



APTA STANDARDS DEVELOPMENT PROGRAM

STANDARD

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Rail Transit Operating Practices Working Group

Work Zone Safety Practices

Abstract: This standard provides guidance for the development of rules and requirements for working within rail transit system work zones and provides suggested approaches for developing such rules and procedures.

Keywords: right-of-way, roadway worker, work zone safety

Summary: This standard provides ways for rail transit systems to address situations that are present when workers perform routine and emergency work on an operating rail line. It recommends that rail transit systems perform periodic internal audits to ensure compliance with these rules and procedures.

Scope and purpose: This standard establishes the minimum required content for work zone safety practices which apply to both mainline and yard operations. APTA developed this standard to help rail transit systems identify and mitigate roadway worker safety concerns. This standard addresses the duties of roadway workers performing work within a work zone on or near the right of way (ROW). While referenced in this standard, the corresponding work zone safety duties, responsibilities and authority of yardmasters and train controllers are addressed in a separate standard. Development of such rules and procedures should enhance the safety of all concerned without unnecessarily restricting operation of trains through work zones.

This *Rail Standard* represents a common viewpoint of those parties concerned with its provisions, namely, transit operating/planning agencies, manufacturers, consultants, engineers and general interest groups. The application of any standards, 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. NATSA (North American Transportation Services Association) APTA recognizes that for certain applications, the standards or practices, as implemented by individual transit agencies, may be either more or less restrictive than those given in this document.

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Introduction

This introduction is not part of APTA RT-OP-S-004-03 Rev 1, *Standard for Work Zone Safety Practices*.

This Standard for Work Zone Safety Practices represents a common viewpoint of those parties concerned with its provisions, namely, transit 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 Rail Transit System's (RTS) operations. In those cases, the government regulations take precedence over this standard. APTA recognizes that for certain applications, the standards or practices, as implemented by individual rail transit agencies, may be either more or less restrictive than those given in this document.

It is recognized that working on an active railroad can be hazardous without having safety procedures in place and employees who are properly trained. Such hazards include high voltage power, the movement of large vehicles/equipment through the work zone, and exposure to the hazards of working in a construction zone where tools and machinery are being utilized. This can be further complicated by the unique and sometimes constrained environment of the rail right-of-way (ROW).

The APTA Standard for Work Zone Safety Practices is intended to supplement other standards with the goal of providing a safe working environment to those working in the ROW. Other APTA Standards address different aspects of safety on the ROW, and they should be reviewed concurrently with this Standard. For example, the APTA Standard for Roadway Worker Protection provides requirements to protect workers from moving trains and/or on-track equipment. The Standard for Contractors' Responsibility for Safety on the ROW provides requirements for the RTS to establish a contractor-specific guideline which describes safety requirements that apply to contractor activities on or near the ROW. The Standard for On-Track Equipment (OTE) Safety Requirements contains detailed requirements for the design and operation of OTE. The Standard for Rail Transit Track Allocation Program Requirements establishes a requirement and framework for a formal process to request and grant access to perform work on or near the ROW.

In contrast, this This APTA Standard for Work Zone Safety Practices focuses on the work being performed within the work zone to ensure workers are trained on the rules and procedures associated with the various work conditions and activities related to work on or near the ROW. These safety practices, as with all other practices, require a formal program framework inclusive of the rules and procedures, training requirements, and compliance program requirements.

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.
- 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).

Standard for Work Zone Safety Practices

1. Introduction

The RTS shall comply with the provisions of the following APTA Standards and regulatory requirements and ensure their provisions are consistent with this and other Standards related to safety on or around the ROW.

- Standard for Roadway Worker Protection Program Requirements (RT-OP-S-016-11)
- Standard for Contractors' Responsibility for Safety on the ROW (RT-OP-S-010-03)
- Standard for On-Track Equipment Safety Requirements (RT-OP-S-021-14)
- Standard for Rail Transit Track Allocation Program Requirements (RT-OP-S-020-13)
- The RTS Safety Management Systems (SMS)

2. Rules and Procedures

The RTS work zone safety practices program shall include rules and/or procedures for employees and contract workers working within the work zone. The content shall include rules and/or procedures pertaining to the proper use of tools/equipment. The program shall focus on rules and/or procedures for personnel within the work zone to avoid injury to themselves and/or others and the operating environment (exclusive ROW, semi-exclusive ROW, or mixed traffic operations). The RTS shall identify the departments whose employees are affected by these work zone safety requirements. The RTS shall identify how these requirements apply to each class of employee. The RTS shall identify which department(s) have ownership of the RWP or ROW access program.

At a minimum, the RTS shall develop appropriate rules and/or procedures related to work zones that incorporate the following topics.

2.1 Communication

The RTS shall develop, as a minimum, appropriate work zone safety rules and/or procedures concerning:

- The use of communications equipment and practices within the work zone
- Testing of communication equipment (such as radios) prior to commencing work
- Flagging/alerts/alert technologies
- Communications failures
- Safety briefing (including site specific worker safety practices)
- Shift change / hand-off communication protocol – OCC and field personnel

2.2 PPE

The RTS shall develop, as a minimum, appropriate work zone safety rules and/or procedures concerning:

- Fall protection
- Vest, hardhat, shoes, eye protection, etc.
- Power-related PPE (e.g. arc flash suits, gloves, etc.)

2.3 Power

The RTS shall develop, as a minimum, appropriate work zone safety rules and/or procedures concerning:

- Lockout/tagout
- Ground straps

- Power removal and restoration

2.4 Site Condition

The RTS shall develop, as a minimum, appropriate work zone safety rules and/or procedures concerning:

- Keeping tools clear of the track way and adjacent fouling envelope, as defined by RTS
- Cleaning up worksite at end of work
- Returning work site to a safe operating condition
- Disposal of waste
- Accounting for removal of all tools, equipment, and personnel from right of way upon completion of work
- Removal of excess material or placement of materials in a place of safety
- Considerations during adverse weather
- Knowledge of geographical location and physical characteristics where work will occur, mileposts, types of track, OCS/third rail, etc.)
- Evacuation Routes in case of a hazardous situation or accident/incident to a pre-determined safe zone

2.5 Worker Conduct

The RTS shall develop, as a minimum, appropriate work zone safety rules and/or procedures concerning:

- Prohibited actions
- Proper behavior
- Fitness for Duty requirements

2.6 Equipment Operation

The RTS shall develop, as a minimum, appropriate work zone safety rules and/or procedures concerning:

- Working around on-track equipment (OTE)
- Use of tools/equipment (non-OTE) - specialized equipment
- Program to verify that people who are using the equipment are qualified to use the equipment and their safety qualification is current

2.7 General

The RTS shall develop, as a minimum, appropriate work zone safety rules and/or procedures concerning:

- Observing and reporting unsafe conditions or actions / good faith challenge
- Safety of movement/work on ballasted and direct fixation track
- Safety of movement/work in mixed traffic (adjacent on-track traffic on any ROW or non-rail traffic in in street-running operations)
- First aid/medical assistance
- Near miss reporting
- Adherence to work permit allowances
- Responding to emergencies within any work zones, including work zones not under the active control of the OCC or on inactive track.
- Reporting workers reporting in and out of the work zone
- Pre-work Job Safety Briefing – Method of Protection
- Follow-up Job safety Briefing – Change in conditions / method of protection

- Work Zone Shift change protocols

2.8 Verification of the work plans and/or scope of work

The RTS shall develop, as a minimum, appropriate work zone safety rules and/or procedures concerning:

- Review of as-built drawings and current site conditions
- Verification and execution of technical work plans (by various RTS departments)
- Interaction and coordination to avoid unintentionally affecting other system elements
- Interaction & coordination for multiple users (“piggyback”)
- Impact on utilities

3. Training

The RTS shall implement a work zone safety practices training program. This shall include initial and refresher training on the rule and procedure requirements listed in this standard. The RTS shall integrate work zone safety practices training with its RWP training program.

The refresher training program shall include the following types of training:

- Periodic (to be defined by the RTS)
- Quality Assurance / Quality Control review for roadway workers who work in the ROW
- Return to Work
- Reinstruction

4. Safety Inspections and Compliance

The Work Zone Safety Practices program shall include an internal oversight function to ensure that the rules and procedures are being followed and guidelines are in place. The RTS shall maintain a program for documenting findings of compliance and non-compliance.

The RTS shall identify any requirements for immediate responses to a rule and/or procedure violation, such as stoppage of work or correction of incorrect practices.

The RTS shall implement a compliance program for the oversight of work zone safety practices in accordance with APTA RT-S-OP-011-04 (Standard for Rule Compliance). In addition, the RTS shall develop a formal compliance check program of periodic work zone compliance audits. The RTS shall identify the roles and responsibilities of the various departments for performing audits. This shall include the roles and responsibilities of the track, structures, wayside, operations, and safety departments.

Related APTA Standards

- APTA RT-OP-S-010-03 *Standard for Contractors’ Responsibility for Safety on the ROW*
- APTA RT-OP-S-016-11 *Standard for Roadway Worker Protection Program Requirements*
- APTA RT-OP-S-020-13 *Standard for Rail Transit Track Allocation Program Requirements*
- APTA RT-OP-S-021-14 *Standard for On-Track Equipment Safety Requirements*

References

None

Definitions

For the purposes of this standard, the following terms and definitions apply. The job titles listed used in this standard is for informational purposes only. It is up to the individual rail transit system to determine and utilize titles as it finds appropriate. Each person, or his/her designee, shall perform the tasks described below.

audible signals: A signal conveyed by a horn, a bell or a whistle.

control center/central control/operations control center: The facility where train control, train dispatching and/or train supervision is accomplished for the entire rail transit system or for specific segments of a system if there is more than one control center. Also called the train command center.

flag person: When used in relation to roadway worker safety, flag person means an employee designated by the RTS to direct or restrict the movement of trains past a point on a track to provide on-track safety for roadway workers.

fouling a track: The placement of an individual or an item of equipment in such proximity to a track that the individual or equipment could be struck by a moving train or other on-track equipment, or in any case is within a distance determined by the RTS.

hand signal: A signal conveyed by the motion or position of a person's hand or arm. A flag may be used to enhance visibility of a hand signal. A lantern or other suitable handheld light shall be used to convey hand signals in tunnels or during hours of darkness.

mainline: Those tracks upon which scheduled service is operated and which are designated as such.

on sight/operation on sight: A requirement that train operators shall look ahead and be constantly alert for any condition that may cause injury or damage and be ready to bring the train to a safe and smooth stop. Movement must be made so as to control the movement to permit stopping within one-half of the range of vision of (a) other trains or rail equipment occupying or fouling the track, (b) obstructions, (c) switches not properly lined for movement, (d) derails set in the derailing position, (e) any signal requiring a stop, and (f) broken rail and misaligned track.

rail transit system: The organization that operates rail transit service and related activities. It is also known as the transit system, transit agency, operating agency, operating authority, transit authority or other similar term.

right-of-way: The area at track level or above track level at a distance from the centerline of the track, as specified by the transit system.

roadway worker: Any employee of an RTS, or a contractor to a RTS, whose duties include inspection, construction, maintenance or repair of RTS track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities or roadway maintenance machinery on or near track or with the potential of fouling a track, and other personnel directly involved with their protection.

temporary warning device: A sign, flag, light, disc or target installed when roadway workers are present to alert and direct the actions of train operators of approaching trains and removed when no longer needed.

train: Any motorcar, locomotive or other self-propelled on-rail vehicle, with or without other cars coupled. A regular train is a train authorized by a schedule. An extra train is any train that is not in the schedule.

train controller/dispatcher/supervisor: An employee, usually stationed in a control center, authorized and responsible to direct the operation of trains on the mainline. Some rail transit systems may employ other employees, subordinate to the controller, to facilitate train movements at critical locations.

train operator: The onboard employee who controls the movement of a train.

watchperson/lookout: An employee who has been trained and qualified to provide warning to roadway workers of approaching trains or on-track equipment.

work zone: A section of track where train operations are temporarily restricted due to the presence of one or more roadway workers; may be designated by use of a temporary warning device.

yard: A facility within defined limits that has a system of tracks used for making up trains, storing trains and other purposes. A maintenance facility may be included.

yardmaster: The employee who supervises the movement of trains within a yard.

Abbreviations and acronyms

APTA	American Public Transportation Association
ATO	automatic train operation
NATSA	North American Transit Services Association
OCC	operations control center
OTE	on-track equipment
ROW	right-of-way
RTS	rail transit system
RWP	roadway worker protection

Summary of changes

- a) Document formatted to a new APTA standard
- b) Sections have been renumbered and moved around
- c) Scope and summary moved to the front page
- d) Updated Working Group membership list
- e) Minor changes to spelling, capitalization and grammar
- f) Original body of standard replaced with new chapters headings numbered 1, 2, 3, 4 etc. in this version
- g) Title of document changes by adding 'Practices' at the end

Document history

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