10. Standard for Contractor’s Responsibility for Right of Way Safety

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Abstract: This standard identifies the Contractor's responsibilities for knowing, complying with, and enforcing the Rail Transit System (RTS) guidelines, rules and procedures and should govern the activities of Contractors performing inspection, investigation, design, construction and/or any other work on or near the RTS.

Keywords: contractor, right of way safety
Introduction

(This introduction is not part of APTA RT-OP-S-010-03, Standard for Contractor’s Responsibility for Right of Way Safety)

This Standard for Contractor’s Responsibility for Right of Way Safety 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 either more or less restrictive than those given in this document.
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Standard for Contractor’s Responsibility for Right of Way Safety

1. Overview

1.1 Scope

Rail Transit Systems (RTS) contain billions of dollars in fixed assets, including structures and buildings, track, traction power distribution, signal and communications systems, etc. The RTS is a unique environment, which uses very specialized safety rules and procedures to protect employees and passengers from moving trains, electrified third rail or overhead wire, and various other dangers.

Often, the RTS hires Contractors to replace and modernize fixed assets on the Rail Transit System (RTS) right-of-way. Since these Contractors are not usually familiar with this environment, the following Standards have been developed to inform Contractors about the RTS, to give them a basic understanding of the dangers that exist in and around the RTS right-of-way and the requirements they are to adhere to in order to avoid safety problems.

In providing quality mass transportation services, the RTS's top priority is to maintain the highest standard of safety for passengers, employees, contractors and the general public. The RTS makes every practical effort to prevent injuries and operate vehicles safely. To achieve this goal, a comprehensive safety system of operating rules and procedures must be in place to govern all activities on the RTS.

This standard for contract construction on or near the RTS governs any type of construction, engineering or maintenance work performed by Contractors at any location on, over, under, adjacent to, or in the vicinity of the RTS right-of-way.

This standard also apply to RTS yards, passenger stations, tracks, substations and any other facilities (structures, maintenance shops, etc.), where Contractors are performing any type of work close to moving rail vehicles or to the traction power distribution system.

This standard identify the Contractor's responsibilities for knowing, complying with, and enforcing the RTS guidelines, rules and procedures and should govern the activities of Contractors performing inspection, investigation, design, construction and/or any other work on or near the RTS.

This standard addresses contractors as defined. The RTS should develop procedures for all individuals attempting to gain access to the right of way. The RTS should refer to the Standard for Work Zone Safety for further information.

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1.2 Purpose

If Contractors know and follow this standard they can perform their work with reasonable efficiency while protecting their own safety and the safety of the RTS passengers, employees, property and the public, while avoiding unnecessary delays to RTS service.

It is the intent of this standard to give Contractors a basic understanding of the special conditions that exist in and around the RTS right-of-way and to identify the safety rules, procedures and other precautions which they (and their employees, sub-contractors, etc.) should follow while working in that environment.

This standard should be part of a unified RTS safety program and supplements the Special Conditions Section of any Engineering, Maintenance or Construction Contract. This standard is not intended to amend or supersede any applicable safety standards, design criteria or codes (Municipal Building Codes, NFPA, etc.), Federal regulations (OSHA, EPA, FRA), State Oversight Requirements or RTS Standard Operating Procedures.

1.3 Application

The Contractor is responsible for overall Project safety. This standard shall be applied whenever Contractors perform any work on or near the RTS in order to assist in protecting themselves, their employees, and sub-contractors, RTS passengers, employees and the public.

It is the responsibility of every individual entering or working in close proximity to the RTS follow all safety rules and procedures contained in This standard, use caution and apply all safe work practices.

1.4 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 (RTS) may develop alternates to the 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:

a) Identify the specific APTA rail transit safety standard requirements that cannot be met

b) State why each of these requirements cannot be met

c) Describe the alternate methods used

d) 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).
2. References

No reference used to develop this standard.

3. Definitions, abbreviations, and acronyms

3.1 Definitions

3.1.1 audible signals - A signal, the indication of which is conveyed by a horn, bell or whistle.

3.1.2 control center/central control/operations control center – That facility where train control, train dispatching, and/or train supervision is accomplished for the entire RTS or for specific segments of a system if there is more than one Control Center; the train command center.

3.1.3 contractor or consultant - the individuals, partnership, firm, corporation, joint venture, or other entity identified in the Contract, including their own personnel and the personnel of any subcontractors.

3.1.4 construction inspector - the person designated by the RTS to be in charge of all or any part of the project site.

3.1.5 flagperson - Personnel assigned to control movement of train by the display of hand signals, flags or lights. May also be assigned to protect workers who are engaged in activities on or near the right-of-way.

3.1.6 hand signal – A signal – the indication of which is 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 hand held light should be used to convey hand signals in tunnels or during hours of darkness.

3.1.7 lock out/tag out – The use of warning tags and/or lockout devices on an energy source control when machinery or equipment is being repaired. The person who places the tag/lock is the only person who may remove it.

3.1.8 project manager - the person, usually employed by the RTS, designated to be in overall charge of the project.

3.1.9 right-of-way (ROW) work - work performed at track level or above track level within a distance designated by the RTS of the centerline of the closest tracks.

3.1.10 safety inspector - the person designated by the RTS to provide safety management services to the construction site of the project.

3.1.11 temporary warning device – Signs, flags, lights, discs or targets installed when wayside workers are present to alert and direct the actions of train operators of approaching trains and removed when no longer needed.

3.1.12 train – Any motorcar, locomotive or other self-propelled on-rail vehicle, with or without other cars coupled.
3.1.13 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 RTS’s may employ other employees, subordinate to the Controller, to facilitate train movements at critical locations.

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

3.1.15 wayside worker – Any employee or outside contractor who performs work upon the right of way within a specified distance of the tracks. At some properties, these personnel may be referred to as roadway workers. Flagpersons are considered wayside workers.

3.1.16 work zone – A section of track where trains operations are temporarily restricted due to the presence of one or more wayside workers and that may be designated by the use of a temporary warning device.

3.2 Abbreviations

CSR Contractor Safety Representative
EPA Environmental Protection Agency
FTA Federal Transit Administration
FRA Federal Railroad Administration
GFCI Ground Fault Circuit Interrupter
NFPA National Fire Protection Association
OSHA Occupational Safety and Health Administration
ROW Right of Way
RTS Rail Transit System
SWP/APP Safety Work Program/Accident Prevention Program

4. General requirements

Each Rail Transit System shall provide rules, regulations and procedures for the conduct of Contractors while performing their contract work on the transit system. These rules, regulations and procedures shall be appropriate for the specific rail transit system. Each Contractor shall be provided copies of these rules, regulations and procedures, and must know, understand, and comply with them.

Each individual on or near the right of way shall attend appropriate safety training, with documented completion of the training.

Contractors shall submit a comprehensive SWP/APP to the RTS for their review and acceptance.

Safety shall be the highest priority in the execution of work by the Contractor.

Informative Annex A gives recommendations for contractual language that rail transit systems can use or adapt to help ensure that the contractor complies with the general requirements given in this Section. Use of the language contained in Annex is optional for rail transit systems.
5. Safety issues

It is the responsibility of contractors to make sure that all the Contractor personnel are knowledgeable of their responsibility for safety. This includes the safety of RTS and contractor personnel and the safe operations of RTS and contractor’s equipment while personnel are working on or near the right of way. All personnel shall be required to report any dangerous, hazardous or defective conditions or incidents which may compromise the safety of operations.

Contractors and their employees are responsible for adhering to all Federal, State and Local laws, statutes, and regulations, as well as applicable RTS requirements.

Contractors shall maintain and provide to the RTS a current list of all Contractor personnel who are working on the Project and are authorized for system access. This list shall include expiration dates of documents which grant access to the right of way.

Contractor employees shall successfully complete the required safety training and shall maintain in their possession at all times while on the right of way current proof of certification.

All contractors and their employees shall present valid documentation and identification to any RTS employee upon demand and display such information in a fashion required by the RTS.

Safety meetings required by the RTS shall be attended by the contractor.

Informative Annex A gives recommendations for contractual language that rail transit systems can use or adapt to help ensure that the contractor complies with the safety requirements given in this Section. Use of the language contained in Annex is optional for rail transit systems.
Annex A (Informative) Examples of Contractor Best Practices

This Annex contains examples of contractor best practices, including sample language, for contracts. It is a recommended practice, and use of the word “shall” is merely for informative purposes as sample language.

A.1 Contractor training and other prerequisites

A.1.1 Contractor safety work program

The Contractor is responsible for providing or ensuring all safety training for Contractor personnel working on the Project as required by RTS or Federal, State and local laws, statutes and regulations and as specified in the applicable contract requirements.

The Contractor may be required to submit to the Project Manager the Contractor's SWP/APP for review and approval. The SWP shall comply with all applicable FTA, OSHA, City, State, or other regulatory agencies requirements.

The SWP/APP should govern all Contractor and subcontractor personnel activity and may address the Project safety issues including but not limited to the following:

- Management commitment and leadership
- Assignment of responsibilities
- Identification and control of hazards
- Hazard analysis (not always a requirement)
- Training and education
- Communications
- Record keeping
- First Aid and medical assistance
- Description of Project
- Emergency Telephone Numbers
- Safety Meetings
- Orientation of New Employees
- Accident Reporting and Investigation
- Site Security
The Contractor's SWP/APP shall specify the name of the Contractor Safety Representative (CSR) assigned to that project and who is responsible for the safe performance of all work, including that performed by sub-contractors.

The CSR shall monitor Contractor’s/Subcontractor’s SWP/APPs, make area inspections, conduct toolbox safety meetings, attend construction staging meetings, investigate all accidents and injuries and prepare all accidents or injury reports required by RTS, Federal, State or local authorities.

The Safety Inspector should be a full-time position with no other responsibilities. The qualifications for the Safety Inspector should include at least the successful completion of the OSHA Construction Safety training, the appropriate RTS Rail Safety Training course and First Aid Training.

A.1.2 Rail safety training

All Contractor personnel assigned to work on, over, under or near the RTS right-of-way and inside Rail Maintenance facilities adjacent to the traction power distribution system, are required to successfully complete a Rail Safety Training or Orientation Course administered by RTS. The Course identifies the dangers that exist on the RTS, including moving trains and the traction power distribution system, and instructs the students on how to protect themselves while working.

Upon successful completion of RTS Rail Safety Training or Orientation, each trainee will be issued a non-transferable Rail Right-of-Way Safety Card or Sticker, preferably with the trainee's photo and signature or other suitable device to indicate the successful completion of this course. The Rail Right-of-Way Safety Card or Sticker is valid for a period determined by the RTS. The validity of the Card or Sticker is in no way related to the length of the Construction Contract.

Contractor personnel must renew their Rail Right-of-Way Safety Card or Sticker after a period of time determined by the RTS, by successfully completing Rail Safety Training again. Contractor personnel who fail to maintain a valid Rail Right-of-Way Safety Card or Sticker shall not be permitted to work on or near the RTS right-of-way.

Contractor/Subcontractor personnel must always carry their Rail Right-of-Way Safety Card or Sticker while on the RTS right-of-way and be prepared to present them for inspection by RTS Safety Inspector/Construction Inspector /RTS Rail Operations Management when entering the RTS right-of-way or anytime upon request while on the right-of-way. The Contractor is subject to unannounced audits by an RTS Safety Inspector or Project Manager of these requirements at the work site and/or on the right-of-way.

A.1.3 Coordination of construction activity

After the Construction Schedule is approved, the Contractor shall provide the Project Manager with the names and telephone numbers of the designated Contractor individual in charge of the specific work site(s) and of the designated Contractor Safety Representative. The Project Manager in turn will disseminate the information to appropriate RTS Operating and Maintenance Department personnel.
No contractor can enter the right-of-way or perform any work affecting the rail transit operations without permission from RTS Rail Operations Management.

The RTS must specify the test and verification requirements necessary to return the right-of-way or facilities to full operational readiness. The RTS may require the operation of a test train to tryout any new or altered traction power or track work before running the first passenger service train. Additional time shall be allowed by the Contractor for any possible remedial work required before the system can be made fully functional.

**A.2 Work rules and procedures on the right-of-way**

The following Work Rules and Procedures on the RTS Right-of-Way shall be developed to provide adequate time and working conditions for Contractors to perform construction and other work on the RTS in a safe and efficient manner.

**A.2.1 Communication requirements**

The designated Contractor's representative in charge of each specific work site(s) shall be enabled for direct communications with the RTS Control Center, RTS Safety Inspector and/or City Emergency 911 on a continuous 7-day, 24-hour-a-day basis. Some rail transit systems may require that an RTS employee provide direct communications with the Control Center.

Unless exempted by the RTS, the Contractor's personnel entering any work site on the RTS right-of-way, shall be accompanied by a RTS employee (Flagperson, Supervisor, or Inspector). The RTS employee or contractor will notify the Control Center, providing all required information. Unless exempted by the RTS, the Controller shall broadcast this information to the Train Operators on that specific line, based on the specific policy of the RTS.

After the contractor's personnel clear the RTS, the RTS employee shall notify the Control Center and report that all contractor personnel are out of the right-of-way, and report the status of the rail tracks at the work site.

Whenever the Flagperson, Safety or Construction Inspector or RTS Rail Operations management notifies the Contractor of any deficiencies or unsafe conditions at the work site, the Contractor's representative shall take immediate corrective action.

The designated Contractor's representative or the RTS’s designated representative as specified by RTS policy, shall promptly notify the Control Center of any hazards, safety deficiencies, emergencies, or other needs for assistance (e.g., medical) at the work site(s).

**A.2.2 Entering the right-of-way**

No one is permitted to enter or work on the RTS right-of-way without first notifying and receiving approval from the RTS Control Center.

Unless exempted by the RTS, no Contractor personnel shall enter the RTS right-of-way without being accompanied by a RTS employee (Flagperson, Supervisor, or Inspector).
A.2.3 Slow zones

A Slow Zone is a section of track that may be marked with warning signs and/or lights, through which trains operate at reduced speed. A Slow Zone is set up when required by the condition of the right-of-way, or to protect workers and their equipment in the work area from passing trains.

The RTS Rail Operations Management and the Project Manager will approve the number, length, and schedule for Slow Zones on each route.

The contractor may be required to provide slow zone equipment; otherwise the RTS will furnish complete sets of Slow Zone equipment for each work location in quantities defined in the Contract Specification.

Unless exempted by the RTS, the Contractor, under the supervision of the RTS Inspector, may be responsible for installing and removing all Slow Zone warning signs and lights daily or as required throughout the project.

The RTS may require the Contractor to be responsible for maintaining the Slow Zone warning lights and signs, including the purchase and replacement of batteries. The Contractor may be required to return all issued Slow Zone warning signs and lights to RTS in good conditions at the completion of the Project.

Slow Zone operations and the placement of warning signs and lights shall conform to RTS Standard Operating Procedures.

Safety is the responsibility of all persons involved in the work zone.

A.2.4 Flagperson Protection

When a Contractor is working on, over or in close proximity to an operational RTS right-of-way, a Slow Zone with Flagperson protection may be required to facilitate safe and continuous train operations. The Flagperson is dispatched to protect Contractor personnel, RTS employees, passengers, the public, and property near the work site in accordance with RTS Standard Operating Procedures.

The RTS shall specify the notification period before the date and time the work will be performed and the flagging personnel are required. Contractor work plans may be required to conform to time constraints, and evening and nighttime work periods, to minimize impact on rail operations and/or maintenance activities.

When the construction work being performed requires flagperson protection, the contract should define if the RTS or contractor is responsible for providing the required flagperson protection. The flagperson must bring all equipment required by the RTS (such as a safety vest, an operable horn or whistle, a signal flag, a RTS communications radio, etc.) to the work site. In low visibility areas, in tunnels and during night operations, the flagperson shall also bring lamps and/or a flashlight, as required by the RTS, to the work site.
The contractor and the flagperson shall conduct a joint site briefing for all workers at the site before the commencement of work, to ensure that the contractor and flagperson know and thoroughly understand any signals that the contractor or flagperson will use (e.g., to indicate that the right-of-way is clear for train traffic). The site briefing should be renewed each time the conditions of the work change.

Upon arrival of a train, the flagperson shall notify the Contractor to promptly interrupt construction activities, secure the area for train movement, and clear all personnel, tools and material away from the track to allow safe passage.

A.3 Examples of general safety requirements

A.3.1 Personal protective equipment and apparel

Contractor personnel shall wear the required RTS approved high visibility clothing at all times while on the RTS right-of-way.

Contractor personnel shall wear Class B (non-conductive) ANSI and OSHA approved hard hats during all work activities, on, over, under or near the RTS right-of-way.

Contractor personnel shall wear long pants (without cuffs) and, at a minimum, a short sleeve shirt.

Contractor personnel shall wear suitable work shoes with nonslip soles. Permanent metal plates or cleats on the sole or heel of shoes are prohibited. Shoelaces are to be kept short so they do not pose a tripping hazard. Athletic shoes, sandals, open-toed shoes, moccasins and/or shoes with heels higher than 1” are not permitted.

Contractor personnel shall wear eye protection for all structural and specialized work activities as indicated in the Contractor's Safety Work Program (SWP) and any other protective equipment in accordance with the applicable OSHA regulations. If the wearing of contact lenses is permitted by the RTS, ANSI Z87.1 eye protection is required at all times.

Contractor personnel shall have working lamps or a flashlight after dark or when working in a tunnel.

Contractor personnel shall not enter the right-of-way with ties (except quick release safety ties) or loose clothing that have the ability to be caught on moving track equipment.

A.3.2 Ongoing safety indoctrination

Contractor is required to provide Contractor personnel with a project safety orientation and training, which addresses general, and project-specific safety issues. The RTS Alcohol/Drug Rule shall be included in this safety orientation if appropriate.
The Contractor shall periodically re-instruct contractor employees working within the RTS right-of-way about the danger presented by working near energized facilities, safe clearance from passing or standing trains, etc., and all reasonable precautions to protect the personnel in this environment.

The Contractor Safety Representative (CSR) shall conduct, and the RTS Safety Inspector shall be invited to attend a weekly safety meeting with all employees assigned to a work site. The CSR shall review the safety issues for the work scheduled for the following week and emphasize the importance of safety awareness, and the reporting of accidents, injuries, near misses, and unsafe conditions.

Contractor personnel shall report to work physically and mentally prepared to follow all RTS safety rules and other requirements of applicable Federal, State and Local safety laws, statutes and regulations.

Contractor personnel entering and working on the RTS right-of-way shall comply with RTS Substance Abuse-Free Environment Program. The use or possession of liquor or narcotics of any kind on RTS property by contractor personnel while on duty or reporting for duty under the influence of same is strictly forbidden. This also applies to prescription or over the counter medications that affect a person’s ability to function safely.

A.3.3 Safety on RTS tracks

Unless required by the nature of the work to be done, contractor personnel should never come in contact with the traction power system. All safety precautions shall be used.

Contractor personnel entering the RTS right-of-way shall consider all traction power and electrical feeder cables to be energized unless removal of power and proper grounding has been confirmed and verified with test equipment. The RTS may require that a lock/tag procedure be preformed and that the Contractor is within sight of a grounding mechanism. The Inspector shall designate RTS personnel (Electrician) for this purpose and shall ensure that such personnel are known to the Contractor. In the absence of such verification, the Contractor shall be required to comply with all applicable local, state, federal, or RTS regulations. The Contractor shall caution all employees about the presence of the electrical potential of certain portions of the railcar undercarriage and on both sides or the roof of each train on the current collectors. The Contractor shall take all necessary precautions to prevent any contact of personnel body parts or tools with the electrical system of an operating train.

Whenever the disconnection of third rail or other energized facilities in the work area will not interfere with train operation (local isolation switches) and the disconnecting is approved by RTS, the Contractor shall be responsible for arranging with the RTS to set up such isolation before the commencement of work.

If disconnection of traction power is not feasible, to protect Contractor personnel working in close proximity to energized facilities, RTS approved insulating covers or hoods to cover energized third rail, overhead wires, cables, etc. shall be utilized.

At the beginning of every shift on every day at every work site where energized third rail, overhead wire and/or feeders exist, the Contractor shall instruct the Contractor’s employees about
the location of the local power disconnect switches for that power section and the method of emergency disconnection available.

Contractor personnel are not permitted to walk, step onto, rest feet on or sit on railheads, frogs, switches, guardrails, pipe, interlocking or connecting apparatus, cable boxes, etc., except when necessary for the performance of a specific required task. When crossing any of these facilities, the Contractor shall take great care when stepping over equipment.

The Contractor is responsible for the safe conduct of its own employees.

The RTS may prohibit equipment or personnel from being suspended over the RTS right-of-way while trains are passing underneath or when the third rail or overhead catenary system is energized.

When signaled by the flagperson, the Contractor shall stop all activities and clear the track of all equipment and personnel. Contractor personnel shall keep their hands, feet, and loose clothing close to their body and away from the passing train. Contractor personnel shall face the oncoming train until it leaves the work site.

The Contractor is responsible for ensuring that the track work site is cleared in a timely and safe fashion before notifying the flagperson that it is safe to allow the train to proceed into and through the work zone.

A.3.4 Operation of electrical facilities

The person requesting removal of traction power due to an emergency is the only authorized person (under Lockout/Tagout procedure) to request restoration of power. The person requesting removal of power must remain in the area (unless relieved by proper authority) and request restoration of power on as soon as possible.

If the traction power needs to be removed locally, these boxes must be de-energized before the switches are operated. Only personnel authorized by RTS (Electrician) may open boxes, operate switches and lockout/tagout these boxes. Whenever RTS personnel are needed to de-energize and/or lockout/tagout electrical equipment, the Contractor shall notify the RTS Construction Inspector an appropriate period in advance.

If work is required inside a RTS Substation, the Contractor shall notify the appropriate RTS representative an appropriate period of time in advance.

A.3.5 Protection of employees, passengers, trains and facilities

The Contractor shall take all necessary preventive measures and precautions to protect contractor employees, RTS passengers and employees, the public, property and adjacent areas from any possible exposure or damage that could result from dust, debris, or other contaminants created during the project activity.

Whenever work is performed on or next to the track area when a train is approaching, the Contractor shall maintain the clearance envelope established by the RTS. When conducting construction activities, the Contractor shall take special care to avoid causing damage, settlement,
or displacement of any structures, tracks or any portion thereof or interrupt the continuity of train service.

If such damage occurs during construction activities performed by the Contractor, the RTS shall have the right to perform any work it deems to be of an emergency nature necessary to restore the continuity of normal train operations. The Contractor shall provide adequate protection for all electrical, signal and communication equipment from dust, debris, water, etc., through the introduction of rubber, plastic, cloth, wood or other barriers. This protection applies to all RTS equipment located in substations, elevated structure, tunnels, shops, etc.

The Contractor shall ensure that all temporary electrical and construction equipment is mounted and used in a manner that would not present any safety hazard to the public. Any additional lighting or ventilation, which becomes necessary, is the responsibility of the Contractor.

The Contractor shall secure any loose containers, tools or other objects, which could be thrown on the tracks or dislocated by the vibrations generated by a moving train. This requirement applies to all locations on the RTS right-of-way, including station platforms.

Whenever permanent fence, grills, grates, or access panels are removed within the RTS, the RTS Construction Inspector shall be notified.

Whenever a contractor must remove a permanent barrier, fencing, grills, grates or access panels in order to perform a required work activity, the Contractor shall be responsible for properly maintaining, protecting, and securing that opening throughout the work area to the standard of care provided by the permanent facility. Removal of any type barrier within the immediate vicinity of passenger facilities shall only be done after the installation of temporary devices which shall be designed to provide protection of the passengers.

Immediately upon completion of work, the permanent barrier shall be fully restored. If the duration of work is longer than one work shift, or as needed to protect on-site workers, temporary barriers/barricades that provide physical protection equivalent to the permanent barrier, shall be built. Whenever temporary barriers/barricades are erected within the RTS, RTS Construction Inspector shall be notified.

Whenever work is done on roadways and street property, the Contractor is responsible for providing flagging personnel as required to maintain highway or road traffic operations. The Contractor shall also provide all street barricades, barriers, and signs, which are required to maintain a safe and orderly traffic flow and meet the requirements of the Manual on Uniform Traffic Control Devices. The Contractor shall also provide adequate warning in advance of such work sites to prevent any conditions or situations that could jeopardize the safety of workers at the site or the public. The Contractor is required to maintain all equipment and signs in good working condition at all times.
Whenever work activities demanding road closure must be performed on an RTS elevated structure, a bridge above a public roadway or at a highway grade crossing, the Contractor shall obtain all required lane closure permits from the applicable municipality. The Contractor shall also notify the RTS Project Manager/Construction Inspector an appropriate period in advance of the lane closure. All lane closures shall conform to applicable governmental rules for temporary lane closures. Devices and procedures shall be in place to insure that construction material and/or debris from the elevated structure shall not be dropped on the roadway. Work performed over the RTS right-of-way shall similarly be protected.

The Contractor shall cease all movement of cranes and other equipment that has the potential to foul the designated safety envelope before the passing of trains through the work area.

The Contractor shall specifically identify where Contractor personnel are to relocate when signaled to clear the track and permit the safe passage of a train through the work area.

A.4 Examples of site-specific safety requirements

A.4.1 Tunnel sites

Due to the inherent danger associated with working in the confined area of a tunnel, the Contractor shall have a fire control plan in effect at all times.

Before each shift on every day at every work site in a tunnel, the Contractor shall conduct a briefing to review fire safety. This briefing shall include, but not be limited to, a review of the locations of all emergency equipment (e.g., phones, fire extinguishers), emergency exits layout and associated instructions. The Contractor shall specifically identify the locations and distance to the nearest available emergency exit in each direction from the work site.

The Contractor shall not bring any toxic, flammable, strong smelling, other potentially hazardous materials, and chemicals into a tunnel, or any other enclosed area/room.

Electric power tools and equipment should be used when performing work in a tunnel. Gasoline/gasoline powered engines tools are not permitted in a tunnel due to presence of energized third rail or overhead wire and the potential for ignition and explosion.

Tools powered by diesel combustion engines may be used on a limited basis in a tunnel. The diesel engine must be equipped with a catalytic converter and proper ventilation needs to be provided to exhaust the smoke from the tunnel.

Combustible/flammable materials shall not be stored in a tunnel at any time. The Contractor shall not bring any more than an RTS-determined supply of combustible (e.g., paint, lubricants) or flammable liquids (e.g., diesel, solvent), to a tunnel work site. Combustible/flammable materials shall be transported in approved/labeled safety containers. The Contractor shall provide sufficient fire extinguishers and trained personnel to suppress the simultaneous combustion of the maximum quantity of combustible liquids maintained in the work site.
Combustible/flammmable waste materials or oil soaked rags shall be secured in approved safety containers and must be removed from the tunnel at the end of work shift. The safety containers shall not be placed within an Emergency Exit passageway.

Whenever work is performed on or next to the track area when a train is approaching, the Contractor should maintain the clearance envelope established by the RTS.

The Contractor shall secure any loose containers or other objects, which could be thrown on the tracks or drawn into the path of a moving train by the created suction. Empty drums or barrels are considered to be loose containers and shall be secured within a designated area. This requirement applies to all locations on the RTS tunnels including station platforms.

Contractor personnel and flagpersons are required to use lamps or flashlights when signaling trains in tunnels or at night. The Contractor shall conduct a safety briefing for Contractor personnel to review proper signaling procedure before any work in tunnels.

The Contractor’s personnel shall use only non-conductive flashlights.

Due to space constraints, the Contractor shall specifically identify where Contractor personnel are to relocate when signaled to clear the track and permit safe passage of train through the work area.

Tunnel track areas are to be accessed via walkway ladders provided at designated locations along the high footwalk. Jumping from or climbing up the footwalk is not permitted.

Tunnel lighting designed for emergency evacuation may not be adequate for certain types of work to be performed during the Project. The Contractor may provide supplemental lighting at their own expense, if the type, power supply, attachment, placement, and orientation of the light fixture are approved in advance by the RTS Inspector and Rail Operations Management.

**A.4.2 Elevated structure and bridges**

The Contractor’s Safety Plan shall list all required personal protective equipment, including the proper workers’ safety procedures to be followed.

The Contractor shall temporarily relocate and provide adequate protection for all messengered (electrical or fiber optic) cable. The protection method and materials for the relocated cable shall be approved in advance by the RTS Project Manager.

When Contractor personnel are working on the elevated structure from underneath and could reach above track level with their bodies or tools, a track level Flagperson shall be employed to support this activity and a Slow Zone needs to be set up for protection.

Adverse environmental conditions (i.e., ice, rain, snow, heat) shall be carefully considered when determining whether work activities on elevated structure should be undertaken on each day or shift.
The Contractor shall review the RTS standard showing the clearance envelope required for RTS trains and shall maintain these clearances at all times. Contractor personnel shall exercise extreme caution on elevated track sections, always maximizing the distance to the edge of the structure.

Whenever contractor personnel are walking along the track, they shall remain on the footwalk. When contractor personnel must leave the footwalk, they shall exercise extreme caution to avoid tripping, falling, or losing their balance and coming in contact with the traction power system. When contractor personnel are walking on elevated structure or a bridge, they shall watch for wood boards on the footwalk that appear to be rotten or broken and avoid stepping on them.

Many elevated track footwalk sections are not equipped with guardrails or equivalent means of fall protection. Whenever the Contractor is working along a section of track on the elevated structure, an effective personnel fall protection method shall be employed (individual fall protection, personnel nets, catch platforms, etc.).

Whenever the Contractor is working on an active RTS right-of-way in proximity to the traction power distribution system and moving trains, all appropriate federal, state, local and RTS regulations shall be followed.

To avoid possible negative potential on the steel structure, any Contractor equipment that may come in contact with the structure and is capable of conducting electrical current, shall not be grounded or bonded to the structure unless and until the RTS Project Manager reviews and approves the method.

Operators of cranes or other aerial lift equipment shall be trained in the proper and safe use of that equipment by the Contractor (or the Subcontractor providing the lift equipment). The Contractor shall maintain training records or comparable documentation of training for the crane and/or lift operators at the work site and provide them to the RTS Inspector upon request.

### A.4.3 Elevated or earth-filled embankment or at grade

The Contractor shall temporarily relocate and provide adequate protection for all messenger (electrical or fiber optic) cable installed above the embankment retaining wall and for all buried cable. The method and protection materials for the relocated cable shall be approved in advance by the RTS Project Manager.

The Contractor shall carefully consider the weather factors (i.e., ice, rain, snow, heat) when determining whether work activities should be undertaken on each day or shift. The final decision shall be made after consulting with RTS Construction Inspector and with RTS Rail Operations Management.

The Contractor shall use caution when walking on slippery surfaces near an operating track, the third rail or near the edge of a retaining wall and an effective personnel fall protection method shall be employed (individual fall protection, personnel nets, catch platforms, etc.).
A.5 Examples of special safety requirements

A.5.1 Fire safety

The Contractor shall instruct Contractor personnel about all applicable fire safety regulations (Local Building Code, NFPA Standards) associated with working on, adjacent to, or in close proximity to an operational RTS right-of-way. Contractor personnel shall comply with those regulations.

The Contractor shall provide and use UL-approved safety cans for all flammable liquids with a flash point of 110 degrees Fahrenheit or below.

In accordance with Section A4.1 above, the Contractor may use electric or diesel powered tools when working in the tunnel. The RTS Project Manager may refuse to approve the usage of any gasoline-powered equipment or tools on the right-of-way due to the presence of traction power and the potential for ignition and explosion.

Before welding, flame cutting, or other operations involving the use of open flames, arcs, or sparking devices, permission must be requested and granted by the appropriate authority. A fire extinguisher of the appropriate size and type must be accessible.

The RTS may require the Contractor to take appropriate safety precautions, such as fire watch attendant and specific extinguishing agents, to control fires during welding, flame cutting, or other heat generating operations.

The Contractor shall maintain an approved, appropriate sized first aid kit for employees at the work site.

A.5.2 Confined space area activity

Work within confined spaces (i.e., manholes, ventilation shafts, areas of restricted accessibility or limited ventilation) requires special precautionary measures. If entry into a Permit Required Confined Space is necessary, it shall be directly supervised by the Contractor's qualified person (Attendant). OSHA and RTS safety rules applicable to confined space entry shall apply.

The Construction Inspector shall provide the Contractor with all available information about the particular RTS’s confined space (voltage ratings, asbestos, etc.) and shall authorize the entry into any Permit Required Confined Space before entry.

Before entering the confined space, the Contractor shall have issued emergency preparedness plans should the environmental conditions become inappropriate.

The air quality within the Permit Required Confined Space shall be verified before entry and monitored during the work period by the Contractor personnel working in the Permit Required Confined Space.

A Contractor's qualified person (Attendant) shall remain outside of the confined space at the entry point and maintain constant communications with those inside the confined space.
In those instances where electrical service is required in the confined space, low voltage (24 V) lighting or a ground fault circuit interrupter (GFCI) shall be used. If a GFCI is used, the unit must be outside and isolated from the confined space unit. Caution must be taken to ensure that the area is free of all electrical hazards.

A.5.3 Vermin control

When the Contractor is working in an area where vermin may exist, the Contractor shall provide protection against the dangers associated with the vermin, including the following controls:

- Boots, gloves, or other personal protective equipment as required
- Instruction in recognition and identification
- Repellents
- Communication for reporting of the location of nests

The Contractor shall report to the RTS Inspector any unsanitary conditions at the work site, which have or could propagate insects or vermin.

A.5.4 Changes to safety critical elements

When the Contractor changes a safety critical element of railroad plant or when the construction work interferes with rail operations, the Contractor may be required to perform a preliminary hazard analysis.

A.6 Enforcement of safety rules

The Contractor is responsible for promoting safe work practices by Contractor personnel. The Contractor is also responsible for enforcing the strict compliance of Contractor (and Sub-Contractor) personnel with the RTS safety rules and procedures contained in or referenced in this Manual.

The Safety Inspector is the Authority's Representative at the Project (Construction) Site and is authorized and responsible for monitoring and/or auditing Contractor work activities for strict compliance with the RTS safety rules and procedures.

To meet these responsibilities, the Safety Inspector shall have access to the Project (Construction) site at all times throughout the life of the Project. The Contractor is subject to unannounced field audits or inspections by the RTS Safety Inspector or management personnel from Rail Operations.

Whenever noncompliance with safety rules is found, the RTS Safety Inspector shall document that deficiency, submit the original report to the Contractor to take immediate corrective action. The RTS Safety Inspector or other RTS designated employee shall have final approval over the resolution and satisfactory closure of each documented deficiency.
If the RTS Safety Inspector determines that the Contractor or Contractor personnel have committed serious or repeated violations of the safety rules or procedures or the Contractor has failed to take prompt and decisive corrective action on safety deficiencies identified at the work site, the Safety Inspector shall have the power to terminate work by the Contractor and direct the Contractor to close and secure the work site.

The RTS Safety Inspector or his/her designee is responsible for ensuring that any incidents or deficiencies involving Flagpersons at work sites are reported.

The Construction Inspector is responsible for defining the limits of the work zone and shall inform the Control Center when the work zone is moved along the right-of-way. The RTS should not permit anyone but a properly qualified RTS employee contact the Control Center and request changes in track or operational status.

The Construction Inspector is responsible for informing the Project Manager of any change or substitution of a material, equipment, or procedure proposed by the Contractor that was not included in original documentation of the project. The Project Manager shall determine whether the change or substitution introduces any safety hazard and shall inform the RTS Construction Inspector of any approved change/substitution.

The RTS Safety and/or Construction Inspector shall order the Contractor and workers to cease any operation deemed to pose an imminent danger.

### A.7 Reporting procedures

The Contractor shall be alert for dangerous conditions and/or unsafe work practices as part of their daily work routine. The Contractor shall immediately address any conditions or practices that require correction to prevent injury or other harm.

If immediate corrective action by the Contractor is not possible, but the hazard warrants immediate attention, the Contractor, or the RTS employee monitoring the work site, shall notify the RTS Control Center. In addition, the Contractor shall complete a report documenting the dangerous condition and forward it promptly to the RTS Safety Inspector for appropriate action.

If an ambulance is necessary, the Emergency 911 number needs to be called or the RTS Control Center will make the necessary arrangements for assistance.

In emergencies requiring removal of traction power, the Flagperson or Contractor's representative at the work site shall contact RTS Control Center, specify the message "Emergency Power Off," the location, the type of emergency, the type of assistance required and the Requester's Name, Phone/Call Number, Badge Number. The Control Center will remove power from that power distribution section.

For First Aid injuries not requiring a physician's treatment, the Contractor shall prepare a Contractor's report of the injury and forward it to the RTS Safety Inspector at the end of the shift or day. Injuries requiring in hospital/physician treatment or resulting in lost time shall be reported by the Contractor immediately to the RTS Safety Inspector.
For all injuries, the Contractor shall be responsible for conducting an accident investigation, issuing an accident investigation report, and submitting a copy to the RTS Safety Inspector within a designated period.

The Contractor shall also be responsible for completing and maintaining the OSHA 300 Log at the work site for the RTS Safety Inspector’s review according to Contractor Safety Work Program and processing the required paperwork to the insurance carrier.