APTA STANDARDS DEVELOPMENT PROGRAM

STANDARD

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Rail Transit Operating Practices Working Group

Operations Personnel Requirements in New Rail Transit Projects

Abstract: This standard provides minimum requirements for the participation of a rail operation's subject matter experts (SMEs) within a rail transit system (RTS) and/or an operations and maintenance contractor (O&M contractor). Rail operations personnel are required in order to provide input and guidance in any rail project that impacts operations and maintenance activities of an RTS. As used in this standard, "operations" refers directly to operations and maintenance activities within an operating railroad or new system.

Keywords: design, hazard analysis, integrated testing, new start(s), planning, pre-revenue operations, rail activation, rail operations, safety certification, threat and vulnerability analysis

Summary: In order for public and private agencies, engineering firms and/or project sponsors to understand the impact of rail operational and maintenance requirements associated with the operating life cycle of new rail programs under development, under expansion and/or major capital improvement projects, this standard requires the engagement of experienced rail transit operations personnel. The project team must include experienced rail operations personnel in order to provide input and guidance in any rail project on the everyday and long-term operations impacts of design and development decisions. This, at a minimum, is required in order to have a safe, cost-effective, rule-compliant and efficient operation. The standard includes requirements for involving qualified rail operations personnel during the preliminary development phase of the rail project and during the phases outlined in the program requirements of 49 CFR 633 Subpart C, Project Management Plans.

A major role of rail operations personnel in new project planning, execution and safety certification is to establish requirements for safe and efficient operation throughout the life cycle of the rail system. This applies to the following:

- design
- planning
- program planning
- design criteria
- operations plan
- maintenance management plan
- fleet management plan

This document represents a common viewpoint of those parties concerned with its provisions, namely operating/ planning agencies, manufacturers, consultants, engineers and general interest groups. The application of any standards, recommended practices or guidelines contained herein is voluntary. In some cases, federal and/or state regulations govern portions of a transit system's operations. In those cases, the government regulations take precedence over this standard. The North American Transit Service Association (NATSA) and its parent organization APTA recognize that for certain applications, the standards or practices, as implemented by individual agencies, may be either more or less restrictive than those given in this document.

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- schedules
- staffing and budget plan
- policy and procedure development
- configuration management
- asset management

This is a creative and critical role, however, and the role of operations is required to be significantly more productive in order to ensure that the end product delivers safe, efficient and reliable transit operations. As a minimum, the chief operations officer, or that individual's designee, shall hold an ex officio position on the System Safety Committee of the project.

Scope and purpose: The purpose of this standard is to require the involvement of rail operations personnel throughout all phases of a new rail transit project and to establish minimum requirements for how the rail operations personnel should be involved.

This scope of this standard addresses the operational role for the following types of rail capital projects:

- new starts (e.g., new light rail lines, new streetcar systems, new heavy rail lines and/or other projects being developed by existing transit systems or new agencies establishing rail transit)
- line extensions
- all configuration changes governed by 49 CFR Part 633, Project Management
- major capital projects such as systems, vehicles, facilities, modernizations or infrastructure upgrades

The scope of work required by this standard for rail operations in such projects includes participation in committees, design reviews, approvals, etc. Beyond operations, input to system design and/or configuration changes (e.g., the addition of a new signal system or the reduction of scope of work) is of critical importance.

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Introduction

This introduction is not part of APTA RT-OP-S-022-17, *"Operating Personnel Requirements in New Rail Transit Projects."*

This standard assists rail transit systems to understand the minimum requirements for rail operations personnel involvement in a range of rail capital projects. The standard includes requirements for involving qualified rail operations personnel from the preliminary design development phase of the rail project until the project is ready for revenue service. The program requirements of 49 CFR 633 Subpart C, Project Management Plans, and the RTS Project Management Plan (PMP) shall apply. Rail operations personnel involvement in the development of system elements is required in order to have a safe, cost-effective rule-compliant and efficient operation.

While it is critical to have rail operations personnel involved in various stages of the project, it is recognized that other disciplines are also key to the successful outcome of the project. As a minimum, other disciplines involved shall also include the following:

- safety management and system safety
- all maintenance disciplines
- vehicle engineering and/or maintenance
- program oversight
- engineering, such as signal engineering, traction power, civil engineering, etc.
- planning
- public/community outreach
- construction management
- finance
- designers
- project and document controls
- applicable first responders
- human resources
- training department
- local government agencies (public works, traffic engineers, etc.)
- state safety oversight agencies (SSOAs)
- utilities
- risk management
- legal
- procurement
- real estate
- senior leadership
- security/transit police
- environmental engineers/planners

At existing agencies, these personnel may be called upon to support the new project, whereas at a new RTS, individuals tasked with these responsibilities or duties may be involved throughout all phases of the project. Appropriate involvement of rail operations personnel helps in the selection of systems, equipment and designs that are proven and reliable, support state of good repair, and management of assets that function in sync with system and life-cycle needs.

Note on alternate practices

Individual transit systems may modify the practices in this standard to accommodate their specific equipment and mode of operation. APTA recognizes that some agencies may have unique operating environments that make strict compliance with every provision of this standard impractical. As a result, certain transit systems may need to implement the standards and practices herein in ways that are more restrictive than this document prescribes. Transit systems may develop alternate practices to the APTA standards so long as the alternates are

based on a safe operating history and are described and documented in the System Safety Program Plan (SSPP), or another document that is referenced in the SSPP.

Documentation of alternate practices shall:

- identify the specific APTA transit safety standard requirements that cannot be met;
- state why each of these requirements cannot be met;
- describe the alternate methods used; and
- describe and substantiate how the alternate methods do not compromise safety and provide a level of safety equivalent to the practices in the APTA safety standard (operating histories or hazard analysis findings may be used to substantiate this claim).

It must be noted that rail transit is not directly comparable to railroads (Amtrak, commuter, freight rail etc.). Rail transit systems differ greatly in the types of service, vehicles and technology employed, with some systems operating fully automated trains on exclusive rights-of-way and others operating on streets mixed with traffic. Rail transit demands a unique approach to solving its problems, and the APTA Rail Transit Standards Program was enacted to accomplish this complex task.

Operations Personnel Requirements in New Rail Transit Projects

1. Overview

This standard reflects various phases of a new rail transit project, and embedded in each project is the role of safety certification. As a minimum, this document addresses six major phases of project development so that the critical role of rail operations personnel is addressed within each phase. Each phase should define the role and responsibilities regarding the involvement of the rail operations personnel in the implementation and safety certification of new projects. The typical phases of these projects are as follows:

- planning
- design
- construction
- testing
- Oversight Procedure 54 (OP54)
- pre-revenue service operations
- revenue service

OP 54 is the Federal Transit Administration's (FTA's) evaluation of a project's readiness to enter revenue operations. It is the completion of system integration testing (SIT) of project components, equipment, subassemblies, assemblies, subsystems, and systems; fulfillment safety and security certification requirements; completion of pre-revenue operations (PRO); and confirmation that the Project Sponsor (or Operator, if different) has the management capacity and capability (MCC) to operate the new rail transit asset. Early planning for SIT and PRO training and testing is essential. All involved stakeholders including safety personnel, operations, maintenance, engineering, construction manager, and the construction contractors should be aware of the testing and PRO processes. Further, the Project Sponsor is responsible for informing the affected community and public of the safety and security concerns associated with the operation of the new transit system.

The following shall be considered when developing new transit projects:

- Involvement of rail operations personnel for assistance in:
    a) drafting and reviewing program plans that are required the for rail project;
    b) reviewing and providing input and guidance with respect to system elements; and
    c) assisting with the development of an operating plan, a maintenance management plan and a fleet management plan.
- Definition of "rail operations" for the new system; determination if this includes "operations and maintenance" or just individuals responsible for movement of trains and passengers. "Operations" refers directly to operations and maintenance activities within an operating railroad.
- Development of certifiable items lists (CILs) with assistance from safety SME.
- Development of the safety management systems (SMS) plan, system safety program plan (SSPP), transit agency safety plan (TASP) and/or other associated program plans.
- Administration of Safety Certification during a defined capital program and/or new start in order to establish the system-wide baseline condition as safe, tested and ready for service.
- Consideration for the unique challenges associated with integration and certification for new starts and existing system changes.
- Basing other capital projects on the RTS's design criteria and contract documents with operations, maintenance and safety personnel input.

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2. RTS responsibilities

For any new project, the RTS, rail transit project sponsor or other party responsible for developing a new rail transit project shall formally engage qualified rail operations personnel starting at the planning phase to ensure that rail operating needs are met and that the resulting system is safe, efficient and reliable. Engagement of the rail operations personnel helps to ensure that the system is designed to meet the realistic and/or foreseeable demands of rail operations for the long-term life expectancy of the system. Throughout this standard, the term "RTS" shall also include any of the aforementioned rail transit project sponsors or parties responsible for project development, since a traditional RTS may not be initiating some projects.

The RTS shall clearly define the roles and responsibilities of rail operations personnel who are assigned duties related to any new project planning, design, construction, testing, pre-revenue operations and operations phases, under expansion, and/or capital improvement projects. The roles and responsibilities are defined in the RTS's project management plan (PMP), in the section required for the organizational staffing to deliver and safety-certify the project.

The RTS shall engage dedicated rail operations personnel involvement at the initial project planning phases of a project. This standard establishes minimum requirements for engagement for rail operations personnel from project conceptualization, project development of design criteria through the operation and life cycle of the system.

The RTS or entity representing the proposed RTS for a new rail transit project shall identify one or more individuals who have a thorough understanding of rail transit operations and/or management to work during all phases of a project. This will ensure that operational safety and efficiency considerations are appropriately incorporated into the system design.

The input from rail operations personnel has an important impact on the life cycle of the system and the ability to maintain and operate a system in a state of good repair. Requirements for transit asset management (TAM) have been established to ensure that systems are maintained and meet minimum operating requirements; engagement of the rail operations personnel introduces the knowledge necessary of how these systems work throughout their life cycle.

3. Requirements

3.1 Operations personnel

The RTS shall establish minimum requirements for rail operations personnel assigned responsibility for involvement in new rail transit projects and safety certification of new rail transit projects. The roles and requirements shall be incorporated in the PMP and safety and security certification plan (SSCP). Qualifications should include the following, depending on RTS project requirements:

- qualified rail operations professional(s) with a thorough knowledge of operating principles and practices, systems elements, safety principles and certification
- previous rail operations management experience
- thorough knowledge of applicable regulatory requirements

The RTS's designated rail operations personnel who will be engaged and have direct input into all facets of the project from initial planning phases shall report directly to the operating entity CEO, general manager, or equivalent agency executive. The designated rail operations personnel shall coordinate with designated safety personnel in all phases of the project.

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3.2 Other personnel who affect operations

Other RTS and outside personnel play a critical role in all project phases, and their input plays an integral part in transit operations. The RTS shall identify the roles and responsibilities of these other parties and shall apply the provisions of this standard accordingly for their specific skill sets or responsibilities. In some rail transit systems, engineering and maintenance function as one organization, but this has no bearing on specific requirements for the groups listed below. The following shall be included at a minimum:

- vehicle engineering and/or maintenance
- infrastructure engineering and/or maintenance
- systems engineering and/or maintenance
- traction power engineering and/or maintenance
- signals and communications engineering and/or maintenance:
    a) train control systems
    b) supervisory control and data acquisition (SCADA)
    c) fiber-optic backbone/network
    d) network security and encryption
- facilities engineering and/or maintenance
- system safety department
- applicable first responders
- security/transit police
- external stakeholders (community groups, coordinating emergency services, etc.), municipal and civic leaders, departments of public works, local and state government agencies.

4. Planning phase

4.1 New rail transit project operations planning requirements

The RTS shall establish the responsibilities required during this phase of the project for rail operations personnel involvement in establishing operating plans, policies and procedures that will be used in the new system.

As a minimum, the following preliminary documents should be developed for the planning phase of the project:

- design criteria
- operations plan
- maintenance management plan
- training plan for all operations and maintenance personnel
- fleet management plan, including 10 year procurement plan per FTA
- schedules
- staffing requirements
- operating budget plan
- meeting protocols
- recordkeeping and document control protocols

As a minimum, the rail operations personnel involved in this phase of the project shall be involved in the project beginning with initial planning and all phases thereafter. This includes, but may not be limited to, the following activities:

- program plan development
- design criteria development
- safety certification development and review
- design development and review
- operational hazard analysis (OHA)/risk register
- threat and vulnerability analysis (TVA)

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- TAM program planning
- configuration management
- project scheduling, including training, testing, and pre-revenue
- all applicable committees that will be formed
- vehicle design and procurement process
- all FTA quarterly meetings
- all state safety oversight (SSO) meetings
- multimodal coordination and system needs (transfers to other modes, first/last mile, etc.)
- design considerations for efficient operations:
    a) design of parking lots, flow of pedestrians, interaction with intermodal.
    b) relationship to local buildings, businesses, etc.
    c) support vehicle locations, storage of equipment, parts, etc. (nonrevenue vehicles, facilities support and other system maintenance considerations)
    d) supervisor/maintainer/first responder parking
    e) special event platforms/queuing considerations
    f) fare payment system/locations/quantities
    g) simulators or related equipment for training and familiarization on systems
- determining and implementing maintenance management information system (MMIS) (tied to MAP-21 requirements for asset management, e.g. SPEAR, MAXIMO, Conditions, etc.)
- development of laws to enforce transit rules. Determine who writes tickets, who enforces, results of violations
- development of a service recovery plan/coordination with other transit agencies or other departments, development of plans and agreements
- integrating new system into existing system, minimizing conflicts, running the core system while testing the new locations
- determining interlining considerations
- development of operating rules and procedures

The RTS shall also identify the roles and responsibilities of rail operations personnel in the following areas:

- value engineering
- document control planning/approval
- determination of total cost of ownership, including ongoing maintenance costs
- identifying sources for funding all parts of the operation

4.2 Safety certification operations involvement requirements

The RTS shall establish the safety certification process responsibilities required during this phase of the project for rail operations personnel to ensure that operating plans, policies and procedures that will be used in the new system are appropriately integrated into the safety certification process.

5. Design phase

5.1 New rail transit project operations design requirements

The RTS shall establish the responsibilities required during this phase of the project for rail operations personnel involvement in establishing operating plans, design criteria, policies and procedures that will be used in the new system.

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As a minimum, and in addition to those areas identified in Section 4 of this standard, the rail operations personnel involved in this phase of the project shall also be involved in the following activities, including but not limited to:

- equipment and spare parts inventory and planning process
- involve elements of testing requirements found in Section 7 of this standard
- regulatory requirements
- operating rules and procedures development

5.2 Safety certification operations involvement requirements

In accordance with the established roles and responsibilities established per the requirements of this standard, the designated rail operations personnel shall, at a minimum, be a voting member of each of the following committees:

- safety and security review committee (SSRC), fire/life safety committee (FLSC), or similar committee/working group
- configuration management committee
- change control board
- rail activation committee
- safety and security certification committee, responsible for the verification of certifiable items, remedying nonconforming items, and tracking all items to closure, in support of the safety department's carrying out of the SSCP

The designated rail operations personnel shall, at a minimum, participate in the development of and/or mitigation associated with the following plans, which are typically managed by safety personnel in the committee activities listed above:

- Preliminary Hazard Analysis (PHA)
- Preliminary Threat and Vulnerability Analysis (PTVA)
- Risk Register
- Master Schedule and/or Project Management Plan
- Change Control
- Certifiable Items/Elements Lists
- SSPP or Transit Agency Safety Plan (updated annually); should reflect the design activity and projected phases
- Security and Emergency Preparedness Plan (SEPP) or other Security Program Plan
- Operational Hazard Analysis (OHA) and other required safety certification processes

6. Construction phase

7.1 New rail transit project operations construction requirements

The RTS shall establish the responsibilities required during this phase of the project for rail operations personnel involvement in establishing operating plans, policies and procedures that will be used in the new system.
As a minimum, the rail operations personnel involved in this phase of the project shall be involved in all previously identified activities, as well as the following activities:

- perform walks of the construction sites to view operating environment considerations
- review contractors' construction schedules/plans and track allocation requirements
- review any requests for deviation (RFD) for impacts on the operating plan or operating needs
- quality assurance/quality control activities, such as the following:
    a) factory testing, site testing and integration activities, which includes communication and management systems (SCADA)
    b) infrastructure inspection (for projects where applicable):

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i. facilities
ii. track
iii. switches and interlocking
iv. stations
v. traction power infrastructure
vi. clearance of wayside equipment and infrastructure
vii. communications equipment, (placement of cameras, variable messaging signs, etc.)
viii. train control and signaling infrastructure, etc.
ix. first article inspection (FAI) for vehicles, testing and commissioning activities

- vendor training plan review and approval
- vendor maintenance plan review and approval
- operations staffing plan for factory acceptance testing (FAT), site acceptance testing (SAT), system integrated testing (SIT) and training requirements
- staffing plan for revenue operations
- rail activation plan
- establishment of operations rules and procedures compliance applicable to the phase of the project

6.1 Safety certification operations involvement requirements

The RTS shall establish the safety certification process responsibilities required during the construction phase of the project for rail operations personnel to ensure that operating plans, policies and procedures that will be used in the new system are appropriately integrated into the safety certification process. At this point in the project, the SSCP is fully utilized by all project stakeholders, and the Safety and Security Certification Committee is fully engaged.

The involvement of the rail operations personnel during the construction phase of the project shall incorporate the same levels of involvement initially established in the earlier phases of the project.

7. System integrated testing (SIT) phase

7.1 New rail transit project operations SIT requirements

The RTS shall establish the responsibilities required during this phase of the project for rail operations personnel involvement in establishing operating plans, policies and procedures that will be used in the new system.

As a minimum, the rail operations personnel involved in this phase of the project shall be involved in the following activities:

- quality assurance/quality control
- FAT, SAT and integration activities, which includes communication and management systems (SCADA) point to point testing
- FAI for vehicles, testing and commissioning activities
- staffing plan
- training activities (including but not limited to vendor- and RTS-provided training)
- static and dynamic clearance testing of revenue and nonrevenue equipment
- ADA compliance
- NFPA code compliance
- local building codes
- sign-off from authorities having jurisdiction (AHJs)
- vital and non-vital systems testing

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- establishment of operations rules and procedures compliance applicable to the phase of the project, including temporary operating permits issues by the RTS for contractors or others requiring access on or near the right-of-way
- development of formal plan(s) for integrating the existing system and new system during construction, testing and operations and taking into consideration all aspects of hazards and operating conditions

7.2 Safety certification operations involvement requirements

The RTS shall establish the safety certification process responsibilities required during this phase of the project for rail operations personnel to ensure that operating plans, policies and procedures that will be used in the new system are appropriately integrated into the safety certification process.

The involvement of the rail operations personnel during the SIT testing phase of the project shall incorporate the same levels of involvement initially established in the earlier phases of the project.

8. Pre-revenue service operations

8.1 New rail transit project operations pre-revenue service requirements

The RTS shall establish the responsibilities required during this phase of the project for rail operations personnel involvement in establishing operating plans, policies and procedures that will be used in the new system.

The RTS shall identify the roles and responsibilities of the designated rail operations personnel in relation to the following project elements:

- operating schedule
- test emergency drills with the local emergency responder
- familiarization of rail system
- reliability, availability and maintainability (RAM) validation of the system
- required signatures for validation and acceptance by the owner/operator of the RTS that the system is performing according to the approved design

As a minimum, the rail operations personnel involved in this phase of the project shall be involved in the following activities:

- developing train operating schedules and revenue service hours
- developing a simulated revenue service training plan.
- qualifying required personnel on the specific new line
- developing a system for tracking punch list items
- coordinating with engineering to ensure close out of remaining construction items
- coordinating with the SSOA pre-revenue service review (PRSR) for closeout of any action items
- performing emergency drills
- providing training/familiarization to first responders, including other transit agencies or local (applicable) agencies
- performing operations drills
- identifying new addresses for 911 for all response
- developing training elements for O&M contractors or RTS personnel:
    a) training of all operations personnel on mainline, yard, SCADA, equipment, etc.
    b) training of transit personnel not from operations (e.g. station personnel, cleaners, facilities, customer service)
- community outreach safety messages
- ensuring ADA compliance
- coordination with media
- public awareness/enforcement of transit ROW

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- developing a service recovery plan
- participating in safety stand-downs
- developing a master schedule of PRSR activities; constant monitoring and update based on conditions
- assessing signage (passenger wayfinding, street signage for street running, ROW signage, fare zone area, berthing markers, etc.)
- participating in internal readiness review meetings between operations, engineering, maintenance and other applicable parties as part of the rail activation plan
- participating in operations rules and procedures compliance for pre-revenue operations
- implementing track allocation rules and procedures
- implementing a methodology for transition from construction management of track allocation to management by the RTS
- creating the opening day plan (staging, planning, preparation, etc.)
- simulation of abnormal operating procedures such as single tracking, service suspension, alternate operating conditions, bus bridges, etc.

8.2 Safety certification operations involvement requirements

The RTS shall establish the safety certification process responsibilities required during this phase of the project for rail operations personnel to ensure that operating plans, policies and procedures that will be used in the new system are appropriately approved and integrated into the safety certification process.

The involvement of the rail operations personnel during the pre-revenue service operations phase of the project shall incorporate the same levels of involvement for safety certification initially established in the earlier phases of the project.

The rail operations personnel shall assist with the verification of certifiable items, including all applicable elements identified in OP-54.

9. Revenue service

The RTS shall establish the responsibilities required during this phase of the project for rail operations personnel involvement in establishing operating plans, policies and procedures that will be used in the new system.

As a minimum, the rail operations personnel involved in this phase of the project shall also be involved in the following activities:

- monitoring for lessons learned
- updating approach for future projects
- updating operating documents based on real-world conditions
- management of the safety open items list (SOIL) in relation to revenue operations
- development and management of interim mitigations (workarounds)
- opening day planning
- closing out remaining requirements related to the safety certification process
- development or utilization of a transit asset management (TAM) plan/system in accordance with FTA requirements and related to rail operations planning and management

Rail operations personnel and the safety department have verified all certifiable elements pending any restricted or conditional certificates at this point. All policies and procedures should be integrated.

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Definitions

contractor: The individuals, partnership, firm, corporation, joint venture or other entity identified in the contract, including their own personnel and the personnel of any subcontractors.

employee: An individual who is engaged or compensated by an RTS or by a contractor to an RTS to perform any of the duties defined in this standard.

employer: An RTS, or contractor to an RTS, which directly engages or compensates individuals to perform any of the duties defined in this standard.

OP-54: The oversight procedure that sets the PMOC expectations in regards to readiness to enter revenue operations of the FTA grantee in a new rail transit project.

new rail transit project: A project that results in an entirely new rail transit system, extension or expansion of an existing rail transit system; major system modifications; and/or major fleet, infrastructure and/or systems modifications.

O&M contractor: When applicable, the contractor(s) hired by the RTS or operating agency who is responsible for daily operations and maintenance of the rail service.

qualified: A status attained by an employee who has successfully completed any required training for, has demonstrated proficiency in, and has been authorized by the employer to perform the duties of a particular position or function.

rail operations personnel: People who meet minimum qualifications for demonstrating experience in managing or directing rail transit operations.

rail transit system (RTS): The organization that operates rail transit service and related activities. Also known as the transit system, transit agency, operating agency, operating authority, transit authority and other similar terms.

system safety program plan: A document developed and adopted by the rail transit agency, describing its safety policies, objectives, responsibilities and procedures.

train: A rail-mounted vehicle that is used or intended to be used in revenue service.

Abbreviations and acronyms

ADA Americans with Disabilities Act
AHJ authority having jurisdiction
CIL Certifiable Items List
DHS Department of Homeland Security

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FAT	factory acceptance testing
FLSC	fire/life safety (and security) committee
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
ITD	individual train detection
MAP-21	Moving Ahead for Progress in the 21st Century Act
MCC	management capacity and capability
MMIS	maintenance management information system
NATSA	North American Transit Services Association
NFPA	National Fire Protection Association
O&M	operations and maintenance
OHA	open hazard analysis
OTE	on-track equipment
PHA	preliminary hazard analysis
PMOC	project management oversight contractor
PMP	project management plan
PPE	personal protective equipment
PRO	pre-revenue operations
PROP	pre-revenue operations plan
PRSR	pre-revenue service review
PTVA	preliminary threat and vulnerability analysis
QPE	qualified protection employee
RAC	rail activation committee
RAM	reliability, availability and maintainability
RAP	rail activation plan
ROW	right-of-way
RTS	rail transit system
RWP	roadway worker protection
SCADA	supervisory control and data acquisition
SAT	site acceptance testing
SEPP	Security and Emergency Preparedness Plan
SGR	state of good repair
SIT	system integrated testing
SME	subject matter expert
SOIL	safety open items list
SOP	standard operating procedure
SSCC	safety and security certification committee
SSCP	safety and security certification plan
SSCVR	safety and security certification verification report
SSOA	state safety oversight agency (synonymous with SSO, SSOO)
SSPP	System Safety Program Plan
SSRC	safety and security review committee
TAM	transit asset management
TASP	Transit Agency Safety Plan
TSA	Transportation Security Administration
TVA	threat and vulnerability analysis

Summary of changes

This is a new document, hence there are no changes.

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Document history

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