



**APTA RT-OP-S-022-17, Rev. 1**

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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 within a rail transit agency and/or an operations and maintenance contractor. Rail operations personnel are required in order to provide input and guidance in any rail project that impacts a rail transit agency's operations and maintenance activities. As used in this standard, "operations" refers directly to operations and maintenance activities within an operating or new rail transit 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. This 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 design, planning, program planning, the design criteria, the operations plan, the maintenance management plan and the fleet management plan.



## Foreword

The American Public Transportation Association is a standards development organization in North America. The process of developing standards is managed by the APTA Standards Program's Standards Development Oversight Council (SDOC). These activities are carried out through several standards policy and planning committees that have been established to address specific transportation modes, safety and security requirements, interoperability, and other topics.

APTA used a consensus-based process to develop this document and its continued maintenance, which is detailed in the [manual for the APTA Standards Program](#). This document was drafted in accordance with the approval criteria and editorial policy as described. Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

This document was prepared by the Operating Practices Working Group as directed by the Rail Standards Policy and Planning Committee.

This document represents a common viewpoint of those parties concerned with its provisions, namely transit operating/planning agencies, manufacturers, consultants, engineers and general interest groups. APTA standards are mandatory to the extent incorporated by an applicable statute or regulation. In some cases, federal and/or state regulations govern portions of a transit system's operations. In cases where there is a conflict or contradiction between an applicable law or regulation and this document, consult with a legal adviser to determine which document takes precedence.

This document supersedes APTA RT-OP-S-022-17, which has been revised. Below is a summary of changes from the previous document version:

- Section in "Summary" removed stating that "the chief operations officer, or that individual's designee shall hold an ex officio position on the System Safety Committee of the project."
- Section on "Scope and purpose" moved to below the "Introduction" section.
- The entire "Foreword" section is new.
- New section added to "Introduction" beginning "APTA recommends the use of this document by."
- Paragraph removed stating: "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."
- Section 2, "Rail transit agency responsibilities," was previously titled "RTS responsibilities," and this nomenclature replacement is repeated throughout the document.
- New subsection added: "Roles and responsibilities of operations personnel."
- In Section 3.2, new sentences added stating: "The rail transit agency 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 agencies, engineering and maintenance function as one organization, but this has no bearing on specific requirements for the groups listed below."



- In Section 4.1, a new paragraph was added stating: “The rail transit agency shall use its existing operating rules, procedures and practices as a guide for determining the optimal design elements of new rail projects or consider what changes to existing rules, procedures and practices would be required due to operations unique to the project.”
- In Section 5.2, three new bullets were added on which committees rail operations personnel should be voting members of:
  - Safety and Security Certification Plan
  - Management of Change Functions
  - Rules Committee
- In Section 5.2, the phrase “SSPP or Transit Agency Safety Plan” was changed to “PTASP.”
- In Section 8.1, a new introductory sentence was added stating: “Pre-revenue test operations are critical to understanding the new project in real-world terms and also to identify previously unidentified hazards or safety concerns.”
- In Section 9, a new second paragraph was added stating: “The rail transit agency shall build sufficient time into its testing schedule and projected date range for start of revenue service so that safety and operational issues can be appropriately resolved or mitigated.”
- A new definition was added for “Public Transportation Agency Safety Plan.”



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## Introduction

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

This standard helps rail transit agencies 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 agency’s Project Management Plan 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 a successful outcome. 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 (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
- 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 rail transit agency, 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; supports state of good repair; and ensures management of assets that function in sync with system and life cycle needs.



APTA recommends the use of this document by:

- individuals or organizations that operate rail transit systems;
- individuals or organizations that contract with others for the operation of rail transit systems; and
- individuals or organizations that influence how rail transit systems are operated (including but not limited to consultants, designers and contractors).

## 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 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 §633, Project Management Plans
- 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.

## Note on alternate practices

Individual rail transit systems may modify the practices in this standard to accommodate their specific equipment and mode of operation. APTA recognizes that some rail transit systems may have unique operating environments that make strict compliance with every provision of this standard impossible. As a result, certain rail transit systems may need to implement the standards and practices herein in ways that are more or less restrictive than this document prescribes. A rail transit system may develop alternates to APTA standards so long as the alternates are based on a safe operating history and are described and documented in the system's safety program plan (or another document that is referenced in the system safety program plan).

Documentation of alternate practices shall:

- identify the specific APTA rail 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).

# 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

OP54 is the Federal Transit Administration'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 of 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 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 management and the construction contractors, should be aware of the SIT 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:

1. Involvement of rail operations personnel for assistance in:
  - drafting and reviewing program plans that are required for the rail project;
  - reviewing and providing input and guidance with respect to system elements; and
  - assisting with the development of an operating plan, a maintenance management plan and a fleet management plan.
2. 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 rail system.
3. Development of certifiable items lists with assistance from a safety subject matter expert (SME).
4. Development of the Safety Management Systems (SMS) Plan, Public Transportation Agency Safety Plan (PTASP) and/or other associated program plans.



5. 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.
6. Consideration for the unique challenges associated with integration and certification for new starts and existing system changes.
7. Basing other capital projects on the agency's design criteria and contract documents with operations, maintenance and safety personnel input.

## **2. Rail transit agency responsibilities**

For any new project, the agency, 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 "rail transit agency" or "agency" shall also include any of the aforementioned rail transit project sponsors or parties responsible for project development, since a traditional rail transit agency may not be initiating some projects.

### **2.1 Roles and responsibilities of operations personnel**

The rail transit agency 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 agency's Project Management Plan (PMP), in the section required for the organizational staffing to deliver and safety-certify the project.

The rail transit agency shall involve dedicated rail operations personnel at the initial planning phases of a project. Such personnel shall have equivalent operating experience that will inform the decision-making process so that the final project maximizes functionality. This standard establishes minimum requirements for engagement for rail operations personnel from project conceptualization and project development of design criteria through the operation and life cycle of the system.

The rail transit agency or entity representing the proposed agency 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.

In order to demonstrate a commitment to the safe and reliable provision of service with the final project outcome, the rail transit agency shall consider the experience and expertise of the operations personnel engaged in all phases of the project to ensure that they possess knowledge commensurate to the existing and projected levels and types of rail operations resulting from the new rail project. Operations personnel shall have relevant transit operations experience and expertise based on operating and/or managing similar systems.

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 necessary knowledge of how these systems work throughout their life cycle.

### **3. Requirements**

#### **3.1 Operations personnel**

The rail transit agency 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 agency project requirements:

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

The rail transit agency'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.

#### **3.2 Other personnel who affect operations**

Other agency and outside personnel play a critical role in all project phases, and their input plays an integral part in transit operations. The work of other agency personnel impacts operations. For example, regular preventive maintenance and as-needed corrective maintenance will take place that could result in different levels of service impacts. The involvement of other personnel may also affect system reliability that must be managed by rail operations personnel.

The rail transit agency 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 agencies, 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:
  - train control systems
  - SCADA
  - fiber-optic backbone/network
  - network security and encryption
- facilities engineering and/or maintenance
- system safety department
- applicable first responders
- security/transit police
- external stakeholders including community groups, coordinating emergency services, municipal and civic leaders, departments of public works, and local and state government agencies

## **4. Planning phase**

### **4.1 Operations requirements in new rail transit project planning**

The rail transit agency 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 rail transit agency shall use its existing operating rules, procedures and practices as a guide for determining the optimal design elements of new rail projects or consider what changes to existing rules, procedures and practices would be required due to operations unique to the project.

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:

1. Program plan development
2. Design criteria development
3. Safety and security certification development and review
4. Design development and review
5. Preliminary hazard analysis development
6. Operational hazard analysis/risk register development
7. Threat and vulnerability assessment (TVA) development
8. TAM program planning
9. Configuration management
10. Project scheduling, including training, testing and pre-revenue service
11. All applicable committees that will be formed
12. Vehicle design and procurement process
13. All FTA quarterly meetings
14. All SSOA meetings
15. Multimodal coordination and system needs (transfers to other modes, first/last mile, etc.)
16. Design considerations for efficient operations:
  - design of parking lots, flow of pedestrians, interaction with intermodal
  - relationship to local buildings, businesses, etc.
  - support vehicle locations, storage of equipment, parts, etc. (nonrevenue vehicles, facilities support and other system maintenance considerations)
  - supervisor/maintainer/first responder parking

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- special event platforms/queuing considerations
  - fare payment system/locations/quantities
  - simulators or related equipment for training and familiarization on systems
17. Determining and implementing maintenance management information system (tied to MAP-21 requirements for asset management, e.g., Spear, Maximo, Conditions, etc.)
  18. Development of laws to enforce transit rules (determine who writes tickets, who enforces, results of violations)
  19. Development of a service recovery plan/coordination with other transit agencies or other departments, development of plans and agreements
  20. Integrating new system into existing system, minimizing conflicts, running the core system while testing the new locations
  21. Determining interlining considerations
  22. Development of operating rules and procedures

The rail transit agency 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 Operations requirements in safety and security certification**

The rail transit agency shall establish the safety and security 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 and security certification process.

## **5. Design phase**

### **5.1 Operations requirements in new rail transit project design**

The rail transit agency 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. 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, at a minimum:

1. Equipment and spare parts inventory and planning process
2. Elements of testing requirements found in Section 7 of this standard
3. Regulatory requirements
4. Operating rules and procedures development

### **5.2 Operations requirements in safety and security certification**

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, Fire/Life Safety Committee, or similar committee/working group
- Safety and Security Certification Plan Committee

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- Management of Change Functions Committee
- 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
- Rules Committee

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
- Threat and Vulnerability Analysis
- Risk Register
- Master Schedule and/or Project Management Plan
- Change Control
- Certifiable Items/Elements Lists
- PTASP (updated annually; should reflect the design activity and projected phases)
- Security and Emergency Preparedness Plan or other security program plan
- Operational Hazard Analysis and other required safety certification processes

## **6. Construction phase**

### **6.1 Operations requirements in new rail transit project construction**

The rail transit agency 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. Rail operations personnel involved in this phase of the project shall be involved in all previously identified activities, as well as the following activities:

1. Perform walks of the construction sites to view operating environment considerations.
2. Review contractors' construction schedules/plans and track allocation requirements.
3. Review any requests for deviation for impacts on the operating plan or operating needs.
4. Quality assurance/quality control activities, such as the following:
  - factory testing, site testing and integration activities, which includes communication and management systems (SCADA)
  - infrastructure inspection (for projects where applicable):
    - facilities
    - track
    - switches and interlocking
    - stations
    - traction power infrastructure
    - clearance of wayside equipment and infrastructure
    - communications equipment (placement of cameras, variable messaging signs, etc.)
    - train control and signaling infrastructure, etc.
    - first article inspection (FAI) for vehicles, testing and commissioning activities
5. Review and approve vendor training plan.
6. Review and approve vendor maintenance plan.

7. Create operations staffing plan for factory acceptance testing (FAT), site acceptance testing (SAT), system integration testing (SIT) and training requirements.
8. Create staffing plan for revenue operations.
9. Create Rail Activation Plan.
10. Establish operating rules and compliance procedures applicable to the phase of the project.

## **6.2 Operations requirements in safety certification**

The rail transit agency 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 integration testing phase**

### **7.1 Operations requirements in new rail transit project SIT**

The rail transit agency 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 agency-provided training)
- static and dynamic clearance testing of revenue and nonrevenue equipment
- ADA compliance
- NFPA code compliance
- local building code compliance
- sign-off from authorities having jurisdiction
- vital and nonvital systems testing
- establishment of operating rules and procedures compliance applicable to the phase of the project, including temporary operating permits issued by the rail transit agency for contractors or others requiring access on or near the right-of-way (ROW)
- 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 Operations requirements in safety certification**

The rail transit agency 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 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 Operations requirements in new rail transit project pre-revenue service**

Pre-revenue test operations are critical to understanding the new project in real-world terms and also to identify previously unidentified hazards or safety concerns. The rail transit agency 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. Pre-revenue test operations should simulate the levels of service and types of service disruptions that will require efficient train management.

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

- operating schedule
- testing emergency drills with the local emergency responder
- familiarization of rail system
- reliability, availability and maintainability validation of the system
- required signatures for validation and acceptance by the owner/operator of the rail transit agency 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:

1. Developing train operating schedules and revenue service hours.
2. Developing a simulated revenue service training plan.
3. Qualifying required personnel on the specific new line.
4. Developing a system for tracking punch list items.
5. Coordinating with engineering to ensure closeout of remaining construction items.
6. Coordinating with the SSOA pre-revenue service review (PRSR) for closeout of any action items.
7. Performing emergency drills.
8. Providing training/familiarization to first responders, including other transit agencies or applicable local agencies.
9. Performing operations drills.
10. Identifying new addresses for 911 emergency response.
11. Developing training elements for operations and maintenance contractors or rail transit agency personnel:
  - training of all operations personnel on mainline, yard, SCADA, equipment, etc.
  - training of transit personnel not involved in the movement of trains (e.g., station personnel, cleaners, facilities, customer service)
12. Creating community outreach safety messages.
13. Ensuring ADA compliance.
14. Coordinating with media.
15. Creating public awareness/enforcement of transit ROW.
16. Developing a service recovery plan.
17. Participating in safety stand-downs.
18. Developing a master schedule of PRSR activities; constant monitoring and updating based on conditions.



19. Assessing signage (passenger wayfinding, street signage for street running, ROW signage, fare zone area, berthing markers, etc.)
20. Participating in internal readiness review meetings between operations, engineering, maintenance and other applicable parties as part of the rail activation plan.
21. Participating in operations rules and procedures compliance for pre-revenue operations.
22. Implementing track allocation rules and procedures.
23. Implementing a methodology for transition from construction management of track allocation to management by the rail transit agency.
24. Creating the opening day plan (staging, planning, preparation, etc.).
25. Simulating abnormal operating procedures such as single tracking, service suspension, alternate operating conditions, bus bridges, etc.

## **8.2 Operations requirements in safety certification**

The rail transit agency 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 OP22 and OP54.

## **9. Revenue service**

The rail transit agency 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 rail transit agency shall build sufficient time into its testing schedule and projected date range for start of revenue service so that safety and operational issues can be appropriately resolved or mitigated.

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

1. Monitoring for lessons learned.
2. Updating approach for future projects.
3. Updating operating documents based on real-world conditions.
4. Managing the safety open items list in relation to revenue operations.
5. Developing and managing interim mitigations (workarounds).
6. Planning for opening day.
7. Closing out remaining requirements related to the safety certification process.
8. Ensuring development or utilization of a 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.



## References

49 CFR §633 Subpart C, Project Management Plans.

Federal Highway Administration, MAP-21. [www.fhwa.dot.gov/map21/](http://www.fhwa.dot.gov/map21/)

Federal Transit Administration, Oversight Procedure 54 – Readiness for Service.  
[www.transit.dot.gov/sites/fta.dot.gov/files/2022-05/OP54%20Readiness%20for%20Revenue%20Operations%20-%20Sept%202015.pdf](http://www.transit.dot.gov/sites/fta.dot.gov/files/2022-05/OP54%20Readiness%20for%20Revenue%20Operations%20-%20Sept%202015.pdf)

## 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 a rail transit agency or by a contractor to a rail transit agency to perform any of the duties defined in this standard.

**employer:** A rail transit agency, or contractor to a rail transit agency, that directly engages or compensates individuals to perform any of the duties defined in this standard.

**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.

**operations and maintenance contractor:** When applicable, the contractor(s) hired by the rail transit agency or operating agency that is responsible for daily operations and maintenance of the rail service.

**OP22:** The oversight procedure that sets project management oversight contractor expectations with regard to implementation of federal requirements for safety and security management.

**OP54:** The oversight procedure that sets the project management oversight contractor expectations with regard to readiness to enter revenue operations of the FTA grantee in a new rail transit project.

**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 agency:** The organization that operates rail transit service and related activities. Also called *transit system, transit agency, operating agency, operating authority, transit authority* and other similar terms.

**Public Transportation Agency Safety 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

<b>ADA</b>	Americans with Disabilities Act
<b>FAI</b>	first article inspection
<b>FAT</b>	factory acceptance testing
<b>FTA</b>	Federal Transit Administration
<b>MAP-21</b>	Moving Ahead for Progress in the 21st Century Act
<b>O&amp;M</b>	operations and maintenance
<b>OP22</b>	Oversight Procedure 22
<b>OP54</b>	Oversight Procedure 54
<b>PHA</b>	preliminary hazard analysis
<b>PMP</b>	Project Management Plan
<b>PRO</b>	pre-revenue operations
<b>PRSR</b>	pre-revenue service review
<b>PTASP</b>	Public Transportation Agency Safety Plan
<b>ROW</b>	right-of-way
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>SAT</b>	site acceptance testing
<b>SIT</b>	system integration testing
<b>SME</b>	subject matter expert
<b>SSCP</b>	Safety and Security Certification Plan
<b>SSOA</b>	state safety oversight agency
<b>TAM</b>	transit asset management
<b>TASP</b>	Transit Agency Safety Plan
<b>TVA</b>	threat and vulnerability assessment

## Document history

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