



APTA STANDARDS DEVELOPMENT PROGRAM

STANDARD

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Roadway Worker Protection Program Requirements

Abstract: This *Standard* provides minimum program requirements for roadway worker protection (RWP). Such programs are designed to protect all roadway workers, whether directly employed by the RTS or a contractor, conducting work on or near rail transit system (RTS) rights-of-way. Programs require adherence to clear rules and procedures, appropriate training, certification and retraining, as well as regular monitoring of right-of-way safety compliance. It is designed to incorporate all of these elements and introduce a consistent approach throughout the rail transit industry.

Keywords: flagging, right-of-way, right-of-way safety, roadway worker protection, track safety, work zone, work zone safety, wayside work

Summary: Operating rules are created to promote safe, efficient, timely and customer-oriented transit operations. Adherence to these operating rules is necessary to achieve these objectives. The objective of an RWP program is to create conditions in which workers may perform duties on or near the right-of-way with consistent and strong programs in place to ensure worker safety. A comprehensive RWP program includes rules and procedures for employee actions, formalized supervision and control actions, administration of training programs and effective use of technology by the RTS. This Standard incorporates provisions included in Standard RT-OP-S-010-03 “Standard for Contractor’s Responsibility for Right of Way Safety” and Standard RT-OP-S-004-03 “Standard for Work Zone Safety.”

Scope and purpose: This standard applies to light and heavy rail transit systems. It does not apply to commuter railroads that operate on the general railroad system regulated by the Federal Railroad Administration (FRA). This standard also applies to those light rail systems that operate under a “shared use waiver” issued by the FRA, but only to the extent that the FRA Railroad Workplace Safety – Roadway Worker Protection rules do not apply to the system or particular groups of employees at the system. This standard applies to all roadway workers, as defined in this standard, as well as operating personnel and passenger vehicle maintenance personnel as their duties relate to the provisions of this standard. The purpose of this standard is to eliminate or reduce the number of incidents in which roadway workers are struck and injured or killed by trains or any on-track equipment in the right-of-way. It can best be accomplished through a formal program that demands adherence to safety throughout individual RTSs and the entire rail transit industry.

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 Transit Services Association) and its parent organization 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 RT -OP-S-016-11 Rev 1, “Roadway Worker Protection Program Requirements”

This draft standard, “Roadway Worker Protection Program Requirements,” 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 contained herein is voluntary. In some cases, federal and/or state regulations govern portions of a rail transit system’s 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 more restrictive than those given in this document.

The Operating Practices Committee members developed this standard to formalize safe operating practices as they pertain to work performed on or in close proximity to rail transit rights of way. Rail transit systems are free to develop more restrictive rules than are provided for in this standard. Federal or state laws that are more restrictive than this standard supersede this standard and must be followed.

This standard has been developed to serve as a supplement to the standard “Work Zone Safety” (RT-S-OP-004-03) and provide additional guidance for the development of roadway worker protection programs. It has been designed to not conflict with the standard for work zone safety.

Rail transit systems are to determine the type of roadway protection for non-roadway workers.

Note on alternate practices

Individual RTSs may modify the practices in this standard to accommodate their specific equipment and mode of operation, while preserving the intent of this safety standard. APTA recognizes that some RTSs may have unique operating environments that make strict compliance with every provision of this standard impossible. APTA also recognizes that state or local regulations may govern RWP at an RTS and that these regulations may be more restrictive than these standards. As a result, certain RTSs may need to implement the standards and practices herein in ways that are more restrictive than this document prescribes. An RTS 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 do the following:

- 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).

It must be noted that rail transit is not directly comparable to railroads. 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.

Roadway Worker Protection Program Requirements

1. Rules and procedures

1.1 Introduction

Rail transit systems (RTSs) require periodic, scheduled maintenance of track, switches, signals, traction power and other wayside equipment. In addition to those generally scheduled work activities, unscheduled emergency repairs of system elements and non-rail transit work activities that impinge on the rail transit right-of-way are also common activities associated with an RTS. The protection of employees who perform those work activities is vital and ensured through the establishment of and strict adherence to rules and procedures governing roadway workers, train operators and train dispatchers or control operators.

1.2 Responsibility of the RTS for an on-track safety program

Each RTS shall adopt and implement an on-track safety program that will afford on-track safety to all roadway workers whose duties are performed on that RTS.

Each on-track safety program shall include, at a minimum, the following elements:

- A definition of track fouling distances, considering the working limits and proximity to wayside traction power equipment that may be live, and/or the roadway for the purposes of this standard.
- Procedures designed to put in place practices for working in a manner that minimize danger of roadway workers being struck by moving trains or other on-track equipment. These procedures shall be prescribed by operating and safety rules that govern track occupancy by personnel, trains and on-track equipment. These rules and procedures shall be appropriate for the operating rail transit system, taking into consideration the operating environment, train operating speed, equipment, geographical location, climate conditions, and specific duties of roadway workers.
- A program of training and qualification to ensure competence and demonstrated proficiency in on-track safety procedures.
- A record-keeping system capable of monitoring training and qualification records.
- A process to encourage and allow roadway workers to report near misses, unsafe acts, and/or conditions
- A process for the RTS to address reported near misses, unsafe acts, or conditions.
- Procedures to be used by each RTS for monitoring the effectiveness of and compliance with the program.
- An on-track safety program document that includes all rules and operating procedures governing track occupancy and protection, which is readily available to all roadway workers.
- Procedures to guarantee that roadway workers have the absolute right to challenge in good faith whether the on-track safety procedures comply with the rules of the RTS, and to remain clear of the track until the challenge is resolved. The good-faith challenge process shall include a procedure to achieve a fair and equitable resolution of the challenges made.
- Provisions for multiple work groups within a common work area.

- A process for determining the level of access, training, supervision, and/or escort required for all individuals accessing the roadway.

Each RTS shall maintain on-track safety program documents.

The on-track safety program shall require each roadway worker responsible for the on-track safety of others, and each lone worker, to be provided with a copy of the on-track safety program rules and procedures. A copy of the on-track safety program rules and procedures shall be available at each work location and accessible to all roadway workers for reference.

1.3 Responsibility of operators

An on-track safety program shall contain provisions that operators do the following:

- operate on sight and have their rail vehicle under control at all times.
- be observant for unusual conditions and/or hazards while passing through the work zone.
- continue to obey all rules, regulations, procedures and special operating instructions.
- comply with all written notices that may be posted or issued to them, to monitor radio transmissions, and obey verbal instructions and hand signals regarding work taking place on the right-of-way.
- stop and report any improper or missing hand signals and/or flagging protection.
- properties with automatic train operation (ATO) may require manual operation where roadway workers are present.

1.4 Responsibility of individual roadway workers

An on-track safety program shall contain provisions that do the following:

- Require each roadway worker to be responsible for following the on-track safety rules of the RTS upon which the roadway worker is located.
- Prohibit fouling a track, except when necessary for the performance of duty.
- Require each roadway worker, including OTE operators and pilots, to participate in safety briefing(s) to ascertain that on-track safety is being provided.
- Allow roadway workers to challenge any condition that the roadway worker believes may violate an on-track safety rule and to inform the employer whenever the roadway worker makes a good-faith determination that on-track safety provisions to be applied at the job location do not comply with the rules of the operating RTS.
- Require roadway workers to report unsafe acts or conditions that could result in an accident or incident.

1.5 On-track safety briefings

An on-track safety program shall include procedures for conducting and participating in a safety briefing before beginning work and when work or job conditions change. Before any roadway worker fouls a track, the designated person providing on-track safety for the group shall ensure that a job safety briefing is held, as prescribed by this standard. Additional job safety briefings shall be held anytime the job conditions change during the work period. Such information shall be given to all affected roadway workers before the change is effective. Emergency situations do not relieve the requirement for on-track safety briefings.

The briefing shall include, at a minimum, the following items:

- A discussion of the general work plan.
- Information on the means by which on-track safety is to be provided for each track identified to be fouled.
- Identification and location of key personnel, such as the qualified protection employee (QPE), watchperson/lookout, etc.
- Existing or potential hazards, including ways to eliminate or protect against those hazards.
- Information about any tracks adjacent to the track to be fouled, on-track safety for such tracks, if required, and identification of any roadway maintenance machines that will foul such tracks. In such cases, the on-track safety briefing shall address the nature of the work to be performed and the characteristics of the work location.
- Means of communication to be used at the site.
- Method of train approach warning

All roadway workers involved in the work shall be included in the job safety briefing.

A job briefing for on-track safety shall be deemed complete only after all roadway workers have acknowledged an understanding of the on-track safety procedures and instructions presented.

Each lone worker shall communicate at the beginning of each duty period with a supervisor or another designated employee to receive a job briefing and to advise of his or her planned itinerary and the procedures that he or she intends to use for on-track safety.

1.6 On-track safety rules and procedures

1.6.1 General

The on-track safety program shall require every roadway work group whose duties require fouling a track to have one roadway worker designated by the RTS who is responsible for establishing on-track protection for all members of the group. The designated person (the QPE) shall be qualified under the rules of the RTS to provide the protection necessary for on-track safety of each individual in the group.

The on-track safety program shall provide procedures for lone workers to achieve on-track safety.

1.6.2 Working limits

The on-track safety program shall provide procedures to establish working limits that afford on-track safety to roadway workers. Working limits established under any procedure shall conform to the following provisions:

- Only a roadway worker who is qualified in accordance with the rules of the RTS shall establish or have control over working limits for the purpose of establishing on-track safety.
- Only one roadway worker shall have control over working limits on any one segment of track.
- All affected roadway workers shall be notified before working limits are released for the operation of trains. Working limits shall not be released by the QPE until all affected roadway workers either have left the track or have been afforded alternate means of on-track safety in accordance with the rules of the RTS.

1.6.3 Establishing working limits on controlled tracks using exclusive track occupancy

The on-track safety program shall provide procedures for establishing working limits on controlled tracks through the use of exclusive track occupancy procedures that comply with the following requirements:

1. The track within working limits shall be placed under the control of one roadway worker by:
 - Authority issued to the QPE by the train dispatcher or control operator who controls train or other on-track equipment movements on that track; or
 - Flagpersons stationed at each entrance to the track within working limits and instructed by the QPE to permit the movement of trains and equipment into the working limits only as permitted by the QPE; or
 - The QPE causing fixed signals or train control systems to restrict the movement of vehicles.
2. An authority for exclusive track occupancy given to the QPE in charge of the working limits shall be conveyed in writing or by oral communication to the roadway worker by the train dispatcher or control operator in charge of the track.
 - Where authority for exclusive track occupancy is transmitted orally, the authority shall be repeated back to the issuing employee by the QPE, for verification.
 - The QPE in charge of the working limits shall maintain possession of the written or printed authority for exclusive track occupancy while the authority for the working limits is in effect.
 - The train dispatcher or control operator in charge of the track shall make a written or electronic record of all authorities issued to establish exclusive track occupancy.
3. The territory included in the working limits shall be defined by one of the following clearly identifiable physical features:
 - A flagperson with instructions and capability to hold all trains and equipment clear of the working limits;
 - A fixed signal that displays an aspect indicating “Stop”;
 - A station identified by name with a sign;
 - A clearly identifiable milepost sign; or
 - A clearly identifiable physical location prescribed by the operating rules of the RTS that trains may not pass without proper authority.
4. Movements of trains and roadway maintenance machines within working limits established through exclusive track occupancy shall be made only under the direction of the roadway worker having control over the working limits. The on-track safety program shall specify the speed of such movements.

1.6.4 Establishing working limits on controlled tracks using foul time

The on-track safety program may provide procedures for establishing working limits on controlled tracks through the use of foul time or a similar procedure that complies with the following requirements:

- Permission to foul a designated track section may be given orally or in writing by the train dispatcher or control operator only after that employee has withheld the authority of all trains to move into or within the working limits during the foul time period.
- Each roadway worker to whom such authority is issued shall repeat the track number, track limits and time limits of the foul time to the issuing employee for verification before the foul time becomes effective.

- The train dispatcher or control operator shall not permit the movement of trains or other on-track equipment onto the working limits protected by foul time until the roadway worker who obtained the foul time has reported clear of the track.

1.6.5 Establishing on-track protection on non-controlled tracks

The on-track safety program shall provide procedures for establishing working limits on non-controlled tracks that comply with the following requirements:

- Working limits on non-controlled track shall be established by rendering the track within working limits physically inaccessible to trains and other on-track equipment at each possible point of entry. The RTS shall define the methods by which the track can be made inaccessible.
- Trains and roadway maintenance machines within working limits established by means of inaccessible track shall move only under the direction of the QPE in charge of the working limits, and shall move at a speed specified by the RTS.
- No operable locomotives or other items of on-track equipment, except those moving under the direction of the QPE in charge of the working limits, shall be located within working limits established by means of inaccessible track.

1.6.6 On-track protection outside working limits

An on-track safety program shall include procedures for establishing protection outside the working limits for roadway workers in a work group who foul any track:

- Warning shall be given by the watchperson in sufficient time to enable each roadway worker to move to and occupy a previously arranged place of safety before a train or other on-track equipment moving at the maximum speed authorized on that track can pass the location of the roadway worker. The RTS shall calculate the distance and time requirements for roadway workers to safely clear to a place of safety with trains or other OTE moving at maximum authorized speed, but no less than 15 seconds.
- Watchpersons/lookouts assigned to provide train-approach warnings shall devote full attention to detecting the approach of trains and communicating a warning, and shall not be assigned any other duties while functioning as watchpersons/lookouts.
- The means used to warn of the approach of a train or on-track equipment shall be distinctive and shall clearly signify to all recipients the warning that a train or other on-track equipment is approaching. Such protection must be detectable by the warned roadway worker regardless of noise or distraction of work.
- Every roadway worker who depends upon such protection for on-track safety shall maintain a position that will enable him or her to receive a train or other on-track equipment approach warning communicated by a watchperson/lookout at any time while on-track safety is provided by train or other on-track equipment approach warning.
- A warned roadway worker shall clear to a place of safety and acknowledge oncoming train(s) or other on-track equipment, using RTS-established methods of acknowledgment.
- Every roadway worker who is assigned the duties of a watchperson/lookout shall first be trained, qualified and designated by the employer to do so.
- Every watchperson/lookout shall have in his or her possession the equipment necessary for compliance with the on-track safety duties that the watchperson/lookout will perform.

- If such protection is provided by technological means, all roadway workers in the work group shall be trained on the operation of such devices and acknowledge familiarity with those procedures.
- An adjacent track without adequate protection cannot be considered a place of safety.

1.6.7 On-track safety procedures for lone workers

An on-track safety program shall include procedures for establishing protection for lone workers in accordance with the following provisions:

- A lone worker who fouls a track while performing routine inspection or minor correction may use individual train detection (ITD), to establish on-track safety only where permitted by this section and the on-track safety program of the RTS.
- A lone worker shall be allowed to use on-track safety procedures other than ITD, if permission to do so is contained in RTS procedures.
- ITD may be used to establish on-track safety only under conditions to be defined by the RTS. The RTS shall prohibit ITD when the ability of the lone worker to hear and see approaching trains and other on-track equipment is impaired. Under those conditions, another form of protection shall be used; however, these procedures must be explicitly outlined in writing and the appropriate level of training provided to maximize the safety of all involved. Background noise, lights, visibility, passing trains or any other physical conditions should be considered.
- The place of safety to be occupied by a lone worker upon the approach of a train or other on-track equipment may not be on a track, unless working limits are established on that track.
- A lone worker using ITD for on-track safety while fouling a track may not occupy a position or engage in any activity that would interfere with that worker's ability to maintain a vigilant lookout for, and detect the approach of, a train or other on-track equipment moving in either direction as prescribed in this section.

1.6.8 Other roadway protection considerations

Protective measures are required for train or other on-track equipment operation for trains approaching and passing roadway workers engaged in maintenance or inspection activities outside working limits.

The individual RTS shall determine if additional roadway worker protective measures are required for train or other OTE operation within single-track line sections, when trains or other OTE are operating against the normal direction of movement, or for trains approaching and passing roadway workers engaged in maintenance or inspection activities outside working limits but near active track. If the individual RTS determines that additional protective measures are required, then the specific measures shall be included in its on-track safety program.

For specific requirements concerning on-track equipment safety, refer to APTA RT-S-OP-21-15, Standard for On-Track Equipment Safety Requirements.

The RTS shall determine if additional protective measures are required, and if so, the RTS shall include the specific measures in its on-track safety program.

The RTS shall develop and implement roadway worker protective measures when operating a driverless system.

The RTS shall determine if unique protections or measures are required for the different types of street operation, and the RTS shall develop and implement protective measures specific to these different conditions.

1.7 Audible warning from trains and on-track equipment and hand signals from roadway workers

Rules/procedures for audible warnings and hand signals, as defined by the RTS, shall be developed to enable communication and provide protection between train or OTE operators and roadway workers.

The on-track safety program shall require an audible warning from approaching trains and on-track equipment. Such warning shall not substitute for other on-track safety procedures prescribed in this standard.

Roadway worker or flagperson shall acknowledge the audible warning using RTS-established methods of acknowledgment. Hand signals for stop, proceed or reduce speed can be used by the flagperson to acknowledge the audible warning.

The on-track safety program shall define the actions of the train or other on-track equipment operator, should the audible warning not be acknowledged.

1.8 On-track equipment (OTE)

An on-track safety program shall include provisions for the safety of roadway workers who operate or work near OTE. Those provisions shall address the following:

- Training and qualification of operators of roadway maintenance equipment/machines.
- Establishment and issuance of safety procedures both for general application and for specific types of equipment/machines.
- Communication between machine operators and roadway workers assigned to work near or on roadway maintenance equipment/machines.
- Spacing between machines to prevent collisions.
- Space between machines and roadway workers to prevent personal injury.
- Maximum working and travel speeds for equipment/machines dependent upon weather, visibility and stopping capabilities.
- The safe operation of such equipment/machines where trains or other on-track equipment/machinery is passing on adjacent tracks.

APTA is in the process of developing a Standard for On-Track Equipment Safety Requirements (APTA RT-OP-S-021-14) which contains detailed requirements and provisions for the design and safe use of OTE. It is expected to be approved and published in late 2014 or early 2015.

2. Supervision and control

2.1 Introduction

This section addresses the duties of the RTS to establish roadway access/allocation and control measures, work zone protection and verification processes and standard communication protocols.

Prior to authorizing entry into the roadway or for wayside work activities to commence, the RTS shall have procedures to ensure that all appropriate safeguards have been established in accordance with existing rules and procedures and the established work plan.

The RTS shall establish adequate internal procedures and control mechanisms to ensure safety during maintenance, construction, testing, inspection and repair activities that have the potential of fouling a track.

2.2 Establishment and notification of roadway allocation

The RTS shall establish procedures for track allocation that provide a level of protection required by Section 1 of this standard. These procedures shall include a process for notification of all affected parties. These procedures shall address, at a minimum, planned work on the roadway or adjacent to the roadway. See related APTA standard, APTA-RT-S-OP-020-13 Standard for Rail Transit System Track Allocation Program Requirements.

2.3 Supervision and control responsibilities

2.3.1 Roadway access and control measures

The RTS shall establish internal procedures and control mechanisms that address the following elements:

- Planned work on the roadway or adjacent to the roadway.
- Unplanned or emergency work.
- Mobile inspections.
- Lockout/tagout procedures/practices for work performed on any segment of automated/driverless systems to prevent movement of such vehicles into a fouled area of the right-of-way.

2.3.2 Authorization and tracking processes for right-of-way access

The RTS shall adopt and implement a formal process for authorizing entry into the rail right-of-way, including controlled and non-controlled tracks.

The RTS shall maintain the status of active/occupied track access.

2.4 Communications

The RTS shall develop and implement standard communications protocols governing the establishment, protection and management of roadway worker activities.

2.4.1 Methods of notification

The RTS shall determine the method of notifying other parties of roadway worker activities that affect their duties. Methods of notification necessary to enhance safety could include:

- Paper forms;
- Radio transmissions; and
- Physical field devices (signs or other devices).

2.4.2 Authorization/notification communication requirements

The RTS shall establish requirements for the QPE to obtain authorization from the train dispatcher or control center personnel who controls train or other on-track equipment movements on that track prior to entering the roadway.

The train dispatcher or control operator shall inform the roadway worker of any hazards or other conditions that could affect the track access.

The RTS shall establish requirements for the QPE to notify the train dispatcher or control center personnel who controls train or other on-track equipment movements on that track after all work crews have reported clear of the roadway.

2.5 Rules compliance program

The RTS shall implement a compliance program for the oversight of on-track protection in accordance with APTA RT-S-OP-011-04.

2.6 Record-keeping

The RTS shall establish a program for keeping appropriate safety records of workers on the roadway and their compliance with the roadway worker protection program. The RTS shall determine and document the record retention timeline. At a minimum, records shall be composed of the following:

- Roadway worker (including contractors) training and certification;
- Rules compliance;
- Track allocation records;
- Traction power energization/de-energization records, if applicable; and
- Operations Control Center Logs, if applicable.

3. Training

3.1 Training program

The RTS shall implement a roadway worker protection training program. This program shall include initial and requalification training. As part of this training program, the RTS shall, at a minimum do the following:

- Identify the dangers on the roadway, including moving trains, the traction power system and known hazardous conditions.
- Identify the tasks roadway workers are required to perform in order to successfully perform their duties.
- Identify the skills and knowledge necessary to perform each of the tasks identified.
- Establish standards for the successful completion of initial and requalification training.
- Establish proficiency requirements for RWP qualification.
- Designate qualifications of training staff.
- Require all roadway workers to successfully complete all required training.
- Periodically review all training initiatives.
- Require first-line supervisors and other supervisors as defined by the RTS to complete the program that covers the employees whom they supervise.
- Train supervisors to exercise oversight to ensure that all the identified tasks are performed in accordance with the railroad's written procedures (this can be done as part of general supervisory training).
- Include in training programs for train operators and control personnel the RWP rules and procedures particular to their duties.
- Keep track of lessons learned from past experiences of the RTS and the industry.

3.2 Training course requirements/elements

Each RTS shall adopt a training curriculum designed to impart the skills and knowledge identified as necessary to safely implement the awareness/tasks required by the RTS's written roadway worker protection policies and procedures.

3.2.1 Training course minimum requirements

Minimum requirements of the training course should include the following, where applicable:

- Various methods used by the RTS to establish on-track protection;
- Responsibilities of each roadway worker relative to each method of establishing on-track protection used by the RTS;
- Personal protective equipment;
- Prohibitions;
- General personal precautions while working on the right-of-way;
- Communications between train operators, other employees on-site and the OCC;
- Characteristics of the right-of-way;
- Interfacing with train or other on-track equipment movements;
- Highway vehicle traffic considerations;
- Removal/restoration of traction power;
- Policies, procedures and rules unique to the specific RTS;
- Responsibilities for lookout/flagperson/protection of work crews;
- Hand signals for trains;
- Hazards; and
- Lessons learned.

3.2.2 Requalification/return-to-work training

The RTS shall establish a standard for when requalification will take place, with the recommended interval not to exceed at least once every calendar year.

The RTS shall have a standard for when training is required upon return to work from a prolonged absence. The prolonged period of absence requiring retraining shall not exceed one year.

3.2.3 Record-keeping

The RTS shall maintain records of all roadway workers trained and qualified to perform roadway worker duties. Such records shall be made available upon request of the proper authority.

4. Technology

RTSs should encourage the development and implementation of new technologies to further enhance roadway worker protection programs.

The RTS shall consider one or more of the technologies available as a backup or overlay to improve their roadway worker protection programs. However, APTA makes this recommendation with three very strong caveats:

- Use the technology in addition to—not in place of—the established roadway worker protection rules and procedures until such technology is proved to be superior to existing practices.
- Do not employ the technology in a way that would put workers at risk in the event of a failure of the technology.
- Conduct a hazard analysis and thoroughly test and evaluate the performance of the technology in the specific physical and operating environments of the RTS.

5. Related APTA Standards

The Standard for Roadway Worker Protection Program Requirements contains information that is directly related to other APTA Standards. The following Standard(s) contain information directly related to subjects within this Standard.

- APTA RT-S-OP-004-03 Rev 1 Standard for Work Zone Safety
- APTA RT-S-OP-010-04 Rev 1 Standard for Contractor’s Responsibility for Right of Way Safety
- APTA RT-S-OP-011-04 Standard for Rule Compliance
- APTA-RT-S-OP-020-13 Standard for Rail Transit System Track Allocation Program Requirements
- APTA-RT-S-OP-021-14 Standard for On-Track Equipment Safety Requirements

6. References

None

7. Definitions

control center: The facility where rail operations such as train control, train dispatching, train supervision and related field activities are directed for the entire rail transit system or for specific segments of a system if there is more than one such facility.

contract operator: A contractor who operates and/or maintains the RTS.

controlled track: Track upon which the RTS’s operating rules require that all movement of trains must be authorized by a train dispatcher or a control operator.

employee: Anyone the RTS employs either directly or by operating contract.

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

exclusive track occupancy: A method of establishing working limits on controlled track in which movement authority of trains and other equipment is withheld by the train dispatcher or control operator, or is restricted by flagpersons.

flagperson: When used in relation to roadway worker safety, flagperson 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.

foul time: One method of establishing working limits on controlled track in which a roadway worker is notified by the train dispatcher or control operator that no trains will operate within a specific segment of controlled track until the roadway worker reports clear of the track.

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.

inaccessible track: A method of establishing working limits on non-controlled track by physically preventing entry and movement of trains and equipment.

individual train detection (ITD): A procedure by which a lone worker acquires on-track safety by seeing approaching trains or on-track equipment and leaving the track before its arrival.

lone worker: An individual roadway worker who is not being afforded on-track safety by another roadway worker, who is not a member of a roadway work group, and who is not engaged in a common task with another roadway worker.

non-controlled track: Track upon which trains are permitted by RTS rule or special instruction to move without being under an automatic train control system or receiving authorization from a train dispatcher or control operator.

non-roadway worker: An employee of an RTS or a contractor or consultant to an RTS who is not involved in the maintenance, construction, repair or inspection of an RTS rail facility but whose duties require fouling a track.

on-track equipment (OTE): A rail mounted vehicle or equipment that is not used in revenue service but is used to inspect, maintain, and repair the rail system.

on-track safety: The practice of working in a manner that will minimize the danger of being struck by a moving RTS train or other on-track equipment, provided by operating and safety rules that govern track occupancy by personnel, trains and on-track equipment.

place of safety: A location or condition that protects a worker from a train or other on-track equipment.

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.

qualified protection employee (QPE): An individual trained and qualified on on-track safety and operating rules and assigned the responsibility of providing on-track protection. An RTS may use another term for the person in this position.

rail transit system: 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.

roadway: Owned property of the RTS within the controlled area, as defined by the RTS, often referred to as “right-of-way.”

roadway work group: Two or more roadway workers organized to work together on a common task.

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 such as flagmen and watchmen/lookouts.

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

train approach warning: A method of establishing on-track safety by warning roadway workers of approaching trains or on-track equipment.

train operator: An authorized 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.

working limits: A segment of track with definite boundaries upon which trains and/or on-track equipment may move only as authorized by the roadway worker having control over that defined segment of track.

Abbreviations and acronyms

FRA	Federal Railroad Administration
ITD	individual train detection
NATSA	North American Transit Services Association
OTE	on-track equipment
QPE	qualified protection employee
RWP	roadway worker protection
RTS	rail transit system
SSPP	System Safety Program Plan

Summary of changes

- Revised copyright information on footer on first page with the term NATSA added
- Fourth paragraph in the Introduction Section deleted as not relevant
- Working group leadership and members changes updated
- Page numbers updated in the table of contents
- Section 1.2 – the words *considering the working limits and proximity to wayside traction power equipment that may be live* were added
- Section 1.2 - additional new bullet number 5 were added
- Section 1.3 3rd bullet – the word *continue* were added
- Section 1.3 4th bullet – the words *comply with* and *and hand signals* were added
- Section 1.4 3th bullet – the words *including OTE operators and pilots* were added
- Section 1.4 4th bullet – the words *allow* and *condition that the roadway worker believes may were* added
- Section 1.4 – the following text added as a lead into the section *The RTS should encourage the development and implementation of new technologies to further enhance roadway worker protection programs*
- Section 1.6.6.1st bullet – the words *by the watch person* and *The RTS shall calculate the distance and time requirements for roadway workers to safely clear to a place of safety with trains or other OTE moving at maximum authorized speed, but not less than 15 seconds* were added
- Section 1.6.8 2nd paragraph – new paragraph added *The individual RTS shall determine if additional roadway worker protective measures are required for train or other OTE operation within single-track line sections, when trains or other OTE are operating against the normal direction of movement, or for trains approaching and passing roadway workers engaged in maintenance or inspection*

activities outside working limits but near active track. If the individual RTS determines that additional protective measures are required, then the specific measures shall be included in its on-track safety program were added

- Section 1.6.8 5th paragraph – new paragraph added *The RTS shall develop and implement roadway worker protective measures when operating a driverless system*
- Section 1.6.8 6th paragraph – new paragraph added *The RTS shall determine if unique protections or measures are required for the different types of street operation, and the RTS shall develop and implement protective measures specific to these different conditions.*
- Section 1.8 – *Equipment (OTE)* added to the section heading *APTA-RT-S-OP-021-14 Standard for On-Track Equipment Safety Requirements*
- Section 1.8 – New note added at the end of the section *APTA is in the process of developing a Standard for On-Track Equipment Safety Requirements (APTA RT-OP-S-021-14) which contains detailed requirements and provisions for the design and safe use of OTE. It is expected to be approved and published in late 2014 or early 2015.*
- Section 4 – new 1st paragraph added *The RTS should encourage the development and implementation of new technologies to further enhance roadway worker protection programs*
- Section 5 – an additional standard added as the 5th bullet
- Section 7 – new definition added for *control center: The facility where rail operations such as train control, train dispatching, train supervision and related field activities are directed for the entire rail transit system or for specific segments of a system if there if more than one such facility*

Document history

Document Version	Working Group Vote	Public Comment/ Technical Oversight	Rail CEO Approval	Rail Policy & Planning Approval	Publish Date
First published	April 2010	2 nd Qtr. 2011	2 nd Qtr. 2011	October 2011	November 2011
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