction (AHJ)
- Value Engineering (VE) workshops and report
- ST and Consultant design team experience
- Historical data from previous projects
- Sound Transit accident/incident data and experience
- Accident/incident data from other rail systems, or other systems with similar characteristics
- Applicable industry standards
- Design data and drawings
- Hazard Analysis Guidelines for Transit Projects, DOT-FTA-MA- 26-5005-00-01, January 2000
- Construction safety audits, inspections, and surveillances

Transition to and Through Revenue

Defining the physical and functional characteristics of a project creates the foundation of the hazard identification process. These characteristics are presented in terms of the major elements that comprise the project, such as personnel, facilities, systems, equipment procedures, the public and the environment. The perceived hazards are identified using several techniques, including the following examples:

- Employee Safety Reports
- Inspections, audits, and surveillances
- Historical hazard or accident data
- Operational experience
- New Procurements
- System Modification
- Safety Data Trend Analysis
- Changes to Critical Items List
- Emergency Drill Exercises
- Data provided by FTA
- Data provided by WSDOT
- Special Studies or Investigations

ST systematically identifies all reasonably foreseeable hazards, their functions, and its interfaces using wide-ranging expertise from a competent team. The rating of hazards is limited to those hazards that directly or indirectly affect the safety and security of the public passengers, employees, rolling stock, and facilities. All identified hazards are tracked within SSIMS and then transferred via Operational Hazard Assessment Report into Safety Metrics application for monitoring and measurement in the operational environment.

3.2 HAZARD ASSESSMENT AND EVALUATION

Hazards are analyzed by identifying the likely severity of consequence and frequency of occurrence. It is imperative that hazards are identified and defined such that sufficient and relevant mitigations can be identified. The hazard analysis process continues until it can be shown each hazard has been controlled to an acceptable level.

The hazard categorization are determined through standardized analysis performed by ST, consultant, and/or contractor staff. The analyses used as inputs depend on the hazard investigated but may incorporate preliminary hazard analysis (PHA), Fault Tree Analysis, and Failure Mode and Effect Criticality Analysis among other standardized methods of evaluation.

Hazard rating is completed by the subject matter experts (SMEs) of the process being analyzed, after identification by an employee, on the Critical Items List, or other means. Due to the scope and scale of the ST SMS, individual procedures for hazard analysis are in development to better instruct how to systematically and consistently analyze hazards. A list of procedures has been included in the SMS Implementation Plan to support overall plan implementation.

Hazard severity and probability are used to measure the hazard’s magnitude and the priority for applying control measures. The Hazard Risk Assessment Matrix, shown below in Figure 5, is used to assess the level of risk for each identified hazard and to determine what action(s) must be taken to correct or lower the risk to an acceptable level.

Figure 5. Hazard Risk Assessment Matrix

Hazard Risk Assessment Indices					
Frequency of Occurrence	Hazard Category				
	1 Catastrophic	2 Critical	3 Major	4 Marginal	5 Insignificant
(A) Frequent	1A	2A	3A	4A	5A
(B) Probable	1B	2B	3B	4B	5B
(C) Occasional	1C	2C	3C	4C	5C
(D) Remote	1D	2D	3D	4D	5D
(E) Improbable	1E	2E	3E	4E	5E
ELIMINATED					

Each Hazard Category in the Hazard Risk Assessment Matrix shown above in *Figure 5* requires a specific level of action, Section 3.3 Risk Treatment. The decision authority for each Hazard Category is shown below in *Figure 6*.

Figure 6. Hazard Decision Criteria Matrix

Hazard Risk Index	Hazard Risk Decision Characteristics	
1A, 1B, 1C, 2A, 2B, 3A		Unacceptable
1D, 2C, 2D, 3B, 3C, 4A		Undesirable SSOC acceptance required
1E, 2E, 3D, 3E, 4B, 4C, 4D, 5B, 5C		Acceptable JRSC acceptance required
4E, 5D, 5E		Acceptable without further Review

The Hazard Decision Criteria Matrix shown above in Figure 6 is used to prioritize hazardous conditions and focus available resources on the most serious hazards requiring resolution while effectively managing the available resources.

3.3 RISK TREATMENT

The Risk Treatment or hazard resolution and control process involves the analysis and corrective action taken to reduce the risk associated with an identified hazard to the lowest practical level. Using the assessment and evaluation results, hazards are mitigated to an acceptable level by one or more of the below described methods, also known as the hierarchy of controls:

Design for Elimination or Minimum Risk: Where possible, hazards will be eliminated through design. In many cases, hazards are inherent and cannot be eliminated through design. In other cases, eliminating the hazard is not practical or financially feasible. If the hazard cannot be eliminated, it will be reduced to an acceptable level by incorporating the principles of system safety, using fail-safe devices and principles in design, incorporating high-reliability system components, and using redundant or backup hardware and software devices.

Utilize Safety Devices: Hazards that cannot be eliminated or controlled through design selection shall be controlled to an acceptable level using fixed, automatic, or other protective safety design features or devices. These are permanent system design features that improve safety by automatically controlling the risk of hazard without human interaction. Provisions shall be made for periodic functional checks of safety devices.

Install Warning Devices: When either design or safety devices cannot effectively eliminate or control an identified hazard, warning devices can be used to detect the hazardous condition and to generate an adequate warning signal to correct the hazard or provide for personnel evacuation. Warning devices should be standardized to minimize the probability of incorrect reaction of personnel to these warning signals

Develop Procedures and Instruction: When it is impossible or impractical to eliminate hazards through design selection or adequately reduce its associated risks through safety or warning devices, then approved procedures and training programs must be used. However, this is the lowest level of control, and relies on training to recognize the hazard and personnel actions to avoid the hazard. Procedures may include the use of personal protective equipment. Precautionary notations and warning signs must be standardized.

Hazard resolution often requires a combination of the methods of control. The use of warning, caution and other forms of written advisories alone to control undesirable risks will be carefully reviewed to ensure that no other additional measures are possible. Hazards classified as “unacceptable” are not permissible.

3.4 ACCIDENT PREVENTION PROGRAM

The [Accident Prevention Program](#) (APP) is the agency’s written plan describing its total health and safety program to prevent accidents, illnesses, and injuries on the job. The program is tailored to the needs of Sound Transit’s workplace/operation and to the types of hazards involved.

This program covers the Employee Health and Safety group’s responsibilities, and describes agency policy and general procedures concerning employee health and safety. Included programs, procedures, and processes:

- Job hazard analysis
- Safety inspections
- Safety reporting
- Accident investigation (employee injury/accident)
- Hazard control process
- Accident and incident recordkeeping
- Safety orientation
- Safety communication
- Hazard specific programs and plans
- SOPs to support the above programs and procedures

The APP is available to all employees and initially introduced to new employees during their initial Core Safety Training, and acknowledged through the Learning Management System, ST University.

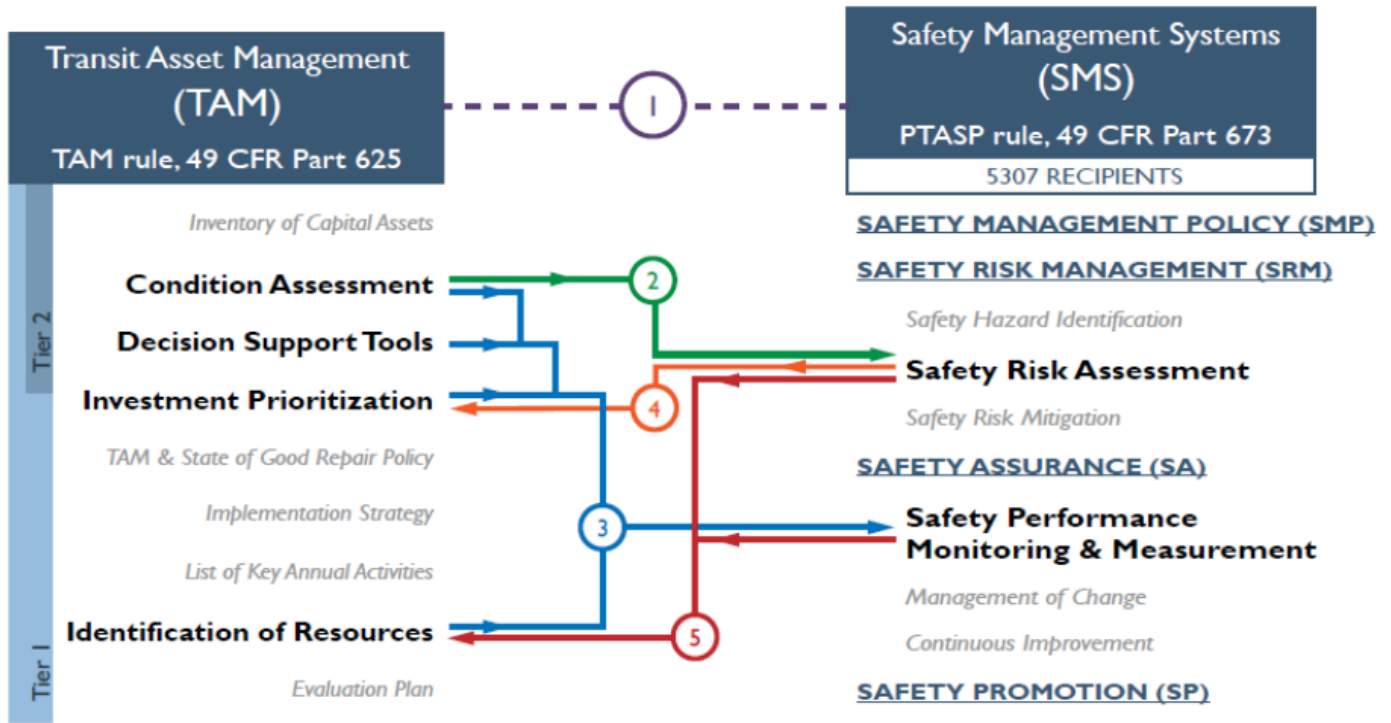
3.5 TRANSIT ASSET MANGEMENT

Effective asset management is an important way Sound Transit can continue to provide world-class service as new assets come into service and existing assets age. Sound Transit’s asset management program conforms with the Moving Ahead for Progress in the 21st Century Act (MAP-21) and in the coming years will mature to also conform with international asset management practices, including ISO 55000 series of asset management standards.

ST recognizes that transit asset management has value far beyond simply compliance. It represents an opportunity for ST to innovate; train and grow its employees; reach quantifiable efficiencies in its operations and business processes; and become a best in class transit provider for its customers. The guiding principles for the program are articulated in Sound Transit’s [Asset Management Policy](#). Further information on the Transit Asset Management program are located in the [Transit Asset Management Plan](#).

Figure 7 FTA Nexus between TAM and SMS

Nexus Between TAM and SMS



Source FTA

4.0 SAFETY ASSURANCE

Safety assurance ensures that ST implements appropriate and effective mitigations and monitors the safety performance of Sound Transit. Safety assurance also helps assess changes to see if the changes impact the safety of the system.

Safety assurance includes three subcomponents:

- Safety Performance monitoring and measurement
- Management of change
- Continuous Improvement

4.1.1 SAFETY PERFORMANCE MONITORING AND MEASUREMENT

Safety performance monitoring focuses on the routine observations and continual data collection of our operations and maintenance activities.

The FTA has established safety performance criteria and state of good repair standards that all transit agencies must meet. This ASP includes safety performance targets that meet or exceed the required safety performance criteria and state of good repair standards.

ST currently produces many key performance indicators that are reported internally to ST, and externally to the National Transit Database (NTD), WSDOT, and the FTA. In accordance with the requirements of 49 CFR 670, ST addresses safety performance in the following four categories:

- Fatalities: the total number of reportable fatalities and rate per total unlinked passenger trips by mode
- Injuries: the total number of reportable injuries and rate per total unlinked passenger trips by mode
- Safety Events: the total number of reportable events and rate per total vehicle miles by mode
- System reliability: mean distance between failures by mode

The table in section 1.1 depict our current rates and targets.

4.1.2 STATE OF GOOD REPAIR

The State of Good Repair (SoGR) standards are defined by the National Safety Program and National Transit Asset Management (TAM) System, found in 49 CFR Part 625. These set forth conditions when safety risk analysis must be performed on capital assets such as equipment, rolling stock, infrastructure, and facilities. Sound Transit documents safety performance objectives in the TAM plan based on this definition and make informed investments in order to strive for a SoGR for all assets.

4.2 SAFETY DATA ACQUISITION AND ANALYSIS

4.2.1 SAFETY DATA

The Safety Department analyzes data to assist in maintaining a safe work environment for all employees, and a safe system for our customers. Analysis of data may result in recommendations for corrective actions. The principal approach used in achieving ASP goals are accomplished by charging all ST personnel with safety. ST uses a proactive approach that stresses review of systems and the proposal of modifications to these systems from a safety perspective before events occur. The ASP also requires employees to examine the affect that their actions may have on safety of other interrelated system, described in more detail in Section 4.3 Management of Change.

All personnel are responsible for ensuring that safety-related tasks meet and comply with the guidance in the ASP. All ST staff are responsible for working safely and following established rules, procedures, policies and safe-work practices. The intent of this section is to provide a description of ASP responsibilities that will assist ST's efforts in achieving optimal safety. Specific procedures and responsibilities are listed in procedure manuals, rulebooks, plans, program manuals, policies and other controlling documents. Each department is responsible for implementing and maintain the procedures of the ASP pertaining to that department.

4.2.2 TRANSIT SAFETY ACCIDENT AND INCIDENT INVESTIGATION

WSDOT has the primary responsibility for accident and incident investigation and has delegated these responsibilities to Sound Transit. The Employee and Transit Safety Director is the primary contact for WSDOT. Investigation procedures for rolling stock accidents and incidents are controlled by the individual modes.

LINK LIGHT RAIL

Link Light Rail accidents and incidents are reported through the Link Control Center and investigations are conducted by Sound Transit's operating partner, King County Metro (KCM). KCM has developed and presented investigation procedures for ST review and approval on the Link Light Rail service.

Training criteria and records for those conducting investigations is established and ensured by KCM. ST safety personnel who review investigation reports are required to receive the Transportation Safety Institute's (TSI) Rail Incident Investigation and Advanced Rail Incident Investigation certificates.

TACOMA LINK LIGHT RAIL

Tacoma Link Light Rail accidents and incidents are reported to the Duty Supervisor, who conducts the investigation. TLLR staff adhere to the following procedures when investigating:

- [SOP 107.07 Accident Investigations](#)

Other TLLR Emergency Operating Situation procedures may also apply.

Training criteria and records for those conducting investigations for TLLR incidents are required to complete an orientation and procedure review process conducted by the Tacoma Link Operations Director, and attend the TSI Rail Incident Investigation and Advanced Rail Incident Investigation courses.

ST EXPRESS

ST Express accidents and incidents are investigated by the contract operators: King County Metro, Community Transit, and Pierce Transit.

WSDOT INVESTIGATIONS

In the event that WSDOT conducts an investigation on Link light rail or Tacoma Link light rail, ST will review the report and provide a response within 30 days with proposed corrections or adoption. Once the investigation has been closed, ST will add any or all corrective actions to the Corrective Action Plan log, per Section 4.5.3.

4.2.3 REPORTS AND DOCUMENTATION

Accident reports written investigation reports and findings for submittal to WSDOT, using the appropriate WSDOT form or supplying comparable information within 45 calendar-days after the reportable accident or unacceptable hazardous condition is discovered. This report must identify the causal factors contributing to the occurrence and, if appropriate, contain a CAP and an implementation schedule to prevent a recurrence of the accident, or to mitigate the unacceptable hazardous condition. All accident reports are submitted to the Transit Safety Systems Director for review and approval. The Transit Safety Systems Director shall then submit the report to the WSDOT for review and approval, with both an investigation report and a CAP describing how the identified hazardous condition or actions identified during an accident investigation will be or have been mitigated.

Other incidents that do not belong to the WSDOT reportable occurrences but are employee accidents/incidents are reported using the internal reporting as described in the ST APP.

The Employee and Transit Safety Director is responsible for preparing an annual summary report covering all reportable occurrences over the previous calendar year. The annual summary report shall be submitted using the WSDOT Safety and Security Program Annual Report form. The Transit Safety Systems Director shall submit the WSDOT Safety and Security Program Annual Report to WSDOT no later than February 1.

4.2.4 EXTERNAL REPORTING NOTIFICATION AND THRESHOLDS

The Transit Safety group keeps working instructions and standard operating procedures on how to report to WSDOT, National Transit Database (NTD), and other regulatory bodies. Guidelines for all [notification requirements](#) have been created for the Transit Safety Specialists using the WSDOT Program Standard version November 2018 (also included in Appendix 4. These guidelines will be updated as new version of the Program Standard are released.

4.2.5 RULE COMPLIANCE AND PROCEDURE REVIEW

Link light rail rules compliance and procedure review is conducted by KCM (see KCM ASP Section 7.2).

Tacoma Link light rail compliance and procedure review is conducted by the Tacoma Light Rail Director shall assure safety requirements are established, reviewed on a regular basis, and updated as necessary. Rules are reviewed annually for adequacy. The Tacoma Light Rail Director shall also oversee all safety testing for rules and procedures using pass/fail criteria. Only personnel who are certified (successfully pass rule and procedure tests) shall be allowed to operate equipment. The Tacoma Light Rail Director is responsible for establishing training/retraining standards and shall review these standards on an annual basis. The Tacoma Link Safety and Security Committee evaluates implications of existing WSDOT oversight rules, under which ST is governed, and any potential modifications to these requirements.

4.3 MANAGEMENT OF CHANGE

4.3.1 CONFIGURATION MANAGEMENT AND SYSTEM MODIFICATION

System modifications are carefully evaluated and considered from concept to design and implementation to determine how the change might affect the safety of the system. ST evaluates the proposed modification for its potential to create additional hazards or reduce the effectiveness of existing hazard controls. ST coordinate the integration of new equipment, system expansion, modification, and system rehabilitation from the design and procurement effort through construction, inspection, testing, and start-up. Further information regarding our configuration control can be found within the [Agency Configuration Control Policy](#), the [Configuration Review Board Policy](#), and [Configuration Review Board Procedures](#). Additionally, capital program changes are managed through the Capital Program Change Control Board, and the Material Review Board.

4.3.2 SAFETY AND SECURITY MANAGEMENT AND CERTIFICATION PROCESS

The Safety and Security Certification program verifies that safety related requirements are incorporated into rail transit projects. The goal is to verify that safety standards are met or exceeded in the design, construction, and start-up of these projects. ST self-certifies rail transit projects, subject to the safety oversight of WSDOT. The Construction and System Safety Director is responsible for overseeing the activities of the [Agency Safety and Security Management Plan](#) and the [Agency Safety and Security Certification Plan](#).

SAFETY AND SECURITY MANAGEMENT PLAN PURPOSE

An excerpt from Section 1.2, pg 5 of the Agency Safety and Security Management Plan:

The Agency SSMP identifies plans, management structure, responsibilities and authority for documentation, confirmation, activities and tasks necessary to integrate Safety and Security into each phase of Sound Transit's Capital (transit) projects. The Agency SSMP describes the integration of Safety and Security activities including methods for identifying, evaluating, mitigating and resolving safety hazards and security vulnerabilities of these systems. Specifically, the SSMP does the following:

1. Documents Sound Transit's commitment and philosophy to achieve the highest practical level of Safety and Security for our customers, employees, contractors, and the public;
2. Describes Safety and Security processes and activities that minimize risk of injury and property damage, and maximizes the Safety and Security of Sound Transit customers, and;
3. Integrates Safety and Security functions and activities throughout Sound Transit's organizational and reporting structure.

SAFETY AND SECURITY CERTIFICATION PLAN PURPOSE

An excerpt from Section 1.3, pg 3 of the Agency Safety and Security Certification Plan:

Rail transit agencies are to describe the safety certification process to ensure that Safety and Security hazards and vulnerabilities are adequately addressed. This Agency SSCP is intended to ensure that all facilities, systems equipment, procedures and plans, training programs and emergency preparedness programs are reviewed for compliance with safety and security requirements and certified by the transit agency prior to revenue service. This document outlines the overall approach for preparation and implementation of Safety and Security Certification that will be used for the Sound Transit projects. The purpose of the SSCP is to provide a systematic plan to:

1. Ensure that Safety and Security criteria, designs, procurement, construction, transit facilities, systems equipment, procedures, plans and training programs are analyzed and reviewed for compliance with Safety and Security requirements and certified prior to revenue service.
2. Properly control or mitigate operational hazards and security vulnerabilities to the lowest practical risk level, prior to the commencement of revenue service.
3. Ensure that all critical system elements comply with the identified Safety and Security requirements during the design, construction, testing, and start-up phases of a project; and
4. Ensure ST rail systems are operationally safe and secure for customers, employees, emergency response personnel and the general public, prior to entering or re-entering after modification, revenue service or use by ST personnel.

4.4 PROCUREMENT

Sound Transit ensures that materials and services obtained do not degrade the safety of the transit system. This involves including safety requirements in contracts and obtaining Safety Data Sheets (SDS). The SDS Program has established specific procedures for the acquisition and dissemination of information regarding hazardous materials. Approved SDS information can be accessed via the [Employee Safety HUB page](#)> Chemical Approval SDS system. Materials are evaluated by the safety department for safety implications prior to purchase and/or use.

Generally, specifications are in written description, performance requirements, drawings, prints, commercial industry standards, and other descriptive literature references. All items to be procured shall be evaluated for Health and Safety compliance with current applicable regulatory specifications. Requestors of services from Procurements and Contracts Department are responsible for identifying material or services that have potential safety impact and for ensuring that such material or services meet safety requirements of Federal and State compliance regulations, Washington Industrial Safety and Health Act (WISHA) standards, or identifying the requirement for Safety review. Additionally DECM proactively controls the safety requirements of the services procured on ST capital projects and other operational contracts. DECM and Procurement and Contracts maintains procedures and specifications for the health and safety of our employees and customers.

4.5 CONTINUOUS IMPROVEMENT

Continuous improvement is the process in which ST examines its safety performance to identify safety deficiencies and carries out a plan to address the identified safety deficiencies. It consists of formal activities designed to evaluate the effectiveness of the SMS. This process includes Internal Safety Audit and Management Review.

4.5.1 INTERNAL SAFETY AUDIT

Annual internal safety audits are conducted by the Internal Audit Division to ensure compliance is maintained and objectives are met. The Internal Audit Division is independent of operations, maintenance and implementation of safety processes. The Internal Audit Director maintains the [Strategic Internal Safety Audit Program Plan](#) with audit schedules. A list of existing and in progress procedures for internal safety audits is included in Appendix 3.

Internal safety audit [policies and procedures](#) are maintained and updated by Safety Assurance staff. Results of the annual internal safety audit activities are documented in a report and submitted to WSDOT annually by February 15th as required by the WSDOT Program Standard.

The report summarizes the results of the internal safety audit, and any deficiencies or instances of noncompliance are recorded. These findings are shared with the responsible department who then develops a corrective action plan, as described in Section 4.5.3.

4.5.2 MANAGEMENT REVIEW OF SAFETY PERFORMANCE ASSESSMENTS

Management Review is conducted annually by the CSO and the CEO. This review includes internal safety audit reports, safety performance reports, corrective action plan summaries, and other SMS reports. When deficiencies in the Safety Management System and/or the safety programs are identified, corrective action plans are initiated to resolve and mitigate those deficiencies under the direction of the CEO.

4.5.3 CORRECTIVE ACTION PLANS

Corrective Action Plans (CAP) are an integral part of the Safety Risk Management and Safety Assurance processes. A CAP is developed with the intent of addressing an identified hazards, safety deficiencies or findings. Each CAP shall identify the action to be taken by ST, an implementation schedule, and the individual or department responsible for the implementation. The ST Transit Safety Systems Director shall submit the CAP to WSDOT for approval within 30 calendar days after the need for the CAP has been identified by either ST or WSDOT. Depending on the complexity of the issue requiring corrective action, and at WSDOT's discretion, additional time may be granted to ST to prepare the CAP. The CAP must be reviewed and formally approved by WSDOT.

The CAP must be submitted to WSDOT for review and approval. The ST Employee and Transit Safety Director shall develop and maintain a CAP log, which identifies all CAPs approved by WSDOT and tracks their status. This log is submitted quarterly to WSDOT. As CAPs are closed out, the Employee and Transit Safety Director shall submit verification that corrective actions are implemented as described in the CAP or that a proposed alternative action has been implemented. ST provides WSDOT with:

- Verification that the corrective action(s) has been implemented as described in the CAP, or that a proposed alternate action(s) has been implemented subject to oversight agency review and approval; and
- Periodic reports requested by the oversight agency, describing the status of each corrective action(s) not completely implemented, as described in the CAP.

ST submits CAPs to WSDOT for approval monthly after the need for the CAP has been identified by either ST or WSDOT. Depending on the complexity of the issue requiring corrective action, and at WSDOT's discretion, additional time may be granted to prepare the CAP.

In the event that an emergency or immediate corrective action is necessary to ensure safety, ST will act according to the Safety Risk Management process and implement a mitigation prior to receiving formal approval from WSDOT. Proper notification and ongoing communication between ST and WSDOT will ensure coordinated and timely permanent mitigations, provided subsequent review and approval.

4.6 SAFETY CULTURE ASSESSMENT

Sound Transit has set an agency-wide goal to establish a robust and proactive safety culture. To accomplish this goal, ST has created an Agency Goal Team to develop a five-year work plan. This plan includes establishing a baseline for our current safety culture and an assessment tool to measure the effectiveness of our overall safety and efficacy of our employees in safety related matters.

5.0 SAFETY PROMOTION

Safety promotion has two sub-components:

- Safety Communication
- Safety Competencies and Training

Safety promotion provides increased safety awareness through safety training and communications. This process helps employees develop the skills needed to perform their job safely and have shared ownership of Sound Transit's safety program. Management commitment is demonstrated through visibility of safety throughout ST.

5.1 SAFETY COMMUNICATION

5.1.1 CSO EXECUTIVE BRIEFINGS

The CSO and the CEO communicate occur in a variety of ways. Direct communication outside of these structured methods are conducted on an as needed basis.

- Monthly report that goes to the CEO and the Executive Team
- Monthly 1-on-1 briefings between the CSO and the CEO
- Quarterly Executive Summary from Executive Safety and Security and Risk Management Oversight Committee Report
- CSO's participation in agency's Quarterly Performance Review (QPR) meetings, System Expansion and Service Deliver Governance Council, DCEO's Direct Reports Meeting, and Board and CEO briefing review meetings
- CSO briefing CEO, as accountable executive, for certain hazards, per our governing documents

5.1.2 HAZARD INFORMATION AND EVENT BASED COMMUNICATION

Key incidents and hazard information are shared during safety briefings throughout the organization, as well as to and from our operating partners. Feedback and other hazard information is conveyed via reports to senior management, and through accepted internal communication methodologies.

5.1.3 INTERNAL COMMUNICATION

Safety staff coordinates with the Communications Department to share important safety updates with staff. The Communications Department manages the strategic plan and editorial calendar for 'official' employee-facing communications including a set of owned channels, norms for cadence, brand standards, and content mix. The team consults with program managers to determine specific needs for employee-facing information delivery and recommends the appropriate channel mix and creative development strategy based on the topic and impact to staff. Owned channels include stories within the employee newsletter (News Link), Hub intranet content, All-hands meetings, Management-focused meetings, and multi-channel campaigns. The Communications Department does not control all available channels, and at times will recommend the use of "do-it-yourself" tactics such as posters, Department meetings, targeted email, Lunch & Learns or other training events, Administrative team news planning or other venues as appropriate.

5.2 COMPETENCIES AND TRAINING

Employees

Sound Transit utilizes a Learning Management System called ST University to provide and track training, and employees are expected to complete initial core safety training within 30 days of their start date.

During the onboarding process, managers are responsible for assigning additional safety trainings for employees based upon their position and potential exposures from their work-related tasks.

Sound Transit has committed to having all employees initially trained in the Transportation Safety Institute's SMS Awareness training course available online, and bi-annually thereafter with a ST developed SMS refresher course.

All employees are responsible to attend all required training, and communicate their training needs, deficiencies in training programs and hazards associated with their training.

Contractors

ST contractors, consultants, and operating partners are responsible for their own safety training programs and certifications per their company policies and guidelines. ST can verify safety training through internal safety audit and contractor oversight activities, as needed.

5.2.1 PUBLIC TRANSPORTATION SAFETY TRAINING CERTIFICATION PROGRAM

Sound Transit has designated key personnel with direct safety oversight within the Safety Training Program*. Those roles identified are required to complete the courses dictated in the 49 CFR 672 regulation, and attend a bi-annual refresher course developed by the Program Manager – SMS and the Senior Safety Trainer.

5.2.2 CHIEF SAFETY OFFICER TRAINING

The CSO is expected to attain the suite of courses offered by TSI that comply with the requirements codified in 49 CFR 672: Public Transportation Safety Certification Training Program. Additionally, the CSO is expected to have both the Rail and Bus Transit Safety and Security Program certificate.

APPENDICES

APPENDIX 1

LINK LIGHT RAIL

HISTORY

In 1993, the Central Puget Sound Regional Transit Authority was created. The Central Puget Sound Regional Transit Authority Board considered the Joint Regional Policy Committee's System Plan too large, so it focused on reducing its scope while trying to retain most of its benefits. The agency proposed to implement the first phase of a new regional rail and express bus network over 16 years, with an estimated cost of \$6.7 billion (1995\$). The light rail portion of the proposal included a rail system stretching south from Lynnwood to Tacoma via Northgate, the University District, downtown Seattle, Rainier Valley, SeaTac - plus an east-west line across I-90 to Mercer Island, Bellevue and Redmond/Overlake. This proposal again proved to be too large and, in 1996, the Central Puget Sound Regional Transit Authority developed a new ten-year regional transit system plan known as Sound Move. Sound Move specified several transportation solutions for the region, including a shorter light rail line from the University District to SeaTac, and was approved by voters in November 1996. A potential additional segment from the University District to Northgate was included in the regional plan, dependent upon securing additional funding.

Initial Segment: 13.9 Miles

LLR began revenue service on the Initial Segment in July 2009. The Initial Segment consists of 13.9 miles of double-tracked line between the north end of the Downtown Seattle Transit Tunnel (Pine Street Stub tunnel ventilation structure) and the intersection of South 154th Street and State Route 518, connecting the cities of Seattle, Tukwila and SeaTac. The Initial Segment alignment consisted of approximately 4.4 miles of aerial structures, 2.4 miles of tunnels, and 7.0 of at-grade right-of-way. The Initial Segment included 12 stations: Westlake, University Street, Pioneer Square, International District, Stadium, SODO, Beacon Hill, Mount Baker, Columbia City, Othello, and Rainier Beach Stations, as well as the Operations & Maintenance Facility.

The Initial Segment starts in a cut-and-cover tunnel under Pine Street and travels through the Downtown Seattle Transit Tunnel (DSTT) utilizing existing stations at Westlake, University Street, Pioneer Square, and the International District.

From the International District Station (IDS) the alignment extends south along the east side of the Metro E-3 Busway to the Stadium Station south of Royal Brougham Way, continuing to the SODO Station north of Lander Street. After crossing Lander Street at-grade, it transitions to elevated track before turning east. It travels on the elevated tracks along the south side of Forest Street and crosses over Airport Way. The Operations and Maintenance Facility (OMF) is south of South Forest Street and west of Airport Way on the site of the old Rainier bottling plant south of downtown Seattle. The OMF is a four-story structure that includes component repair shops, and electronics repair shop, a signals and communications lab, back-up control room, training rooms, and office space for management and administrative personnel.

The light rail route enters Beacon Hill in a tunnel that starts under Interstate 5 and continues approximately one mile to the east where it emerges at McClellan Street and 25th Avenue. The deep subway Beacon Hill Station with elevator access only, is located at the intersection of Lander Street and Beacon Avenue.

The light rail route emerges from the Beacon Hill tunnel to an elevated station at South McClellan Street. The route continues on elevated tracks to South Walden Street, and then runs at street level in the center median of Martin Luther King Jr. Way South to a point just north of the Boeing Access Road.

The route crosses I-5 on the south side of Boeing Access Road and then travels on elevated tracks along the west side of East Marginal Way, crossing over the Duwamish River and State Route 599. The route continues in a combination of elevated tracks and short at-grade sections on the west side of State Route 599, then along the west side of Interstate 5. Near South 151st Street, the route turns west on elevated tracks along the north side of State Route 518 to the Tukwila International Boulevard Station and park-and-ride lot at South 154th Street.



Airport Link Extension: 1.7 Miles

The Airport Link Extension opened in December 2009 and consists of 1.7 miles of elevated and at grade double track that travels south from the Tukwila International Boulevard Station (southern terminus of the Initial Segment) on an elevated structure, crossing over SR-518, and transitions to at-grade north of the South 160th Street Bridge. The alignment continues south in the median of the re-aligned North Airport Expressway, crosses over South 170th Street and continues on an elevated structure to the site of the light rail station near the main terminal/garage of the SeaTac International Airport. The SeaTac Airport Station directly connects pedestrian to the airport ticketing concourse via a covered, pedestrian-only walkway, and to SeaTac's City Center via a pedestrian overpass.

University Link Extension: 3.15 Miles

The University Link Extension opened in March 2016 and consists of 3.15 miles of underground double track through twin tunnels from Pine Street Stub (northern terminus of the Initial Segment) beneath the Capitol Hill District and Lake Washington Ship Canal to the University of Washington's Husky Stadium. The University Link (commonly known as U-Link) Extension includes two stations: Capitol Hill and University of Washington.

South 200th Link Extension: 1.6 Miles

The South 200th Link Extension opened in September 2016 and consists of 1.6 miles of elevated, double-tracked guideway that travels from the SeaTac Airport Station (southern terminus of the Airport Extension) in an aerial configuration along the west side of International Blvd., turns southwest to cross South 188th Street, and continues in an aerial configuration along the east side of 28th Avenue South. The South 200th Street Extension includes one station: Angle Lake.

STATIONS

LLR currently operates 16 passenger stations. Stations are located in tunnels, on aerial segments, and at ground level. The stations have either a center platform, or two side platforms. The list below details distances between stations, types of alignment, and orientation of station platforms.

- The station platforms are 380 feet long; station platforms are 14 inches (350 mm) above the top of rail to match the floor height of the low-floor LRV's.
- Access to the at-grade stations is by walkways and ADA-conforming ramps. At the aerial and tunnel stations access is by stairs, elevators, and escalators. Beacon Hill station, a deep tunnel station, is accessible by high-speed elevators only. Each station is equipped with ticket vending machines, closed circuit television (CCTV), public address systems, passenger information phone systems and passenger emergency telephones.
- Underground/tunnel stations also have specially configured fire detection and suppression systems, and systems that monitor and control the emergency ventilation for the tunnels and underground stations; these are controlled locally at an Emergency Management Panel or workstations in the Fire Command Center and at the LCC through the SCADA and the Fire Alarm Control Panel.
- Crime Prevention through Environmental Design has been incorporated into the design of the stations and other facilities.

Section	Miles	Station	Right-of-Way	Vertical Alignment	Platform
Initial Segment: 13.9 miles					
Downtown Seattle Transit Tunnel	1.8	Westlake Station	Exclusive	Tunnel	Side
		University Street Station	Exclusive	Tunnel	Side
		Pioneer Square Station	Exclusive	Tunnel	Side
		International District Station	Exclusive	Tunnel	Side
South Downtown Seattle	2.8	Stadium Station	Semi-exclusive	At-grade	Center
		SODO Station	Semi-exclusive	At-grade	Side
		Beacon Hill Station	Exclusive	Tunnel	Center
		Mt Baker Station	Exclusive	Aerial	Side
Rainier Valley	4.3	Columbia City Station	Mixed-traffic	At-grade	Side
		Othello Street Station	Mixed-traffic	At-grade	Side
		Rainier Beach Station	Mixed-traffic	At-grade	Center
Tukwila	5.0	Tukwila Intl Blvd Station	Exclusive	Aerial	Side
Airport Link Extension: 1.7 miles					
	1.7	Airport Station	Exclusive	Aerial	Center
University Link Extension: 3.15 miles					
	3.15	Capitol Hill Station	Exclusive	Tunnel	Center
		University of Washington Station	Exclusive	Tunnel	Center
South 200th Street Extension: 1.6 miles					
	1.6	Angle Lake Station	Exclusive	Aerial	Center

LINK LIGHT RAIL VEHICLE INFORMATION

The LLR fleet consists of light rail vehicles (LRVs) manufactured by Kinkisharyo. LRVs have an articulated center and operating cab on each end (A & B). These vehicles are designed to be coupled and operate in multiple car consists, however there is no access between LRVs when coupled. Cab safety features include a fire extinguisher, a cab-mounted radio, and a silent alarm button. LRVs also have a fail-safe system to prevent movement of the train in the event doors are not fully closed, a first aid kit, and an onboard CCTV system. The following table provides general LRV information.

	Kinkisharyo LRV
Length	95 feet
Height	12.5 feet
Width	8.7 feet
Weight	Approx. 105,000 pounds
Max Speed	55 mph
Passenger capacity	Seated: 74 Full: 200
Power	1500 volts D.C. traction power system
Year of manufacture	2006 (101-115) 2007 (116-149) 2008 (150-162)
Number of vehicles in fleet	62

TACOMA LINK LIGHT RAIL

Tacoma Link is a 1.6-mile, at grade, light rail line serving the heart of downtown Tacoma. The line extends from the Tacoma Dome north to the Theater District (see map).

Alignment

The system begins at the Tacoma Link OMF at McKinley Street on East 25th Street. This single-track segment turns north onto Pacific Avenue. At South 21st Street, the line becomes double tracked. At Hood Street, near South 17th Street, the alignment shifts from Pacific Avenue to Commerce Street. Double tracking continues on Commerce Street to South 9th Street with the line reverting to single track for the final block from South 9th to South 8th Street, site of Theater District station. The track of the entire alignment is embedded in the street. The trackway in dedicated lanes for most of the route and in mixed traffic along the remainder. The line crosses eleven traffic signal controlled intersections and four pedestrian signal-controlled crossings.

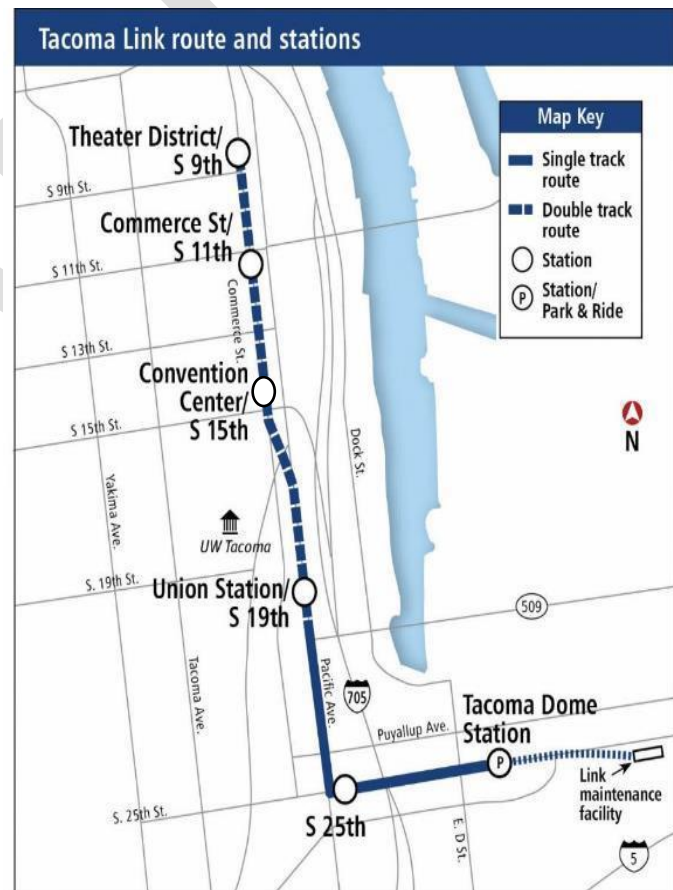
Signals (Train and Traffic)

The operation on street-median rights-of-way, where LRV's are subject to traffic signals at intersections, presents the potential for delays to trains. The coordinated downtown traffic signal system in Tacoma shall recognize the approach of a train to an intersection and under most circumstances shall provide priority to the train and to certain non-conflicting vehicular traffic to allow the LRV to continue through the intersection safely. Under some circumstances, however, a train can receive a stop signal and be required to stop prior to the intersection. These conditions may include initiation of a

conflicting pedestrian crossing phase prior to the call for priority, a call for priority during the "rearm" interval that occurs following the crossing of an earlier train, and the timeout of a granted priority due to a delay to the train following the request. The operator on a stopped train held by a traffic signal may request priority for the train by use of the Train to Wayside Communication System (TWC) request button in the operating cab.

Stations

There are six stations on the line. In addition to the terminals, Tacoma Dome Station and Theater District/South 9th Street station, the stations include South 25th Street station, Union Station/19th Street station on Pacific Avenue, Convention Center station, North/South 15th Street station, Commerce Street station, and North/South 11th Street on Commerce Street station. Each station is of simple design with low-level boarding platforms, shelter canopies, pedestrian and street lighting, street furniture, and information aides. Public address, variable message signage, and emergency telephones are



not provided. Ticket vending machines are not installed, as the line is ride-free with no fare charged. Station platforms are 90 feet long with the exception of Commerce Street Station platform, which is 42-feet long and 18-feet wide. ST Facilities Maintenance maintains the Tacoma Link stations.

Operations and Maintenance Facility

The Tacoma Link OMF is located just east of the Tacoma Dome station, and is the southern terminus of the line. The OMF facility provides on-going daily maintenance, running repair, and regular inspections. Heavy maintenance and bodywork is performed both on- and off-site. The OMF facility also houses the administrative offices for Tacoma Link Operations and the train operator check-in/dispatch area. Facilities Maintenance maintains the Tacoma Link OMF.

Light Rail Vehicles

ST procured LRVs for the Tacoma Link service. The vehicle is manufactured by Škoda and supplied by Inekon, in the Czech Republic, and is based on their Astra car, with several differences for the US market. ST, therefore, did not progress from design criteria to vehicle specification for these vehicles.

Differences from Central Link Light Rail Vehicles

The Tacoma Link LRVs are substantially different from the Central Link LRVs. Major differences in the Tacoma vehicles include the following: the vehicles are shorter, narrower, operate at 750 Vdc instead of 1500 Vdc, the vehicles are designed to operate under normal conditions as single vehicles only, and shall use bridge plates for wheelchair access instead of level boarding. Please note that the PSI/Tacoma vehicle contract documents use only metric dimensions and that the English values listed in the following text have been derived from the Škoda-Inekon metric dimensions. The supplier of the propulsion is Elin, Austria.

Critical Vehicle Dimensions

Carbody Dimensions

Length of Car over anti-climber	20,130 mm (66 ft.)
Width of car at widest point (excluding mirrors):	2,460 mm (8.1 ft.)
Width of car at mirrors:	2,830mm (9.3 ft.) 2,830mm (9.3 ft.)

Floor height above top-of-rail at AW0

High floor section:	780 mm (30.7 in.)
Low floor section:	350 mm (13.8 in.)
Side door height from finished floor:	1,950 mm (6.4 ft.)

Pantograph Dimensions

Height above TOR of highest point on pantograph in the lockdown position, new wheels and car at AW0

4,675mm (15.3 ft.).

Pantograph operating height, dynamic conditions, any car weight AW0–AW4, and new to fully worn wheels:

Maximum:	7,165 mm (23.5 ft.)
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Minimum: 4,725 mm (15.5 ft.)

Wheel Dimensions (Diameter)

New, Nominal: 610 mm (24 in.)

Fully Worn: 530 mm (20.9 in.)

Track Gauge: 1,435 mm (56.5 in.)

Truck Dimensions

Truck Spacing (centerline to centerline): 11,800 mm (38.7 ft.)

Truck Wheelbase: 1,880 mm (6.2 ft.)

Weight and Passenger Loading

The maximum weight of each vehicle, including passengers, where appropriate, at 154 lbs. (70 kg) each, shall be defined as follows:

AW0	Empty Vehicle Operating Weight:	28,000 kg (63,500 lb.)
AW1	30 Passengers (plus operator):	30,170 kg (66,667 lb.)
AW2	115 Passengers (plus operator):	36,120 kg (81,915 lb.)
AW3	157 Passengers (plus operator):	39,060 kg (85,800 lb.)

Dynamic Envelope

Vertical undercar clearance is defined from TOR with maximum suspension deflection at AW3 and carbody roll, minimum vertical curve radius, and fully worn wheels. Minimum vertical clearance shall be 50 mm (1.97 in.).

Station Platform Interface

Station Platform Height:	240 mm +0, -5 (9.5 in. +0, -0.2)
Platform Edge (to track centerline):	1,300 mm +5, -0 (51.2 in. +0.2, -0)
Side of Car (to track centerline):	1,271.5 mm (50.1 in.)
Bridge Plate Width:	1,000 mm (39.4 in.)
Bridge Plate Extension (beyond side of car):	Approximately 380 mm (15 in.)

System Operations

Overhead voltage is supplied by Tacoma Power; the traction power substation is located at 25th and A Street underneath the I-705 Bridge and at the Tacoma Link OMF. The car shall be designed for the following Overhead Catenary System voltage conditions:

Nominal:	750 Vdc
Maximum	
Sustained:	925 Vdc

ST EXPRESS REGIONAL BUS SERVICE

Sound Transit's ST Express bus service was launched in September 1999 with nine regional routes. Today Sound Transit has 28 bus routes that connect the major urban centers of Bellevue, Everett, Tacoma, and Seattle with other cities and communities in the Central Puget Sound area. The service area depicted in Attachment C covers the urbanized areas of Snohomish County (Figure 1), East King County and Seattle (Figure 2) and South King County, and Pierce County (Figure 3).

Sound Transit currently employs three operating partners by intergovernmental agreement to operate and maintain ST Express service: King County Metro (KCM), Pierce Transit (PT) and Community Transit (CT). These three partners operate the 28 routes using 307 buses within Snohomish, King and Pierce Counties.

The one-way route miles for the current ST Express routes are shown in Attachment D.

Voters approved a second phase of mass transit, Sound Transit 2 (ST2), in 2008 and a third phase of mass transit expansion, Sound Transit 3 (ST3), in 2016. Under the plans, the regional light rail system will reach over 50 miles by 2023 expanding to Northgate, Lynnwood, Bellevue, Overlake, and Kent/Des Moines and over 110 miles by 2041 with expansions to Everett, Issaquah, Kirkland, West Seattle, Ballard, and Tacoma. Frequent peak service will operate on the 83-mile Sounder commuter rail line from Everett to Lakewood, and ST Express bus will continue to serve major regional travel corridors with new BRT corridors along SR 522 and I-405.

The ST Express fleet includes 40- and 60-foot diesel buses, 60-foot hybrid buses, 40-foot natural gas buses, 45-foot coaches and 40-foot double-deck diesel buses.

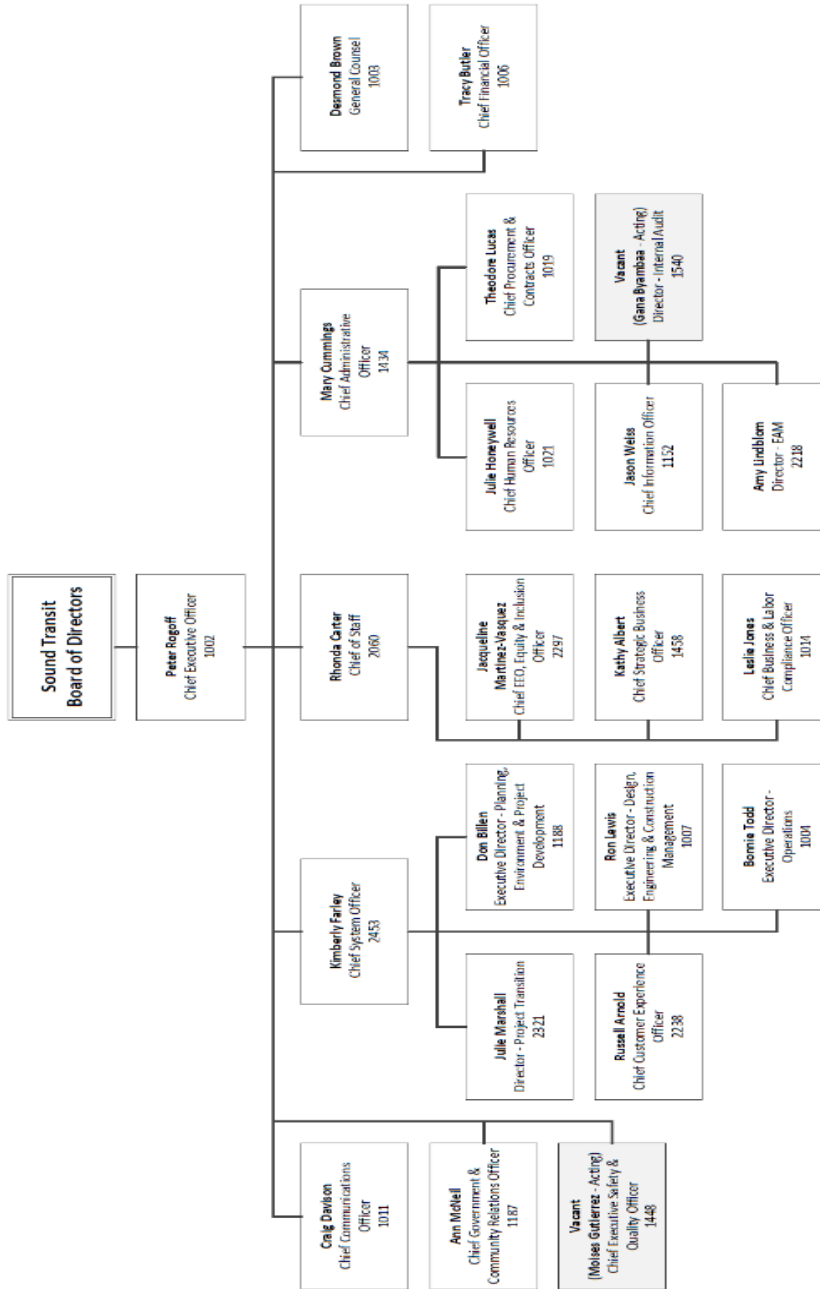
All buses have bicycle racks and air conditioning, and many buses "kneel" to help passengers board.

Sound Transit contracts with Community Transit, King County Metro and Pierce Transit to drive and maintain ST Express buses.

APPENDIX 2

ORGANIZATIONAL STRUCTURE OVERVIEW

ORGANIZATIONAL STRUCTURE OVERVIEW



Staffing Count
TOTAL: 22

Signatures for approval of all Sound Transit Organizational Charts:

<i>Julie Conroywell</i> Chief Human Resources Officer	2/12/2020 (Date)
<i>Peter M. Rogoff</i> Chief Executive Officer	2/12/2020 (Date)

APPENDIX 3

INTERNAL SAFETY AUDIT SAFETY ASSURANCE MANUALS, PLANS, AND PROCEDURES TABLE

Level	Type	Number	Title	ETC	Effective date
Safety Assurance Division	Standard	-	Safety Audit Program Manual (SAPM)	Q2 /Q3 2020	-
	Procedure	DSA-01	Internal Safety Auditing Reporting on Management of Safety	March 2020	-
	Procedure	DSA-02	Record Retention for Safety Audit documentation	March 2020	-
	Procedure	DSA-03	Conflict of Interest – Internal Safety Audits	March 2020	-
	Procedure	DSA-04	Access to Sensitive Security Information	April 2020	-
	Procedure	DSA-05	Corrective Actions (replacing SA-03)	Q2/Q3 2020	-
Internal Safety Audits	Plan	-	Strategic Internal Safety Audit Plan (5 Year)	TBD-Mid 2020	v.0 (Mar 15, 2019)
	Procedure	SA-01	Internal Safety Audits	-	v.1 (Jan 2, 2020)
	Procedure	SA-02	Field Surveillance Activities	(Revision planned Q2 2020)	v.0 (Nov 14,2017)
	Procedure	SA-03	Corrective Action Responses (CARs)	(Revision planned/Division Procedure)	v.0 (May 30, 2018)
Safety Certification Audits	Plan	-	Safety Certification Audits Execution Plan	(Revision planned Q2 2020)	v.1 (May 18, 2018)
	Procedure	SC-01	Hazard Analysis	(Revision planned Q2 2020)	v.0 (Jan 30, 2018)
	Procedure	SC-02	Design Conformance Verification	(Revision planned Q2 2020)	v.0 (Jan 30, 2018)
	Procedure	SC-03	Construction Conformance Verification	(Revision planned Q2 2020)	v.0 (Aug 30, 2018)
	Procedure	SC-04	Integrated Testing and Pre-Operational Testing	(Revision planned Q2 2020)	v.0 (Aug 30, 2018)
	Procedure	SC-05	Vehicle Configuration	(Revision planned Q2 2020)	v.1 (Jan 17, 2019)
	Procedure	SC-06	Operations & Maintenance Readiness	(Revision planned Q2 2020)	v.0 (Aug 30, 2018)
	Procedure	SC-07	System Readiness, Fire/Life Safety Requirements, and Safety Certification Reports	(Revision planned Q2 2020)	v.0 (Aug 30, 2018)

APPENDIX 4

ACCIDENTS REQUIRING NOTIFICATION WITHIN 2-HOURS

The following thresholds have been established for notification, investigation and reporting accidents¹. Notifications must, at a minimum, be made by email to WSDOT's State Safety Oversight program at TransitSafety@wsdot.wa.gov and the Federal Transit Administration (FTA) via the U.S. Department of Transportation Crisis Management Center (CMC) at CMC-01@dot.gov and to internal stakeholders.

- A fatality at the scene; or where an individual is confirmed dead within 30 calendar days of a transit-related incident
- One or more persons suffering serious injuries²
- Substantial property damage resulting from a collision involving a rail transit vehicle; or any derailment of a rail transit vehicle
- A collision with a person or object resulting in serious injury or fatality
- An evacuation due to life safety reasons
- A runaway train
- Fires resulting in a serious injury or fatality
- Any collision in a grade crossing or intersection
- A derailment (mainline or yard)
- Any collision on an agency exclusive right of way
- Any collision between an agency revenue vehicle and an agency revenue or non-revenue vehicle
- Any incident for which National Transportation Safety Board (NTSB) or FTA must be notified

Information provided in this email must include:

- Name of Rail property (LLR)
- Name and title of person reporting accident
- Location, time, and date of accident
- Brief description of the event
- Number of fatalities and injuries
- Brief description of ongoing agency response
- Any other pertinent information

INCIDENTS REQUIRING NOTIFICATION WITHIN 2 HOURS

The following should be reported to the WSDOT State Safety Oversight Office via email and the internally identified stakeholders. Any incident, occurrence, defect or condition of concern with potential to cause fatality, serious injury, or significant property damages, including but not limited to:

Facilities and Other System Infrastructure:

- Wash Out/Mud Slides

¹ Per 49 CFR 674.7, an accident means an event that involves any of the following: A loss of life; a report of a serious injury to a person; a collision involving a rail transit vehicle; a runaway train; an evacuation for life safety reasons; or any derailment of a rail transit vehicle, at any location, at any time, whatever the cause.

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

Safety and Warning Device Failures:

- Any failure requiring use of manual block operations
- Any failure requiring speed restrictions or other temporary operating restrictions
- Wrong side signaling failure (false proceed)
- Activation failure, partial activation, or a false activation of a rail grade crossing warning system
- Local or system wide malfunctions of signal system

Track Defects:

- Broken rail (or increase changes in number, frequency or nature of breaks)
- Track buckle
- Defects requiring placement of speed restriction or single tracking

Electrification Issues:

- Failure of insulators and/or contactors resulting in electrical arcing
- Failure of other system components resulting in electrical arcing, burning or smoke
- Exposed energized electrical conductors or equipment that can be contacted by employees, passengers, or the public
- Electric shock to individual(s) requiring off-site medical evaluation and/or requiring the shut down or red tagging of equipment.

Vehicle Conditions:

- Broken or loose wheel or axle
- Brake failure
- Train Separation (train uncoupling)
- Sparks, Smoke, or Fire

Operating Issues:

- Broken or loose wheel or axle
- Incapacitated train operator in revenue service
- Failure of train operator to recognize flagging/work zone (as evidenced by portable trip stop overrun, shunt device, etc.)
- Failure of employee to appropriately place or remove precautionary safety devices (derails, trip stops, other items)
- Train speeding through work zones in revenue service
- Leaving equipment or materials that fouls or obstructs train movements on an adjacent track
- Vehicle door opening on wrong side, off station platforms, or during train movements.

Any incident requiring external notification to the following:

- Notification to NTSB
- Notification to FTA

INCIDENTS REQUIRING NOTIFICATION WITHIN 24 HOURS

The following should be reported to the WSDOT State Safety Oversight Office via email and the internally identified stakeholders

Rules Compliance Issues:

- Discoveries of systemic patterns of employee non-compliance with transit agency rules and procedures

Incidents and Near-miss occurrences:

- Injuries requiring immediate medical attention away from the scene not previously reported per accident reporting protocols.

- Any collision not previously reported per accident reporting protocols of a train with an individual, an object, or another train.
- Near-miss collision of train with another train or object (defined as deployment of any emergency braking application).
- Near-miss collision with employee, contractor or other individual, including trespassers on the rail right-of-way
- Near-miss industrial incident, both on or off agency controlled property requiring off-site medical evaluation and/or requiring the red tagging of equipment.
- Near-miss industrial incident, both on or off agency controlled property with potential for fatality or serious injury or significant property damage.

Switch Issues:

- Improperly lined track switches (switch left in incorrect position)
- Failure to latch and or lock a track switch
- Operating over a track switch previously run through (i.e. damaged or broken)

INCIDENTS REQUIRING NOTIFICATION WITHIN 48 HRS (VIA EMAIL OR PHONE OR HARD COPY)

The following should be reported to the WSDOT State Safety Oversight Office via email and the internally identified stakeholders

Environmental Conditions:

- Significant Natural Disaster
- (Within 48 hours provide WSDOT list of any damages to system and all hazards being addressed. Also provide WSDOT with results of safety assessments conducted for any critical system elements.)

Incidents Requiring Reporting to national transit database

The following thresholds have been established for reporting incidents to the FTA via the National Transit Database (NTD) within 30 days of occurrence.

- A personal injury that is not a serious injury
- One or more injuries requiring medical transportation away from the event.
- Non-collision related damage to equipment, rolling stock, or infrastructure that disrupts the operations of a transit agency
- Evacuation of a train into the right-of-way or onto adjacent track; or customer self-evacuation
- Certain low-speed collisions involving a rail transit vehicle that result in a non-serious injury or property damage
- Damage to catenary or third-rail equipment that disrupts transit operations
- Fires that result in a non-serious injury or property damage
- A train stopping due to an obstruction in the tracks/"hard stops"
- Most hazardous material spills