

Attachment A to Proposed Decision:

The Proposed General Order 175-A

Proposed
GENERAL ORDER NO. 175-A

**PUBLIC UTILITIES
COMMISSION
OF THE
STATE OF CALIFORNIA**

RULES AND REGULATIONS GOVERNING ROADWAY WORKER
PROTECTION PROVIDED BY RAIL TRANSIT AGENCIES AND RAIL FIXED
GUIDEWAY SYSTEMS

Adopted _____

Decision _____

Rulemaking 09-01-020

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Rail Transit Agencies (RTA) and *Rail Fixed Guideway Systems (RFGS)* operating in California shall comply with the following rules governing *roadway worker* protection. Terms defined in the Definition section are italicized throughout this General Order.

1. GENERAL PROVISIONS

- 1.1 Authority. These rules and regulations are authorized by and implement the provisions of 49 U.S.C. § 5330; 49 C.F.R. § 659; and California Public Utilities Code Sections 778 and 99152, as well as the California Public Utilities Code sections establishing each individual *rail transit agency* within California.
- 1.2 Purpose. The purpose of these rules and regulations is to provide a safe working environment for *RTA roadway workers*. These rules and regulations are intended to ensure that each *RTA* adopts a program for *roadway workers* containing specific rules for protecting these workers from the danger of being struck by trains or other *on-track equipment*.
- 1.3 Applicability. These rules and regulations are applicable to all *RTAs* in California. These rules and regulations do not prohibit *RTAs* from implementing rules that provide greater safety. These rules and regulations do not apply to:
 - a. Fire protection and law enforcement personnel.
 - b. *Employees* responding to a life-threatening emergency.
 - c. Track that is being constructed until any *RTA* vehicles or *employees* occupy the construction area, except for *RTA employees* who must occupy the area to perform inspections needed during construction, and who will do so under the construction contractor's protections and regulatory obligations.,
 - d. Work being performed on a platform outside of the platform edge warning strip where an *employee* or any tool does not infringe on the warning strip.

- 1.4 Additional Rules. The Commission may make such additional rules and regulations or changes to these rules and regulations as necessary for the purpose of safety.
- 1.5 Exemptions or Modifications. Requests for exemptions or modifications from these rules and regulations shall contain a full statement of the reasons justifying the request. A request must demonstrate that safety would not be reduced by the proposed exemption or modification. Any exemption or modification so granted shall be limited to the particular matter covered by the request and shall require Commission approval.

2. DEFINITIONS

Terms defined in this section are italicized throughout this General Order.

- 2.1 *Confirmed Hold* means a specific procedure that can be used as specified in this General Order to hold *rail transit vehicles* including *on-track equipment*, out of a work location as follows: The rail operations control center will instruct a *rail transit vehicle* operator of the next vehicle in line to arrive at the work zone to stop at a designated location, and the *rail transit vehicle* operator will confirm to the rail operations control center that the vehicle is actually stopped at the designated location. *Roadway workers* will not be permitted to enter the work zone until the *Employee in Charge (EIC)* receives notification from the rail operations control center that a *Confirmed Hold* has been verified for each approaching *rail transit vehicle*. The *Confirmed Hold* will not be lifted until the *EIC* has determined all *roadway workers* are clear of the *track zone*, or in a *place of safety* as applicable, and confirms the release of the work location to the rail operations control center.

- A *confirmed hold* can be established by a *rail transit vehicle* operator when the operator is the person performing the authorized *minor task*. In this instance the operator acts as both the *EIC* and the train operator, and can establish the required communication with the rail operations control center.
- 2.2 *Director* means the Director of the Commission's division overseeing rail transit safety, or the Deputy Director overseeing rail transit safety.
- 2.3 *Employee* means a person employed by a *rail transit agency (RTA)* in California, an employee of a utility providing services to the *RTA* or accessing the *RTAs right-of-way* to maintain their facilities who could occupy the *track zone*, or a contractor working on behalf of such *RTA*.
- 2.4 *Employee in Charge (EIC)* means the *RTA employee* with responsibility for supervising and ensuring safety, including use of *roadway worker* protections, at a *right-of-way* worksite. In the case of a *minor task*, the *EIC* would be the *roadway worker* performing the *minor task* if alone.
- 2.5 *Fifteen-second rule, or 15-second rule*, means a rule that requires a *roadway worker* to be clear of the *track zone* or in a *place of safety* 15 seconds before a *rail transit vehicle* moving at the *maximum authorizable speed* on that track could arrive at the location of the *roadway worker*.
- 2.6 *Job safety briefing* means a meeting conducted at the job site by the *EIC* of the work that focuses on the hazards of the work to be performed and the provisions to eliminate or protect against those hazards. The term is further defined through the requirements for a *job safety briefing* provided in this General Order.
- 2.7 *Maximum authorizable speed* is defined only for the purpose of calculating the *15-second rule* distance, and is defined as the maximum allowable speed under all conditions on that track, unless a lower speed restriction is enforced by automatic train controls that also control speeds trains operating in manual mode. If a lower speed

is enforced by automatic train controls, then the *maximum authorizable speed* on that track is the automatic train control-enforced speed.

2.8 *Minor tasks* are defined as those tasks without tools unless specified herein where an individual can continue to look out at least every five (5) seconds for approaching *rail transit vehicles* and where they can be performed without violating the *15-second rule*. *Minor tasks* are limited to the following:

- a. Retrieving or removing an item from the *track zone*.
- b. Lining manual or electric-lock track switches, including the use of a switch bar.
- c. Placing or removing flags.
- d. Taking photographs of an actual or suspected safety hazard or an actual or suspected violation of a rail safety law, regulation, order, or standard using a stand-alone camera that cannot be used for electronic communications; the only exception to the stand-alone requirement is that a camera may have a send-only feature that can send photos. After each time pressing the camera shutter release to take one photo or a one-second burst of photos, the *employee* must step out of the *track zone* to check the surroundings for any hazards, and only when it is safe step back into the *track zone* to take additional photos. Sending photos is not a *minor task*, and must be done either outside the *track zone* or under higher levels of protection.
- e. A visual inspection at one specific fixed location, deemed an immediate need.

Tasks and tools not listed herein may be performed and used upon written request to the *Director* with copy to the affected *employees'* labor union representative(s) and written concurrence from the *Director*.

2.9 *Near-miss* means an incident infringing on the safety of a *roadway worker* on or near the tracks, but without contact or injury.

- 2.10 *On-track Equipment* is a subset of the comprehensive *rail transit vehicle* definition herein, and means any rolling equipment besides revenue vehicles used for any purpose, including but not limited to testing, inspection, and maintenance. The definition is included to avoid possible confusion in subsections herein where a *rail transit vehicle* mistakenly might be assumed to be only a vehicle in revenue passenger service.
- 2.11 *Place of Safety* means a space where a person or persons can safely get sufficiently clear of any *rail transit vehicle*, including any *on-track equipment*, moving on any track.
- 2.12 *Rail Fixed Guideway System (RFGS)* means any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, cable car, automatic people mover, or automated guideway transit system used for public transit and not regulated by the Federal Railroad Administration or not specifically exempted by statute from Commission oversight.
- 2.13 *Rail Transit Agency (RTA)* means the entity that plans, designs, constructs, and/or operates a *RFGS*.
- 2.14 *Rail Transit Vehicle* means an *RTA*'s rolling stock, including but not limited to passenger and maintenance vehicles.
- 2.15 *Right-of-way* means a strip of land that is granted, through an easement or other mechanism, for transportation purposes which includes the *RTA*'s rails; track; crossties; ballast; bridges; underpasses; tunnels; wayside signals; communication, overhead catenary system, and substation facilities adjacent to or extending into the track zone; and station areas in or adjacent to the *track zone*, excluding *station platforms*.
- 2.16 *Roadway Worker* means any *employee* who performs any work on the *right-of-way*.

- 2.17 *RTA Contractor* means an entity that performs tasks on behalf of the *RTA*.
- 2.18 *RWP* – *Roadway worker* protection.
- 2.19 *Station Platform* means the portion of a transit facility directly adjacent to the tracks at a station where a transit vehicle stops to load and unload passengers, and where passengers are allowed to be when trains are moving.
- 2.20 *Stopping Point* means the specific location where trains must stop according to the provisions herein.
- 2.21 *System Safety Program Plan (SSPP)* means a document adopted by an *RTA* detailing its safety policies, objectives, responsibilities, and procedures.
- 2.22 *Track Zone* means an area within six (6) feet of the outside rail on both sides of any track.
- a. The *track zone* definition is intended to provide a threshold that can be identified by workers as an area where a person or equipment could be struck, or has the potential to be struck, by the widest equipment that could occupy the track. The zone provides additional space away from the widest revenue *rail transit vehicle* that could occupy the track to address the potential for inadvertent movement into the area where a person or roadway working equipment could be struck.
 - b. This zone should be widened, or extra safety provisions put in place, to safely accommodate any movement that might be anticipated into the area. Examples include equipment placed just outside the zone that has a bucket or swing boom that could extend far enough to be struck, or have the potential to be struck, or *on-track equipment* that might be wider than revenue *rail transit vehicles*.
- 2.23 *Watchperson*, sometimes called a lookout, means an *employee* who has been trained and qualified on *RWP* rules and procedures, whose sole duty is to provide effective warning in compliance with the

15-second rule to roadway workers of approaching rail transit vehicles, including trains or any on-track equipment, who does not perform or assist in any other work aside from the watchperson duty, and who remains clear of the track zone, or when clearance is unavailable, remains in a place of safety.

3. RTA RESPONSIBILITIES

- 3.1 Each *RTA* shall adopt and implement a program that will afford safety to all its *roadway workers*.
- 3.2 Each *RTA* shall adopt *RWP* rules that satisfy the requirements of this General Order.
- 3.3 Each *RTA* shall adopt a training program in accordance with Section 9.
- 3.4 Each *RTA* shall maintain for a minimum of four years records of *employee*-reported unsafe acts or conditions that could result in a *roadway worker* accident or incident. Records may be kept as part of an *RTA's* *Near-Miss* program and recordkeeping specified in Section 10.
- 3.5 Each *RTA* shall create and maintain a separate dedicated manual excerpting all necessary *roadway worker* safety procedures and rules from its rule book(s), make it freely available to *roadway workers*, and ensure that roadway workers have easy access to the manual when performing job functions.
- 3.6 Each *RTA* shall specify one or more objective method(s) to determine appropriate sight distance for *15-second rule* compliance as part of their training program. The information shall be provided to all *employees* who are involved in operations requiring the *15-second rule*. Appropriate use of the rule shall be included in each *RTA's* training program.

Examples:

- a. Track surveys that designate areas with insufficient sight distance to see a *rail transit vehicle* traveling in any direction at the *maximum authorizable speed* per the *15-second rule*.
 - b. Speed-distance tables, the time it would take for a vehicle to close the distance from where it could first be seen to arriving at the location of the roadway worker and/or watchperson, and roadside markers *roadway workers* can confidently rely on to determine the sight distance necessary to be able to clear the *track zone* per the *15-second rule*.
- 3.7 Each *RTA* shall include *RWP* rules in its compliance testing program to ensure compliance, to assess the degree of compliance, and to make any necessary changes to enhance compliance.
- 3.8 If an *RTA* uses flag protection to provide *roadway worker* safety, it shall establish written flag protection procedures and rules and include those rules in the manual described in Section 3.5.
- 3.9 Each *RTA* shall establish what safety equipment a person accessing the *track zone* is required to use consistent with applicable standards such as federal, state, APTA or other industry rules and/or guidelines.
- 3.10 Anyone allowed access to the *track zone*, by request, easement, or other form of permission, shall either complete the required *RWP* training or be escorted by an *RWP-trained employee*.

4. RIGHTS AND RESPONSIBILITIES

- 4.1 Right to a *job safety briefing*. Each *RTA* shall require that a *job safety briefing* be performed prior to the performance of any job duty that may occur on the *right-of way*, and shall require that all *roadway workers* at the job participate.
- 4.2 Right to discuss and confirm understanding. In any *job safety briefing* provided prior to work on the *right-of-way*, each *RTA* shall grant each *roadway worker* the right to discuss and confirm understanding of the safety provisions to be provided.

- 4.3 Right to challenge. Each *RTA* shall provide every *roadway worker* the right to challenge, and/or refuse, in good faith, any *RWP* assignment he or she has reason to believe is unsafe or would violate any *RWP* rule or procedure. The *roadway worker* must describe the safety or rule concern and remain clear of the track until the challenge is resolved.
- 4.4 Right and responsibility to report unsafe acts or conditions. Each *RTA* shall provide opportunities for *roadway workers* to report to the *RTA* any unsafe acts or conditions that could result in an accident or incident, and shall not discourage such reporting.
- 4.5 Each *RTA* shall ensure that every *roadway worker* knows they have a responsibility to ascertain that *track zone* safety is established and understood prior to entering the *track zone*.
- 4.6 Each *RTA* shall ensure that every *roadway worker* knows they have a duty to warn other *roadway workers* and *employees* in an unprotected *track zone* to move to the clear.
- 4.7 Shared responsibility. Each *RTA* shall communicate to its *roadway workers* that each worker ultimately is responsible for his or her actions at a work site, and that compliance with the *RWP* rules are designed to require actions that will keep workers safe and must be followed consistent with this section.

5. JOB SAFETY BRIEFING

- 5.1 Each *RTA* shall require that an *EIC* provide a *job safety briefing* prior to any roadway work within the *RTA right-of-way*. The *job safety briefing* for each *roadway worker* must include a discussion and explanation of the job function, rules, and procedures for carrying out job duties. The *job safety briefing* shall include the following aspects as applicable:
 - a. The general work plan for a crew; or for each crew when there are multiple crews, each with a different

general work plan.

- b. The hazards involved and the means by which safety is to be provided to the *roadway workers* through compliance with these *roadway worker* safety rules and procedures. Special attention shall be given to the presence of *on-track equipment*, to the presence of any adjacent tracks, and to any need to widen the *track zone* according to the provisions of the *track zone* definition.
- c. Personal Protective Equipment.
- d. Identification and location of key personnel such as a *watchperson* and an *EIC*.
- e. Appropriate flags and proper flag placement.
- f. A *place of safety* shall be predetermined that will allow workers to move to the safe area at least 15 seconds before any approaching *rail transit vehicle* moving at the *maximum authorizable speed* on that track can pass the location of the *roadway worker*.
- g. The means for determining if and how the *15-second rule* will be met shall be discussed including:
 - i. Determination of sight distance.
 - ii. Visibility conditions.
 - iii. Ambient noise interference.
 - iv. *Maximum authorizable speed*.
 - v. Time needed to disengage from the work.
 - vi. Location of *places of safety*.
 - vii. Time to get to the *place of safety*.
 - viii. Adjacent tracks, the hazards associated, and provisions to address those hazards.
- h. The means of communication among the roadway workers to be used in the job performance, including communication with any roadway maintenance machine operators.
- i. Acknowledgement by each employee that they understand the rules to be used.
- j. If a watchperson is being used, each employee, including the watchperson, must receive a review of

the watchperson's duties, at a minimum to include the information in the definition herein of a watchperson, as follows: The watchperson's sole duty is to provide effective warning in compliance with the 15-second rule to roadway workers of approaching rail transit vehicles, including trains or any on-track equipment, does not perform or assist in any other work aside from the watchperson duty, and remains clear of the track zone.

- 5.2 If there is any change in the scope of work or crew after the initial *job safety briefing*, a follow-up *job safety briefing* shall be conducted.
- 5.3 In the case of an individual *roadway worker* moving from one location to another (Section 6.1) or performing a *minor task* (Section 6.2), the *job safety briefing* will be a discussion, between the *roadway worker* and the *employee* providing the authorization to enter the roadway, of the protection to be used.

6. MINIMUM CONTROLS/LIMITATIONS FOR EMPLOYEES PERFORMING DIFFERENT CATEGORIES OF WORK WHEN WITHIN THE TRACK ZONE ON ANY TRACK OTHER THAN YARD OR END-OF-LINE STORAGE TRACKS

Each *RTA* shall provide the protections specified in this section. The following categories of work and levels of protection proceed from low to high. A higher level of protection may be used for any category of work. *Employees* may occupy passenger platforms, except for the platform-edge warning strip, or train operator platforms, without the provisions in the sections below.

- 6.1 Moving from one location to another with full attention on surroundings. The requirements in this section, a, b, and c below, do not apply to moving from one location to another on semi-exclusive and non-exclusive alignments (as defined in the General Order 143 series), with full attention to surroundings.
 - a. *Roadway worker*/crew must establish authorization for the identified area, and

- b. *Roadway worker(s)* must be able to comply with the *15-second rule*.
- c. *Roadway workers* may occupy General Order 143 series compliant emergency walkways in tunnels and on elevated structures where there is insufficient clearance to remain clear of the *track zone*. Trains must be slowed to 25 miles per hour or less before *roadway workers* may occupy the *track zone* on the emergency walkway.
- d. *Roadway workers* may occupy an area outside a fence installed as a physical barrier between the *roadway worker* and the track, where the fence is within the *track zone*.

6.2 Performing *minor tasks* with sufficient attention to surroundings.

- a. *Roadway worker* must establish authorization for identified work area, and
- b. Notification must be given to train operators, and
- c. Notification of reverse direction and other abnormal train movement must be provided to *roadway worker*, and
- d. *Roadway worker* must be able to comply with the *15-second rule*, and
- e. One of the following, i or ii:
 - i. Trains must stop short of the work location unless the *roadway worker* communicates by radio or hand signals to the train operator that the train may proceed. Trains approaching the work location must sound an audible warning until it is acknowledged by the *roadway worker*. Upon radio communication between the train operator and *roadway worker*, or upon visual confirmation by the *roadway worker*, that the train is stopped, the *roadway worker* may enter the *track zone*. Upon radio communication or hand signals from the *roadway worker* that he or she is clear of the *track zone* or on a walkway under the provisions of Section 6.1.c, the train may proceed.
 - ii. Trains are held outside the work location under a *Confirmed Hold*.

6.3 Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment. The provisions of this section must cover all *roadway worker/crew* activities not covered in sections 6.1 and 6.2.

- a. *Roadway worker/crew* must establish authorization for identified work area, and
- b. Communication between the controller, the train operator, and the *EIC* must be established, and the means by which protection is going to be provided documented and confirmed by these individuals, affirming that no worker will be permitted to enter the *track zone* until the provisions in this section are implemented,
and
- c. Notification of reverse direction and other abnormal train movement must be provided to *roadway worker(s)*, and
- d. On-rail vehicle movement into the work zone must be controlled by applying one or more of the following controls, i through v, as appropriate:
 - i. with flags:
 - (a) flags that indicate speed restrictions, advance warnings of *stopping points*, and *stopping points*;
 - (b) *watchperson(s)*;
 - (c) with all movements proceeding at a speed that will allow stopping within half the range-of-vision, and no greater than 25 miles per hour unless the *EIC* sets a slower speed;
 - (d) after November 7, 2017, with an early warning alarm device;
 - (e) Trains must stop at *stopping points*, unless the *EIC* provides permission to proceed without stopping under all four of the following conditions:
 - (1) train operator communicates directly with the *EIC* using a radio;
 - (2) train operator identifies the train and its

location. *EIC* identifies their work zone area;

(3) *roadway workers* are clear of the *track zone*, or when clearance is unavailable, are in a *place of safety*; and

(4) hand signals are given by a person who can visually be identified as being authorized to give such hand signals.

Or,

ii. without flags:

(f) either pursuant to specific authorization granted by the Commission and subject to any conditions accompanying that authorization; or pursuant to written authorization from the Director after an RTA submits a plan to the Director in a written proposal describing the intended use and plan for using this section, justifying the plan's safety, and only to be used under limited conditions where the use of flags cannot be reasonably implemented;

(g) with an early warning electronic device;

(h) with watchperson(s);

(i) with all movements proceeding at a speed that will allow stopping within half the range-of-vision, and no greater than 25 miles per hour unless the *EIC* sets a slower speed; and

(j) trains must stop upon receiving an alert and not proceed until receiving an appropriate proceed signal, but in the situation where the operator has to stop too far away from the work site to be able to receive a proceed signal, after stopping, the operator may proceed at restricted speed, but not to exceed 10 miles per hour, until the work site becomes visible. If at that point the operator does not receive a proceed signal, he or she must wait until the appropriate employee gives the signal.

Or,

- iii. lining and locking track switches or otherwise physically preventing entry and movement of *rail transit vehicles*, including *on-track equipment*, with a *watchperson*, or
- iv. restricting work to times when propulsion power is down with verification from control that track is out of service, and barriers are placed that physically prevent *rail transit vehicles*, including *on-track equipment*, from entering the work zone, or
- v. for *RTAs* with positive train control systems that are operating as designed across the entire system,
 - (1) with a *watchperson*: the rail operations control center shall establish red signals or stop commands as applicable to the system, or
 - (2) without a *watchperson*: the rail operations control center shall establish red signals or stop commands as applicable to the system and stop commands are physically locked in a field train-control room, by means such as a route prohibit, or other means that make it impossible for the rail operations control center to inadvertently allow proceed signals or commands into the work limits.
Exception: This subsection does not apply where the positive train control system allows operators to exceed 25 miles per hour in manual mode.
- e. Within working limits, *rail transit vehicles*, including *on-track equipment*, shall move only under the direction of the *EIC*, and shall move at a speed that will allow stopping within half the range-of-vision, and no greater than 25 miles per hour unless the *EIC* sets a slower speed.
- f. Beginning November 7, 2017, early warning alarm technology must be used, with the exception that it is recommended but optional when the protections of Sections 6.3.d iii, iv, and v(2) are in place.
- g. A standalone camera may be used for work-related purposes under the protections in this section. A cell

phone, smartphone, or similar communication device camera may be used for work-related purposes under the protections in this section if it is an RTA-issued device and if it is rendered incapable of sending and receiving communications while in the *track zone*; the device must be made immediately available to an RTA supervisor or Commission inspector upon request. Photographs may only be sent from outside the track zone unless all of the following conditions are met:

- The sender is unable to step out of the *track zone*.
- No on-track vehicles are working in the *track zone*.
- The protections of Sections 6.3.d, iii, iv, or v are being used.
- The sender moves to as safe a location as possible.

7. MINIMUM CONTROLS/LIMITATIONS FOR EMPLOYEES PERFORMING DIFFERENT CATEGORIES OF WORK WHEN IN THE TRACK ZONE ON YARD AND END-OF-LINE STORAGE TRACKS

7.1 Each *RTA* shall have and submit to Commission staff its yard and end-of-line storage track *RWP* program within 90 days of the effective date of this General Order and each time the plan is changed.

7.2 Each *RTA* shall comply with its yard and end-of-line storage track *RWP* program.

8. PROTECTIONS FOR EMERGENCY RESPONSE PERSONNEL

8.1 The *RWP* plan of each *RTA* shall include provisions for protection of non-*RTA* emergency response personnel. The provisions shall include consideration of movements on adjacent tracks.

8.2 The *RWP* plan provisions shall include provisions for the *RTA* to offer coordination of emergency response activities with all fire protection and law enforcement agencies in their service territory, including emergency training drills with emergency response agencies.

Notwithstanding the foregoing, when it is beyond their control, *RTAs* are not responsible for ensuring that other agencies participate in or

comply with response coordination or training drills.

- 8.3 RTAs shall offer training to non-RTA emergency response personnel in their service territory either: 1) no less than every two years, or 2) regularly, and accommodating all requests for training. Under either option, records of training must be available for three years for Commission inspectors' review.
- 8.4 An RTA's SSPP must include provisions for training of *employees* who may occupy the *track zone* during response to emergencies.

9. ROADWAY WORKER PROTECTION TRAINING

- 9.1 Each RTA shall adopt an RWP training program for *roadway workers* so that each worker understands the hazards of working along the *right-of-way* and the methods to safely work on the *right-of-way*.
- 9.2 Each RTA shall adopt an RWP training program for any *employee* who may affect *roadway worker* safety, including their own safety. For example, the program shall cover *employees* such as *rail transit vehicle* operators, dispatchers, rail operations control center staff, and supervisors.
- 9.3 Each RTA shall make changes to its training program to address problems identified through the results of compliance testing, *near-miss* reports, reports of unsafe acts or conditions, and comments received on the training program.
- 9.4 No RTA shall assign an *employee* to perform the duties of a *roadway worker* unless that *employee* has received training in the RWP procedures associated with the work assignment to be performed. Any person who is escorted and being provided RWP safety by an RWP- trained *employee* is exempt from these training provisions.
- a. Each RTA at least once every 24 months shall retrain all *roadway workers* and *employees* with RWP responsibilities on the RWP training program for *roadway workers*.

- b. Records showing compliance with the requirement in subsection a. above shall be maintained for a minimum of three (3) years.
- c. Each *RTA* shall provide an opportunity in its training program for *roadway workers* to raise and discuss issues regarding the effectiveness of the training program.

9.5 The training of all *roadway workers* at a minimum shall include:

- a. Classroom training with the opportunity to ask the RWP trainer questions and raise and discuss RWP issues.
- b. Experience in a representative field-setting.
- c. The *RTA's* RWP rules and procedures.
- d. Recognition of all tracks and understanding of the space around them within which RWP is required.
- e. The functions and responsibilities of various persons involved with RWP procedures.
- f. Checks or tests to ensure the ability to comply with RWP instructions given by persons performing, or responsible for, on- track safety and RWP functions.
- g. The proper signals, standardized for each *RTA*, to be given by an employee, including hand signals, and the proper procedures upon receiving a rail transit vehicle approach warning from a watchperson, including applicable operating and flagging rules.
- h. The hazards associated with working on or near all tracks, including review of RWP rules and procedures.
- i. Flag protection rules and procedures and how they are applied to RWP.
- j. Classroom discussion of the compliance testing program requirements.
- k. Classroom discussion of the *RTA's* RWP near-miss program including, but not limited to how to report near-misses.

- 9.6 Each *RTA* shall insure that their *RWP* training personnel are competent to provide effective *RWP* training, and at a minimum will consider the following:
- a. Experience and knowledge of effective training techniques.
 - b. Experience with the *RTA*'s *RWP* rules
 - c. Knowledge of the *RTA*'s *RWP* rules, program, operations, and operating environment, including applicable operating rules.
 - d. Knowledge of the training requirements specified in this General Order.

10. NEAR-MISS REPORTING PROGRAMS AND RECORDS

- 10.1 Each *RTA* shall develop and implement a program for reporting and recording *near-misses* regarding *RWPs*.
- 10.2 *RWP near-miss* records shall be retained by the *RTA* for a period of four (4) years and shall be made available to CPUC staff on demand.
- 10.3 The *near-miss* program shall include:
- a. A policy statement supporting the near-miss program signed by the CEO, and
 - b. A process to encourage and allow roadway workers to report near- misses, and
 - c. Methods to store, easily access, and track near-misses and corrective actions, and
 - d. Analyses to identify primary and contributory causal factors including root causes, and to implement corrective actions.
- 10.4 Each *RTA* shall submit a copy of its *near-miss* program to staff within 90 days of the effective date of this order and within 30 days of any subsequent modifications.
- 10.5 Each *RTA* shall reference their near-miss program in their SSPP.

10.6 Each *RTA* shall periodically review the effectiveness of its *near-miss* program taking into consideration industry practices and make adjustments if needed for increased effectiveness to achieve program goals.

- End -

Attachment B to Proposed Decision:

Index of Comments Seeking Clarification,
including Corrections

**Attachment B to Decision _____
(Index of Comments Seeking Clarification, including Corrections)**

The comments seeking clarification and corresponding dispositions are organized herein by topic and generally following the order in which they occur in the General Order (GO) 175-A. Attached GO reflects all of the clarifying revisions and corrections we adopt.

Comment	Disposition
<p>Section 1.3 (Applicability)</p> <p>LACMTA proposes to revise Section 1.3 because cross-referencing to “Sections 2.3 and 2.20”, as in the Interim GO, is unclear:</p> <p style="padding-left: 40px;">These rules and regulations are applicable to all RTAs in California when an employee occupies the track zone as defined in Sections 2.3 and 2.20, respectively. These rules and regulations do not prohibit RTAs from implementing rules that provide greater safety. . . .</p> <p>(LACMTA’s Comment to SED’s December 22, 2014 Draft Recommendation).</p>	<p><i>Request granted.</i> We agree. Rather than using the “as defined in Sections...” throughout the GO for each defined term when used, we have italicized all defined terms in the attached General Order 175-A, such as “employee” and “track zone.” We also added the following text in the introductions to the General Provisions and Definitions sections, “Terms defined... are italicized throughout this General Order.”</p>
<p>Section 1.3 (Applicability)</p> <p>In response to SED’s December 22, 2014 Draft Recommendation, some of the RTAs requested a clarification of the term “track zone” noting that some of their employees at stations performing operations and maintenance activities may infringe into the platform edge warning strips. Several RTAs also noted that some station activities within the stations fall with the “track zone” defined areas, but that employees are afforded the safety of the passenger platforms, and thus their exposure is equivalent to patrons, thus concluding the rule should not apply to their passenger stations even though they may occupy the platform edge warning strip.</p>	<p><i>Request granted.</i> We recognize that there are a number of station tasks that occur within the “track zone” but present no significant dangers, unless the individual is working in the area of the detectable warning tactile strip with tools. Working in the area along the platform edge with tools presents the distractions to workers this rule attempts to prevent. We add paragraph d. for section 1.3 to clarify that the rules do not apply to RTA workers who do not work with tools within the platform edge warning strip, as the lead paragraph in Section 6 states. The restriction allows many of the identified station tasks, while still requiring protections in the area along the platform edge where employees may be struck by moving equipment if distracted. We make a similar revision to address the similar concerns with their train operator platforms, by adding an exclusion at the lead paragraph to Section 6.</p>

<p>Section 1.3 (Applicability)</p> <p>LACMTA requests that the GO, Section 1.3, clarify that the GO only applies to times when employees are in the track zone.</p> <p>(LACMTA’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied.</i> LACMTA did not provide its justification for this request. We believe employees in the right-of-way, track zone or not, must know of the prohibitions against occupying the track zone, and the conditions under which they may occupy the track zone, even if they do not presently occupy or intend to occupy the zone when entering the right-of-way. Additionally, the GO 175-A is clear that many of its provisions apply to the time before an employee is to enter the track zone, that is, requirements for setting up protection, job briefings, and various training requirements.</p>
<p>Section 2.1 (Confirmed Hold)</p> <p>In response to SED’s December 22, 2014 Draft Recommendation, some of the RTAs requested a clarification in Section 2.1. RTAs also pointed out that the use of the term “safely clear of the tracks” in Section 2.1 is inconsistent with the remainder of the rule terminology and recommends the use of the term “place of safety,” which is defined in the rule.</p>	<p><i>Request granted.</i> We agree and have made that change. Other minor clarifying words and formatting changes were also made to the section.</p>
<p>Section 2.1 (Confirmed Hold)</p> <p>SRTD notes its interpretation that a worker can request a confirmed hold and if the next train has not yet arrived at the confirmed hold point, the worker can safely enter the track zone.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>SRTD’s observation raises a need for clarification of Section 2.1 and we therefore clarify it.</i> This section is intended to require that the next vehicle in line to enter the work zone must be stopped before the roadway worker is allowed to enter the track zone to ensure that the next train in line to arrive at the work zone is not moving towards the work zone. This provision should be clarified by adding the words “next vehicle in line to arrive” to the definition so that the pertinent sentence in this definition reads:</p> <p style="padding-left: 40px;">The rail operations control center will instruct the operator of the next vehicle in line to arrive at the work zone to stop at a designated location, and the rail transit vehicle operator will confirm to the rail operations control center that the vehicle is actually stopped at the designated location.</p>
<p>Section 2.7 (Definition of “maximum authorized speed”)</p> <p>Several RTAs requested that the definition of “maximum authorized speed” be clarified, noting that different interpretations could result, depending on whether the person self-defined it as the maximum allowable track speed or maximum speed under an existing “slow order” or other operational restriction.</p>	<p><i>Request granted.</i> To address this ambiguity, we added a new definition of “Maximum Authorizable Speed”, as a new paragraph 2.7 in GO 175-A, with the remaining paragraphs being renumbered. The concern for this definition is that roadway workers may calculate a sight distance that meets the 15-second rule using lower speeds than the actual speeds of vehicles traveling in their area, resulting in less than 15 seconds for roadway workers to clear the danger zone. To avoid any ambiguity regarding design when operations are directly based on operating rules, we change the term to “maximum authorizable speed.” This new term, together with its intended definition should ensure that calculations for the 15-second rule are based on the highest operating speed.</p>

<p>LACMTA proposed using the definition “maximum design track speed.” BART reported that they enter speed restrictions in their control room, and that this prevents train operators from overriding such speed restrictions, even when operating in manual mode. In contrast, San Francisco Municipal Transportation Agency (SFMTA) reported that train operators can override any speed controls when operating in manual mode.</p>	<p>To address any possibility of train operators overriding speed restrictions, we also make the following change:</p> <p>Maximum authorizable speed is defined only for the purpose of calculating the 15-second rule distance, and is defined as the maximum allowable speed under all conditions on that track, unless a lower speed restriction is enforced by automatic train controls that also maintain speed control of trains operating in manual mode.</p> <p>We also added the new manual mode reference to protect against human error when trains are operating in manual mode and might run faster than the speed restriction, thus shortening the time for roadway workers to exit the track zone. At the same time, it allows for sufficient time, without causing excess delay, when slower speeds can be reliably enforced by automatic train controls. Of course, additionally, this protection also includes additional provisions with increasing protection as risk levels increase from Section 6.1 tasks to Section 6.3 tasks.</p>
<p>Section 2.7 (Maximum authorizable speed and fifteen-second Rule)</p> <p>SRTD requests that the definition of this rule be clarified to include how the rule is applied during normal track-speed operations, slow orders, and stop orders (confirmed hold).</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied.</i> The proposed revised term “maximum authorizable speeds” as incorporated in the attached GO 175-A is clear and more congruent with the definition “the maximum allowable speed under all conditions on that track.” Additionally, regarding speed restrictions, an exception was previously added for the situation where a fail-safe automatic train control can enforce the slower speed.</p>
<p>Section 2.8 (Minor Tasks)</p> <p>In response to SED’s December 22, 2014 Draft Recommendation, the RTAs made a number of comments seeking clarifications regarding minor tasks in section 2.6.</p> <ol style="list-style-type: none"> 1) The words “right of way” should be replace by the words “track zone” under paragraph a. of section 2.6; 2) The type of switches meant by paragraph b. should be clarified; and 	<p><i>Requests granted.</i></p> <ol style="list-style-type: none"> 1) We agree and acknowledge that right of way is frequently and significantly wider than the RWP applicable areas of it, and that the track zone was the intended area. The words “right of way” therefore are replaced by the words “track zone;” 2) We agree that the type of switches meant by paragraph b. should be clarified. We therefore add the work “track” to that paragraph, to clarify its meaning; and

<p>3) The addition of “turning on or off overhead power disconnect bypass/switches” be added as a minor task.</p>	<p>3) We reviewed the various types and operation methods in use by California RTAs and note that some of these switches are pole-mounted, with levers that require simply a manual operation, which can be done quickly and with minimal fouling of the track zone, while some require the use of a key wrench of considerable length that can be unwieldy and more complicated to use, requiring additional time and distraction of the employee from their surroundings, and may take place between the tracks. While covering these activities as minor tasks may make sense for the type with stationary pole-mounted switch keys, it is NOT appropriate to list their operation as a minor task in GO 175-A. If necessary, the RTAs may seek approval for such additional tasks under the language at the end of Section 2.6, definition of Minor Task, which allows the SED Director to address additional items the RTAs may request as minor tasks, and thus require better protection that is provided otherwise for minor tasks, such as adding a watchperson and/or an electronic early-warning device.</p>
<p>Section 2.8 (Minor Tasks)</p> <p>VTA requests that the definition of minor tasks be clarified to include graffiti removal.</p> <p>(VTA’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied.</i> This task does not fit the intent of this section, since these are tasks that have a lower level of protection than tasks that take some time and have tools. If removal of graffiti requires a paint roller, a paint tray, and a paint bucket, and requires the painter to focus on painting, this is a serious distraction similar to the distraction the worker had when fatally struck in the SRTD 2008 accident that in-part prompted adoption of the Interim GO and this GO 175-A. Notably, if the circumstances of graffiti removal were different than described here, then VTA could apply to the Director or Deputy Director of SED to have the task added, or seek Commission approval formally.</p>
<p>Section 2.8 (Minor Tasks)</p> <p>SRTD requests that Section 2.8 be clarified and the term “electric lock switches” be added to subsection 2.8.b.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> The following clarification revision is reflected in the attached GO 175-A:</p> <p>b. Lining manual or electric-lock switches, including the use of a switch bar.</p>
<p>Section 2.8 (Minor Tasks)</p> <p>SRTD seeks clarification of Section 2.8 and notes a confusion as to their understanding that when a vehicle operator is the person performing the authorized minor tasks, a confirmed hold is essentially established. (SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> If the rail operations control center has granted a confirmed hold, since the operator acts as both the EIC and train operator with the train stopped and unable to move, the conditions of a confirmed hold are met. To clarify this point, we added the following to the definition of confirmed hold in the General Order 175-A:</p> <p>A confirmed hold can be established by a rail transit vehicle operator when the operator is the person performing the authorized minor task. In this instance the operator acts as both the EIC and the train operator, and can establish the required communication with the rail operations control center.</p>

<p>Section 2.8 (Minor Tasks)</p> <p>SRTD requests that the definition of minor tasks be clarified to include: “Hot stick use for TPSS disconnect switch operation; Shunt Cord for applying a shunt to the rails to ensure equipment functions as intended; and Volt/Ohm Meter for rail to pole checks to insure insulator integrity.”</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied.</i> We do not intend to expand the list of minor tasks without a comprehensive review of the proposed additions and practices, and note that tool use of any significance must be protected under the enhanced protections in subsection 6.3. If SRTD wishes to pursue this matter further, the GO 175-A provisions for it to do so under the minor task definition, subsection 2.8. Otherwise, see the discussion below regarding SRTD’s Rule 8.15 in the watchperson definition discussion, and the possibility of developing a separate category for such tasks.</p>
<p>Section 2.10 (On-Track Equipment)</p> <p>SRTD requests that Section 2.10 defining on-track equipment be clarified to include rail mounted, self-propelled, non-revenue RTA vehicles. They state a concern that, for example, a track gauge should not be considered on-track equipment.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> We insert the word “rolling” to modify “equipment” in this definition. On-track equipment is already a subset of the “rolling stock” definition of rail transit vehicle, but adding the word “rolling” here should clarify this.</p>
<p>Former Section 2.18, renumbered to 2.22 (Definition of “Track Zone”)</p>	<p>The Definition of “Track Zone” is clarified; it means the area within six (6) feet of the outside rail on both sides of “any” track.</p>
<p>Section 2.22 (Definition of “Track Zone” and On-Track Equipment)</p> <p>SRTD requests that Section 2.20 defining the track zone should include “on-track equipment” instead of “rail maintenance machine.”</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> We agree, since the term “on-track equipment” is the more comprehensive term, and captures the equipment that could put roadway workers at risk. In response, we made changes in several places where it applies in the attached GO 175-A.</p>

<p>Section 2.15 (Right-of-way) and Section 2.19 (Station Platform)</p> <p>SRTD requests that platforms be defined, and that stations be excluded from the definition of right-of-way.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted, in part.</i> In response, we added the following definition of platform (new Section 2.19), and the following modification of the right-of-way definition, which still includes stations, but excludes station platforms (new Section 2.15):</p> <p>Station Platform means the portion of a transit facility directly adjacent to the tracks at a station where a transit vehicle stops to load and unload passengers, and where passengers are allowed to be when trains are moving.</p> <p>Right-of-way means... and station areas in or adjacent to the track zone, excluding station platforms.</p>
<p>Section 2.15 (Right-of-way)</p> <p>SRTD requests that overhead catenary systems and substation facilities be excluded from the right-of-way definition. (SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied, but clarified.</i> This would be appropriate unless those facilities are adjacent to or extend into the track zone, and we adopt the following change clarifying this issue:</p> <p>Right-of-way means... near-track communication facilities communication, overhead catenary system, and substation facilities adjacent to or extending into the track zone...</p>
<p>Former Section 2.19, now 2.23 (Definition of a Watchperson)</p> <p>LACMTA requests that a watchperson only be required to be in a place of safety, rather than clear of the track zone. LACMTA, VTA, and SRTD argue it is not always possible for the watchperson to remain clear of the track zone because of right-of-way constraints.</p> <p>(LACMTA’s, VTA’s, and SRTD’s Comments to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> We agree that these concerns need to be addressed by clarifying that a watchperson must remain clear of the track zone, or when clearance is unavailable, remain in a place of safety. Attached GO 175-A reflects these revisions.</p>

<p>Former Sections 2.19, now 2.23 (Definition of a Watchperson)</p> <p>SRTD requests that the fifteen-second rule be clarified and removed from the watchperson definition.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied.</i> From the information in SRTD’s comment, SRTD’s rule 8.15 presents SRTD’s example to justify the rule’s removal from the definition, even though that rule currently includes the fifteen-second rule. SRTD’s rule presents a combination of protections that fall somewhere in between the protections of Section 6.2 and the protections of Section 6.3. For example, SRTD’s Rule 8.15 includes a confirmed hold from Section 6.2 and a watchperson requirement from Section 6.3. SRTD’s rule 8.15 applies to tasks of limited scope and duration, but still of greater scope and duration than minor tasks. While SRTD’s Rule 8.15 might be sufficient for these tasks, we would need to review it more thoroughly before allowing it be incorporated into the GO’s permitted risk categories and protections. To simply remove the fifteen-second rule from the watchperson definition may solve SRTD’s issues, but since the fifteen-second rule is used in other places, the inadvertent impact of its removal could raise new unintended risks. We therefore decline to grant SRTD’s request. Instead, we encourage SRTD to work with SED in the near term to find other ways to address their concerns, including the possibility of inserting a new a protection category between 6.2 and 6.3.</p>
<p>Section 3.4 (Record Keeping Period)</p> <p>LACMTA requests that the proposed Section 3.4 requiring records of employee-reported unsafe acts or conditions be retained for a minimum of four years be changed to be consistent with the proposed Section 10.2 three-year retention requirement. LACMTA recommends that Section 3.4 be modified to apply the same three-year minimum record retention policy. LACMTA point out that a three-year retention period would also be consistent with the triennial safety review cycle that the Commission applies to all RTAs.</p> <p>(LACMTA’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> We agree that consistency is preferred, but instead we revise the requirement so that both Section 3.4 and 10.2 have four-year minimum retention requirements. This allows for sufficient overlap with the work needed to conduct the three-year audit. Otherwise, as soon as the audit is set to begin, the records might already be destroyed. We also updated Section 10.2 in the attached GO 175-A to have a four-year retention requirement.</p>
<p>Section 3.6 (Sight Distance and methods for determining sight distance to comply with the 15-second rule)</p> <p>VTA requested that “Section 3.6 should be amended to change the word ‘transmitted’ in the second sentence to read ‘provided.’ The reason for this proposed clarification is that the term transmitted might be read to mean that it</p>	<p><i>VTA’s request granted.</i> We made the clarification and change the word to “provided” in Section 3.6.</p> <p><i>Request for clarifying methods of determining sight distance is granted.</i> We have evaluated the various methods the RTAs use for determining sight distance. LACMTA and VTA stated they provide their employees speed tables and necessary sight distances, and they instruct their employees to count catenary poles, which are placed apart at specific and consistent</p>

needs to be forwarded electronically to employees involved in operations, whereas we believe that the intent is that this information only needs to be provided to these employees, no matter what manner of communication is used.”

San Diego Metropolitan Transit System/San Diego Trolley (SDTI) commented “SDTI currently identifies these in a test that is administered to Flagpersons pre-qualification, but it appears that the Commission is looking for a formal document or schematic. SDTI requests clarification on the requirement for “identification” such that the Commission specify by what means (media or type of document, etc.)”

LACMTA commented “In practical terms, the RTA would have to issue each affected employee a diagram of the locations that are subject to this rule, but including the reverse-running settings would be extremely complex and confusing. Moreover, the 15-second rule already accounts for ‘insufficient sight distance.’ If an RTA applies the 15-second rule correctly, there will be no need to institute this additional requirement. Complying with proposed Section 3.6 would be onerous and unnecessarily burdensome.”

BART commented “Given the large geographical area and miles of track covered by the BART system, it is extremely difficult to reasonably comply with the requirement and still use limited public resources responsibly. First, it would require significant and dedicated resources to conduct such a survey for the entire BART system. However, many variables including environmental conditions, constructions outside of our right-of-way, human factors, etc. would easily affect the accuracy of the survey and raise the issue of repeat surveys.”

distances, to objectively verify they have sufficient sight distance. BART stated that before they allow workers into a work area they run a minimum of one train in each direction through the planned work site to confirm that rail transit vehicles are controlled by the restricted speed code and thus will allow compliance with the 15-second rule. Outside of tunnels every 528 feet BART has a milepost sign. BART has milepost signs every 50 feet in tunnels. On curved track BART uses multiple watchpersons placed to cover the work area, but spaced close enough to provide sight distance; each watchperson sees the next one. Such multiple watchpersons’ primary communication is by hand signals or whistles, and radios are a secondary means of communication.

Regarding the issues raised about the 15-second rule, we clarify and revise this section to address those implement challenges while still meeting the safety goals as follows:

3.6 Each RTA shall specify one or more objective method(s) to determine appropriate sight distances for 15-second rule compliance. The information shall be provided to all employees who are involved in operations requiring the 15-second rule. Appropriate use of the method(s) shall be included in each RTA’s training program.

Examples:

a) Track surveys that designate areas with insufficient sight distance to see a rail transit vehicle traveling in any direction at the maximum authorizable speed per the 15-second rule.

b) Speed-distance tables, closing times and roadside markers roadway workers can confidently rely on to determine the sight distance necessary to be able to clear the track zone per the 15-second rule.

The purpose of this Section is to ensure roadway workers are provided a means to quickly and accurately verify at the work site that they have sufficient sight distance to comply with the 15-second rule in order to safety and quickly get out of harm’s way. The above clarifies the intent, and allows methods that are practical, objective, and currently in use by RTAs. The above clarified language also allows flexibility to RTAs to comply with the intent of the rule, and provides practical examples of best practices to further clarify the intent.

Finally, in response to SDTI’s question regarding media or document type for providing information to employees, the General Order is silent on the subject, and therefore, RTAs can use the media they deem appropriate.

<p>Section 3.6 (Sight distance)</p> <p>LACMTA commented that “closing times” in Section 3.6b is ambiguous and thus should be defined or dropped.</p> <p>(LACMTA’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> The term was intended to represent the time it would take for a vehicle to close the distance from where it could first be seen to arriving at the location of the roadway worker and watchperson. To address this concern, we replace the words “closing times” with the above phrase so that the section reads:</p> <p>b. Speed-distance tables, the time it would take for a vehicle to close the distance from where it could first be seen to arriving at the location of the roadway worker and/or watchperson, and roadside markers roadway workers can confidently rely on to determine the sight distance necessary to be able to clear the track zone per the 15-second rule.</p>
<p>Section 3.9 (Safety Equipment)</p> <p>BART requested that the terms safety equipment be clarified “...to add safety hat as part of the Personal Protective Equipment (PPE) that each RTA should consider as a requirement, based on [Federal Transit Administration] FTA Safety Advisory 14-1, [American Public Transportation Association] APTA guidelines, and [Federal Railroad Administration] FRA RWP regulations.”</p>	<p><i>Request granted.</i> Each agency has different PPE requirements for their employees depending on each RTA’s operations, and therefore it would be impractical to require all RTAs to provide the same PPEs. FTA “Safety Advisory 14-1: Right-of-Way Worker Protection” issued on December 2013, which states:</p> <p>“Personal Protective Equipment (PPE) required for wayside work, including safety vests, safety boots, hardhats and eyewear protection must be used. Additional PPE may also be required depending on the equipment used, such as gloves and face shields. The equipment itself may require protective equipment such as guards, fire extinguishers and enclosures.”</p> <p>APTA Rail Transit Standards Operating Practices Committee’s “Roadway Worker Protection Program Requirements” (document APTA RT-OP-S -016-11, published November 2011) states training course minimum requirements should include Personal protective equipment.</p> <p>We reviewed PPE requirements by FRA and Occupational Safety and Health Administration, which specify minimum standards. Based on the foregoing and in order to allow flexibility for different RTA’s operations, we revise Section 3.9 as follows:</p> <p>3.9 Each RTA shall establish what safety equipment a person accessing the track zone is required to use consistent with applicable standards such as federal, state, APTA or other industry rules and/or guidelines.</p>

<p>Section 5.1 (Job Safety Briefing)</p> <p>SRTD requests that subsection 5.1.a, the requirement be clarified to include the general work plan in a safety briefing, be removed since the general work plan could vary if multiple work crews are working in the same work zone.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request partially granted. We have clarified the text of this subsection in the attached GO 175-A as follows:</i></p> <p><i>a. The general work plan for a crew, or for each crew when there are multiple crews, each with a different general work plan.</i></p>
<p>Section 6.1. (Moving from one location to another)</p> <p>SRTD points to a provision in Section 6.1 that can be misunderstood, asking why a roadway worker could not move from one location to another in non-exclusive and semi-exclusive right-of-way just as a pedestrian could.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted. This section is clarified to state that the protection requirements in Section 6.1 do not apply to non-exclusive and semi-exclusive right-of-way as follows:</i></p> <p><i>6.1 Moving from one location to another with full attention on surroundings. The requirements in this section, a, b, and c below, do not apply to moving from one location to another in semi-exclusive and non-exclusive alignments (as defined in the General Order 143 series), with full attention to surroundings.</i></p>
<p>Section 6.1. (Moving from one location to another)</p> <p>SRTD requests that Section 6.1 be clarified and a provision be added to subsection 6.1 that allows movement that may be within the track zone, that is, within six feet of the rail, when there is a fence preventing movement farther into the track zone.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted. We agree, and the following be added to 6.1 as a new provision “d”:</i></p> <p><i>d. Roadway workers may occupy an area outside a fence installed as a physical barrier between the roadway worker and the track, where the fence is within the track zone.</i></p>

<p>Section 6.1 – (Minimum safety controls while moving from one location to another)</p> <p>LACMTA seeks clarification concerning Section 6.1. Specifically, LACMTA contends the current version of Section 6.1 makes an exception for mixed traffic operations on surface streets and public areas such as pedestrian malls and suspects that exception may have been concerning due to its imprecision. LACMTA therefore proposed to remove it but the SED does not fully support LACMTA on this point. LACMTA’s proposal would be to limit the speed of trains when proceeding past a worksite in alignment classifications 9.04(b)(3), 9.04(b)(4), or 9.04(c) or on emergency walkways as defined in General Order 143. And LACMTA does not understand why semi-exclusive and non-exclusive alignments should be excluded from the scope of this rule.</p>	<p><i>Request denied.</i> LACMTA seems confused as to why semi-exclusive and non-exclusive alignments should be excluded from the scope of this rule. We note, the intent is to exclude alignments where the public is expected to walk around the tracks, such as in pedestrian malls (non-exclusive alignments) or walk/drive across at-grade crossings (semi-exclusive alignments), since regular operations would be designed and speed restrictions established appropriate to these types of alignments.</p>
<p>Section 6.2 (Performing minor tasks)</p> <p>SRTD requests that the fifteen-second rule be clarified to not apply to Section 6.2 when there is a confirmed hold.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied.</i> We note, the fifteen-second rule may be necessary in setting up the confirmed hold, and the confirmed hold protections are still subject to human error. In addition, since minor tasks are of such limited scope and duration, and since the fifteen-second rule may initially have to be applied, the benefit of relaxing the rule after the confirmed hold has been established would be minimal.</p>
<p>Section 6.2.e.i (Performing minor tasks)</p>	<p>To provide operational options, the words “or hand signals” were added:</p> <p style="padding-left: 40px;">Trains must stop short of the work location unless the <i>roadway worker</i> communicates by radio or hand signals to the train operator that the train may proceed....</p>
<p>Section 6.3 (Early Warning Alarm Technology)</p> <p>BART recommends adding an additional section to Section 6.3 that would reflect the requirement to have early warning alarm technology implemented by November 7, 2017, for all the different options in this section.</p> <p>(BART’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> We agree, with the exception that use of such technology should be optional when vehicles physically cannot enter the work zone due to the more fail-safe provisions, that is, Section 6.3.d., options iii, iv, and v(2). We have added a new section 6.3.f to make this change.</p>

<p>Section 6.3 (Early Warning Alarm Technology)</p> <p>SRTD seeks clarification and points out that there are no rules indicating what a work crew or train operator is to do when an early warning alarm device sounds.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied without prejudice.</i> Some guidance is provided in Section 6.3 (see the discussion in that section below regarding LACMTA’s comments). In addition, SRTD and other RTAs should work with SED staff on a case-by-case basis, as was done in the case of LACMTA’s implementation of this technology. We recognize that this issue may have to be revisited as we approach the 2017 deadline set forth in the GO 175-A.</p>
<p>Section 6.3 (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>SRTD requests that subsection 6.3.d.i(d) requiring early warning devices after November 7, 2017, have “or” instead of “and” at the end. Such a change would remove the redundancy of the protections in this subsection, 6.3.d.i.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied.</i> For the reasons supporting redundancy as described in the Staff Report and in the Early Warning Alarm Technology section above, we decline to make this change. However, any RTA can use subsection 6.3.d.ii, which provides for a process to authorize replacing the flag requirement with the use of early warning alarm technology.</p>
<p>Section 6.3 (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>SRTD asks that “stopping points,” used in subsection 6.3.d.i be defined.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> We add the following to the definition section:</p> <p>Stopping point means the specific location where trains must stop according to the provisions herein.</p>
<p>Section 6.3 (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>SRTD requests that a provision be added to subsection 6.3.d.i.e requiring roadway workers to be clear of the tracks and in the designated place of safety.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> Consistent with other requirements for workers to be clear of the track zone, we add the following to this subsection as a new subsection 6.3.i.e(3):</p> <p>(3) Roadway workers are clear of the track zone, or when clearance is unavailable, are in a place of safety.</p>

<p>Section 6.3 (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>VTA seeks clarification of text in subsection 6.3.d.i(e)(1), which reads, “train operator communicates directly with the EIC using a radio.” VTA states that the EIC may not always be equipped with a radio, and requests that the method of communication between the train operator and the EIC should also include communication such as hand signals.</p> <p>(VTA’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied.</i> We believe the radio is needed to affirmatively identify the approaching train, its location, and the work zone location. Although the RTAs asked for a way to allow trains to keep moving, and we believe it provides a safe way to do so under the three (now four) conditions in this subsection. We therefore conclude that removing the affirmative identifications would be too risky.</p>
<p>Section 6.3 (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>LACMTA raises a similar issue and proposes that the train would not have to stop if the EIC was at the work site and in view of the train.</p> <p>(LACMTA’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request denied.</i> We cannot support any loosening of these provisions since stopping the momentum of the train is a critical safety component and should only be done with all the protections now specified in subsection 6.3.d.i(e).</p>
<p>Section 6.3 (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>LACMTA requests that Section 6.3.d.ii(a) be clarified to acknowledge that they already have authority from the Commission to use early warning alarm technology in place of flags under specific circumstances, by adding the following clause as underlined:</p> <p>“(a) either pursuant to specific authorization granted by the Commission and subject to any conditions accompanying that authorization, or pursuant to written authorization from the Director after an RTA submits a plan to the Director in a written proposal describing the intended use and plan for using this section, justifying the plan’s safety, and only to be</p>	<p><i>Request granted.</i> We agree and have made the clarifying revisions in the attached GO 175-A.</p>

<p>used under limited conditions where the use of flags cannot be reasonably implemented, and upon, and,”</p> <p>(LACMTA’s Comment to SED’s March 2015 Final Recommendation).</p>	
<p>Section 6.3 (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>LACMTA raises a potential operational and safety concern where the requirement to stop upon receiving an alert when operating under the provisions of subsection 6.3.d.ii(e) could leave the train operator still too far from the work site to receive a proceed signal. In this case, the operator may have no provisions that allow him or her to move closer to the site in order to receive a proceed signal. LACMTA suggests a clarifying revision that would allow the operator to proceed without stopping. Staff opposes this, as it believes getting the vehicle stopped is a critical safety element, even if it were to proceed after stopping. The current provision reads:</p> <p>(e) trains must stop upon receiving an alert and not proceed until receiving an appropriate proceed signal</p> <p>(LACMTA’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request partially granted.</i> Instead of LACMTA’s recommendation, we add the following to subsection (e) to allow the operator to resume movement if the work site is not yet in view:</p> <p>In the situation where the operator has to stop too far away from the work site to be able to receive a proceed signal, after stopping, the operator may proceed at restricted speed, but not to exceed 10 miles per hour, until the work site becomes visible. If at that point the operator does not receive a proceed signal, he or she must wait until the appropriate employee gives the signal.</p>
<p>Section 6.3.d.iii (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>BART recommends adding “track” to modify the word “switches” to make Section 6.3.d.iii consistent with Section 2.8b.</p>	<p><i>Request granted.</i> This clarification has been incorporated in GO 175-A as recommended. The clarification conveys the intended meaning. Section 6.3.d.iii now reads, “...lining and locking track switches or otherwise physically preventing entry and movement of rail transit vehicles, including on-track equipment....”</p>

<p>Section 6.3.d.ii (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>VTA objects to adding “upon showing of good cause” at the end of the sentence in Section 6.3.d.ii shown below, and requests that the GO further define for clarity the term “good cause.”</p> <p>...use of this subsection must follow review without objections by the Director of the early warning device use upon a showing of good cause...</p>	<p><i>Request granted.</i> We revised language to address this concern, now using the phrase, “...justifying the plan’s safety....”</p>
<p>Section 6.3.d.iv (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>In Section 6.3.d.iv, VTA requests that the term “barriers” should be defined or clarified to ensure the term “barriers” does not mean derails.</p>	<p><i>Request granted.</i> The SED notes that there was much discussion on this issue in meetings with the RTAs and unions, and that the conclusion was to not specify what kind of barrier must be used. The attached GO 175-A does not specify what kind of barrier must be used.</p>
<p>Section 6.3.d.iv(2) (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p> <p>VTA requests Section 6.3.d.iv(2) be clarified and that the phrase “stop commands are physically locked in the field train room” is unclear. VTA also states that this provision is generally ambiguous.</p>	<p><i>Request granted.</i> We recognize that only a few RTAs may have a field train room. Thus this could be unclear, and most RTAs would not be able to use it. For clarification, we revise the term to be more of a description than a term, changing “the field train room” to “a field train-control room.” This change then is more easily tied to the explanation in the text that follows the term, “such as a route prohibit, or other means that make it impossible for the rail operations control center to inadvertently allow proceed signals or commands into the work limits.”</p>
<p>Section 6.3.e (Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment)</p>	<p>Removed the condition of “established by means of inaccessible track,” as this condition is redundant to another requirement.</p>
<p>Section 8 (Protections for Non-RTA Emergency Response Personnel)</p> <p>SRTD points out title of Section should be corrected to delete “Non-RTA.”</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> We deleted the term “non-RTA” from the title of this section.</p>

Section 8.2 (Protections for Non-RTA Emergency Response Personnel)

VTA seeks clarification of Section 8.2:

“8.2 The RWP plan provisions shall include coordination of emergency response activities with all fire protection and law enforcement agencies in their service territory, including emergency training drills with emergency response agencies.”

VTA is concerned that this phrasing implies that RTAs must also ensure that first responders coordinate with and attend the training provided by RTAs. VTA is further concerned that as currently worded, the General Order could make RTAs also responsible for coordinating actual responses by fire protection and law enforcement agencies. However, VTA states that since such agencies are, by definition, “first” responders, this section could impose a legal impossibility on RTAs. VTA suggests clarifications to this section to address the above concerns as follows:

“The RWP plan provisions shall include provisions for the RTA to offer coordination of emergency response activities with all fire protection and law enforcement agencies in their service territory, including emergency training drills with emergency response agencies. Notwithstanding the foregoing, RTAs are not required to ensure that other agencies participate in or comply with response coordination or training drills.”

(VTA’s Comment to SED’s March 2015 Final Recommendation).

Request granted. We agree, as it retains the original intent and effect, and addresses VTA’s concerns. We included this change in the attached GO 175-A, with the exception that the words “when it is beyond their control” are added, and the suggested words “not required to ensure” were changed to “not responsible for ensuring” as this slightly modified wording more precisely targets the concern VTA raises, as follows:

8.2 The RWP plan provisions shall include provisions for the RTA to offer coordination of emergency response activities with all fire protection and law enforcement agencies in their service territory, including emergency training drills with emergency response agencies. Notwithstanding the foregoing, when it is beyond their control, RTAs are not responsible for ensuring that other agencies participate in or comply with response coordination or training drills.

<p>Section 8.3 (Protections for Non-RTA Emergency Response Personnel)</p> <p>SRTD asserts that the requirement in Section 8.3 to offer training every two years is “just an exercise in unnecessary record keeping.” SRTD contends that SRTD regularly offers and provides training, and accommodate all requests for training, and thus record keeping of who is trained or not within two years is unnecessary and does not see the purpose of this requirement.</p> <p>(SRTD’s Comment to SED’s March 2015 Final Recommendation).</p>	<p><i>Request granted.</i> We clarify this provision to address SRTD’s concerns by providing an RTA the following options:</p> <p>8.3 RTAs shall offer training to non-RTA emergency response personnel in their service territory either: 1) no less than every two years, or 2) regularly, and accommodating all requests for training. Under either option, records of training must be available for three years for Commission inspectors’ review.</p>
<p>Section 9.5.g (Renumbered from former Section 8.5.g)</p>	<p>The first part of this subsection was reworded (as underlined below) and now reads:</p> <p>g. <u>The proper signals, standardized for each RTA, to be given by an employee, including hand signals, and the proper procedures upon receiving a rail transit vehicle approach warning</u></p>
<p>Throughout GO 175-A</p>	<p>When terms used in the body of GO 175-A are defined in the Definition section, those terms are now <i>italicized</i> to provide clarity and to indicate that the reader needed to refer to the definition section.</p> <p>Minor, clerical and otherwise non-substantive corrections have been made and are reflected in GO 175-A. For instance, GO 175-A uses the term “rail operations control center” to describe the control centers for rail operations, because different RTAs use different names for their control centers. GO 175-A also uses the term “watchperson,” instead of “watchman.”</p>

Attachment C to Proposed Decision:

Redlined Version of the Proposed General
Order 175-A showing all revisions from the
Interim GO

Proposed
GENERAL ORDER NO. 175-A

**PUBLIC UTILITIES
COMMISSION
OF THE
STATE OF CALIFORNIA**

RULES AND REGULATIONS GOVERNING ROADWAY WORKER
PROTECTION PROVIDED BY RAIL TRANSIT AGENCIES AND RAIL FIXED
GUIDEWAY SYSTEMS

Adopted _____
Decision _____
Rulemaking 09-01-020

Proposed General Order 175-A

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6	MINIMUM CONTROLS/LIMITATIONS FOR EMPLOYEES PERFORMING DIFFERENT CATEGORIES OF WORK WHEN IN THE TRACK ZONE FOR ANY TRACK OTHER THAN YARD OR END-OF-LINE STORAGE TRACKS	<u>11</u>	Deleted: 0
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Rail Transit Agencies (RTA) and Rail Fixed Guideway Systems (RFGS) operating in California shall comply with the following rules governing roadway worker protection. Terms defined in the Definition section are italicized throughout this General Order.

1 GENERAL PROVISIONS

1.1 **Authority.** These rules and regulations are authorized by and implement the provisions of 49 U.S.C. § 5330; 49 C.F.R. § 659; and California Public Utilities Code Sections 778 and 99152, as well as the California Public Utilities Code sections establishing each individual *rail transit agency* within California.

1.2 **Purpose.** The purpose of these rules and regulations is to provide a safe working environment for *RTA roadway workers*. These rules and regulations are intended to ensure that each *RTA* adopts a program for *roadway workers* containing specific rules for protecting these workers from the danger of being struck by trains or other *on-track equipment*.

1.3 **Applicability.** These rules and regulations are applicable to all *RTAs* in California. These rules and regulations do not prohibit *RTAs* from implementing rules that provide greater safety. These rules and regulations do not apply to:

- a. Fire protection and law enforcement personnel.
- b. Employees responding to a life-threatening emergency.
- c. Track that is being constructed until any *RTA* vehicles or *employees* occupy the construction area, except for *RTA employees* who must occupy the area to perform inspections needed during construction, and who will do so under the construction contractor’s protections and regulatory obligations.
- d. Work being performed on a platform outside of the platform edge warning strip where an *employee* or any tool does not infringe on the warning strip.

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- 1.4 **Additional Rules.** The Commission may make such additional rules and regulations or changes to these rules and regulations as necessary for the purpose of safety.
- 1.5 **Exemptions or Modifications.** Requests for exemptions or modifications from these rules and regulations shall contain a full statement of the reasons justifying the request. A request must demonstrate that safety would not be reduced by the proposed exemption or modification. Any exemption or modification so granted shall be limited to the particular matter covered by the request and shall require Commission approval.

2 DEFINITIONS

Terms defined in this section are italicized throughout this General Order.

2.1 *Confirmed Hold* means a specific procedure that can be used as specified in this General Order to hold *rail transit vehicles* including *on-track equipment*, out of a work location as follows: The *rail operations control center* will instruct a *rail transit vehicle* operator *of the next vehicle in line to arrive at the work zone* to stop at a designated location, and the *rail transit vehicle* operator will confirm to the *rail operations control center* that the vehicle is actually stopped at the designated location. *Roadway workers* will not be permitted to enter the work zone until the *Employee in Charge (EIC)* receives notification from the *rail operations control center* that a *Confirmed Hold* has been verified for each approaching *rail transit vehicle*. The *Confirmed Hold* will not be lifted until the *EIC* has determined all *roadway workers* are *clear of the track zone, or in a place of safety as applicable*, and confirms the release of the work location to the *rail operations control center*.

A confirmed hold can be established by a rail transit vehicle operator when the operator is the person performing the authorized minor task. In this instance the operator acts as both the EIC and the train operator, and can establish the required communication with the rail operations control

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2.2 Director means the Director of the Commission’s division overseeing rail transit safety, or the Deputy Director overseeing rail transit safety.

2.3 Employee means a person employed by a rail transit agency (RTA) in California, an employee of a utility providing services to the RTA or accessing the RTAs right-of-way to maintain their facilities who could occupy the track zone, or a contractor working on behalf of such RTA.

2.4 Employee in Charge (EIC) means the RTA employee with responsibility for supervising and ensuring safety, including use of roadway worker protections, at a right-of-way worksite. In the case of a minor task, the EIC would be the roadway worker performing the minor task if alone.

2.5 Fifteen-second rule, or 15-second rule, means a rule that requires a roadway worker to be clear of the track zone or in a place of safety 15 seconds before a rail transit vehicle moving at the maximum authorizable speed on that track could arrive at the location of the roadway worker.

2.6 Job safety briefing means a meeting conducted at the job site by the EIC of the work that focuses on the hazards of the work to be performed and the provisions to eliminate or protect against those hazards. The term is further defined through the requirements for a job safety briefing provided in this General Order.

2.7 Maximum authorizable speed is defined only for the purpose of calculating the 15-second rule distance, and is defined as the maximum allowable speed under all conditions on that track, unless a lower speed restriction is enforced by automatic train controls that also control speeds trains operating in manual mode. If a lower speed is enforced by automatic train controls, then the maximum authorizable speed on that track is the automatic train control-enforced speed.

2.8 Minor tasks are defined as those tasks without tools unless specified herein where an individual can continue to look out at least every five

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(5) seconds for approaching *rail transit vehicles* and where they can be performed without violating the *15-second rule*. *Minor tasks* are limited to the following:

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- a. Retrieving or removing an item from the track zone.
- b. Lining manual or electric-lock track switches, including the use of a switch bar.

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- c. Placing or removing flags.

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- d. Taking photographs of an actual or suspected safety hazard or an actual or suspected violation of a rail safety law, regulation, order, or standard using a stand-alone camera that cannot be used for electronic communications; the only exception to the stand-alone requirement is that a camera may have a send-only feature that can send photos. After each time pressing the camera shutter release to take one photo or a one-second burst of photos, the employee must step out of the track zone to check the surroundings for any hazards, and only when it is safe step back into the track zone to take additional photos. Sending photos is not a minor task, and must be done either outside the track zone or under higher levels of protection.

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d. taking photographs with an RTA-issued or RTA-approved camera, or ¶

- e. A visual inspection at one specific fixed location, deemed an immediate need.

Tasks and tools not listed herein may be performed and used upon written request to the *Director* with copy to the affected *employees' labor union* representative(s) and written concurrence from the *Director*.

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2.9 Near-miss means an incident infringing on the safety of a roadway worker on or near the tracks, but without contact or injury.

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2.10 On-track Equipment is a subset of the comprehensive rail transit vehicle definition herein, and means any rolling equipment besides revenue vehicles used for any purpose, including but not limited to testing, inspection, and maintenance. The definition is included to avoid possible confusion in subsections herein where a rail transit vehicle mistakenly

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might be assumed to be only a vehicle in revenue passenger service.

2.11 Place of Safety means a space where a person or persons can safely get sufficiently clear of any rail transit vehicle, including any on-track equipment, moving on any track.

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2.12 Rail Fixed Guideway System (RFGS) means any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, cable car, automatic people mover, or automated guideway transit system used for public transit and not regulated by the Federal Railroad Administration or not specifically exempted by statute from Commission oversight.

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2.13 Rail Transit Agency (RTA) means the entity that plans, designs, constructs, and/or operates a RFGS.

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2.14 Rail Transit Vehicle means an RTA's rolling stock, including but not limited to passenger and maintenance vehicles.

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2.15 Right-of-way means a strip of land that is granted, through an easement or other mechanism, for transportation purposes which includes the RTA's rails, track, crossties, ballast, bridges, underpasses, tunnels, wayside signals, communication, overhead catenary system, and substation facilities adjacent to or extending into the track zone, and station areas in or adjacent to the track zone, excluding station platforms.

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2.16 Roadway Worker means any employee who performs any work on the right-of-way.

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2.17 RTA Contractor means an entity that performs tasks on behalf of the RTA.

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2.18 RWP – Roadway worker protection.

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2.19 Station Platform means the portion of a transit facility directly adjacent to the tracks at a station where a transit vehicle stops to load and unload passengers, and where passengers are allowed to be when trains are moving.

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2.20 Stopping Point means the specific location where trains must stop according to the provisions herein.

2.21 System Safety Program Plan (SSPP) means a document adopted by an RTA detailing its safety policies, objectives, responsibilities, and

procedures.

2.22. *Track Zone* means an area within six (6) feet of the outside rail on both sides of any track.

- a. The *track zone* definition is intended to provide a threshold that can be identified by workers as an area where a person or equipment could be struck, or has the potential to be struck, by the widest equipment that could occupy the track. The zone provides additional space away from the widest revenue *rail transit vehicle* that could occupy the track to address the potential for inadvertent movement into the area where a person or roadway working equipment could be struck.
- b. This zone should be widened, or extra safety provisions put in place, to safely accommodate any movement that might be anticipated into the area. Examples include equipment placed just outside the zone that has a bucket or swing boom that could extend far enough to be struck, or have the potential to be struck, or on-track equipment that might be wider than revenue *rail transit vehicles*.

2.23. *Watchperson*, sometimes called a lookout, means an *employee* who has been trained and qualified on RWP rules and procedures, whose sole duty is to provide effective warning in compliance with the 15-second rule to *roadway workers* of approaching *rail transit vehicles*, including trains or any *on-track equipment*, who does not perform or assist in any other work aside from the *watchperson* duty, and who remains clear of the *track zone*, or when clearance is unavailable, remains in a place of safety.

3 RTA RESPONSIBILITIES

- 3.1 Each *RTA* shall adopt and implement a program that will afford safety to all its *roadway workers*.
- 3.2 Each *RTA* shall adopt *RWP* rules that satisfy the requirements of this General Order.
- 3.3 Each *RTA* shall adopt a training program in accordance with Section 9.

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3.4 Each RTA shall maintain for a minimum of four years records of *employee*-reported unsafe acts or conditions that could result in a *roadway worker* accident or incident. Records may be kept as part of an RTA's *Near-Miss program* and recordkeeping specified in Section 10.

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3.5 Each RTA shall create and maintain a separate dedicated manual excerpting all necessary *roadway worker* safety procedures and rules from its rule book(s), make it freely available to *roadway workers*, and ensure that *roadway workers* have easy access to the manual when performing job functions.

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3.6 Each RTA shall specify one or more objective method(s) to determine appropriate sight distance for 15-second rule compliance as part of their training program. The information shall be provided to all employees who are involved in operations requiring the 15-second rule. Appropriate use of the rule shall be included in each RTA's training program.

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Examples:

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a. Track surveys that designate areas with insufficient sight distance to see a rail transit vehicle traveling in any direction at the maximum authorizable speed per the 15-second rule.

b. Speed-distance tables, the time it would take for a vehicle to close the distance from where it could first be seen to arriving at the location of the roadway worker and/or watchperson, and roadside markers roadway workers can confidently rely on to determine the sight distance necessary to be able to clear the track zone per the 15-second rule.

3.7 Each RTA shall include RWP rules in its compliance testing program to ensure compliance, to assess the degree of compliance, and to make any necessary changes to enhance compliance.

3.8 If an RTA uses flag protection to provide *roadway worker* safety, it shall establish written flag protection procedures and rules and include those rules in the manual described in Section 3.5.

3.9 Each RTA shall establish what safety equipment a person accessing

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the *track zone* is required to use consistent with applicable standards such as federal, state, APTA or other industry rules and/or guidelines.

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3.10 Anyone allowed access to the *track zone*, by request, easement, or other form of permission, shall either complete the required *RWP* training or be escorted by an *RWP*-trained *employee*.

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4 RIGHTS AND RESPONSIBILITIES

4.1 Right to a *job safety briefing*. Each *RTA* shall require that a *job safety briefing* be performed prior to the performance of any job duty that may occur on the *right-of-way*, and shall require that all *roadway workers* at the job participate.

4.2 Right to discuss and confirm understanding. In any *job safety briefing* provided prior to work on the *right-of-way*, each *RTA* shall grant each *roadway worker* the right to discuss and confirm understanding of the safety provisions to be provided.

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4.3 Right to challenge. Each *RTA* shall provide every *roadway worker* the right to challenge, and/or refuse, in good faith, any *RWP* assignment he or she has reason to believe is unsafe or would violate any *RWP* rule or procedure. The *roadway worker* must describe the safety or rule concern and remain clear of the track until the challenge is resolved.

4.4 Right and responsibility to report unsafe acts or conditions. Each *RTA* shall provide opportunities for *roadway workers* to report to the *RTA* any unsafe acts or conditions that could result in an accident or incident, and shall not discourage such reporting.

4.5 Each *RTA* shall ensure that every *roadway worker* knows they have a responsibility to ascertain that *track zone* safety is established and understood prior to entering the *track zone*.

4.6 Each *RTA* shall ensure that every *roadway worker* knows they have a duty to warn other *roadway workers* and *employees* in an unprotected *track zone* to move to the clear.

4.7 Shared responsibility. Each *RTA* shall communicate to its *roadway*

workers that each worker ultimately is responsible for his or her actions at a work site, and that compliance with the RWP rules are designed to require actions that will keep workers safe and must be followed consistent with this section.

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5 JOB SAFETY BRIEFING

5.1 Each RTA shall require that an EIC provide a job safety briefing prior to any roadway work within the RTA right-of-way. The job safety briefing for each roadway worker must include a discussion and explanation of the job function, rules, and procedures for carrying out job duties. The job safety briefing shall include the following aspects as applicable:

a. The general work plan for a crew; or for each crew when there are multiple crews, each with a different general work plan.

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b. The hazards involved and the means by which safety is to be provided to the roadway workers through compliance with these roadway worker safety rules and procedures. Special attention shall be given to the presence of on-track equipment, to the presence of any adjacent tracks, and to any need to widen the track zone according to the provisions of the track zone definition.

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c. Personal Protective Equipment.

d. Identification and location of key personnel such as a watchperson, and an EIC.

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e. Appropriate flags and proper flag placement.

f. A place of safety shall be predetermined that will allow workers to move to the safe area at least 15 seconds before any approaching rail transit vehicle moving at the maximum authorizable speed on that track can pass the location of the roadway worker.

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g. The means for determining if and how the 15-second rule will be met shall be discussed including:

- i. Determination of sight distance.
ii. Visibility conditions.

- iii. Ambient noise interference.
- iv. *Maximum authorizable speed.*
- v. Time needed to disengage from the work.
- vi. Location of *places of safety*.
- vii. Time to get to the *place of safety*.
- viii. Adjacent tracks, the hazards associated, and provisions to address those hazards.

- h. The means of communication among the *roadway workers* to be used in the job performance, including communication with any roadway maintenance machine operators.
- i. Acknowledgement by each *employee* that they understand the rules to be used.
- j. If a *watchperson* is being used, each *employee*, including the *watchperson*, must receive a review of the *watchperson's* duties, at a minimum to include the information in the definition herein of a *watchperson*, as follows: The *watchperson's* sole duty is to provide effective warning in compliance with the 15-second rule to *roadway workers* of approaching *rail transit vehicles*, including trains or any *on-track equipment*, does not perform or assist in any other work aside from the *watchperson* duty, and remains clear of the *track zone*.

- 5.2 If there is any change in the scope of work or crew after the initial job safety briefing, a follow-up job safety briefing shall be conducted.
- 5.3 In the case of an individual *roadway worker* moving from one location to another (Section 6.1) or performing a *minor task* (Section 6.2), the job safety briefing will be a discussion, between the *roadway worker* and the *employee* providing the authorization to enter the roadway, of the protection to be used.

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6 MINIMUM CONTROLS/LIMITATIONS FOR EMPLOYEES PERFORMING DIFFERENT CATEGORIES OF WORK WHEN WITHIN THE TRACK ZONE ON ANY TRACK OTHER THAN YARD OR END-OF-LINE STORAGE TRACKS

Each RTA shall provide the protections specified in this section. The following categories of work and levels of protection proceed from low to high. A higher level of protection may be used for any category of work. Employees may occupy passenger platforms, except for the platform-edge warning strip, or train operator platforms, without the provisions in the sections below.

6.1 Moving from one location to another with full attention on surroundings. The requirements in this section, a, b, and c below, do not apply to moving from one location to another on semi-exclusive and non-exclusive alignments (as defined in the General Order 143 series), with full attention to surroundings.

- a. Roadway worker/crew must establish authorization for the identified area, and
- b. Roadway worker(s) must be able to comply with the 15-second rule.
- c. Roadway workers may occupy General Order 143 series compliant emergency walkways in tunnels and on elevated structures where there is insufficient clearance to remain clear of the track zone. Trains must be slowed to 25 miles per hour or less before roadway workers may occupy the track zone on the emergency walkway.
- d. Roadway workers may occupy an area outside a fence installed as a physical barrier between the roadway worker and the track, where the fence is within the track zone.

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6.2 Performing minor tasks with sufficient attention to surroundings.

- a. Roadway worker must establish authorization for identified work area, and
- b. Notification must be given to train operators, and
- c. Notification of reverse direction and other abnormal train

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movement must be provided to *roadway worker*, and

- d. *Roadway worker* must be able to comply with the *15-second rule*, and
- e. One of the following, i or ii:
 - i. Trains must stop short of the work location unless the *roadway worker* communicates by radio or hand signals to the train operator that the train may proceed. Trains approaching the work location must sound an audible warning until it is acknowledged by the *roadway worker*. Upon radio communication between the train operator and *roadway worker*, or upon visual confirmation by the roadway worker, that the train is stopped, the *roadway worker* may enter the *track zone*. Upon radio communication or hand signals from the *roadway worker* that he or she is clear of the *track zone* or on a walkway under the provisions of Section 6.1.c, the train may proceed.
 - ii. Trains are held outside the work location under a *Confirmed Hold*, Deleted: as defined in this General Order

6.3 Visual Inspections, Maintenance, and Repairs, Using Hand Tools, Machines, or Equipment.

The provisions of this section must cover all *roadway worker/crew* activities not covered in sections 6.1 and 6.2.

- a. *Roadway worker/crew* must establish authorization for identified work area, and
- b. Communication between the controller, the train operator, and the *EIC* must be established, and the means by which protection is going to be provided documented and confirmed by these individuals, affirming that no worker will be permitted to enter the *track zone* until the provisions in this section are implemented, and
- c. Notification of reverse direction and other abnormal train movement must be provided to *roadway worker(s)*, and
- d. On-rail vehicle movement into the work zone must be controlled by

applying one or more of the following controls, i through y, as appropriate:

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i. with flags:

(a) flags that indicate speed restrictions, advance warnings of *stopping points*, and *stopping points*, and

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(b) watchperson(s), and

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(c)with all movements proceeding at a speed that will allow stopping within half the range-of-vision, and no greater than 25 miles per hour unless the EIC sets a slower speed, and,

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(d) after November 7, 2017, with an early warning alarm device, and

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(e)Trains must stop at *stopping points*, unless the EIC provides permission to proceed without stopping under all four of the following conditions:

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(1) train operator communicates directly with the EIC using a radio; and

(2) train operator identifies the train and its location. EIC identifies their work zone area; and

(3) roadway workers are clear of the track zone, or when clearance is unavailable, are in a *place of safety*.

(4) hand signals are given by a person who can visually be identified as being authorized to give such hand signals.

Or,

ii. without flags:

(a) either pursuant to specific authorization granted by the Commission and subject to any conditions accompanying that authorization; or pursuant to written authorization from the Director after an RTA submits a plan to the Director in a written proposal describing the intended use and plan for using this section, justifying the plan's safety, and only to be used under limited conditions where the use of flags cannot

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be reasonably implemented; and,

(b) with an early warning electronic device; and

(c) with watchperson(s); and

(d) with all movements proceeding at a speed that will allow stopping within half the range-of-vision, and no greater than 25 miles per hour unless the EIC sets a slower speed.

(e) trains must stop upon receiving an alert and not proceed until receiving an appropriate proceed signal, but in the situation where the operator has to stop too far away from the work site to be able to receive a proceed signal, after stopping, the operator may proceed at restricted speed, but not to exceed 10 miles per hour, until the work site becomes visible. If at that point the operator does not receive a proceed signal, he or she must wait until the appropriate employee gives the signal;

Or,

iii. lining and locking track switches or otherwise physically preventing entry and movement of *rail transit vehicles*, including *on-track equipment*, with a *watchperson*, or

iv. restricting work to times when propulsion power is down with verification from control that track is out of service, and barriers are placed that physically prevent *rail transit vehicles*, including *on-track equipment*, from entering the work zone, or

v. for RTAs with positive train control systems that are operating as designed across the entire system,

(1) with a *watchperson*: the rail operations control center shall establish red signals or stop commands as applicable to the system, or

(2) without a *watchperson*: the rail operations control center shall establish red signals or stop commands as applicable to the system and stop commands are physically locked in a field train-control room, by means

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such as a route prohibit, or other means that make it impossible for the rail operations control center to inadvertently allow proceed signals or commands into the work limits. Exception: This subsection does not apply where the positive train control system allows operators to exceed 25 miles per hour in manual mode.

e. Within working limits, rail transit vehicles, including on-track equipment, shall move only under the direction of the EIC, and shall move at a speed that will allow stopping within half the range-of-vision, and no greater than 25 miles per hour unless the EIC sets a slower speed.

f. Beginning November 7, 2017, early warning alarm technology must be used, with the exception that it is recommended but optional when the protections of Sections 6.3.d iii, iv, and v(2) are in place.

g. A standalone camera may be used for work-related purposes under the protections in this section. A cell phone, smartphone, or similar communication device camera may be used for work-related purposes under the protections in this section if it is an RTA-issued device and if it is rendered incapable of sending and receiving communications while in the track zone; the device must be made immediately available to an RTA supervisor or Commission inspector upon request. Photographs may only be sent from outside the track zone unless all of the following conditions are met:

- The sender is unable to step out of the track zone.
- No on-track vehicles are working in the track zone.
- The protections of Sections 6.3.d, iii, iv, or v are being used.
- The sender moves to as safe a location as possible.

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7 MINIMUM CONTROLS/LIMITATIONS FOR EMPLOYEES PERFORMING

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DIFFERENT CATEGORIES OF WORK WHEN IN THE TRACK ZONE ON YARD AND END-OF-LINE STORAGE TRACKS

- 7.1 Each RTA shall have and submit to Commission staff its yard and end-of-line storage track RWP program within 90 days of the effective date of this General Order and each time the plan is changed.
- 7.2 Each RTA shall comply with its yard and end-of-line storage track RWP program.

8. PROTECTIONS FOR EMERGENCY RESPONSE PERSONNEL

- 8.1 The RWP plan of each RTA shall include provisions for protection of non-RTA emergency response personnel. The provisions shall include consideration of movements on adjacent tracks.
- 8.2 The RWP plan provisions shall include provisions for the RTA to offer coordination of emergency response activities with all fire protection and law enforcement agencies in their service territory, including emergency training drills with emergency response agencies. Notwithstanding the foregoing, when it is beyond their control, RTAs are not responsible for ensuring that other agencies participate in or comply with response coordination or training drills.
- 8.3 RTAs shall offer training to non-RTA emergency response personnel in their service territory either: 1) no less than every two years, or 2) regularly, and accommodating all requests for training. Under either option, records of training must be available for three years for Commission inspectors' review.
- 8.4 An RTA's SSPP must include provisions for training of employees who may occupy the track zone during response to emergencies.

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9 ROADWAY WORKER PROTECTION TRAINING

- 9.1 Each RTA shall adopt an RWP training program for roadway workers so that each worker understands the hazards of working along the right-of-way and the methods to safely work on the right-of-way.
- 9.2 Each RTA shall adopt an RWP training program for any employee who

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may affect *roadway worker* safety, including their own safety. For example, the program shall cover *employees* such as *rail transit vehicle* operators, dispatchers, [rail operations](#) control center staff, and supervisors.

9.3 Each *RTA* shall make changes to its training program to address problems identified through the results of compliance testing, *near-miss* reports, reports of unsafe acts or conditions, and comments received on the training program.

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9.4 No *RTA* shall assign an *employee* to perform the duties of a *roadway worker* unless that *employee* has received training in the *RWP* procedures associated with the work assignment to be performed. Any person who is escorted and being provided *RWP* safety by an *RWP*-trained *employee* is exempt from these training provisions.

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- a. Each *RTA* at least once every 24 months shall retrain all *roadway workers* and *employees* with *RWP* responsibilities on the *RWP* training program for *roadway workers*.
- b. Records showing compliance with the requirement in subsection a. above shall be maintained for a minimum of three (3) years.
- c. Each *RTA* shall provide an opportunity in its training program for *roadway workers* to raise and discuss issues regarding the effectiveness of the training program.

9.5 The training of all *roadway workers* at a minimum shall include:

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- a. Classroom training with the opportunity to ask the *RWP* trainer questions and raise and discuss *RWP* issues.
- b. Experience in a representative field-setting.
- c. The *RTA*'s *RWP* rules and procedures.
- d. Recognition of all tracks and understanding of the space around them within which *RWP* is required.
- e. The functions and responsibilities of various persons involved with *RWP* procedures.
- f. Checks or tests to ensure the ability to comply with *RWP*

instructions given by persons performing, or responsible for, on-track safety and *RWP* functions.

- g. The proper signals, standardized for each RTA, to be given by an employee, including hand signals, and the proper procedures upon receiving a *rail transit vehicle* approach warning from a *watchperson*, including applicable operating and flagging rules.
- h. The hazards associated with working on or near all tracks, including review of *RWP* rules and procedures.
- i. Flag protection rules and procedures and how they are applied to *RWP*.
- j. Classroom discussion of the compliance testing program requirements.
- k. Classroom discussion of the *RTA's RWP near-miss* program including, but not limited to how to report *near-misses*.

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9.6 Each RTA shall insure that their *RWP* training personnel are competent to provide effective *RWP* training, and at a minimum will consider the following:

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- a. Experience and knowledge of effective training techniques.
- b. Experience with the *RTA's RWP* rules
- c. Knowledge of the *RTA's RWP* rules, program, operations, and operating environment, including applicable operating rules.
- d. Knowledge of the training requirements specified in this General Order.

10 NEAR-MISS REPORTING PROGRAMS AND RECORDS

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10.1 Each *RTA* shall develop and implement a program for reporting and recording *near-misses* regarding *RWPs*.

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10.2 *RWP near-miss* records shall be retained by the *RTA* for a period of four (4) years and shall be made available to CPUC staff on demand.

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10.3 The *near-miss* program shall include:

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- a. A policy statement supporting the *near-miss* program signed by

the CEO, and

- b. A process to encourage and allow *roadway workers* to report *near-misses*, and
- c. Methods to store, easily access, and track *near-misses* and corrective actions, and
- d. Analyses to identify primary and contributory causal factors including root causes, and to implement corrective actions.

10.4 Each *RTA* shall submit a copy of its *near-miss* program to staff within 90 days of the effective date of this order and within 30 days of any subsequent modifications.

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10.5 Each *RTA* shall reference their *near-miss* program in their *SSPP*.

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10.6 Each *RTA* shall periodically review the effectiveness of its *near-miss* program taking into consideration industry practices and make adjustments if needed for increased effectiveness to achieve program goals.

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Attachment D to Proposed Decision:

NTSB Recommendation to the FTA,
dated December 19, 2013

**National Transportation Safety Board**

Washington, DC 20594

Office of the Chairman

Date: December 19, 2013**In reply refer to:** R-13-39 and -40 (Urgent)

The Honorable Peter M. Rogoff
Administrator
Federal Transit Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

The National Transportation Safety Board (NTSB) urges the Federal Transit Administration (FTA) to take action on the safety recommendations issued in this letter. These urgent recommendations address the need for improved roadway worker¹ protection, including redundant protection such as positive train control (PTC), secondary warning devices or shunting, as well as the review and revision, as necessary, of roadway worker rules and procedures to eliminate any authorization that depends solely on the roadway worker to provide protection from trains and moving equipment. These recommendations are derived from the NTSB's ongoing investigation of an accident involving the San Francisco Bay Area Rapid Transit District (BART) that occurred on October 19, 2013, in Walnut Creek, California, where two roadway workers died as a result of being struck by a BART train.

On Saturday, October 19, 2013, at 1:44 p.m. Pacific daylight time, BART train 963 struck two engineering department employees in the right-of-way near Walnut Creek, California. The employees died as a result of their injuries. Train 963 was traveling northbound on the C1 track, between the Walnut Creek station and the Pleasant Hill station. At the time of the accident, there were six BART employees on the train: an operator/trainer/supervisor, two student train operators, and three equipment maintenance employees. A student train operator was operating the train at the time of the accident. There were no injuries to those on board the train.

Union-represented BART employees were on strike at the time of the accident. There were two trains operating on the system, both of which were operating for maintenance and training purposes and transporting management employees only and were not transporting revenue passengers. These trains were operated by management employees.

On Friday, October 18, 2013, a minor defect was noted on the C1 track, and two engineering department employees planned to take measurements at the defect location. One of the employees was a BART manager and the other was a BART consultant; they were working as roadway workers due to the labor strike. They requested and received "simple approval"

¹ *Roadway Worker* means any employee of a railroad or rail transit agency, or of a contractor to a railroad or rail transit agency, whose duties include inspection, construction, maintenance or repair of railroad 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 flagmen and watchmen/lookouts. Roadway workers may also be referred to as wayside workers or maintenance-of-way work crews.

authority to enter the roadway² in accordance with BART rules and regulations.³ Following this accident, BART discontinued the “simple approval” authorization process for granting access to the roadway. The investigation into the accident continues, and it has re-energized concerns about the need for improved roadway worker protection in the rail transit industry.

The BART train control and supervisory system is made up of four major parts: the operations control center, the integrated computer system, an automatic train control (ATC) system, and on-board automatic train operations computers. An ATC system is designed to maintain train separation but does not provide redundant protection, such as PTC or shunting, for roadway workers. Train operators are also governed by BART’s *Operations Rules and Procedures* manual.

NTSB investigators learned that BART had a roadway safety program with general roadway safety practices. One such safety practice, known as “simple approval,” provided an authorization from the control center for employees to enter the roadway with no protection provided. Simple approval required the roadway worker to be aware of the situation and provide his/her own protection. Simple approval authorization was a means of keeping the control center aware of the presence of personnel in a specified location in the roadway. Personnel requesting simple approval authorization were reminded that they were required to “provide their own protection and not interfere with mainline/yard operations.”

Previous NTSB Recommendations

As a result of its investigation of two separate accidents^{4,5} in 2006 in which roadway workers died after being struck by Washington Metropolitan Transit Authority (WMATA) trains, the NTSB made the following safety recommendations to WMATA in January of 2008.⁶

R-08-01

Review your *Metrorail Safety Rules and Procedures Handbook* and revise it as necessary to create additional layers of protection for wayside workers, including:

- Adding requirements for wayside pre-work job briefings to ensure that all workers are informed of their duties, of their respective roles in work crew safety, and of the areas that are to be used to stay clear of trains.

² *Roadway* means the strip of land on which railroad tracks are on. Roadway may also be referred to as right-of-way and wayside.

³ BART, *Operations Rules and Procedures*, “Section VI – Operations Jurisdictions and Clearances, 6200-Simple Approval,” rev. 6.2, January 2008.

⁴ *Washington Metropolitan Area Transit Authority Train Strikes Wayside Worker near Dupont Circle Station, Washington, D.C., May 14, 2006*, Railroad Accident Brief RAB-08/01 (Washington, DC: National Transportation Safety Board, 2008).

⁵ *Washington Metropolitan Area Transit Authority Train Strikes Wayside Workers Near Eisenhower Avenue Station, Alexandria, Virginia, November 30, 2006*, Railroad Accident Brief RAB-08/02 (Washington, DC: National Transportation Safety Board, 2008)

⁶ This recommendation letter, dated January 30, 2008, is available on the NTSB website at <http://www.nts.gov/>.

- Requiring that when train operators request permission to either enter a main track, or when a train is turned for a return trip, the train operators along the affected lines must acknowledge receipt of the updated radio announcement from the control center regarding wayside workers.
- Establishing procedures to be used for members of a work crew to acknowledge a lookout's warning that a train is approaching on a particular track from a particular direction before a lookout gives an *all clear* signal to a train.

R-08-02

Establish a systematic program for frequent unannounced checks of employee compliance with Metrorail operating and safety rules and procedures.

R-08-03

Perform periodic hazard analyses on the deficiencies identified by unannounced checks of employee compliance in response to Safety Recommendation R-08-02, and use the results to revise Metrorail training curricula or enforcement activities, as necessary, to improve employee compliance with operating and safety rules and procedures.

R-08-04

Promptly implement appropriate technology that will automatically alert wayside workers of approaching trains and will automatically alert train operators when approaching areas with workers on or near the tracks.

On January 9, 2007, a southbound Massachusetts Bay Transportation Authority (MBTA) passenger train, operated by Massachusetts Bay Commuter Railroad (MBCR), struck a track maintenance vehicle that was on the track near Woburn, Massachusetts.⁷ As a result of the accident investigation, the NTSB issued the following recommendation to the Federal Railroad Administration (FRA).⁸ This recommendation was recently reiterated based on the ongoing NTSB investigation of the May 28, 2013, accident in West Haven, Connecticut, involving the Metro-North Railroad.⁹

R-08-06

Require redundant signal protection, such as shunting, for maintenance-of-way work crews who depend on the train dispatcher to provide signal protection.

⁷ *Collision of Massachusetts Bay Transportation Authority Train 322 and Track Maintenance Equipment near Woburn, Massachusetts, January 9, 2007*, Railroad Accident Report RAR-08/01 (Washington, DC: National Transportation Safety Board, 2008).

⁸ This recommendation letter, dated April 10, 2008, is available on the NTSB website at <http://www.nts.gov>.

⁹ The recommendation letter, dated June 17, 2013, is available on the NTSB website at <http://www.nts.gov>.

The FRA has initiated rulemaking in response to Safety Recommendation R-08-06.¹⁰ However, it is not complete as of this date; therefore, Safety Recommendation R-08-06 is currently classified “Open—Acceptable Response.”

On January 26, 2010, a hi-rail vehicle—a truck or automobile that can be operated on either highways or rails—operating southbound about 0.9 miles north of the WMATA Rockville metro station struck two ATC technicians who were working wayside replacing an impedance bond between the tracks.¹¹ The struck ATC technicians died from their injuries. As a result of the WMATA accident investigation, the NTSB issued the following recommendations to the FTA.¹²

R-12-32

Notify all rail transit agencies regarding the circumstances of the January 26, 2010, accident near Rockville Metro Station and urge them to evaluate their roadway worker protection programs and procedures to ensure that they adequately and effectively address appropriate training, communication, maintenance-vehicle movement authorities, flagging procedures, rules compliance, and the sharing of a work area by multiple work crews.

R-12-33

Advise all state safety oversight agencies of the circumstances of the January 26, 2010, accident near Rockville Metro Station and urge them to audit the roadway worker protection programs and the procedures of all rail transit operations in their states to ensure that they adequately and effectively address appropriate training, communication, maintenance-vehicle movement authorities, flagging procedures, rules compliance, and the sharing of a work area by multiple work crews.

R-12-34

Issue guidelines to advise transit agencies and state oversight agencies on how to effectively implement, oversee, and audit the requirements of 49 *Code of Federal Regulations* Section 659.19(r) using industry best practices, voluntary standards, and appropriate elements from 49 *Code of Federal Regulations* Part 214, Subpart C—Roadway Worker Protection.

R-12-35

Emphasize the effective implementation and oversight of 49 *Code of Federal Regulations* Section 659.19(r) as part of your safety oversight program audits.

In summary, there have been several recent NTSB investigations of accidents involving roadway worker fatalities. The NTSB believes that all rail transit systems are at risk for roadway

¹⁰ Rail transit is not regulated by the FRA and will not be governed by any pending FRA rulemaking.

¹¹ *Washington Metropolitan Area Transit Authority Hi-Rail Maintenance Vehicle Strikes Two Wayside Workers Near the Rockville Station January 26, 2010*, Railroad Accident Report RAR-12-04 (Washington, DC: National Transportation Safety Board, 2012).

¹² The recommendation letter, dated June 1, 2012, is available on the NTSB website at <http://www.nts.gov>.

worker fatalities and serious injuries and urges the FTA to issue a directive requiring a redundant protection mechanism, such as PTC or shunting, to provide protection for these workers. Further, the NTSB believes that the FTA should examine current rules and procedures in practice at all rail transit properties to verify there is adequate protection for roadway workers.

Therefore, based on the findings of previous investigations and preliminary findings from this investigation, the National Transportation Safety Board makes the following safety recommendations to the Federal Transit Administration:

Issue a directive to all transit properties requiring redundant protection for roadway workers, such as positive train control, secondary warning devices, or shunting. (R-13-39) (Urgent)

Issue a directive to require all transit properties to review their wayside worker rules and procedures and revise them as necessary to eliminate any authorization that depends solely on the roadway worker to provide protection from trains and moving equipment. (R-13-40) (Urgent)

At this time, the NTSB has not yet determined the probable cause of this accident. Nonetheless, the NTSB has identified the safety issues described above, which need to be addressed to prevent further accidents on the BART or other rail transit systems.

Chairman HERSMAN, Vice Chairman HART, and MEMBERS SUMWALT, ROSEKIND, and WEENER concurred in these recommendations.

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate receiving a response from you within 30 days detailing the actions you have taken or intend to take to implement them. When replying, please refer to the Safety Recommendation by number. We encourage you to submit your response electronically to correspondence@ntsb.gov. If your response exceeds 10 megabytes, including attachments, please e-mail us at the same address for instructions. Please do not submit both an electronic copy and a hard copy of the same response.

[Original Signed]

By: Deborah A. P. Hersman

Attachment E to Proposed Decision:

NTSB Railroad Accident Brief,
Dated April 13, 2015



National Transportation Safety Board

Railroad Accident Brief

Bay Area Rapid Transit Train 963

Struck Roadway Workers

Accident No.:	DCA14FR001
Location:	Walnut Creek, California
Date:	October 19, 2013
Time:	1:44 p.m. Pacific daylight time
Train:	Train 963
Railroad:	Bay Area Rapid Transit District (BART)
Property Damage:	\$76,000
Fatalities:	2
Type of Accident:	Employee fatalities

On Saturday, October 19, 2013, at 1:44 p.m. Pacific daylight time, Bay Area Rapid Transit District (BART) train 963 struck and killed two engineering employees while they were working on BART's main tracks near Walnut Creek, California.¹² The train, which included four passenger cars, was travelling north on the Pittsburg/Bay Point-SFO (San Francisco International Airport) Line between the Walnut Creek and Pleasant Hill stations.³ It was one of two trains being operated by BART managers because BART's union employees were on strike. Both trains were transporting management employees, who were being trained as substitute operators and system maintenance workers. No paying passengers were being transported by either train.

¹ All times in this brief are Pacific daylight time.

² One person worked for BART, and the other worked as a contractor.

³ In this report, all train movements and track references will refer to timetable direction.



Figure 1: Accident scene. (Photo by ABC News)

At the time of the accident, there were six BART employees on the train: the supervisor who was training the operator trainees, two operator trainees, and three equipment maintenance employees. An operator trainee was operating the train at the time of the accident. No one on the train was injured. It was a sunny, clear afternoon, and the temperature was 70°F.

Investigation

The BART train control and supervisory system was made up of four major parts: the operations control center, the integrated computer system, an automatic train control (ATC) system, and on-board automatic train operations computers. The ATC system was designed to control train movement and maintain train separation. Investigators determined that the train control and supervisory systems were functioning properly at the time of the accident.

At the time of the accident, train operators and roadway workers were required to comply with BART's *Operations Rules and Procedures* manual. Additionally, roadway workers were required to complete wayside safety training and certification as part of BART's Wayside Safety Program. The Wayside Safety Program consisted of general safety practices.⁴ One safety practice, known as "simple approval," provided control center authorization for employees to enter the roadway with no additional protective measures or restrictions provided by the control center. When simple approval authorization was requested, the control center reminded workers that they were required to provide their own protection and not interfere with mainline or yard operations. Under simple approval, roadway workers were required to be aware of train and

⁴ Roadway refers to the strip of land under and adjacent to the railroad tracks. Roadway may also refer to right-of-way and wayside.

equipment movements and provide their own protection. Roadway workers were prohibited from performing work without a watchman/lookout when they were close enough to a rail to be struck by a moving train or other equipment.⁵ The watchman's sole responsibility was to watch for approaching trains or equipment—on any track, at any time, and in any direction.

On October 18, 2013, a minor defect was noted on the C-1 track near Walnut Creek.⁶ The next day, two engineering department employees planned to take measurements at the defect's location. The employees—a BART manager and a BART contract employee—were working as roadway workers because of the strike. They requested and received simple approval authority from the control center to enter the roadway in accordance with BART rules.⁷

On-Board Image and Audio Recorders

A digital audio and video recorder was mounted above the operator's seat in the lead car and positioned to record the operator and the car control panel.

NTSB investigators reviewed the video and observed that at 1:43:45 p.m. train 963 entered and quickly exited the Walnut Creek Station in the direction of the Pleasant Hill Station without stopping.⁸ Eight seconds later, the train accelerated to 44 mph. The train's speed increased to 68 mph within 28 seconds. At 1:44:23, the operator trainee repeatedly pushed the red emergency stop button and repeatedly shouted, "Look out!" and "No, no, no!" The train struck the two employees who were working within the gage of the track 4.7 seconds later.

Urgent Recommendations

On December 18, 2013, the NTSB made the following urgent safety recommendations to the Federal Transit Administration (FTA):

Issue a directive to all transit properties requiring redundant protection for roadway workers, such as positive train control, secondary warning devices, or shunting. (R-13-39) (Urgent)

Issue a directive to require all transit properties to review their wayside worker rules and procedures and revise them as necessary to eliminate any authorization that depends solely on the roadway worker to provide protection from trains and moving equipment. (R-13-40) (Urgent)

Safety Recommendation R-13-39 and R-13-40 are currently classified as "Open—Acceptable Response."

On September 24, 2015, the NTSB issued a special investigation report on the recent increase in deaths among railroad and rail transit roadway workers on or near tracks.

⁵ BART calls this "fouling the track." The Federal Railroad Administration further defines fouling the track as placing an individual within 4 feet of the nearest rail.

⁶ The two main tracks were designated as C-1 and C-2.

⁷ BART, *Operations Rules and Procedures*, "Section VI – Operations Jurisdictions and Clearances, 6200-Simple Approval," rev. 6.2, January 2008.

⁸ No stop was required at Walnut Creek.

The Special Investigation Report on Railroad and Rail Transit Roadway Worker Protection provides the details of 14 accidents in 2013 that resulted in the deaths of 15 roadway workers (including the BART Walnut Creek accident on October 19, 2013). The number of deaths in 2013, the findings from investigations of those deaths, and the increasing number of fatalities prompted the NTSB to look more closely at the issue of roadway worker safety and to recommend actions to address these issues.

The NTSB issued recommendations to the Federal Railroad Administration, the Federal Transit Administration, the Occupational Safety and Health Administration, and the Fatality Analysis of Maintenance-of-Way Employees and Signalmen Committee. The recommendations call for additional training, harmonization of standards, a national inspection program, and greater stakeholder participation in the prevention of roadway worker fatalities, among other measures.⁹

Post-accident Actions

FTA Safety Advisory 14-1

In response to the NTSB's urgent recommendations, the FTA issued Safety Advisory 14-1 *Right-of-Way Worker Protection* on December 19, 2013.¹⁰ Safety Advisory 14-1 is a guidance document.

The FTA also issued a request for information from transit agencies and state safety oversight agencies that will be used to review transit-rail right-of-way worker safeguards.

On March 18, 2014, and on June 26, 2014, the NTSB responded that the FTA needs to issue a directive requiring the recommended protection, review, and revision in order to satisfy Safety Recommendations R-13-39 and R-13-40. Pending issuance of such a directive, these recommendations were classified "Open – Acceptable Response."

California Public Utilities Commission

In 2008, the California Public Utilities Commission (CPUC) opened a rulemaking proceeding after the deaths of two roadway workers on BART and the Sacramento Regional Transit District rail systems.

The purpose of the rulemaking was to determine: (1) whether current protections for rail transit agency roadway workers were adequate, (2) whether the Commission should adopt a General Order implementing new rules for rail transit agency roadway workers, and (3) if rules were necessary, appropriate language to be included in a General Order. At the time of this accident, the CPUC staff's final report to the Commission regarding the negotiated rulemaking process—including a proposed General Order—had been submitted, and the parties were awaiting a proposed Roadway Worker General Order to be issued.

⁹ To review the NTSB's *Special Investigation Report on Railroad and Rail Transit Roadway Worker Protection*, visit <http://www.nts.gov/investigations/AccidentReports/Reports/SIR1403.pdf>.

¹⁰ This advisory contained these elements: (1) background on recent FTA activities and available resources; (2) major findings from investigations into worker fatalities; (3) Right-of-Way Worker Protection Assessment Checklist; (4) Job Safety Briefing Guide; and (5) checklist for verifying implementation of Roadway Worker Program elements in the field.

As a result of this accident, on October 31, 2013, the CPUC issued General Order 175 (GO 175), governing roadway worker protection for rail transit workers in California. GO 175 directly addressed safety issues and concerns identified during the NTSB accident investigation. The new GO 175 prohibits the type of access along the right-of-way that was allowed under BART's simple approval process.

BART Simple Approvals Prohibition

The day after the accident, October 20, 2013, the BART assistant chief transportation officer distributed a memorandum immediately prohibiting simple approvals. The memorandum stated that access to the right-of-way must provide the work crew with protection from moving trains. The memorandum defined and described work area clearances and stated that trains in work areas are restricted to a maximum speed of 27 mph, including all adjacent tracks not separated by a physical barrier. On October 23, 2013, BART's management announced in a press briefing that the use of simple approvals was permanently prohibited.

BART Roadway Worker Protection Program Improvements

At the time of the accident, wayside workers had to provide their own protection under simple approval authorization. Since the accident, BART has instituted new roadway worker protection requirements. These requirements include reducing train speeds in work areas, mandating that a dedicated watchman be present to look for trains, and requiring that an employee-in-charge manage train traffic through work areas and communicate with approaching trains and the control center.

At the request of the BART general manager, the American Public Transportation Association conducted a peer review of BART's Wayside Safety Program in November 2013. The peer review panel consisted of industry experts in wayside safety, including representatives from Washington Metropolitan Transit Authority, New York City Transit, Southeastern Pennsylvania Transit Authority, and Los Angeles County Metropolitan Transportation Authority.¹¹

As a result of the review findings, BART developed and implemented a new Roadway Worker Protection (RWP) Program replacing the former Wayside Safety Program. The CPUC reviewed the new RWP program and found it to be in compliance with GO 175.

BART also established a Roadway Worker Protection Technology Committee to conduct research on early warning technologies currently available in the rail industry. The committee is an interdisciplinary group consisting of representatives from the union representing BART employees, as well as personnel from BART's operations, information technology, law enforcement, and system safety departments.

¹¹ For more details about the Report of the American Public Transportation Association, Peer Review Panel on the BART Wayside Safety Program, visit www.nts.gov/investigations/dms.html and search for NTSB accident ID DCA14FR001.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the accident was the Bay Area Rapid Transit District's use of simple approval for granting roadway worker access to the track, which required the workers to provide their own protection.

For more details about this accident, visit www.nts.gov/investigations/dms.html and search for NTSB accident ID DCA14FR001.

Adopted: April 13, 2015

The NTSB has authority to investigate and establish the facts, circumstances, and cause or probable cause of a railroad accident in which there is a fatality or substantial property damage, or that involves a passenger train. (49 U.S. Code § 1131 - *General authority*)

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person." 49 *Code of Federal Regulations*, Section 831.4. Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. 49 *United States Code*, Section 1154(b).
