

Important Phone Information

SAFETY DEPARTMENT

510-464-7535 or x7535 Near Miss Reporting
510-464-7552 fax

ATIS

(Recorded Announcement of Personnel in the
Right of Way)

510-464-7268 or x7268
510-464-7288 or x7288

BART POLICE DEPARTMENT

510-464-7000 or x7000

CENTRAL CONTROL

Power Support Controller

510-464-6000, press 1, 4163#
510-464-6000, press 1, 4164#

TRAIN CONTROLLER

510-464-6000, press 1, 4157#

OCC MANAGER

510-464-6000, press 1, 4152#
510-834-1297

TOWER YARD CONTROL

OCY Tower FW, 925-603-5301 or x5255
ODY Tower FW, 650-758-4412 or x3510
OHY Tower FW, 510-476-3955 or x2255
ORY Tower FW, 510-412-5515 or x5153

SHOP FW LOCAL CONTROL

OCY 925-603-5359 or x5359
ODY 650-758-4373 or x4373
OHY 510-476-3710 or x3710
ORY 510-412-5510 or x5510

Important Radio Information

RADIO TALK GROUPS

Blanket – PW1
TrnOp (AL, C, M/W, R, or Y)

YARD CONTROL

OHY, OCY, ODY, ORY TOWR

LOCAL CONTROL

OHY, OCY, ODY, ORY SHOP

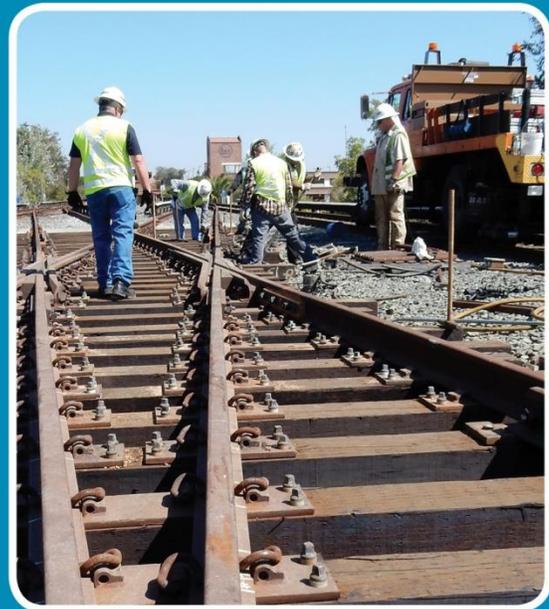
POWER OFF OR ELECTRICAL SAFE CLEARANCE

PWR SUPP (Mainline)
OCY, ODY, OHY or ORY TOWR (Yard and
Local Control)



Roadway Worker Protection Manual

BOOK 489



Issued by

BART
System Safety

May 2016

ROADWAY WORKER PROTECTION MANUAL

Table of Contents

Purpose	2
General Safety Practices	2
Rights and Responsibilities	3
Job Safety Briefing	3
Right To Challenge.....	3
Near Miss Reporting Program.....	3
OR&P Relevant Sections	4
General.....	4
Safety	5
Emergencies	6
Communications.....	6
Signs And Signals	7
Operating Jurisdictions and Clearances	9
Definitions	21
Terminology	27
Dynamic Envelope	27
Overhang On Curved Track	27
Fouling the Track.....	27
Clear of Track.....	28
No Refuge Zones	28
Stopping Distance	31
District Approved Physical Barrier.....	31
Typical Subway Sections	32
Typical Aerial Sections	33
Typical Elevated Track Sections With Separated Walkways with Hand Rails.....	34
Typical Ballasted At-Grade Sections.....	35
Roadway Access Guide	36
Form Examples	64
Job Safety Briefing	67
Important Contact Information	Back

Purpose

This document is not intended to replace or supersede the *Operations Rules and Procedures Manual (OR&P)* with associated Operating Bulletins. The OR&P is the ultimate authority regarding the operation of the BART system. You are responsible for knowing all of the rules in the OR&P.

The purpose of this document is to have a separate dedicated manual that covers applicable safety rules and procedures for Roadway Workers and make it readily available to all workers when performing job functions.

GENERAL SAFETY PRACTICES

Whenever working in the Right of Way (ROW), you should be trained in Roadway Worker Protection Safety and should be knowledgeable of the following:

- Request a Job Safety Briefing prior to commencing work.
- Understand the protection that will be provided to you and request additional protection as necessary.
- Challenge any directives that you feel violates roadway safety rules (i.e., right to challenge).
- Be aware of your authorized limits. Use milepost markers and other reference points to determine your location. Be sure you are on the correct track and in the authorized location.
- Always take into account your physical size and any tools or equipment you have with you when near the track.
- Be aware of Right of Way conditions such as lighting/glare, vegetation and other obstructions to visibility, weather factors, noise, and walking hazards that could interfere with your ability to detect approaching trains.
- Remain on walkways and in areas where you do not foul the track, whenever possible.
- **Expect the movement of trains and on-rail maintenance vehicles at any time on any track in any direction.**
- Always consider the possibility of two trains or on-rail maintenance vehicles passing on both sides at the same time when positioned between tracks.
- Take care not to step into the path of another train or on-rail maintenance vehicle when moving clear of a train.
- When trains or on-rail maintenance vehicles pass, stay clear of ALL TRACKS. Your greatest risk is from a train that you don't notice. A train cannot strike you unless you are **fouling** the track.

ROADWAY WORKER PROTECTION MANUAL

- Personnel shall not use a personal electronic device (PED) when fouling the track. This rule is subject to the District's Zero Tolerance Policy.
- Preplan the safest location to access and travel through the area. Use the *Right of Way Access Guide* as a reference.
- Have the required means of communication with the control center having jurisdiction (check that all communication equipment is in good working order).
- Be aware of maximum train speeds in the area.
- Always assume that third rail power is on.

RIGHTS AND RESPONSIBILITIES

RIGHT TO JOB SAFETY BRIEFING

A job safety briefing will 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. (See Job Safety Briefing.)

RIGHT TO DISCUSS AND CONFIRM UNDERSTANDING

In any job safety briefing provided prior to work on the right of way, each roadway worker has the right to discuss and confirm understanding of the safety provisions to be provided.

RIGHT TO CHALLENGE

Each and every roadway worker has the right to challenge, and/or refuse, in good faith, any assignment he or she has reason to believe is unsafe or would violate any rule or procedure. The roadway worker must describe the safety or rule concern and remain clear of the track until the challenge is resolved. (See "Forms" section.)

RIGHT AND RESPONSIBILITY TO REPORT UNSAFE ACTS OR CONDITIONS

All roadway workers should report any unsafe acts or conditions that could result in an accident or incident, and shall not be discouraged from making such reporting.

RIGHT TO ASCERTAIN THE TRACK ZONE SAFETY IS ESTABLISHED

Every roadway worker has a responsibility to ascertain that track zone safety has been established and it is understood prior to entering the track zone.

Every roadway worker has a duty to warn other roadway workers and employees in an unprotected track zone to move to the clear.

SHARED RESPONSIBILITY

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

JOB SAFETY BRIEFING

The Employee in Charge (EIC) and Secondary Employees in Charge (SEIC) (in piggy-back work areas) must provide a job safety briefing prior to any roadway worker entering the right-of-way. All personnel must attend the EIC conducted job safety briefing and additional SEIC conducted job safety briefing for their work crew as required. The job safety briefing for each roadway worker and escorted personnel must include a discussion and explanation of the job function, rules, and procedures for carrying out job duties. Detailed aspects of the job safety briefing are included in this manual.

RIGHT TO CHALLENGE

Every Roadway Worker has the right to challenge and/or refuse, in good faith, any Roadway Worker 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 track until the challenge is resolved. If the EIC cannot resolve the Roadway Workers concerns, then the Roadway Worker Right to Challenge Form 13-17-0005 (revised 1/17/2014) must be completed. While completing the form the supervisor must make a determination of "Resolve" or "Un-Resolved" by marking the appropriated box. The completed form then must be promptly faxed or otherwise transmitted to Safety at (510) 464-7552 (ext. 7552) and Dept. Management, regardless of determination. (See "Forms" section.)

NEAR MISS REPORTING PROGRAM

PURPOSE AND DEFINITION

To encourage employees to report near-miss incidents related to the safety of individuals located in (or adjacent to) the right-of-way, specifically those involving:

1. The movement of all on-rail vehicles on mainline, yard, local control areas, including shop tracks.
2. The third rail power system associated with propulsion of revenue service vehicles.

The intent is to become knowledgeable of unsafe acts that would otherwise go undetected or unreported so that proactive corrective action can be taken.

CONFIDENTIALITY AND PROTECTION FROM DISCIPLINE

Employees are encouraged to submit Unusual Occurrence Reports (UORs) and/or BART Safety

ROADWAY WORKER PROTECTION MANUAL

Notices to report any unsafe act as their first option. However, in cases where an event is covered by this program and where individual(s) would prefer to submit a report anonymously or confidentially, they can contact the Safety Department directly. The Department acts as an independent party and is responsible to protect the integrity of the reports. Note that anonymous reports are not the preferred method, since this option does not allow follow-up questions or clarification.

Limits to Protection from discipline under this program are as follows:

- Actions not covered: criminal activity, gross negligence, substance abuse, and intentional falsification of information.
- If management can independently become aware of the incident, then this protection does not apply.
- Strictly limited to Roadway Worker Near-Misses as described in purpose and definition.

REPORTING PROCEDURE

An individual wishing to file a report may enter the information on the Roadway Worker Near-Miss Reporting Form. In cases where the individual would like to remain anonymous or would like to have their identity remain confidential, they can check the appropriate box – otherwise they can check the unrestricted box. Note that it is not necessary to file an anonymous or confidential report in order to be covered by the protection from discipline awarded under this program. Forms can be obtained from WebBART, or by contacting the Safety Department by phone or email.

SAFETY HOTLINE

Alternatively, employees may call the safety hotline at (510) 464-7535 or ext. 7535 to report near misses.

OR&P Relevant Sections

General

1100 GENERAL

- 1106 Personnel shall maintain a thorough knowledge of all operations rules, procedures, bulletins, notices and other directives applicable to their duties and shall resolve any questions they may have concerning the proper interpretation with their supervisor.
- 1108 Violations of operational rules, procedures, bulletins, notices, or other directives must be reported to a supervisor as soon as practicable.

1300 EMPLOYEE CONDUCT

- 1333 The following restrictions apply to the use of Personal Electronic Devices (PED):

- When operating any form of on-rail vehicle**, PEDs are prohibited from being used and shall be turned off and stowed (put away out of sight and off the person).
- When dispatching, flagging, or otherwise controlling the movement of on-rail vehicles**, PEDs are prohibited from being used. Train Controllers, Power Support Controllers, Vehicle Trouble Desk personnel, and Tower Foreworkers may not use a PED at any time while on position at their workstation. Field personnel directing train movement may not use a PED until the controlling movement is either stopped or completed.
- When fouling a trackway**, PEDs are prohibited from being used. A cell phone may be on the person and switched on to receive an incoming call, but the person must move clear of fouling the track before use (answering).

Exception:

1. Employees may use hand-held electronic data-collection devices when fouling the track provided the devices and activities are approved by the Department Manager, and existing rules requiring appropriate safety controls (a watchperson at a minimum) are followed.
2. If BART-issued 800 MHz Radio communications equipment is not functioning:
 - a. A person operating an on-rail vehicle may use a cell phone to report a fire or other life-threatening emergency provided the on-rail vehicle is stopped and the operator is not in the controlling compartment of the vehicle.
 - b. A person may use a cell phone for communications in directing the emergency movement of a powerless unoccupied train if performed with supervisory approval.

NOTE: Any person violating this rule shall be subject to the District's Zero Tolerance Policy.

ROADWAY WORKER PROTECTION MANUAL

Safety

2100 GENERAL

2113 Maintenance employees must participate in a job safety briefing and document the briefing elements in the Job Safety Briefing Booklet before beginning work and when work or job conditions change. The briefing shall include a discussion of the general work plan, existing or potential hazards, and ways to eliminate or protect against hazards. Outside parties or contractors involved in the work or who are in the work area must also be included in the job safety briefing.

2500 TRACKWAY

2501 Damaged trackway, including split switches, shall be reported immediately to the authority having jurisdiction. Movement through the damaged area or split switch shall be prohibited until an inspection has been made by both train control and track personnel and necessary repairs have been made.

2502 Employees must expect the movement of on-rail vehicles at any time on any track in any direction.

2503 Employees shall not enter trackways without proper authorization.

2504 Employees shall not stand, sit or step on the running rail.

2505 Employees shall use authorized paths or walkways where practicable.

2506 Personnel shall expect the movement of powered switches at any time, and shall exercise extreme caution when working near track switches capable of being operated by remote control.

2507 Personal Protective Equipment Policy for the BART right-of-way

A. Mainline Right-of-Way

All persons entering the mainline right-of-way will wear the following minimum safety Personal Protective Equipment (PPE) meeting District specifications:

- Safety Vest
- Hard Hat
- Safety Glasses
- Safety Shoes

Exceptions: Transportation and RS&S personnel will wear a Safety Vest on top of their

department uniforms when working in the full capacity of their classification.

B. Yards

All persons entering yards to perform work will wear a Safety Vest, Hard Hat, Safety Glasses, and Safety Shoes meeting District specifications.

Exceptions:

1. Transportation personnel in yards will wear the department uniform.
2. RS&S Shop and Car Cleaning personnel in yards will wear a Safety Vest and Safety Glasses.
3. Personnel crossing to and from whistle-stop locations and trains in yards and/or traveling on designated walkways will wear a Safety Vest.

C. Shops and Local Control Areas

Safety Glasses and a Bump Cap or other approved head protection are required on any revenue vehicle shop floor. Additional PPE should be worn as required by the work and may include, but is not limited to: Safety Shoes, gloves, and face shields meeting District specifications.

D. Emergencies

Management and supervisory personnel responding to a declared emergency by the OCC will wear a Safety Vest, Hard Hat or Bump Cap, and Safety Glasses. RS&S personnel working within a defined emergency scene who may be required to work under a train will wear a Safety Vest and Safety Glasses.

NOTE: Uniformed police, fire, and emergency medical personnel are exempted from this policy when dispatched.

2508 Personnel shall not operate switch machines or remove cranks, switch machine flags, spikes or clamps from switch machines without authorization from the control center having jurisdiction.

2509 Power off and Electrical Safe Clearances are not protection from train movement.

2510 Employees shall take immediate action to protect trains against any condition which may interfere with their safe passage.

2511 When track is obstructed or impassable, employees shall immediately notify the control center having jurisdiction.

ROADWAY WORKER PROTECTION MANUAL

- 2512 Where track conditions require restrictive train operations, protective measures must be implemented by the control center having jurisdiction.
- 2513 When it becomes necessary to signal a train to stop, the employee shall display a hand stop signal to the approaching train.
- 2514 Personnel must be particularly attentive to footing conditions in yards and trackways, looking out for trackwork, switch machines, conduit, cables, uneven surfaces and other obstructions.
- 2515 Motor vehicles and equipment may not be left parked closer than 8 feet from the nearest rail of any track except when operating under a clearance.
- 2516 Personnel must be alert for work being performed adjacent to District property and immediately notify the control center having jurisdiction if a hazard to operations exists.
- 2517 Personnel must not allow booms or other parts of machinery to foul any track without obtaining proper clearance and train protection. Such equipment must be at rest and clear of live tracks during train movement through the work area.
- 2518 Idle on-rail maintenance equipment must be properly secured by chain, lock or other suitable device and kept clear of operating tracks.
- 2519 Access to and operation of mainline switches that are not monitored as a part of a tested and approved train control system (non-monitored) shall be in accordance with the following:
- A. Except for emergencies or during non-revenue periods, all non-monitored mainline switches shall be aligned, clamped and locked for revenue service.
 - B. During emergencies and non-revenue periods, access to non-monitored mainline switches shall be provided on a restrictive basis.
 - C. Authorization from the Operations Control Center is required to unlock, unclamp and align non-monitored mainline switches. The Operations Control Center shall not delegate this authority.
 - D. After use of non-monitored mainline switches, the Operations Control Center shall have the first revenue train on each track through non-monitored mainline switches perform a road manual track inspection not to exceed 5 MPH to insure all switches are aligned for revenue service.
- 2520 Personnel shall not enter restricted areas in the District's right-of-way unless currently certified by the District's Roadway Worker Protection Certification Training Program or escorted by a currently certified person.
- 2521 Personnel in the trackway during times of darkness or poor visibility shall carry a working flashlight for signaling and personal visibility.
- 2900 APPAREL**
- 2906 Hard hats must be worn by personnel per Rule 2507 and in areas where there is a risk of swinging or falling loads, materials, or other objects, or head contact with electrical hazards.
- If you have any questions regarding the required PPE, contact your supervisor or the System Safety Department. Additional information can be found in Addendum A-11 of the BART Injury and Illness Prevention Program (IIPP) available on webBART under System Safety.
- Emergencies**
- 3100 GENERAL**
- 3105 Personnel at the scene of an emergency must render all assistance required to protect life and property as requested by the proper authority.
- 3400 PROCEDURES**
- 3401 General Emergency Procedures:
- A. Report the emergency to the control center having jurisdiction, a supervisor, or BART Police, as appropriate, by the nearest means of communications.
 - B. Attend to patron safety.
 - C. Secure the scene as much as possible.
 - D. Comply with instructions received.
 - E. Follow up with written reports.
- Communications**
- 4100 RADIO TRANSMISSIONS**
- 4101 Channels shall be monitored and clear before transmitting.
- 4102 Personnel initiating transmissions shall identify their call sign (train/unit number) and their location.
- 4103 When someone serving as the "Operator's eyes" utilizes radio communications to control the movement of on-rail equipment, the instructions to the Operator must include the direction and

ROADWAY WORKER PROTECTION MANUAL

distance to be traveled. The Operator must stop the movement within half of the distance specified unless additional instructions are received.

4200 EMERGENCY TRANSMISSIONS

- 4201 Emergency transmissions shall be given the highest priority. Such transmissions shall be preceded by the term "BART Emergency".
- 4202 When "BART Emergency" is heard over the radio, the channel shall be cleared for emergency use.
- 4203 To minimize low priority radio traffic during delays and emergency situations, the Operations Control Center shall transmit the following over the train radio:
- A. "10-33" - **EMERGENCY**: When a 10-33 is in effect, radio transmissions to the Operations Control Center shall be limited to emergencies only.
 - B. "10-43" - Traffic tie-up (i.e., train delay at location specified).
- 4204 When calling on the Emergency Telephone system, identification, location and nature of the emergency shall be provided.
- 4205 Emergency Code Word
- A. Using the word "McKinley" in any such manner will alert the recipient that an emergency situation exists and immediate assistance is required.
 - B. Employees shall only use the word when there is a direct threat to the user's personal safety, which would be worsened by making a normal transmission.

NOTE: An affirmative response to any question containing the word "McKinley" will be an indication that assistance is still required.

4300 COMMUNICATION EQUIPMENT

- 4301 Employees shall ensure that communication equipment required during their shift is continuously turned on and monitored. Failure or improper operation of required communication equipment shall be reported to the control center having jurisdiction as soon as possible.
- 4302 Employees shall not adjust or modify communication equipment unless qualified and authorized to do so.
- 4303 In the event of radio failure, operators shall comply with the last instruction received and, by any means available, contact the control center

having jurisdiction.

4400 RESTRICTIONS

- 4401 Unauthorized use of any District communication system is prohibited.
- 4402 Personnel operating radios shall not transmit any unidentified messages.
- 4403 Employees shall not use obscene or profane language, false or deceptive communications or signals, or transmit unassigned call letters.
- 4404 Employees shall identify themselves and their location when initiating calls and when answering telephones.

4600 OFFICIAL ALPHA CODES

ALPHA	JULIET	SIERRA
BRAVO	KILO	TANGO
CHARLIE	LIMA	UNIFORM
DELTA	MIKE	VICTOR
ECHO	NOVEMBER	WHISKEY
FOXTROT	OSCAR	XRAY
GOLF	PAPA	YANKEE
HOTEL	QUEBEC	ZULU
INDIA	ROMEO	

Signs And Signals

5500 ON-RAIL VEHICLE HORN SIGNALS

- 5502 Train Operators and On-Rail Maintenance Vehicle Operators shall sound the horn in the prescribed manner to warn persons on or near the track. The horn signal shall be acknowledged by the wave of a hand to the on-rail vehicle Operator. Failure to acknowledge should be reported to the Control Center having jurisdiction over the area.

ROADWAY WORKER PROTECTION MANUAL

5600 HAND SIGNALS

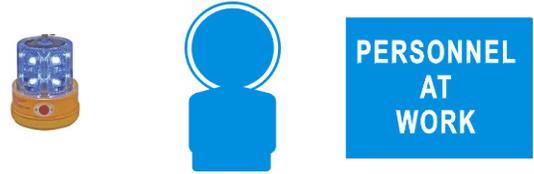
- 5601 Hand signals shall be conveyed by hand and arm motion and position or by a hand held light.
- 5602 A hand signal that is unclear shall be considered an instruction to STOP.
- 5603 Arms/objects waved forcefully by a person on or near the track ahead is a signal to STOP.
- 5604 Disappearance from view of employee giving hand signals controlling movement shall be considered to be a STOP signal.
- 5605 The following hand signals shall be used to direct movement on the rail vehicles.

SIGNAL	MOTIONS	ACTION
	Hand raised and lowered vertically in the direction of the vehicle operator.	Move toward person giving signal.
	Slight vertical movement of hand at arm's length at right angle to whom signal is given.	REDUCE SPEED
	Hand swung vertically in a circle at half arm's length across the body, below the shoulder.	Move away from person giving signal.
	Arm swung horizontally across body.	STOP

5700 BLUE LIGHT/BLUE SIGN

- 5701 Blue Lights/Blue Signs displayed between the running rails or; displayed on both exterior ends of on-rail vehicles and/or consists indicate personnel are working in the area. Personnel may also be under, between, in or upon equipment. On-rail vehicles must stop and

equipment protected by Blue Lights/Blue Signs must not be moved or coupled into unless approved by the Employee in Charge (EIC). No equipment shall be placed in such a manner that it obstructs the view of Blue Light/Sign that are displayed.



- 5702 Red Light: Displayed between the running rails. On-Rail vehicles must stop short of red lights and NOT proceed unless approved by the Employee In Charge (EIC). No equipment shall be placed in such a manner that it obstructs the view of Red Lights that are displayed.



5800 SIGNS

- 5801 Trackway signs are principally employed on mainline and usually located to the right of track in direction of movement. Some of these signs govern movement; others provide information. Employees shall observe and obey as applicable all trackway signs during movement and report missing, fallen or otherwise improperly displayed signs to the control center having jurisdiction.



Milepost

Mile
Tenth/Hundredth of a Mile
Line/Track # Designation

NOTE: When facing away from the Oakland Wye, your right hand identifies the #1 track and the left hand the #2 track



Gate Warning

Interlocking gate approximately seven hundred feet (700') ahead.



Clear Switch

Trains ten (10) cars in length are clear of the interlocking to the rear of the train.



Gate Sign

Interlocking gate designation. Do not pass when operating in manual mode unless authorized to do so by the control center having jurisdiction or by signal indication.

ROADWAY WORKER PROTECTION MANUAL

Fouling Point



Beyond this point adequate clearance does not exist for concurrent passage of on-rail equipment near the intersection of two converging tracks.

Local Control Area 

NOTE: The yellow and black diagonal striping is located on the ties where two tracks converge to indicate the limits of the fouling point.

Interface Sign



Identifies a mainline point where one station's Automatic Train Control functions overlap with an adjacent station's Automatic Train Control functions.

Terminal Zone Enter (TMZ) Sign



Identifies mainline point where automatic train dispatches are possible.

Terminal Zone End Sign (TM)



Identifies the end of a terminal zone

Wait Sign



Marks that point in advance of a mainline signal at which a portion of train must wait for speed codes or a permissive signal after a mainline break operation.

Local Control Sign



Maximum speed beyond this sign is five (5) miles per hour.

NOTE: Speed limit signs for manual operation may be posted at other locations on the system.

Maintenance-of-Way Location Sign



Line and track designations located between running rails at each access location. Arrow indicates normal direction of track traffic.

End of 3rd Rail



Decal on coverboard indicates discontinuance of 3rd rail even though running rail is still present.

Berthing Signs



Markers used on the coverboard to position a train in the station platform with a length of seven (7) cars or less and eight (8) or nine (9) cars or less.

NOTE: At most stations, a 10-car train will position itself so that the cab of the lead A-car has just cleared the station platform and the cab of a C-Car will be adjacent to the end of the platform (Exceptions: shorter platforms-M16, M20, M30, M40; longer platforms-M10).

Stop Sign



Displayed between running rails. On-Rail vehicles must stop short of sign and NOT proceed until sign is removed by person who placed it.

Switch Machine Flag



When inserted into crank receptacle indicates switch points spiked and/or clamped into normal or reverse position and switch machine mechanism is locked out.

No Refuge Zone



An area within the District's right-of-way where there is inadequate clearance on both sides of the track (with the exception of posts or other obstructions four feet wide or less) for personnel when trains or on-rail equipment are operating.

Operating Jurisdictions and Clearances

6100 OPERATING JURISDICTIONS

- 6101 Train and on-rail maintenance equipment movements on District track and remotely controlled or monitored systems are under the jurisdiction of the Operations Control Center, Yard Tower Control or Local Control (Shop Foreworker). Each has jurisdiction over clearance and/or movement within their assigned area and responsibility for accomplishing necessary advance coordination for clearance and/or movement into adjacent areas. Transfer of control occurs at shop limits, yard limits, and on transfer tracks leading to mainline.
- A. Mainline tracks are under the jurisdiction of the Operations Control Center.
 - B. The operating jurisdiction of yard transfer tracks is held jointly by the Operations Control Center and Yard Tower Control. When a vehicle is preparing to enter mainline from a transfer track,

ROADWAY WORKER PROTECTION MANUAL

the Operations Control Center shall have jurisdiction. All other movements on transfer tracks shall be under the jurisdiction of Yard Tower Control.

- C. Yard limits are defined by signs at the entrance to shop leads and signals at the yard entrance to transfer tracks and are under the jurisdiction of Yard Tower Control.
- D. Shop limits are defined by local control signs and signals at the yard end of shop leads and are under the jurisdiction of the Shop Foreworker.
- E. The Hayward test track is under the jurisdiction of the Hayward Yard Tower Control.

6104 Authorization from authority having jurisdiction must be obtained prior to accessing the right-or-way of another agency.

6200 ACCESS AUTHORIZATION

6201 Access Authorization and completion of the Access Authorization Form shall be required to access the following locations/areas (See OR&P 6218 for exemptions):

- A. Local Control Areas (shops)
- B. Yards
- C. C75 Storage Tracks & C75 Training Facility on Paved Road ONLY
- D. C85 Terminal Zones and Storage Tracks
- E. L35 Terminal Zones and Storage Tracks
- F. W45 Terminal Zones and Storage Tracks

Access Authorization shall be required to access restricted areas including the Oakland Transition Structure, the San Francisco Transition Structure and the Transbay Tube Lower Gallery (see OR&P section 8500 for Upper Gallery requirements).

Personnel operating under Access Authorization shall not open any Lower Gallery cross passage doors and shall not access the trackway.

6202 Access Authorization does not provide protection for personnel and does not authorize any work to be performed.

6203 All personnel shall follow Section 6300 CLEARANCES for train movement protection (Work Area Clearances) and equipment work authorization (Equipment/Facilities Clearances) before any work can be authorized by the control center.

6204 All Roadway Workers shall check in with the control center having jurisdiction and request

Access Authorization prior to accessing any Access Authorization Areas.

6205 Access Authorization shall only be granted to Roadway Workers or personnel specifically qualified to obtain Access Authorization.

6206 Employee in Charge shall conduct a job safety briefing with Roadway Workers and all other members in the group prior to accessing any Access Authorization Areas and immediately after any changes in condition.

6207 Personnel entering Access Authorization Areas shall wear District-approved Personal Protective Equipment as defined in OR&P 2507.

6208 Roadway Workers shall not foul a track with Access Authorization unless able to detect an approaching train or on-rail equipment with sufficient time to move to a pre-determined location, Clear of Track, 15 seconds before the train or on-rail equipment operating at the maximum authorized speed on that track can reach that location, **(15 Second Rule)**.

6209 All Roadway Workers requesting Access Authorization shall complete an Access Authorization Form and carry the completed form on their person unless specifically exempted from this requirement per OR&P 6218. The completed forms shall be kept and returned to the supervisor or manager for signature and filing. Completed Access Authorization Forms (form #13-73-0001a) shall be filed and readily accessible for at least one year from the date it was completed.

6210 Access Authorization requests shall include the following:

- A. Name or radio call sign
- B. Purpose
- C. Location/Area
- D. Time duration
- E. Total number of persons in the group
- F. District-approved reliable means of two-way communication
- G. Communication devices must be in immediate possession of the requester
- H. Completion of the Access Authorization Form and a job safety briefing by the Employee in Charge.

6211 Control center having jurisdiction shall keep a log of all access authorizations for one year.

ROADWAY WORKER PROTECTION MANUAL

Access Authorization instructions shall include the following:

- A. Name or radio call sign of the requester and the number in group, if more than one
- B. The location/area being accessed
- C. The clock time at or before which the authorization must be cancelled
- D. The phrases from the requestor "I/we will provide our own protection and not interfere with mainline/yard/local control operations."
- E. A verbatim read back
- F. "Time" authorized

NOTE: The authority to act upon an Access Authorization is granted when the current "Time" is given.

6212 All Access Authorizations shall be cancelled with the control center having jurisdiction as soon as possible after access is no longer required and the requester has physically cleared.

6213 The control center having jurisdiction has the authority to deny any Access Authorization request when the ability of the requester to provide his/her own protection might be impaired due to unusual operating conditions.

6214 Roadway Workers operating under Access Authorization shall use a District-approved working radio to contact the control center having jurisdiction and keep this radio on their person to allow for communication with the control center.

6215 Access Authorization may be cancelled at any time by the control center having jurisdiction.

6216 Access Authorization is not authorized in areas posted as "No Refuge Zone".

6217 When escorting untrained personnel in the Access Authorization Areas under Access Authorization, one Roadway Worker shall be responsible for a party of not more than five untrained individuals. Additional Roadway Workers are required for larger groups with a maximum of five untrained individuals per Roadway Worker. The responsible Roadway Worker shall stay with all untrained personnel and possess a District-approved working radio at all times. The responsible Roadway Worker(s) shall not cancel the authorization with the control center having jurisdiction until all untrained individuals are accounted for and have physically cleared the areas.

6218 The formal notification and Access Authorization Form requirements of Authorization are not required for:

- A. Roadway Workers, and individuals escorted by a Roadway Worker, crossing to and from whistle-stop locations and trains in yards, provided they use designated walkways and provided prior notification is given to the Yard Tower Control.
- B. Shop personnel in local control areas, provided prior notification is given to the Shop Foreworker.
- C. Roadway Workers in local control areas provided prior notification is given to the Shop Foreworker.
- D. Transportation and maintenance (M&E and RS&S) personnel in yard areas provided prior notification is given to the Yard Tower Control.

NOTE: This includes Car Cleaners Vehicle Access.

- E. Transportation and maintenance (M&E and RS&S) personnel using designated walkways in the C85, L35, and W45 tail track areas provided prior notification is given to the TM Foreworker, or OCC.

NOTE: Aside from the exemption to acquire formal authorization and to complete the Access Authorization Form, all other applicable Access Authorization rules apply, including notification of departure to the appropriate control center having jurisdiction.

6300 CLEARANCES

6301 Clearances shall be authorized by formal issuance of Work Orders.

6302 Work Area Clearances (Through Work Orders): Defined as an authorization to **access the right of way and/or work** a designated section of track(s) with specific limits in which minimum protection from train movement has been provided.

Note 1: The following minimum levels of protection shall be established for the different categories of mainline or yard work (A higher level of protection may be required for any category of work).

Note 2: Roadway Workers on the right of way under a Work Area, with the restriction "Work Between Trains" must declare the category of work they are conducting

ROADWAY WORKER PROTECTION MANUAL

relative to the Track Zone (Category A, B, or C).

Category A. Non-Track Zone Access

Defined as Access to Mainline Right of Way where work **does not** encroach in the Track Zone (within six feet of outside rail on both sides of track). All Work Areas shall be restricted to a maximum speed of 27 MPH to include all adjacent tracks not separated by a District-approved physical barrier.

Category B. Access to Track Zone

Defined as Access to the Mainline Right of Way where work will encroach in the Track Zone (within six feet of outside rail on both sides of track).

All Work Areas shall be protected by the following:

1. Restricted to a maximum speed of 27 MPH to include all adjacent tracks not separated by a District-approved physical barrier.
2. A hold and a gate stop shall be issued at the interlocking prior to the work area OR a track occupancy shall be established on the track where work is to be performed and a Hold is required a half mile prior to the work area. If a portable track shunt is used to establish occupancy a Confirmed Hold must be established on both tracks for the installation.
3. Each train that traverses the Work Area shall be informed of the work crew's location, purpose, and protection and shall be confirmed with an acknowledgement prior to entering the work area.
4. EIC shall authorize the train controller when to allow a vehicle thru the work area at a maximum speed of 27 MPH. EIC shall not reenter the track zone until protection has been reestablished and confirmed with the OCC.
5. The three way communication (EIC, Train Operator and Train Controller) shall be conducted on the same talkgroup.
6. Notification of reverse direction and other abnormal train movement must be provided to roadway workers.
7. Watchperson
8. The EIC shall determine the maximum speed of the work area to allow stopping

within half the range of vision and advise OCC of any necessary adjustments.

Category C: Access to Yard Tracks

Defined as authorization to work a designated section of track(s) with specific limits in which protection from train movement has been provided.

6300 CLEARANCES

- 6303 Piggy-backing work areas (Concurrent Work Areas): A Clearance issued within an existing work area in the ROW where additional work crews are permitted to work within the working limits of a Primary EIC. Secondary Employees in Charge (SEIC) of roadway workers are required for each group that performs work duties outside those specific to the primary EIC's own work area. The primary EIC is responsible for the work area, train movements and established protection through the primary work area. All SEIC's support this function and have all the requirements and responsibilities of the EIC specific to their secondary work area. The SEIC are required to provide information as requested by the EIC and remain in radio contact with them.
- 6304 Blanket Work Areas: Defined as mainline track areas between specified interlocking gates or between interlocking gates and end of line stations where train movement is prohibited on all tracks and access is controlled by a Blanket Area Supervisor. Rules for operations within a Blanket Work Area are detailed in OR&P section 6400.
- 6305 Equipment/Facilities Clearances (Through Work Orders): Defined as an authorization to work on remotely controlled and monitored equipment, or work that may affect the operation of trains. **This Clearance does not provide protection from train movement, nor convey permission to enter the right of way.** The control center having jurisdiction may authorize performance of a specific task related to remotely controlled or monitored equipment.
- Examples of authorizations are:
- A. Permission to activate, deactivate, reset or recycle designated equipment.
 - B. Permission to install or remove Electrical Safe Clearance or Prohibit.
 - C. Permission to take designated equipment into local control.

ROADWAY WORKER PROTECTION MANUAL

- D. "Work Between Trains" restriction may be combined with the authorization for maintenance personnel to take an interlocking in local control between train movement.

6306 Physical Barrier Clearance: Defined as authorization to access and work within the Right of Way in an area when the Roadway Workers are separated from the Track Zone by a District-approved physical barrier.

Activities Requiring Clearances

6307 Clearances shall be required for:

- A. Any activity which may affect the operation of trains.
- B. Any activity which may affect the operation or status of remotely controlled and monitored systems, including cranking switches.
- C. All activities conducted in the Right of Way.
- D. Any activity involving, cranes, hoisting or lifting conducted within, immediately adjacent to, or over the BART operating envelope.
- E. Any activity that can potentially put a roadway worker at risk due to train movement.

Clearance Requests

6308 Advance requests for Clearances that require protective measures or assistance from others should be scheduled through the track allocation process, when practicable.

6309 Clearance requests made through Work Orders to access the Right of Way must be made by radio. Access to equipment not in the Right of Way may be made by telephone or radio.

Requests shall include:

- A. Name or radio call sign.
- B. Type of clearance requested (Work Area, Equipment Clearance, or Facility Clearance).
- C. Activity to be accomplished.
- D. Declare the category of work being conducted relative to the Track Zone.
- E. Protection required.
- F. Clock time required.
- G. Desired track access point(s) when applicable.

6310 The control center having jurisdiction has the authority to deny a request for clearance when the requested protection is determined to be inadequate due to operating conditions.

Issuing Clearances

6311 Clearances may be issued only by the control center having jurisdiction over the area or system involved. Where operating jurisdiction over an area or system is held jointly, either control center may issue a Clearance after prior coordination and consent of the other. Responsibility for coordination is assigned to the employee who requests the Clearance.

6312 Clearances may not be issued until necessary protective measures have been established and appropriate work area restrictions have been issued.

- A. Restrictions may be employed by the control center having jurisdiction to limit activities authorized by a clearance.
- B. Restrictions become effective when they have been repeated verbatim and the "Time" has been transmitted.
- C. Restrictions remain in effect until canceled or until clearance is released.

6313 Roadway Workers operating under clearance rules shall possess District-approved working radio to allow contact by the control center having jurisdiction and a response by the requester. Clearances shall not be issued until communications have been confirmed between the control center having jurisdiction and the requester to determine the adequacy of the required communications equipment. The Employee In Charge (EIC), Secondary Employee In Charge, and the watchperson operating under clearance shall monitor only the radio talkgroup of the line on which they are working.

6314 Clearances shall only be issued to Employee In Charge (EIC). The EIC shall be responsible for ensuring safety and accept full responsibility for the actions of those performing the work and compliance with the Operations Rules and Procedures.

6315 A Clearance shall not be requested until the Employee In Charge (EIC) performing the activity is at the site access location, has conducted a job briefing with Roadway Workers and all other members in the group and is ready to commence work.

ROADWAY WORKER PROTECTION MANUAL

- 6316 Work orders shall include the following:
- A. Name or radio call-sign of the requester.
 - B. The term “work”.
 - C. The track(s) or facility/equipment to be used.
 - D. The work area which includes the category of work (A, B, or C), and/or equipment/facility authorized for use.
 - E. The clock time at or before which the work area or equipment/facility area must be released.
 - F. All restrictions and protections applicable at the time the clearance is issued.
 - G. A verbatim readback.
 - H. “Time” authorizing the work to begin.

6317 The authority to act upon a Clearance is granted when the current “Time” is given.

Operations Under Clearance Rules

6318 Employee In Charge (EIC) holding clearances shall not depart the work area without contacting the control center having jurisdiction. If the EIC holding a clearance cannot be contacted, their supervisor shall be contacted immediately to provide a Roadway Worker to inspect, determine the status.

6319 If a clearance must be transferred to another person, it shall be released and reissued verbatim by the issuing control center having jurisdiction.

6320 Limits and conditions issued in a Clearance must not be exceeded.

Releasing Clearances

6321 Employee In Charge (EIC) holding a Clearance shall not release a work area, equipment, or facility clearance until safe operations can be resumed or necessary operating restrictions have been provided. When these conditions have been satisfied, the Clearance shall be released by the EIC holding it before departing from the facility or area involved in the Clearance. **EIC holding a Clearance are responsible to notify the OCC when a trackway train inspection is required and the limits of the affected area upon releasing the Clearance.**

After any of the following activities within the Operating Envelope a manual train inspection shall be performed by the first train through the work area in manual mode at a speed not to exceed 25 MPH (the limits of the required inspection shall be identified on the Track

Allocation when possible):

- A. Tracks out of service more than 24 hours for activities requiring a Clearance.
- B. Pipe boring, pipe jacking, pile driving or other excavation that requires a Clearance to perform.
- C. Overhead construction including highway or utility work that requires a Clearance or permit to perform.
- D. Initial storage and subsequent use of materials, tools or equipment
- E. Rail replacements or track surfacing/alignment over 100’ long.
- F. Work that can affect the third rail gage.
- G. Inspections of mainline switches that are not monitored shall comply with the requirements of Rule 2519.

6322 Clearances shall remain in effect until one of the following occurs:

- A. Released by the EIC.
- B. Canceled by the control center having jurisdiction.
- C. New instructions have been transmitted, a verbatim readback received and the current “Time” transmitted.

NOTE: If time extension is required, it must be requested at least 30 minutes prior to expiration of clock time.

Protection from Train Movement

6323 A Work Area with protection from train movement is required for the following:

- A. When conducting work in Access Authorization Areas
- B. Access to the Mainline

6324 On-rail maintenance equipment shall be provided protection from train movement on mainline trackways.

6325 Maintenance, testing or emergency operations shall be provided protection from train movement in mainline trackways.

6326 On-rail maintenance vehicle operation during revenue service shall be authorized when in compliance with the following conditions:

Trains operating on a mainline trackway adjacent to maintenance activities which require personnel to be outside of a vehicle and in the trackway shall be operated at a restricted speed,

ROADWAY WORKER PROTECTION MANUAL

not to exceed a maximum of 27 MPH in automatic mode, or 25 MPH in manual mode operation and determine the category of work (A, B or C).

NOTE: Roadway Workers on board on-rail maintenance vehicles shall be restricted from leaving the vehicle and entering the trackway until a Work Area has been established.

6327 When a lone Roadway Worker enters the Mainline Right of Way to perform a task the following minimum protection shall be provided:

- A. Roadway Worker must request a Work Area.
- B. A hold and a gate stop shall be issued at the interlocking prior to the work area to include adjacent tracks not separated by a District approved physical barrier. Trains not separated by interlocking shall be held short under a confirmed hold.
- C. Prior to entering the Track, confirmation via radio communication must be made between the Control Center, the Roadway Worker and the Train Operator to confirm that train(s) is holding.
- D. **As appropriate, the Roadway Worker shall communicate by radio to the Control Center (OCC) when each individual train including the adjacent track can be authorized to move by OCC in Manual Mode or in Automatic with speed restrictions established. The Train Operator will monitor the Roadway Worker conversation with OCC but shall not proceed until given direct authorization from OCC.**
- E. The first train authorized by the Roadway Worker to traverse through the area must conduct a track inspection.

6328 Work Area Protection: All Work Areas shall be restricted to a maximum speed of 27 MPH to include all adjacent tracks not separated by a physical barrier. Determine whether the work to be conducted is Category A, B or C. The work area is protected from train movement by one or more of the following:

- A. Route prohibits
- B. Forced track occupancies or zero speed codes
- C. By operating trains in the area in manual mode and issuing movement instructions, restrictions and holds for train movement or Confirmed Hold

- D. Restricted speed
- E. The insertion of switch machine cranks or flags
- F. Notification of reverse running trains shall be provided to Roadway Workers

G. Blue Lights

6329 The work area, facility or equipment shall remain protected following expiration of clock time until it is canceled by the issuing control center. Before protection can be removed, the status of the area must be determined by contacting the Employee In Charge (EIC) holding the clearance.

6330 When trains/vehicles will be working on the same track within the same work limits, they must be restricted to work on sight with each other.

6331 Trains shall not be operated on the same track within the same work area limits with one in automatic and the other in manual mode unless restricted to movement in the same direction.

6332 Work Area limits shall be either: stations, train control gates, mile posts, pocket tracks, transfer tracks, terminal zones, switch machines, clear switch signs or other clearly identifiable points.

- A. Transfer tracks may be assigned as limits only after prior coordination between the Yard Tower Supervisor and the Train Controller.
- B. When stations are specified in any instruction, the station name shall be used in lieu of alphanumeric train control designation.
- C. When a station, pocket track, transfer track or terminal zone is specified as a limit, the entire length of the station platform or track may be utilized.

6333 An Employee In Charge (EIC) requesting Work Orders within the right-of-way (Work Area, Equipment or Facility, or Physical Barrier Clearance) shall complete a Work Order Form and carry the completed form on his/her person until the Work Orders are cancelled with the control center having jurisdiction. The completed forms shall be kept and returned to the supervisor or manager of the EIC for proper filing. Completed Work Order Forms (Form #13-73-0001b) shall be filed and readily accessible for at least one year from the date it was completed.

ROADWAY WORKER PROTECTION MANUAL

6334 When requesting work orders for aerial interlockings, bridges, and elevated tracks, NO more than one train is permitted in the work area at any time.

6335 When escorting untrained personnel in the trackway under work orders, one (1) Roadway Worker shall be responsible for a party of not more than five (5) untrained individuals. Additional roadway workers are required for larger groups with a maximum of five (5) untrained individuals per Roadway Worker. The responsible Roadway Worker shall stay with all untrained personnel and possess a District-approved working radio at all times. The responsible Roadway Worker(s) shall not cancel the work orders until all personnel are physically clear of the work area.

6336 The Employee In Charge (EIC) releasing a work area clearance must ensure that the trackway is clear of personnel, tools, equipment and material that may interfere with operating trains and on-rail vehicles.

6337 A watchperson shall be required whenever Roadway Workers are within the Track Zone. The watchperson must have a District-approved working radio in their possession. A lone Roadway Worker shall comply with Rule 6327.

Work Area Clearances for Work in Track Zone on Yard and Local Control Tracks (Category C)

6338 Work Area Clearances shall be authorized by formal issuance of Work Orders.

- A. Work Area Clearances (Through Work Orders): Defined as an authorization to **access the Yard or Local Control Track Zone to perform work at a** designated section of track(s) with specific limits in **which protection from train movement is provided via Blue Light/Blue Sign.**
- B. It is to be assumed that third rail is live unless Electrical Safe Clearance has been established.

6339 Work Area Clearances shall be required for any work conducted within the Track Zone in the Yard, or in Local Control areas except when authorization is given to place or remove blue lights/blue signs.

6340 Work Area Clearance requests shall be made via radio to the Control Center having jurisdiction. Requests shall include:

- A. Name or radio call sign.
- B. Type of work activity to be conducted.

C. Number of people in party.

D. Location and duration of work.

E. Confirmation of Blue Light/Blue Sign.

F. Clock time required.

G. Completion of Work Order Form and a job safety briefing by the Employee in Charge.

6341 Roadway Worker /Roadway Worker-C operating under a Work Area Clearance/Work Order shall possess District-approved working radio to allow contact by the control center having jurisdiction and a response by the requester. Clearances shall not be issued until communications have been confirmed between the control center having jurisdiction and the requester to determine the adequacy of the required communications equipment.

6342 The control center having jurisdiction has the authority to deny a request for clearance when the requested protection is determined to be inadequate due to operating conditions.

6343 An EIC must request authorization, conduct job safety briefing and remain at the work site to ensure safety whenever the track or any associated system within the right-of-way is disturbed.

6344 A watchperson must be present whenever work within the Track Zone is to occur.

Exceptions:

1. A lone Roadway Worker aligning switches in the Yard under a Work Order does not require a watchperson.
2. Non-Revenue Vehicle Maintenance personnel performing work on vehicles do not require a watchperson provided that the following enhanced Blue Light/Blue Sign protection is established: Additional Blue Lights/Blue Signs must be established on the tracks on both sides of the track on which work is performed to increase the place of safety for personnel. If the work track has adjacent tracks on one side only, Blue Lights/Blue Signs must be established on one additional track.

6345 Work may not commence under a Work Area Clearance until Blue Light/Blue Sign protection has been established.

6346 Work Area Clearance authorization shall include the following:

- A. Name or radio call-sign of the requester.

ROADWAY WORKER PROTECTION MANUAL

- B. The term “work.”
 - C. The track(s) to be impacted by work.
 - D. The clock time at or before which the work area must be released.
 - E. All restrictions and protections applicable at the time the clearance is issued including confirmation of Blue Light/Blue Sign Protection.
 - F. A verbatim readback.
 - G. “Time” authorizing the work to begin.
- 6347 The authority to act upon a Work Area Clearance is granted when the current “Time” is given.
- 6348 Roadway Worker/Roadway Worker-C holding clearances shall not depart the work area without contacting the control center having jurisdiction.
- 6349 If a Work Area Clearance must be transferred to another person, it shall be released and reissued verbatim by the issuing control center having jurisdiction.
- 6350 Limits and conditions issued in a Work Area Clearance must not be exceeded.
- 6351 Roadway Worker/Roadway Worker-C releasing a Work Area Clearance must ensure that the trackway is clear of personnel, tools, equipment and material that may interfere with operating trains and on-rail vehicles prior to release.
- 6352 Work Area Clearances shall remain in effect until one of the following occur:
- A. Released by the requester.
 - B. Cancelled by the control center having jurisdiction.
 - C. New instructions have been transmitted, a verbatim read back received and the current “Time” transmitted.
- 6353 Roadway Worker/Roadway Worker-C requesting Work Area Clearance shall complete a Work Order Form and carry the completed form on his/her person until the Work Area Clearance has been cancelled with the control center having jurisdiction. The completed forms shall be kept and returned to the supervisor or manager of the EIC for proper filing. Completed Work Order Forms (Form #13-73-0001b) shall be filed and readily accessible for at least one year from the date it was completed.

6400 BLANKET WORK AREA PROTECTION

- 6401 Revenue vehicles shall not be permitted within a Blanket Work Area except when being towed by an on-rail maintenance vehicle or when being stored.
- 6402 On-rail maintenance vehicles do not require an MVDD while occupying a Blanket Work Area.
- 6403 Train Controllers may establish a Blanket Work Area provided A or B conditions are met
- A. No trains, other than those stored or being towed, are within the Blanket Work Area and Route prohibits have been installed and verified at all exit gates where trains could enter the Blanket Work Area and traction power has been removed from all third rail sections within the Blanket Work Area.
or;
 - B. No trains, other than those stored or being towed, are within the Blanket Work Area and Route inhibits and opposing routes have been established and traction power has been removed at least one interlocking from each end of the Blanket Work Area.
- 6404 When a Blanket Work Area clearance is issued by the Train Controller, the Blanket Area Supervisor is authorized to provide work instructions and access/egress instructions within the Blanket Work Area.
- 6405 The Blanket Area Supervisor is responsible for issuing instructions for on-rail vehicle access at maintenance-of-way access points within the Blanket Work Area Limits. If access to and egress from the Blanket Work Area is required at a location outside the Blanket Work Area, the Train Controller shall coordinate with the Blanket Area Supervisor and issue the necessary movement instructions.
- 6406 On-rail maintenance vehicles shall not enter a Blanket Work Area until:
- A. Communication check and entry location verification with the Power Support Controller/Train Controller and Blanket Area Supervisor has been completed.
 - B. The Blanket Area Supervisor has issued work and access instructions.
- 6407 On-rail maintenance vehicles or lead unit occupying a Blanket Work Area must have a properly functioning vehicle mounted radio.
- 6408 The Blanket Area Supervisor may authorize personnel on foot to access the Blanket Work

ROADWAY WORKER PROTECTION MANUAL

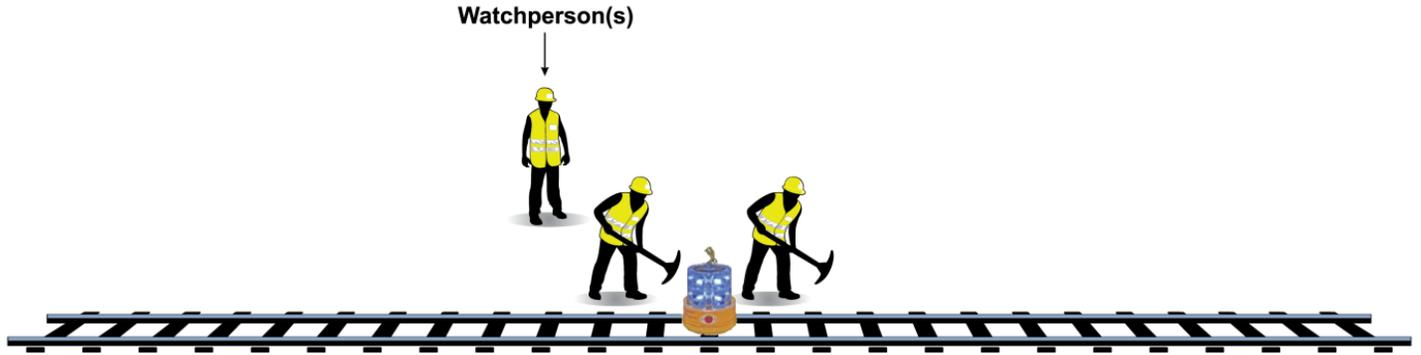
- Area from any location within the limits of the Blanket Work Area.
- 6409 Set on instructions and work area instructions must be read back verbatim to the Blanket Area Supervisor.
- 6410 The authority to act upon set-on instructions and or work area instructions is granted when the current "Time" is given.
- 6411 Watchperson is required for set-on and set-off.
- 6412 Personnel working within a Blanket Work Area shall expect other crews and/or on-rail vehicles to be working and moving within the Blanket Work Area and take necessary steps to protect themselves and others from contact with moving equipment.
- 6413 Personnel working within a Blanket Work Area must immediately notify the Blanket Area Supervisor when clear of the Blanket Work Area.
- 6414 The Employee In Charge (EIC) requesting to enter Blanket Work Area shall complete a Work Order Form and carry the completed form on his/her person until cleared from the Blanket Work Area. The completed form shall be kept and returned to the supervisor or manager of the EIC for proper filing. Completed Work Order Form (Form #13-73-0001b) shall be filed and readily accessible for at least one year from the date it was completed.
- 6415 Employee In Charge (EIC) accepting work instructions governing crews in vehicles or personnel on foot shall conduct a job safety briefing with other crew members prior to entering right-of-way.
- 6416 Watchperson(s) are required whenever work crews will be in the track zone to provide effective warning of on-rail vehicle approach in compliance with the 15 second rule. More than one Watchperson is required for large work areas and they must be stationed appropriately at both ends of the work area.
- 6417 If work instructions or access authority must be transferred to another person, it shall be released and reissued verbatim by the Blanket Area Supervisor.
- 6418 Work Area Protections from On Rail Vehicle Movement:
- A. On rail vehicles shall stop short of a blue or red light, placed between the running rails, and shall not proceed unless signaled by the EIC or Watchperson. Watchperson will only signal on rail vehicles to proceed with approval from the EIC.
 - B. On-rail Maintenance Vehicle speed limits are listed in OR&P 7306, specific to vehicle type and operating conditions. The EIC may reduce speed limits thru the work area, but NOT exceed speed limits specified in the OR&P.
- 6419 The following minimum levels of protection shall be established for the different types of work as defined below. A higher level of protection may be utilized for any work type. These protections only apply to work performed in the track zone.
- A. **Type 1: Light Maintenance.** Work performed by crews on foot involving inspections, small hand tools, test equipment, measuring devices, cranking switch machines, communication checks and placement of grounds.
 - 1) Blue light shall be placed between the running rails to indicate the location where crews are working and also requires the use of watchperson(s).
 - B. **Type 2: On rail Maintenance.** Work performed from moving On-rail vehicles which includes periodic stopping to perform light maintenance. Examples include track inspections, re-lamping and communication checks.
 - 1) When crews are performing work within or outside of the On-rail vehicle, blue lights will be displayed in front and rear of the vehicle.
 - 2) When crews are performing work on the ground their position shall be marked by a blue light placed between the running rails and requires the use of watchperson(s).
 - C. **Type 3: Heavy Maintenance.** Work performed using machines or equipment in fixed locations which does not fall in the category of light maintenance and on rail maintenance.
 - 1) Work areas shall be marked on both ends by red lights placed between the running rails at a distance of 500' from the location where crews are performing work. Watchperson is required while establishing red lights for a work area.

ROADWAY WORKER PROTECTION MANUAL

- 2) Blue light shall be placed between the running rails to indicate the location where Personnel are working.

NOTE: All on rail movement within the work area will be coordinated and directed by the EIC.

FIGURE 1: OR&P RULE 6419 BLANKET LIGHT PLACEMENT EXAMPLES:



TYPE 1 LIGHT MAINTENANCE



TYPE 2 ON RAIL MAINTENANCE



TYPE 3 HEAVY MAINTENANCE

ROADWAY WORKER PROTECTION MANUAL

6500 BLUE LIGHT/BLUE SIGN PROTECTION

- 6501 Blue Light/Blue Sign Protection may be established when authorized by the control center having jurisdiction. At the Hayward Test Track, Blue Light/Blue Sign Protection will be established by the designated person in charge of work.
- 6502 Employees performing maintenance, modification or repair on, under or between transit vehicles in Shop Local Control areas (outside of shop buildings), storage tracks, or transfer tracks shall be protected by Blue Lights/Blue Signs prior to commencing the activity.
- 6503 Vehicles/equipment protected by Blue Lights/Blue Signs may be moved on a designated track when all of the following have been met:
- A. An authorized employee operates the vehicle/equipment under the direction of the authority in charge of work.
 - B. The Blue Light/Blue Sign has been removed from the vehicle/equipment in the direction of proposed movement.
 - C. All affected personnel working on the equipment or protected by the Blue Lights/Blue Signs have been warned of the movement.
 - D. The move has been coordinated with the control center having jurisdiction.
- 6504 Cars protected by such Blue Lights/Blue Signs shall not be moved or coupled to by other on-rail equipment.
- 6505 No equipment shall be placed in such a manner that it obstructs the view of Blue Lights/Blue Signs installed in the trackway.
- 6506 Blue Lights/Blue Signs shall only be removed by the person who placed them, or a Shop Foreworker who personally inspects the equipment being protected by the Blue Lights/Blue Signs and verifies that the equipment can be safely released to the control center having jurisdiction. At the Hayward Test Track, Blue Lights/Blue Signs shall be removed by the designated person in charge of work.

6600 ELECTRICAL SAFETY AND PROTECTION

- 6601 An electrical Safe Clearance requires prior authorization from the control center having jurisdiction.

- 6602 An Electrical Safe Clearance shall be established for the following:
- A. Prior to any activity which will involve physical contact with the third rail or another electrical component of the 1000VDC or 34.5kV AC electrification systems.
 - B. For any other work when conditions warrant. For cases that do not involve direct contact with the third rail, the following minimum requirements apply:
 - 1. For maintenance activities performed between the third rail and the nearest running rail (near-side zone), For conductive tools or materials: Fixed barriers, or Field Verified Power Off and use of portable non-conductive barriers. For non-conductive tools or materials: Field Verified Power Off, or Field Verified Power Off and use of portable non-conductive barriers if the nature of the work could lead to physical contact with the third rail.
 - 2. For maintenance activities performed between the running rails (far-side zone), For conductive tools or materials over 36 inches in length: Field Verified Power Off or use of insulating gloves or portable non-conductive barriers.
 - 3. For maintenance activities performed between the running rails (far-side zone) or beyond, and involve tools or materials that extend into the near-side zone, For conductive tools or material: Field Verified Power Off and use of insulating gloves or portable non-conductive barriers. For non-conductive tools or materials: Field Verified Power Off.
 - 4. **For maintenance activities that involve the use of unrestrained machines or heavy equipment,** that have the potential to make contact with the third rail: Electrical Safe Clearance, fixed barriers, or mechanical constraints to adequately limit motion.

- 6603 Electrical Safe Clearances shall only be established by qualified BART electricians.

- 6604 BART electricians are responsible to establish Electrical Safe Clearances in accordance with

ROADWAY WORKER PROTECTION MANUAL

the Electrification Plans Book 36 (Red Book).

- 6605 Multiple crews working in the same area may operate under a single Electrical Safe Clearance.
- 6606 An Electrical Safe Clearance or Double Breaker Power Off shall not be considered established until properly recorded by the control center having jurisdiction.
- 6607 Electrical Safe Clearances installed on jointly controlled and computer monitored 1000V DC circuit breakers shall be coordinated between the Operations Control Center and Yard Tower Control and recorded by both.
- 6608 When an employee holding an Electrical Safe Clearance is unable to personally release it, an electrical supervisor, or his/her designee, may release the Electrical Safe Clearance after personally inspecting the secured area and ensuring its safe condition.
- 6609 After an Electrical Safe Clearance has been established, each Craft that will work on, or near, the electrical third rail shall independently field-verify that power is off on each individual piece of electrical third rail (as opposed to a third rail section which may include one or more individual pieces of electrical third rail electrically bonded together) adjacent to the work using a District approved probe and insulating gloves, prior to commencement of work on or near those pieces of third rail.

NOTE: Individuals should never rely solely on the information provided in the track allocation form for their safety. The track allocation process is for scheduling proposes only, and actual field conditions should be assessed upon accessing the work location.

Definitions

Access Authorization: Formal authorization issued to a Roadway Worker for access to an Access Authorization Area, by the control center having jurisdiction. Access Authorization does not authorize any work to be performed. Access Authorization requires the completion of the Access Authorization Form. The authorization cannot be granted until the requester has conducted a formal check-in procedure with the control center having jurisdiction whereby the **requester** either 1) meets face-to-face with the control center having jurisdiction to request for such authorization, or 2) requests for such authorization on the radio. The requester shall use one of these two methods to cancel the Access Authorization and check-out with the control center having jurisdiction once he/she has physically cleared the Access Authorization Area. The requester shall comply with the 15 Second Rule at all times while operating under Access Authorization.

Access Authorization Areas: ALL yards, end-of-the-line storage tracks, and other similar areas are the only approved areas for Access Authorization:

- Local Control Areas (shops)
- Yards
- C75 Storage Tracks & C75 Training Facility on Paved Road ONLY
- C85 Terminal Zones and Storage Tracks
- L35 Terminal Zones and Storage Tracks
- W45 Terminal Zones and Storage Tracks
- Oakland Transition Structure, San Francisco Transition Structure, and the Transbay Tube Lower Gallery

Accident: An unforeseen event or occurrence which results in injury or property damage.

Aerial: The elevated portion of the trackway.

Authority Having Jurisdiction: The control center or outside agency having command/control of an area.

Authorization: Permission, from an appropriate control center or authority having jurisdiction, to perform a specified task or movement.

Automatic Train Control (ATC): The system for automatically controlling train movement, enforcing train safety, and directing train operations. ATC includes subsystems for automatic train operations, train protection, and line supervision.

Automatic Train Operations (ATO): The subsystem within automatic train control which performs the functions of speed control, programmed stopping, and door operation.

ROADWAY WORKER PROTECTION MANUAL

Automatic Train Protection (ATP): The subsystem within automatic train control which enforces safe operation, including speed restriction and separation of trains running on the same track and over interlocked routes.

BART Operating Envelope: That portion of the BART system that has controlled access including fan and transition structures, train control and traction power facilities, and right-of-way.

Berthing: Positioning of a train at a station platform.

Blanket Area Supervisor: A designated supervisor who is responsible for requesting, receiving, and releasing clearances from the Operations Control Center for a work area designating the Blanket Work Area. The Blanket Work Area Supervisor is responsible for all crews performing work in the Blanket Work Area, including wayside access.

Blanket Work Area: A mainline track area, which is assigned to the Blanket Area Supervisor by the Operations Control Center, for the exclusive purpose of performing maintenance.

Blue Light Station: An Emergency panel containing a third rail power trip button, an emergency telephone, a 120V AC outlet and in underground trackway locations, a fire extinguisher. A blue light is located above the panel.

Cab: See Control Cab.

Clearance: See Work Orders, An official authorization which transfers control of an area or equipment to perform an activity subject to clearance rules.

Clear of Track: A location with at least 44 inches between you and the nearest running rail when a walkway with a handrail or other means of support/reference is present (wall, fences or in the case of yards and local control areas, a stationary train appropriately protected from movement). For aerial structures, Clear of Track is when personnel are on the aerial walkway and the EIC declares that the area is cleared for on-rail vehicles to traverse. For all other conditions, Clear of Track is defined as a location with at least **72 inches** (6 feet) between you and the nearest running rail. These dimensions are for straight track; on curved track, additional clearance needs to be added for car body overhang.

Clock Time: Authorized increment of time to perform a specific task.

Collector Shoe: Part of the assembly that rides the third rail to transfer the 1,000V DC to the vehicle.

Confirmed Hold: A specific procedure to hold rail transit vehicles including on-rail equipment, out of a work location as follows: The Control Center will instruct a rail

transit vehicle Operator to stop at a designated location, and the rail transit vehicle Operator will confirm to the 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 EIC receives notification from the 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 safely clear of the tracks and confirms the release of the work location to the Control Center.

Conflicting Routes: Two or more routes, opposing, converging or intersecting, over which movements cannot be made simultaneously without the possibility of collision.

Contact Rail: See Third Rail.

Control Cab: The compartment of an "A" or "C" car which houses controls for the operation of the train.

Control Center: The control point for each of the jurisdictional areas: Operations Control Center, Yard Tower Control, Local Control Area.

Crossover: Two turnouts, with track between the frogs, arranged to form a continuous passage between two parallel tracks.

De-Energize: To disconnect an electrical device from its operating current.

Derail: A protective track device designed to cause on-rail vehicles to derail to prevent collisions with other on-rail vehicles moving on adjacent rails.

District-Approved Physical Barrier: A BART System Safety Department approved device that provides separation between Roadway Workers and the Track Zone.

Emergency: Any incident threatening life safety or causing damage which threatens life safety in any BART facility or on the right-of-way.

Emergency Plan: The document that sets forth the policy and guidelines for the procedures that will be implemented by BART and other responding agencies when an emergency situation that threatens life safety occurs on or adjacent to the BART system.

Emergency Scene: That area, within designated boundaries, where an emergency situation has occurred to which emergency response personnel and agencies report, work and control all operations.

Emergency Telephone System: A dedicated telephone system that enables direct calls to the Operations Control Center from all blue light stations, stations, Yard Tower Control Centers and selected elevator, train control, traction power and transition structure locations.

ROADWAY WORKER PROTECTION MANUAL

Emergency Third Rail Trip: A hard-wired system that instantly de-energizes a section of third rail when the button is activated.

Employee In Charge (EIC): A Roadway Worker who is responsible for ensuring roadway worker safety, including use of roadway worker protections, at a right-of-way worksite, and who by demonstration of knowledge and competence, is authorized to accept and execute Work Orders, clearances, and Access Authorizations.

Facing Point Move: An on-rail movement over switch points in the direction from the switch points to the frog.

False Occupancy: The indication of track occupancy where no actual occupancy exists.

Far-Side Zone: Space between the running rails.

Fifteen-Second Rule, or 15-Second Rule: A roadway worker is required to be clear of approaching rail transit vehicles 15 seconds before a rail transit vehicle moving at the maximum authorized speed on that track can pass the location of the roadway worker.

Flagperson: Personnel assigned to assist in the control of train movements by the display of hand signals, flags or lights.

Foul a Track: To place an individual or an item of equipment in such proximity to a track that the individual or equipment could be struck by a moving train or on-rail equipment.

Fouling Point: The location near the intersection of two converging tracks beyond which adequate clearance does not exist for concurrent passage of on-rail equipment.

Frog: A track structure used at the intersection of two running rails to provide support for wheels and passageways for their flanges, thus permitting wheels on either rail to cross the other.

Gate: The limit of an interlocked route, on mainline track, where entry to that route is governed.

Hand Thrown Switch: A track switch which can only be operated manually.

High Speed Train: Train travel at speeds in excess of 27 MPH.

Hi-Rail Vehicle: Vehicle equipped with a combination of flanged wheels and tires, powered by means other than third rail power which is capable of operation on tracks or highways.

Hold: A specific procedure to hold rail transit vehicles including on-rail equipment, at a designated location as follows: The Control Center will instruct a rail transit vehicle Operator to stop at a designated location.

Roadway workers **will be** permitted to enter the work zone.

Hostling: The movement of car(s) by means of manual onboard controls.

Incident: An unforeseen event or occurrence which may or may not result in an injury or property damage.

Incident Commander: The individual responsible for the management of all incident operations. This individual is near the site of the emergency and communicates with the Operations Control Center or Emergency Operations Center, if activated.

Inhibit: See Prohibit, OCC Route.

Interface: Location at which independent systems meet and act upon or communicate with each other.

Interlocking: An arrangement of gates and control apparatus within defined limits so interconnected that functions must succeed each other in proper sequence, permitting train movements over controlled routes only if safe conditions exist.

Job Safety Briefing: A meeting conducted at the job site by the Employee in Charge (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.

Jurisdiction: The responsibility for command/control of designated operating areas.

Lead Unit, Maintenance Vehicle: The on-rail maintenance vehicle within a consist designated to communicate with the control center having jurisdiction and receive movement instructions for the entire consist.

Local Control Area: An area within a yard wherein on-rail vehicle movement, work and track alignment are under control of shop personnel independent from Yard Tower Control.

Lookout: See Watchperson.

Mainline: Track under the operating jurisdiction of the Operations Control Center, including leads into yard areas.

Maintenance Activities: Physical use or manipulation of tools and/or materials, excluding fundamental activities such as walking with or without a tool-belt or other miscellaneous items attached to one's person.

Maintenance-Of-Way Access Point (MW): A designated location equipped with facilities for rail to rail, road to rail, or on foot access to mainline trackway.

Maintenance Vehicle Consist: Multiple on-rail maintenance vehicles operating as a single unit for on-rail operational procedures

ROADWAY WORKER PROTECTION MANUAL

Maintenance Vehicle Detection Device (MVDD): An electronic device mounted in on-rail maintenance vehicles to provide location identification on mainline track to the Operations Control Center.

Manual Speed Limit: The rate at which a train or car may travel in the manual mode. Categories of speed are:

- A. Road Manual: A manual mode of operation not to exceed 25 MPH.
- B. Yard Manual: A manual mode of operation not to exceed 10 MPH.

Manual Stop: Stopping a train by use of the manual stop button. Once initiated, the brake application cannot be released until the train has stopped.

Manual Train Operation: Train movement is completely controlled by the Train Operator in compliance with Operations Rules and Procedures.

McKinley: The emergency code word communicated by employees to indicate that an emergency situation exists and immediate assistance is required.

Milepost (MP): A marker in the trackway indicating the track distance in miles from the Oakland Wye (or San Francisco International Airport Station on the Y-Line) and the track designation.

Movement Instruction: Movement authorization issued for the area of track(s) by the control center having jurisdiction.

Near-Side Zone: Space within the radius of the coverboard, and between the open side of the coverboard and the nearest running rail.

No Refuge Zone: An area within the District's right-of-way where there is inadequate clearance on both sides of the track for personnel when trains or on-rail equipment are operating, except for obstructions four feet wide or less, that personnel can easily move around.

Normal Direction: The predominant direction of train traffic on a track.

On-Rail Maintenance Vehicle: A vehicle equipped with flanged wheels or a combination of flanged wheels and tires capable of operation on BART tracks and powered by means other than third rail power.

On-Rail Vehicles: Any revenue or non-revenue equipment operated on the tracks of the BART system.

Operating Bulletin: Written instructions issued to address an urgent operating requirement in accordance with the System Safety Program Plan. It may modify the Operations Rules and Procedures or departmental procedures applying to a limited area of operation.

Operations Control Center (OCC): A facility in the Lake Merritt Administration Building from which mainline operations and remotely controlled systems are monitored and controlled.

Parking Brake: A holding brake used to prevent movement of a train/car(s) once it has stopped and is out of automatic control or void of power.

Passenger Loads:

- Seated Load AW1 (74,000 lbs.)
- Standing Load AW2 (82,000 lbs.)
- Crush Load AW3 (98,000 lbs.)

Personal Electronic Device (PED): Any wireless or electronic device (both personally owned or District issued), including but not limited to, cell phones, internet and text-messaging devices, smart phones, two-way pagers, DVD, audio or game players, Bluetooth devices, headphones or ear buds. BART owned 800 MHz radios including ear attachment, hearing aids prescribed by a licensed medical practitioner, and BART issued wayside safety devices are exempt.

Personnel: Individuals authorized to accept and execute clearances.

Physical Contact With The Third Rail: Unprotected body contact with the third rail, or unprotected body contact with a tool, material, or object that is in direct contact with the third rail.

Piggy-Backing (Concurrent Work Areas): A procedure whereby additional work crews are permitted to work within the working limits of an EIC. The SEIC is required for each group that performs work duties outside those specific to the EIC's own work area.

Place of Safety: 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.

Platform: The area of a station located adjacent to or between trackways from which patrons enter or leave trains.

Pocket Track: A section of track connected at both ends to the mainline trackway where trains or maintenance vehicles may be stored to facilitate operational needs.

Portal: An entering and exiting transition structure between aerial/at-grade and subways.

Positive Shunting Vehicle: Designated on-rail maintenance vehicles listed in an Operating Bulletin which, for the purposes of Operations Rules & Procedures requirements, have been determined to reliably shunt the train control system.

ROADWAY WORKER PROTECTION MANUAL

Power Off: The de-energization of 1000V DC and/or 34.5kV AC electrical systems. This condition provides no assurance of safety for direct contact with the third rail.

Power Off, Field Verified: Direct determination of the de-energized electrical state of a third rail section using a third rail probe.

Proceed With Caution: A "Restriction" issued to alert a vehicle operator to the possibility of unusual conditions on tracks ahead, and that the move must be made with utmost caution.

Prohibit, Local Route: A Key imposed method, activated from a local control room that prevents automatic routing through an interlocking exit gate.

- A. Train control personnel key impose exit gate prohibits in the Local Train Control Room with authorization from the OCC.
- B. Requires tag-out procedure to be followed in Train Control Room.
- C. Exit gates remain prohibited during and after State III computer failures.

Prohibit, OCC Route: An OCC computer-implemented method that prevents OCC generated routing through an interlocking exit gate, which requires a two-point authorization for release.

Proper Authority: An authoritative source to whom the District has delegated the right and power to make decisions and grant permission to others to perform controlled activities or to access a restricted area. The authoritative source may be rules and procedures, a control center, or designated person in charge.

Readback: A verbatim repeat of an instruction to acknowledge receipt and understanding.

Restricted Area: An area where authorization is required prior to entry.

Restricted Speed: 18 or 27 MPH maximum speed ATO, imposed through the Automatic Train Protection subsystem using key activated switches in the local Train Control Room.

Restriction, Work Between Trains: A provision attached to a Facility/Equipment or Work Area Clearance granting authority for work access within the operating envelope, with the understanding that personnel are not to disrupt the normal operation of train movement.

Restriction, Work On Sight With Train/On-Rail Equipment Ahead: A restriction attached to a revenue vehicle or on-rail equipment granting authority for movement within the same area as another revenue vehicle or on-rail equipment, with the understanding that

the operator is to be prepared to stop short of the other revenue vehicle or on-rail equipment.

Revenue Service: Transportation of fare paying passengers on mainline routes.

Revenue Vehicle:

"A" CAR: A vehicle with a control cab which encloses the Train Operator's position and houses train control equipment.

"B" CAR: A vehicle not equipped with a control cab.

"C" CAR: A vehicle with a control cab that can function as an A-car or B-car.

Reverse Direction(Reverse Running): The operation of a train opposite the normal direction.

Right-Of-Way: That portion of the BART system within protective fencing, tunnels, tubes, subways, stations or aerial structures wherein trains operate.

Roadway Worker: A person, who performs any work on the right-of-way and who is currently certified by the District's Roadway Worker Protection Certification Training Program.

Roadway Worker-C (RW-C): A Roadway Worker, who by demonstration of knowledge and competence, is authorized to accept and execute Work Orders, clearances, and Access Authorizations for Yard and Local Control only.

Route: A specified arrangement of interlocking equipment to provide for movement between two controlled gates.

Safe Clearance (Electrical): An Electrical Safe Clearance ensures the sources of power for the third rail or other electrical components of the 1,000V DC or 34.5kV AC electrification system have been disconnected and grounds have been installed to provide a safe working condition.

Safety Hold: A restriction placed on a vehicle, equipment or other apparatus by the System Safety Department to preserve evidence during an accident/incident investigation.

Safety Monitor: Individual assigned to oversee the operational safety of a contractor or other outside agency work activity. Safety Monitors must have successfully completed Safety Monitor training and field certification.

Scene (Emergency): The location of an emergency where on site response is centered.

Secondary Employee In Charge (SEIC): A Roadway Worker who is responsible for ensuring roadway worker safety, including use of roadway worker protections, at a right-of-way worksite when in piggy-back work areas,

ROADWAY WORKER PROTECTION MANUAL

and who by demonstration of knowledge and competence, is authorized to accept and execute Work Orders, clearances, and Access Authorizations.

Sequential Occupancy Release System (SORS): A system which provides backup protection to safeguard against loss of occupancy detection by the primary detection system.

Shunt: A device that is connected to both running rails as part of the automatic train control system.

Signal, Aspect: The appearance of a fixed signal conveying an indication as viewed from the direction of an approaching train or maintenance vehicle.

Signal Indication: The instruction provided by the display of a signal aspect.

Signals: A device conveying information concerning conditions affecting movements on tracks.

Speed Restriction, Local: Restricted Speed imposed through the key activated switches in the local train control facilities.

Speed Restriction, OCC: An OCC computer implemented method of imposing Restricted Speed, which requires a two-point authorization for release.

Spur: A storage track that diverges from a mainline track.

Substation: A facility used to transform 34.5kV AC to 1,000V DC and distribute power to the third rail.

Subway: Underground trackways and stations for rapid transit operations.

Switch Point: A movable tapered rail which functions to guide rail wheels from one track to another at a turnout.

Terminal Zone (TMZ): A length of track within which the train direction can be reversed by the train control equipment.

Third Rail: A rail mounted adjacent to the running rail, carrying the 1,000V DC for powering trains.

Third Rail Coverboard: A protective covering mounted over the third rail.

Third Rail Manual Disconnect Switch: A manually operated switch used to isolate traction power and operated only after the circuit is de-energized.

Three Way Communication: Radio transmissions by the EIC, Train Operator and Train Controller on the same talkgroup. The Train Operator monitors transmissions between the EIC and Train Controller regarding when vehicle movement through the work area can occur. The EIC monitors transmissions between the Train Operator and Train Controller when the official instructions are given to the Train Operator.

Tower Foreworker: An employee who has jurisdiction and control over clearance and/or movement within a yard control area. This includes the operation of an interlocking control console to establish routes for movement of vehicles.

Track Switch: A device allowing on-rail movement from one track to another.

Trackway: That mainline portion of the BART system within protective fencing, tunnels, tubes, subways, stations or aerial structures where trains operate.

Trackzone: An area within 72 inches (6 feet) of the outside rail on both sides of the 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 track 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 track 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 track zone that has a bucket or swing boom that could extend far enough to be struck, or have the potential to be struck, or roadway maintenance machines that might be wider than revenue rail transit vehicles.

Traction Power System: The electrical equipment interfacing with public utilities or other power generation equipment providing the electrical power for the movement of trains and the operation of their auxiliary systems.

Trailer: Unpowered, non-positive shunting, light weight, portable on-rail equipment that can only travel while coupled to another on-rail maintenance vehicle.

Trailing Point Move: An on-rail movement over switch points in the direction from frog to switch points.

Train: Three or more cars coupled together with a control unit at each end.

Train Controller: An employee at the Operations Control Center who has jurisdiction and control over all movements entering and operating on mainline.

Transfer Tracks: A group of tracks at each yard entrance, between mainline track leads and yard "throat" tracks, where the transfer of control between the Yard Tower Control and Operations Control Center takes place.

ROADWAY WORKER PROTECTION MANUAL

Turnout: An arrangement of a switch, a frog and closure rails, which allows on-rail vehicles to be routed from one track to another.

Unrestrained Machines or Heavy Equipment:

Machines or equipment such as cranes or bucket trucks that have components or loads that can swing freely or unpredictably about the work location.

Unusual Occurrence: Any incident, disturbance, or irregularity which might affect service, involves or threatens to involve injury to persons or damage to equipment or District property, and/or the violation of Operations Rules or Procedures.

Watchperson: An employee who has been trained and qualified on roadway worker protection rules and procedures, whose sole duty is to remain in a position to provide effective warning in compliance with the 15-second rule to roadway workers of approaching rail transit vehicles, including trains or any on-rail equipment, who does not perform or assist in any other work aside from the watchperson duty, and who remains Clear of Track of all active track(s). A watchperson shall have the means to notify the crew.

Wayside: See Right-Of-Way.

Work (Right Of Way) (New Definition): Any activity involving inspection, maintenance, repair or operation of District equipment and infrastructure.

Work Area: A strictly defined area within the operating envelope where access must be authorized and protection from trains provided.

Work Between Trains: A restriction combined with clearances that require the plant to be maintained in a physical condition to allow safe passage of trains in support of revenue operations.

Work Orders: A formal communication between the Roadway Worker and the control center having jurisdiction to establish clearance and/or work.

Yard Tower Control: A facility in each yard from which yard operations and remotely controlled systems are monitored and controlled.

Terminology

DYNAMIC ENVELOPE

The Dynamic Envelope is the additional space outside the car body required for movement of the car body on its suspension. The dynamic envelope is larger than a normal revenue vehicle as shown in Figure 2. Revenue vehicles with suspension problems can pass at any time. Always expect that a revenue vehicle leaning towards you can pass at any time. Always consider the worst case dynamic envelope of a train. In addition to trains,

on-rail maintenance vehicles can be as wide as the dynamic envelope of a train by design. Extra caution should be observed on curved track.

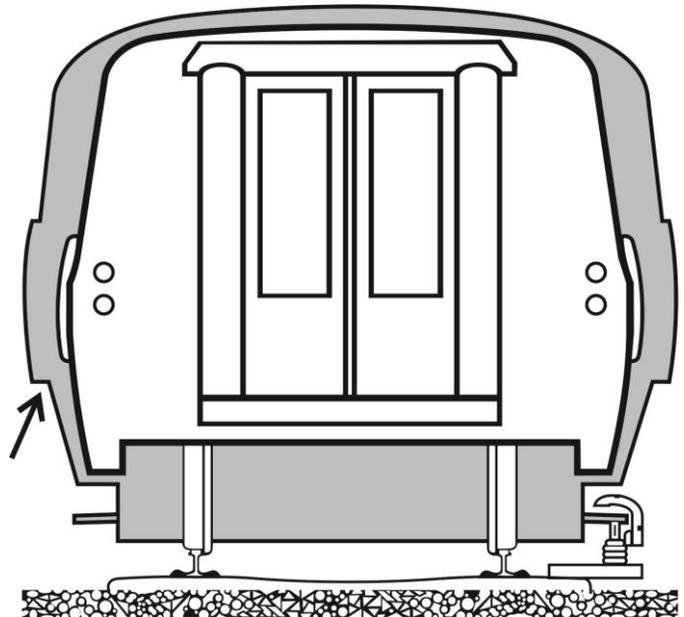


FIGURE 2 DYNAMIC ENVELOPE

The Shaded area in the above diagram illustrates the Dynamic Envelope

OVERHANG ON CURVED TRACK

Trains and other on-rail vehicles have extra overhang on curves as shown in Figure 3. When on-rail vehicles traverse through curved track, the car body creates a straight line over the wheels and overhangs to the inside of curves while the car ends overhang to the outside.

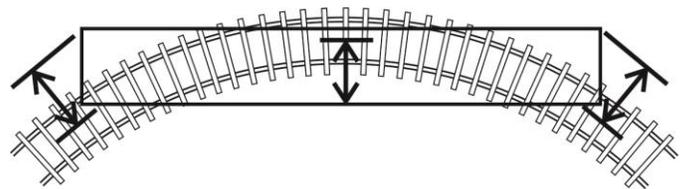


FIGURE 3 CAR BODY OVERHANG

FOULING THE TRACK

To **Foul a Track** is to place an individual or an item of equipment in such proximity to a track that the individual or equipment could be struck by a moving train or on-rail equipment.

Fouling the Track means entering an area where harm from trains and on-rail maintenance vehicle movement could result. This area includes the dynamic envelope of trains and on-rail vehicles and locations with inadequate clearance between the on-rail vehicle and

ROADWAY WORKER PROTECTION MANUAL

structures, or between the on-rail vehicle and other on-rail vehicles on adjacent tracks.

Trains and other on-rail equipment cannot strike you unless you are **fouling** the track.

Determine a safe escape route prior to fouling the track.

CLEAR OF TRACK

Clear of Track is a location with at least 44 inches between you and the nearest running rail when a walkway with a handrail or other means of support/reference is present (wall, fences or in the case of yards and local control areas, a stationary train appropriately protected from movement). For aerial structures, Clear of Track is when personnel are on the aerial walkway and the EIC declares that the area is cleared for on-rail vehicles to traverse. For all other conditions, Clear of Track is defined as a location with at least 72 inches (6 feet) between you and the nearest running rail. These dimensions are for straight track; on curved track, additional clearance needs to be added for car body overhang.

When between tracks, ensure that you have 72 inches (6 feet) of clearance between you and the nearest running rail of **both** tracks.

Personnel who are “**Clear of Track**” shall maintain a high level of attention to passing trains and on-rail maintenance vehicles to ensure that sufficient clearance exists and expect the possibility of dragging equipment or other items hanging from the sides of passing trains and items being struck and deflected by passing trains.

The following locations in the District’s right-of-way are identified as locations that do **not** have available places Clear of Track, trains and on-rail maintenance vehicles. See Figure 4.

Bridges and elevated tracks (aerial structures) that do not have walkways with handrails.

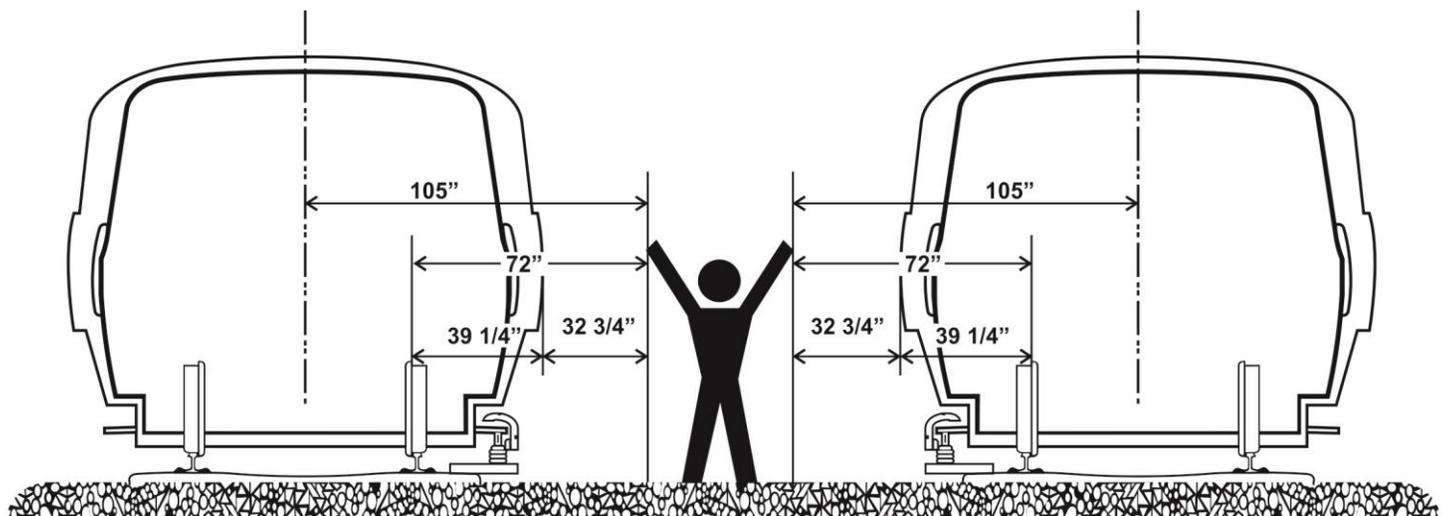
NOTE: Walkways have been installed in the aerial interlockings adjacent to switch machines at A25, A45, M15, M85, and R45. These walkways are not continuous but provide a place Clear of Track at those locations.

NO REFUGE ZONES

The portions of mainline track parallel to the concrete support walls in the M17 and M55 Interlockings posted as No Refuge Zones. There is also an area posted as a No Refuge Zone located on Daly City Yard RT-3 walkway from the south end of portal to raised walkway.

In other locations, such as multiple track areas with close track centers (e.g. K23, A77 and yard entrances), caution should be used when occupying the interior tracks so as not to get trapped between passing trains.

FIGURE 4 CLEAR OF TRACK



ROADWAY WORKER PROTECTION MANUAL



A30 # 2 NO REFUGE DETAILED VIEW



A30 # 1 NO REFUGE DETAILED VIEW



A30 NO REFUGE EXPANDED VIEW

ROADWAY WORKER PROTECTION MANUAL



M55 NO REFUGE EXPANDED VIEW (SIMILAR TO M17 NO REFUGE ZONE)



M55 NO REFUGE DETAILED VIEW (SIMILAR TO M17 NO REFUGE ZONE)



ODY NO REFUGE EXPANDED VIEW



ODY NO REFUGE DETAILED VIEW

ROADWAY WORKER PROTECTION MANUAL

STOPPING DISTANCE

Stopping Distance is the distance required for a train or other on-rail vehicle to initiate braking and come to a complete stop. Reaction time (both human and mechanical) can add significantly to the stopping distance.

Do not expect a train or other on-rail vehicle to be able to stop short of striking you if you are fouling the track.

Before fouling the track, you must be able to move to a previously determined location, clear of track, trains and on-rail equipment, at least 15 seconds before an on-rail vehicle could reach that location. The table below shows the distance.

TABLE 1 MINIMUM REQUIRED SIGHT DISTANCE

Minimum Required Sight Distance — 15 Sec. Rule	
SPEED	APPROXIMATE DISTANCE TRAIN TRAVELS IN 15 SECONDS
10 mph	250 ft / 0.05 Mile
18 mph	400 ft / 0.08 Mile
25-27 mph	600 ft / 0.10 Mile

DISTRICT APPROVED PHYSICAL BARRIER

There are existing District Approved Physical Barriers located throughout the BART Right of Way due to the design of the system. See examples in Figure 5 and Figure 6.

FIGURE 5 STATION PLATFORMS

Station platforms, if they separate roadway workers from non-authorized areas.

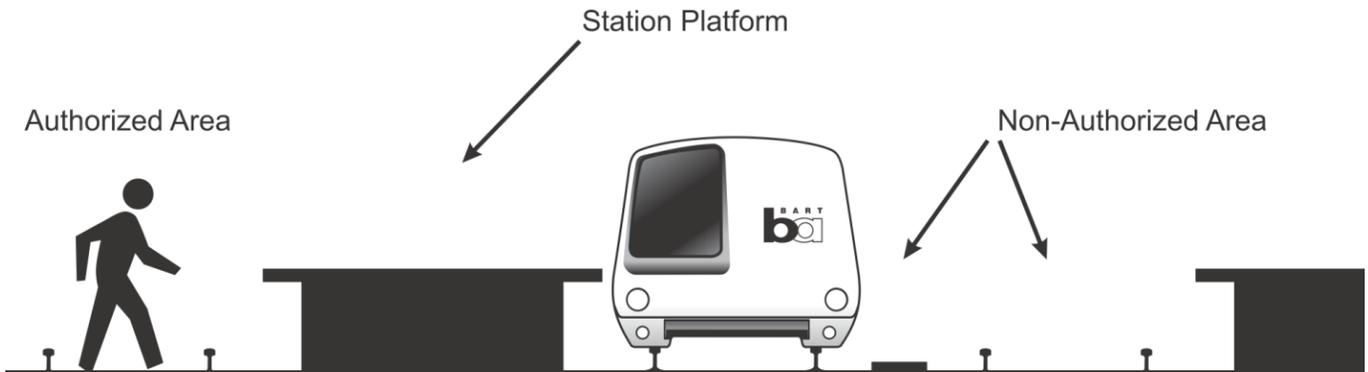
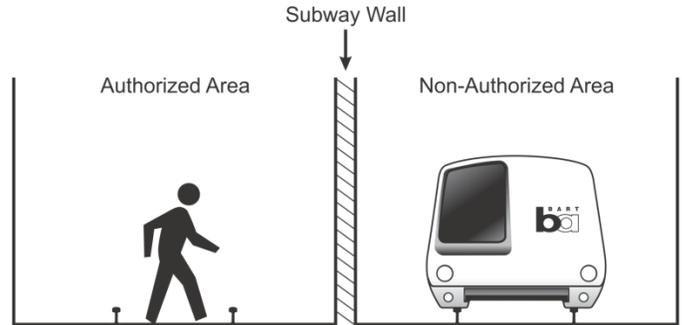


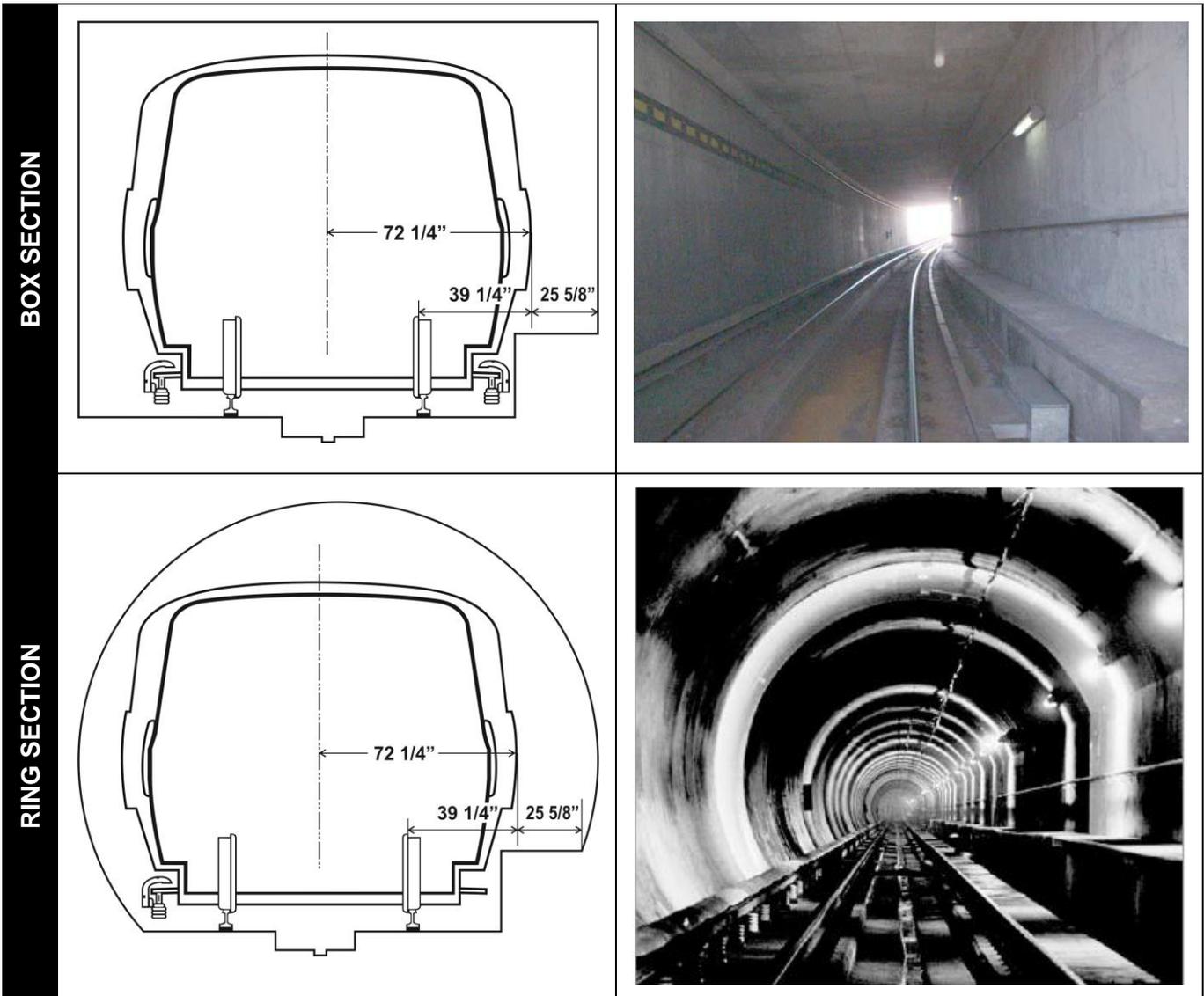
FIGURE 6 SUBWAY WALLS



Subway Walls, if they separate roadway workers from non-authorized areas.

ROADWAY WORKER PROTECTION MANUAL

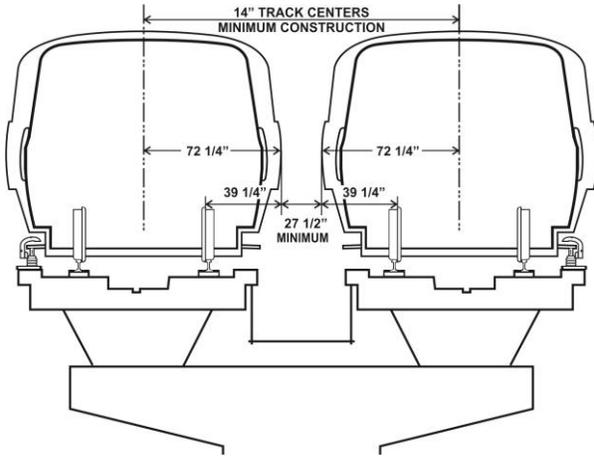
TYPICAL SUBWAY SECTIONS



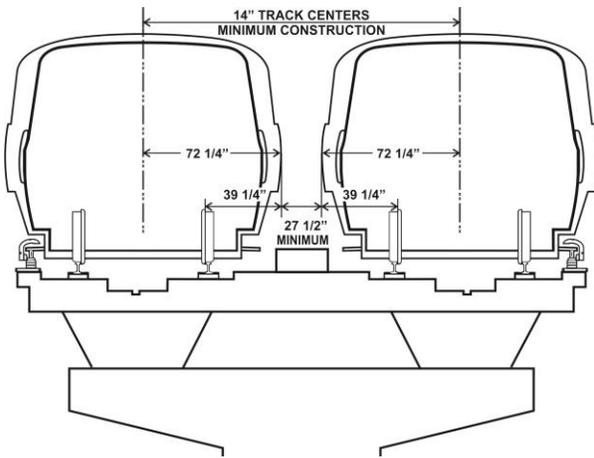
ROADWAY WORKER PROTECTION MANUAL

TYPICAL AERIAL SECTIONS

DEPRESSED WALKWAY



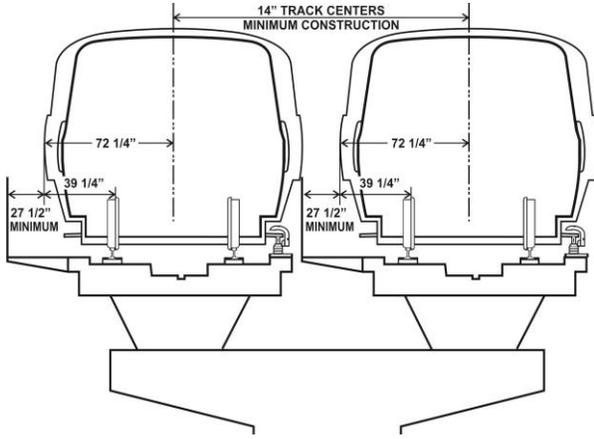
RAISED WALKWAY



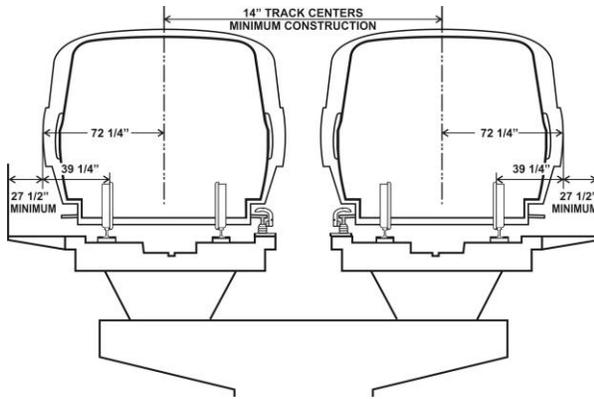
ROADWAY WORKER PROTECTION MANUAL

TYPICAL ELEVATED TRACK SECTIONS WITH SEPARATED WALKWAYS WITH HAND RAILS

ELEVATED TRACK SECTIONS

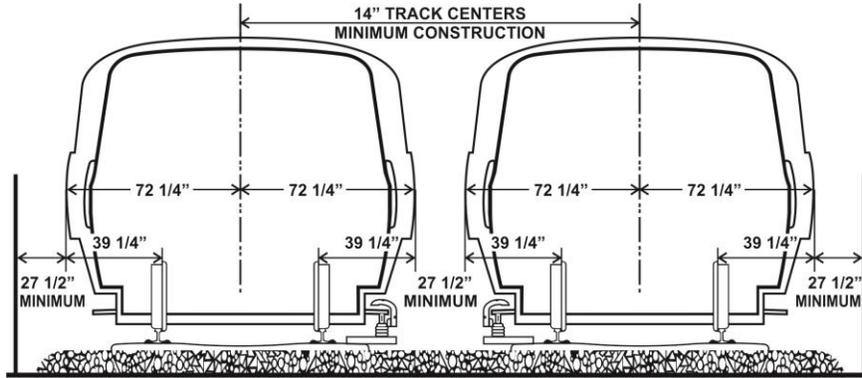


ELEVATED TRACK SECTIONS



TYPICAL BALLASTED AT-GRADE SECTIONS

BALLASTED AND AT-UPGRADE



ROADWAY WORKER PROTECTION MANUAL

Roadway Access Guide

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
A Line							
A	0	0.51	27	Subway	N	A05, Oakland WYE. Walkway with Handrail.	Work Area Clearance Category B
A	0.51	0.64	50	Station	N	A10, Lake Merritt, trains may run through the station at 36 MPH.	Work Area Clearance Category B
A	0.64	1.08	70	Subway	N	Subway With Train Speeds In Excess Of 50 Mph. Walkway with Handrail.	Work Area Clearance Category B
A	1.08	1.36	70	U-Wall	Y	Subway With Train Speeds In Excess Of 50 Mph. Area between tracks approx 13 ft.	Work Area Clearance Category B Category A possible.

A	1.36	2.02	80	At-Grade	Y	A15, Includes MW13, Maintenance of Way Gate in Oakland Shop. Clear of Track Possible outside of tracks. A15 Spurtrack, runs from Oakland Shop to A15 Gate E. Physical Barrier Location, Do not pass barrier.	Work Area Clearance Category B. Category A possible, within A15 south to the aerial structure.
A	2.02	3.39	80	Station	N	A20, Fruitvale Aerial, trains may run through the station at 36 MPH.	Work Area Clearance Category B
A	3.39	4.94	80	Aerial	N	Walkways Without Handrail, Catwalk between tracks. A25 Jk (Electronic Gates) On A1 Track.	Work Area Clearance Category B
A	4.94	5.04	80	Aerial	N	A25 Aerial - Walkways Without Handrail. Catwalk between tracks. Walkways With Handrail (Not Continuous) A1 MP 4.96 - 5.01, A2 MP 4.94 - 4.96, A2 MP 5.01 - 5.03 at Crossover location.	Work Area Clearance Category B
A	5.04	5.15	80	Aerial	N	A25 Aerial - Walkways Without Handrail. Catwalk between tracks.	Work Area Clearance Category B
A	5.15	5.36	80	Aerial	N	A25 Walkways With Handrails. Each track has its own walkway to the platform.	Work Area Clearance Category B
A	5.36	5.5	50	Station	N	A30, Coliseum, trains may run through the station at 36 MPH. A25 Interlocking Extends Through Station Platform On A2 Track. No Refuge Zone off the South end of Platform at MP 5.49-5.51 on A1 & A2 Tracks.	Work Area Clearance Category B No Refuge Zone , south of station platform.
A	5.5	5.7	80	Aerial	N	Walkways With Handrails. A25 FE (Electronic Gates) On A2 Track. Each track has its own walkway.	Work Area Clearance Category B
A	5.7	8.76	80	Aerial	N	A40, San Leandro Aerial - Walkways Without Handrail. Catwalk between tracks. Trains may run through the station at 36 MPH.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
A	8.76	8.87	80		N	A45 Aerial - Walkways Without Handrail. Walkways With Handrails (Not Continuous) A2 MP 8.76 - 8.78, A1 MP 8.78 - 8.84, A2 MP 8.83 - 8.86 at Crossover location.	Work Area Clearance Category B
A	8.87	10.75	80	Aerial	N	Aerial - Walkways Without Handrail. Catwalk between tracks.	Work Area Clearance Category B
A	10.75	10.87	50	Aerial	N	Walkways With Handrail. A55 GH JK (Electronic Gates). Each track has its own walkway.	Work Area Clearance Category B
A	10.87	11.01	50	Station	N	A50, Bay Fair, trains may run through the station at 36 MPH. A55 Interlocking Extends through Station Platform.	Work Area Clearance Category B
A	11.01	11.03	50	Aerial	N	A55 Walkways With Handrails. Each track has its own walkway.	Work Area Clearance Category B
A	11.03	11.47	80	At-Grade	Y	A55, A57, MW14 at MP 11.15, Clear of track zone Possible off A1, 14 ft from rail to fence.	Work Area Clearance Category B Category A possible.
A	11.47	11.49	80	Bridge	N	A57, Walkways With Handrails.	Work Area Clearance Category B
A	11.49	11.83	80	At-Grade	Y	A57 Clear of track zone outside A1 Track, not A2 Track, Distance between Tracks 30 ft.	Work Area Clearance Category B Category A possible.
A	11.83	13.73	80	Aerial	N	Aerial - Walkways Without Handrails. Catwalk between tracks.	Work Area Clearance Category B
	13.73	13.88	50	Station	N	A60, Hayward, trains may run through the station at 36 MPH.	Work Area Clearance Category B
A	13.88	13.95	70	At-Grade	Y	A65 Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible.
A	13.95	13.98	70	Bridge	N	A65, Walkways With Handrails.	Work Area Clearance Category B
A	13.98	14.14	70	At-Grade	Y	A65 Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible.
A	14.14	14.19	70	Bridge	N	A65 Walkways With Handrails.	Work Area Clearance Category B
A	14.19	14.73	80	At-Grade	Y	MW18 at MP14.5, A65 EF LM (Electronic Gates) Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible.
A	14.73	14.76	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
A	14.76	15.42	80	At-Grade	Y	Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible.

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
A	15.42	15.45	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
A	15.45	16.62	80	At-Grade	Y	Clear of Track zone Possible, outside A1 and A2.	Work Area Clearance Category B Category A possible.
A	16.62	16.66	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
A	16.66	16.68	80	At-Grade	Y	Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible.
A	16.68	16.82	50	Station	N	A70, South Hayward, trains may run through the station at 36 MPH.	Work Area Clearance Category B
A	16.82	17.39	80	At-Grade	Y	Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible.
A	17.39	17.43	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
A	17.43	18.25	80	At-Grade	N	A75. Beginning of Physical Barrier on A2 Side, between HTT. No Refuge Zone on A2 track side.	Work Area Clearance Category B
A	18.25	18.75	80	At-Grade	N	Physical Barrier on A2 Side, between HTT. No Refuge Zone on A2 track side.	Work Area Clearance Category B
A	18.75	19.17	80	At-Grade	N	A77. Physical Barrier on A2 Side, between HTT. No Refuge Zone on A2 track side.	Work Area Clearance Category B
A	19.17	19.47	80	At-Grade	N	Physical Barrier on A2 Side, between HTT. No Refuge Zone on A2 track side.	Work Area Clearance Category B
A	19.47	19.48	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
A	19.48	19.73	80	At-Grade	N	Physical Barrier on A2 Side, between HTT. No Refuge Zone on A2 track side.	Work Area Clearance Category B
A	19.73	20.34	80	Aerial	N	Aerial - Walkways Without Handrail. Catwalk between tracks.	Work Area Clearance Category B
A	20.34	20.43	50	At-Grade	Y	Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible.
A	20.43	20.57	50	Station	N	A80, Union City, trains may run through the station at 36 MPH.	Work Area Clearance Category B
A	20.57	22.66	80	At-Grade	N	MW15	Work Area Clearance Category B
A	22.66	22.73	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
A	22.73	22.91	80	At-Grade	Y	Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible.

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
A	22.91	22.94	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
A	22.94	23.1	80	At-Grade	Y	Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible
A	23.1	23.14	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
A	23.14	23.4	80	At-Grade	Y	Clear of Track zone Possible outside A1 and A2.	Work Area Clearance Category B Category A possible.
A	23.4	23.54	80	Aerial	N	Walkways With Handrails. Walkway inside Tracks.	Work Area Clearance Category B
A	23.54	23.64	80	At-Grade	N	A85. No Clear of Track zone Location.	Work Area Clearance Category B
A	23.64	23.78	50	Station	N	A90, Fremont, trains may run through the station at 36 MPH.	Work Area Clearance Category B
A	23.78	23.82	6	At-Grade	N	Area South Of Fremont Station Platform, leads to cut in location for S Line.	Work Area Clearance Category B
C Line & K Line							
C	0	0.28	18	Subway	N	A05 leads to K17 Interlocking On CX/KX Track. Walkway with Handrail.	Work Area Clearance Category B
C	0.28	0.41	36	Station	N	K10, 12Th Street - K17 Interlocking Extends Through Station Platform On CX Track. Trains may run through the station at 36 MPH.	Work Area Clearance Category B
C	0.41	0.64	36	Subway	N	K17 Interlocking On CX/KX Track. Walkway with Handrail.	Work Area Clearance Category B
C	0.64	0.77	36	Station	N	K20, 19Th Street - K17 Interlocking Extends Through Station Platform On CX Track. Trains may run through the station at 36 MPH.	Work Area Clearance Category B
C	0.77	1.13	50	Subway	N	K17 Interlocking On CX/KX Track. Walkway with Handrail.	Work Area Clearance Category B
C	1.14	1.14	50	KTT	Y	KTT/23rd St Substation Is Clear of Track zone. Access from street. Physical Barrier Location.	Physical Barrier Area, Do not Pass Barrier. Category A possible.
C	1.13	1.27	50	At-Grade	N	K line At-Grade & Aerial Trackways are close enough to each other where Track Zones overlap. Extra caution should be used to ensure limits of the work area are not exceeded. No designated walkways that are clear of the track zone. Only cross the tracks when the protection has been established.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
C	1.27	1.39	50	Aerial	N	K23 begins. K line At-Grade & Aerial Trackways are close enough to each other where Track Zones overlap. Extra caution should be used to ensure limits of the work area are not exceeded. No designated walkways that are clear of the track zone. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
C	1.39	1.51	50	At-Grade	N	K line At-Grade & Aerial Trackways are close enough to each other where Track Zones overlap. Extra caution should be used to ensure limits of the work area are not exceeded. No designated walkways that are clear of the track zone. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
C	1.51	1.53	50	Aerial	N	K line At-Grade & Aerial Trackways are close enough to each other where Track Zones overlap. Extra caution should be used to ensure limits of the work area are not exceeded. No designated walkways that are clear of the track zone. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
C	1.53	1.55	50	At-Grade	N	K line At-Grade & Aerial Trackways are close enough to each other where Track Zones overlap. Extra caution should be used to ensure limits of the work area are not exceeded. No designated walkways that are clear of the track zone. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
C	1.55	1.57	50	Aerial	N	K line At-Grade & Aerial Trackways are close enough to each other where Track Zones overlap. Extra caution should be used to ensure limits of the work area are not exceeded. No designated walkways that are clear of the track zone. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
C	1.57	2.08	50	At-Grade	N	K23 Ends. K25 Begins MP 1.88, Contains MW07 at MP2.04.	Work Area Clearance Category B
C	2.08	2.16	50	Aerial	N	Walkways With Handrails Connects K30 to MW07 Walkways inside tracks.	Work Area Clearance Category B
C	2.16	2.29	50	Station	N	K30, Macarthur, trains may run through the station at 36 MPH.	Work Area Clearance Category B
C	2.29	2.38	70	At-Grade	Y	K35, clear of track zone is possible between tracks. KFS is located Clear of Track, north of K30.	Work Area Clearance Category B Category A possible.
C	2.38	2.41	70	Aerial	N	K35, Walkways With Handrails.	Work Area Clearance Category B
C	2.41	2.53	70	At-Grade	N	K35, Visibility Restricted due to Multiple Tracks and changing grade.	Work Area Clearance Category B
C	2.53	2.56	70	Aerial	N	K35, Walkways With Handrails.	Work Area Clearance Category B
C	2.56	2.65	70	At-Grade	N	K35, Visibility Restricted due to Multiple Tracks and changing grade.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
C	2.65	2.68	70	Aerial	N	K35, Walkways With Handrails.	Work Area Clearance Category B
C	2.68	2.82	70	At-Grade	N	K35, Visibility Restricted due to Multiple Tracks and changing grade.	Work Area Clearance Category B
C	2.82	3.48	80	Aerial/ At-Grade/ Bridge	N	At-Grade & Bridges With Walkways. High Train Speeds, Visibility Restricted. Aerial Areas Have Catwalks Between Tracks And No Handrail.	Work Area Clearance Category B
C	3.48	3.6	50	At-Grade	Y	Clear of track zone possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	3.6	3.73	50	Aerial	N	Walkways With Handrails.	Work Area Clearance Category B
C	3.73	3.86	50	Station	Y	C10, Rockridge, trains may run through the station at 36 MPH.	Work Area Clearance Category B Category A possible.
C	3.86	4.03	70	At-Grade	Y	Clear of Track zone Possible between C1 and C2.	Work Area Clearance Category B Category A possible.
C	4.03	4.06	70	Bridge	N	Walkways Without Handrail.	Work Area Clearance Category B
C	4.06	4.21	70	At-Grade	N	C15/B & C15/C	Work Area Clearance Category B
C	4.21	4.32	70	Aerial	N	C15, Walkways Without Handrail.	Work Area Clearance Category B
C	4.32	4.37	70	At-Grade	N	C15/A & C15/D.	Work Area Clearance Category B
C	4.37	4.51	70	Subway	N	Cut & Cover Subway With Train Speeds In Excess Of 50 Mph. Walkway with Handrail	Work Area Clearance Category B
C	4.51	4.52	70	At-Grade	N	Personnel Should Remain On Walkways.	Work Area Clearance Category B
C	4.52	4.54	70	Bridge	N	Personnel Should Remain On Walkways. Walkways With Handrails.	Work Area Clearance Category B
C	4.54	4.61	70	At-Grade	Y	MW09 Personnel Should Remain On Walkways.	Work Area Clearance Category B Category A possible.
C	4.61	4.64	70	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
C	4.64	4.65	70	At-Grade	N		Work Area Clearance Category B
C	4.65	7.84	80	Subway	N	Berkeley Hills Tunnel. C19 Electronic Gates. Subway With Train Speeds In Excess Of 50 Mph. Walkway with Handrail.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
C	7.84	7.93	70	At-Grade	Y	Clear of Track zone Possible between C1 and C2.	Work Area Clearance Category B Category A possible.
C	7.93	8.12	70	At-Grade	Y	MW10, Clear of Track zone Possible between C1 and C2.	Work Area Clearance Category B Category A possible.
C	8.12	8.25	50	Station	Y	C20, Orinda, Leaving Station Area Clear of Track zone Possible, between C1 and C2. Trains may run through the station at 36 MPH.	Work Area Clearance Category B Category A possible.
C	8.25	8.88	80	At-Grade	N	C25	Work Area Clearance Category B
C	8.88	10.27	80	At-Grade	Y	Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	10.27	10.28	80	Bridge	N	Walkway With Handrail.	Work Area Clearance Category B
C	10.28	10.74	80	At-Grade	Y	Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	10.74	10.85	70	Aerial	N	Aerial - Walkways Without Handrails.	Work Area Clearance Category B
C	10.85	11.71	70	At-Grade	Y	Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	11.71	11.73	70	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
C	11.73	11.84	70	At-Grade	Y	MW11, Clear of Track zone Possible between C1 and C2.	Work Area Clearance Category B Category A possible.
C	11.84	11.87	70	Aerial	N	Walkways With Handrails.	Work Area Clearance Category B
C	11.87	12.01	50	Station	N	C30, Lafayette, trains may run through the station at 36 MPH.	Work Area Clearance Category B
C	12.01	12.12	80	At-Grade	Y	Clear of Track zone Possible between C1 and C2.	Work Area Clearance Category B Category A possible.
C	12.12	12.16	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
C	12.16	12.38	80	At-Grade	N	C35, Pocket Track Area.	Work Area Clearance Category B
C	12.38	12.41	80	Bridge	N	C35, Walkways With Handrails.	Work Area Clearance Category B
C	12.41	12.48	80	At-Grade	N	C35, Pocket Track Area.	Work Area Clearance Category B
C	12.48	12.62	80	At-Grade	Y	Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	12.62	12.74	80	Aerial	N	Aerial - Walkways Without Handrails. Catwalk.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
C	12.74	13.52	80	At-Grade	Y	Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	13.52	13.57	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
C	13.57	13.8	80	At-Grade	Y	Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	13.8	14	80	U-Wall	N	Walkways With Handrails.	Work Area Clearance Category B
C	14	14.45	80	Subway	N	Walnut Creek Cut/Cover Subway With Train Speeds In Excess Of 50 Mph, Visibility Restricted. Walkway with Handrail.	Work Area Clearance Category B
C	14.45	14.69	70	At-Grade	Y	MW12, Personnel Should Remain On Walkways.	Work Area Clearance Category B Category A possible.
C	14.69	14.78	70	Aerial	N	Aerial - Walkways Without Handrails. Catwalk.	Work Area Clearance Category B
C	14.78	14.92	70	At-Grade	Y	Clear of Track zone Possible between C1 and C2.	Work Area Clearance Category B Category A possible.
C	14.92	15.88	70	Aerial	N	C40, Walnut Creek. Aerial Walkways Without Handrail. Trains may run through the station at 36 MPH.	Work Area Clearance Category B
C	15.88	16.89	70	At-Grade	Y	C45/C47, At Grade section between interlockings. Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	16.89	17.18	50	Station	N	C50, Pleasant Hill, trains may run through the station at 36 MPH.	Work Area Clearance Category B
C	17.18	17.19	80	Aerial	N	Walkways With Handrails.	Work Area Clearance Category B
C	17.19	17.48	80	Aerial	N	Aerial Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
C	17.48	17.67	50	At-Grade	Y	C53 Clear of Track zone possible outside C1. Physical Barrier Area for CXH Gap Breaker Station at MP 17.5.	Physical Barrier Area, Do not Pass Barrier. Category A possible.
C	17.67	17.72	50	Aerial	N	Aerial - Walkways Without Handrails. Catwalk.	Work Area Clearance Category B
C	17.72	17.73	50	At-Grade	N	Personnel Should Remain On Walkways. Area Only Accessible By Way Of Restricted Aerials.	Work Area Clearance Category B
C	17.73	17.76	50	Aerial	N	Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
C	17.76	18.88	70	At-Grade	Y	MW17	Work Area Clearance Category B Category A possible.
C	18.88	18.92	70	Aerial	N	Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
C	18.92	19.65	70	At-Grade	Y	C54, Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	19.65	19.66	70	Bridge	N	C54, Walkways With Handrails.	Work Area Clearance Category B
C	19.66	20.48	70	At-Grade		C54/C55, Clear of Track zone Possible between C1 and C2. Physical Barrier Area for CZC Gap Breaker Station at MP 20.3.	Physical Barrier Area, Do not Pass Barrier. Category A possible.
C	20.48	20.51	70	Bridge	N	C55, Walkways With Handrails.	Work Area Clearance Category B
C	20.51	20.56	70	At-Grade	Y	C55, Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	20.56	20.8	70	Aerial	N	C55 Electronic Gates. Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
C	20.8	21.01	70	Aerial	N	Aerial - Walkways With Handrails.	Work Area Clearance Category B
C	21.01	21.11	70	At-Grade	N	C57	Work Area Clearance Category B
C	21.11	21.25	50	Station	N	C60, Concord, trains may run through the station at 36 MPH. C57 Interlocking Extends Through Station Platform.	Work Area Clearance Category B
C	21.25	21.3	50	At-Grade	N	C57 Electronic Gates.	Work Area Clearance Category B
C	21.3	21.5	50	Aerial	N	Walkways With Handrails.	Work Area Clearance Category B
C	21.5	22.2	70	Aerial	N	Aerial - Walkways Without Handrail.	Work Area Clearance Category B
C	22.2	22.99	70	U-Wall (Floating Slab)	N	Personnel Should Remain On Walkways. Walkways with handrails.	Work Area Clearance Category B
C	22.99	23.34	70	At-Grade	N	C75 Electronic Gates. Walkways with handrails.	Work Area Clearance Category B
C	23.34	23.48	50	Station	N	C70, North Concord, trains may run through the station at 36 MPH. C75 Interlocking Extends Through Station Platform.	Work Area Clearance Category B
C	23.48	23.94	50	At-Grade	Y	C75, MW30, C75 Storage Tracks, Physical Barrier Area next to C75.	Physical Barrier Area, Do not Pass Barrier. Category A possible.
C	23.94	24.07	50	Subway	N	Personnel Should Remain On Walkways. Walkways with handrails.	Work Area Clearance Category B
C	24.07	24.3	80	U-Wall	N	Personnel Should Remain On Walkways. Walkways with handrails.	Work Area Clearance Category B
C	24.3	24.43	80	Aerial	N	Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
C	24.43	25.23	80	At-Grade	Y	MW31	Work Area Clearance Category B Category A possible.
C	25.23	25.25	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
C	25.25	25.84	80	At-Grade	Y	Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	25.84	27.06	80	At-Grade	Y	C77, Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	27.06	27.09	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
C	27.09	28.23	80	At-Grade	N	C85 Electronic Gates R/P C2 Track.	Work Area Clearance Category B
C	28.23	28.37	50	Station	N	C80, Pittsburg/Bay Point, trains may run through the station at 36 MPH. C85 Interlocking Extends Through Station Platform On C2 Track.	Work Area Clearance Category B
C	28.37	28.4	50	At-Grade	Y	C85, Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	28.4	28.43	50	Bridge	N	C85, Walkways With Handrails.	Work Area Clearance Category B
C	28.43	28.62	50	At-Grade	Y	C85, Clear of Track zone Possible outside C1 and C2.	Work Area Clearance Category B Category A possible.
C	28.62	28.63	50	Bridge	N	C85, Walkways With Handrails.	Work Area Clearance Category B
C	28.63	29.05	50	At-Grade	Y	MW32 & C85 Tail Tracks. Note 1: Work Orders Required To Access Inspection Pit. Note 2: Electrical Safe Clearance Required To Be In Inspection Pit Under Revenue Vehicle.	Access Authorization Area. Work Area Clearance Category B if work is to be performed.
L Line							
L1	11.05	11.47	50	At-Grade	N	A55/A57, No designated walkways that are clear of the track zone. Trackways are close enough to each other where Track Zones overlap. Extra caution should be used to ensure limits of the work area are not exceeded. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
L1	11.47	11.49	50	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
L1	11.49	11.57	50	At-Grade	N		Work Area Clearance Category B
L1	11.57	11.76	50	Aerial	N	Walkways With Handrails. Visibility Restricted.	Work Area Clearance Category B
L2	11.6	11.76	50	At-Grade	N	Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B
L	11.76	11.93	50	Tunnel	N	Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B
L	11.93	12.1	70	U-Wall	N	Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
L	12.1	12.27	80	At-Grade	N	L07	Work Area Clearance Category B
L	12.27	12.32	80	Bridge	N	L07, Walkways With Handrails.	Work Area Clearance Category B
L	12.32	12.48	80	At-Grade	Y	L07, Clear of Track zone Possible outside L1 and L2.	Work Area Clearance Category B Category A possible.
L	12.48	12.76	80	At-Grade	Y	Clear of Track zone Possible outside L1 and L2.	Work Area Clearance Category B Category A possible.
L	12.76	12.84	80	Aerial	N	Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
L	12.84	12.95	80	At-Grade	Y	Clear of Track zone Possible outside L1 and L2.	Work Area Clearance Category B Category A possible.
L	12.95	12.99	80	Aerial	N	Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
L	12.99	13.19	80	At-Grade	N		Work Area Clearance Category B
L	13.19	13.23	80	Bridge	N	Bridge - Walkways Without Handrail.	Work Area Clearance Category B
L	13.23	13.87	80	At-Grade	Y	Clear of Track zone Possible between L1 and L2.	Work Area Clearance Category B Category A possible.
L	13.87	14.01	50	Station	N	L10, Castro Valley, trains may run through the station at 36 MPH.	Work Area Clearance Category B
L	14.01	14.03	50	At-Grade	Y	Clear of Track zone Possible between L1 and L2.	Work Area Clearance Category B Category A possible.
L	14.03	14.07	70	Bridge	N	L13, Walkways With Handrails. Pocket Track Area.	Work Area Clearance Category B
L	14.07	14.67	70	At-Grade	N	L13, Walkways With Handrails. Pocket Track Area.	Work Area Clearance Category B
L	14.67	14.81	70	At-Grade	N	Walkways With Handrails. Pocket Track Area.	Work Area Clearance Category B
L	14.81	14.86	70	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
L	14.86	14.97	70	At-Grade	N		Work Area Clearance Category B
L	14.97	15.02	70	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
L	15.02	15.65	70	At-Grade	Y	MW40	Work Area Clearance Category B Category A possible.
L	15.65	15.75	70	Aerial	N	Aerial - Walkways Without Handrail.	Work Area Clearance Category B
L	15.75	15.8	70	At-Grade	Y	Clear of Track zone Possible outside L2.	Work Area Clearance Category B Category A possible.
L	15.8	15.9	70	Aerial	N	Aerial - Walkways Without Handrail.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
L	15.9	16.29	70	At-Grade	Y	Clear of Track zone Possible outside L2.	Work Area Clearance Category B Category A possible.
L	16.29	16.38	70	Aerial	N	Aerial - Walkways Without Handrail.	Work Area Clearance Category B
L	16.38	17.17	70	At-Grade	Y	Clear of Track zone Possible outside L2.	Work Area Clearance Category B Category A possible.
L	17.17	17.2	70	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
L	17.2	18.84	80	At-Grade	Y	Clear of Track zone Possible, between L1 and L2.	Work Area Clearance Category B Category A possible.
L	18.84	19.54	80	At-Grade	N	L15, Walkways With Handrails. Pocket Track Area.	Work Area Clearance Category B
L	19.54	19.56	80	Bridge	N	L15, Walkways With Handrails. Pocket Track Area.	Work Area Clearance Category B

L	19.56	19.82	80	At-Grade	Y	L15, MW41	Work Area Clearance Category B Category A possible.
L	19.82	22.37	80	At-Grade	Y	Clear of Track zone Possible between L1 and L2.	Work Area Clearance Category B Category A possible.
L	22.37	22.5	50	Station	Y	L20, West Dublin/Pleasanton, Train Control and Comm Huts Located South of the station is clear of the track zone. Clear of Track zone Possible between L1 and L2. Trains may run through the station at 36 MPH.	Work Area Clearance Category B Category A possible.
L	22.5	22.84	80	At-Grade	Y	L25, Clear of Track zone Possible between L1 and L2.	Work Area Clearance Category B Category A possible.
L	22.84	22.86	80	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
L	22.86	23.93	80	At-Grade	Y	Clear of Track zone Possible outside L1 and L2.	Work Area Clearance Category B Category A possible.
L	23.93	24.07	50	Station	N	L30, Dublin/Pleasanton, trains may run through the station at 36 MPH.	Work Area Clearance Category B
L	24.07	24.1	50	Bridge	N	Area South of L30 is Access Authorization Area. Walkways With Handrails.	Access Authorization Area
L	24.1	24.83	50	At-Grade	Y	L30 To End Of Track, Including L35, L35 Tail Tracks & MW42. Note 1: Work Orders Required To Access Inspection Pit. Note 2: Electrical Safe Clearance Required To Be In Inspection Pit Under Revenue Vehicle.	Access Authorization Area. Work area Clearance Category B if work is to be performed.

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
M Line							
M	0	0.4	27	Subway	N	A05/M03, Walkway with Handrail.	Work Area Clearance Category B
M	0.4	0.56	36	At-Grade	Y	M03 Clear of Track zone Possible. MW05 M1 Track, MW06 M2 Track at MP 0.49.	Work Area Clearance Category B Category A possible.
M	0.56	0.7	36	Aerial	N	M03 Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
M	0.7	1.85	50	Aerial	N	M10, West Oakland, Aerial - Walkways Without Handrail. Catwalk. Trains may run through the station at 36 MPH.	Work Area Clearance Category B
M	1.85	1.95	70	Aerial	N	M15 Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
M	1.95	2.56	70	Aerial	N	M15 Crossover Locations have Walkways With Handrails (Not Continuous). M1 1.85 - 1.88, M2 1.88 - 1.92, M1 1.92 - 1.96	Work Area Clearance Category B

M	2.56	2.67	70	U-Wall	N	MW04 at MP 2.58. Aerial To Subway Transition, Limited Clearance, Visibility Restricted, and High Train Speeds.	Work Area Clearance Category B
M	2.67	7	80	Trans Bay Tube	N	Subway With Train Speeds In Excess Of 50 Mph, Walkways with Handrails.	Work Area Clearance Category B. Access Authorization required for Lower Gallery & Vent Structure Access
M	7	7.27	50	Subway	N	M17 Electronic Gates FE LM.	Work Area Clearance Category B
M	7.27	7.41	50	Station	N	M16, Embarcadero, M17 Interlocking Extends Through Station Platform. Trains may run through the station at 36 MPH.	Work Area Clearance Category B
M	7.41	7.63	36	Subway	N	M17, MW03. No Refuge Zone On M1 & M2 Tracks Between Turnouts At M17. Personnel Should Remain On Walkways, Within M17.	Work Area Clearance Category B.
M	7.63	7.77	50	Station	N	M20, Montgomery Street, M17 Interlocking Extends Through Station Platform. M17 Electronic Gates HG JK. Trains may run through the station at 36 MPH.	Work Area Clearance Category B
M	7.77	8.07	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
M	8.07	8.2	50	Station	N	M30, Powell Street, trains may run through the station at 36 MPH.	Work Area Clearance Category B
M	8.2	8.57	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
M	8.57	8.71	50	Station	N	M40, Civic Center, trains may run through the station at 36 MPH.	Work Area Clearance Category B
M	8.71	9.69	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
M	9.69	9.83	50	Station	N	M50, 16Th Street Mission, trains may run through the station at 36 MPH.	Work Area Clearance Category B
M	9.83	10.49	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
M	10.49	10.57	50	Subway	N	M55 No Refuge Zone On M1 & M2 Tracks Between Turnouts At M55. Personnel Should Remain On Walkways, Within M55.	Work Area Clearance Category B.
M	10.57	10.71	50	Station	N	M60, 24th Street Mission. M55 Interlocking Extends Through Station Platform. Trains may run through the station at 36 MPH.	Work Area Clearance Category B
M1	10.71	11.26	50	Subway	N	M55 Electronic Gates HG JK, Walkway with Handrail.	Work Area Clearance Category B
M1	11.26	11.97	80	Subway	N	Subway With Train Speeds In Excess Of 50 Mph. Walkway with Handrail.	Work Area Clearance Category B
M1	11.97	12.23	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
M2	10.71	11.33	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B

M2	11.33	12.23	80	Subway	N	Subway With Train Speeds In Excess Of 50 Mph. Walkway with Handrail.	Work Area Clearance Category B
M	12.23	12.36	50	Station	N	M70, Glen Park, trains may run through the station at 36 MPH.	Work Area Clearance Category B
M	12.36	12.79	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
M	12.79	13.21	50	At-Grade	Y	MW02 at MP 13.12. No Defined Walkway. Clear of Track zone Possible between M1 and M2.	Work Area Clearance Category B Category A possible.
M	13.21	13.38	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
M	13.38	13.52	50	Station	N	M80, Balboa Park, trains may run through the station at 36 MPH.	Work Area Clearance Category B
M	13.52	13.79	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
M	13.79	13.93	50	At-Grade/U-Wall	N	No Defined Walkway.	Work Area Clearance Category B
M	13.93	14.08	50	Aerial	N	Aerial - Walkways Without Hand Rail. Catwalk.	Work Area Clearance Category B
M	14.08	14.17	50	Aerial	N	M85 Aerial - Walkways Without Handrail. Walkways With Handrails (Not Continuous) M1 14.08 - 14.11, M2 14.11 (Broken) - 14.15, M1 14.15 - 14.17.	Work Area Clearance Category B
M	14.17	14.71	50	Aerial	N	Aerial - Walkways Without Hand Rail. Catwalk.	Work Area Clearance Category B
M	14.71	15.18	50	At-Grade	Y	M87, MW01 at MP 15.04, ME Spur. Clear of Track Possible.	Work Area Clearance Category B Category A possible.
M	15.18	15.31	36	Station	N	M90, Daly City, M87 Interlocking Extends Into Station Platform. M87 Electronic Gates HR JS KT. Trains may run through the station at 36 MPH.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
M	15.31	15.72	50	Aerial	N	M93, Walkways With Handrails.	Work Area Clearance Category B
M	15.72	15.96	50	At-Grade/U-Wall	N	M93, Wide Walkways/Tracks Separated. Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B
M	15.96	16.09	50	Subway	N	M93, Wide Walkways/Tracks Separated. Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B
M	16.09	16.16	50	At-Grade	N	M97, Wide Walkways/Tracks Separated. Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B
M	16.16	16.18	50	Subway	N	M97, Wide Walkways/Tracks Separated. Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B
M	16.18	16.3	50	At-Grade	N	M97, Wide Walkways/Tracks Separated. Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B

W Line							
W	16.3	16.54	36	At-Grade	N	M97/W07, Wide Walkways/Tracks Separated. Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B
W	16.54	16.6	36	Subway	N	No Refuge Zone Located On RT-3 walkway near the South End Of Portal (MP 16.58-16.60).	Work Area Clearance Category B.
W	16.6	16.76	36	At-Grade	N	W07, Wide Walkways/Tracks Separated. Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B
W	16.76	16.89	50	Station	N	W10, Colma, trains may run through the station at 36 MPH.	Work Area Clearance Category B
W	16.89	16.98	50	At-Grade	N	W15, Walkway without Handrail.	Work Area Clearance Category B
W	16.98	17.05	50	Bridge	N	W15, Walkway without Handrail.	Work Area Clearance Category B
W	17.05	17.08	50	At-Grade	N	W15, MW20 at MP 17.07 Within W15 Interlocking. Walkway without Handrail	Work Area Clearance Category B
W	17.08	18.69	70	Subway	N	W15 Electronic Gates GF HJ, Subway With Train Speeds In Excess Of 50 Mph. Walkway with Handrail.	Work Area Clearance Category B
W	18.69	18.79	50	Station	N	W20, South San Francisco, trains may run through the station at 36 MPH.	Work Area Clearance Category B
W	18.79	20.68	80	Subway	N	Subway With Train Speeds In Excess Of 50 Mph.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
W	20.68	21.08	80	Subway	N	W25 Subway With Train Speeds In Excess Of 50 Mph. W25 Pocket Track In Interlocking. No Walkway on Pocket track. Walkway with handrail on W1 track and W2 track.	Work Area Clearance Category B
W	21.08	21.21	50	Station	N	W30, San Bruno, trains may run through the station at 36 MPH.	Work Area Clearance Category B
W	21.21	22.44	70	Subway	N	W33, MP 1.16 Y1 = W MP 22.27. Subway With Train Speeds In Excess Of 50 Mph. Walkway with handrail on W1 track and W2 track.	Work Area Clearance Category B
W	22.44	23.28	70	At-Grade - Ballasted	N	W33, MP 0.89 Y2 = W2 MP 22.45. No walkways South of Portal on W1 & W2 tracks. Includes Portions Of W33 Interlocking. Do Not Request For W33 To Avoid Confusion. Request using Actual Mile Post Limits Instead. MW21 at MP 22.45 W2 track within W33 Interlocking. Personnel Should Remain On Walkways at MW21 and tunnel portals.	Work Area Clearance Category B
W	23.28	24.11	70	Subway	N	W37, W39, Walkway with Handrail. MP 1.12 Y3 = W2 MP 23.55 MP 1.17 Y4 = W1 MP 23.61 Subway With Train Speeds In Excess Of 50 Mph.	Work Area Clearance Category B
W	24.11	24.12	50	At-Grade Slab	N	W39 Personnel Should Remain On Walkways While Near Tunnel Portals.	Work Area Clearance Category B
W	24.12	24.25	50	Station	N	W40, Millbrae, trains may run through the station at 36 MPH.	Work Area Clearance Category B
W	24.25	24.69	50	At-Grade - Ballasted		Includes MW22 at MP 24.61 & MW23 at MP 24.36 W3. Includes W45 Interlocking. Work Orders Required To Access Inspection Pit. Electrical Safe Clearance Required To Be In Inspection Pit Under Revenue Vehicle.	Access Authorization Area. Work Area Clearance Category B if work is to be performed.
Y Line							
Y	0	0.13	50	Station	N	Y10, San Francisco International Airport.	Work Area Clearance Category B
Y	0.13	0.44	50	Aerial	N	Y05, Walkways With Handrails.	Work Area Clearance Category B
Y1	0.44	0.88	50	Aerial	N	Y05. Walkways With Handrails.	Work Area Clearance Category B
Y1	0.88	0.95	50	Retained Fill	N	Each track has its own walkway With Handrails.	Work Area Clearance Category B
Y1	0.95	0.98	50	At-Grade	N		Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
Y1	0.98	1.16	50	Subway	N	MP 1.16 Y1 = W MP 22.27. Subway With Train Speeds On Adjacent W1/2 Track In Excess Of 50 Mph. Portions Of W33 Interlocking In High Speed Subway.	Work Area Clearance Category B
Y2	0.43	0.75	50	Aerial	N	Y05, Walkways With Handrails.	Work Area Clearance Category B
Y2	0.75	0.79	50	Retained Fill	N	Each track has its own walkway With Handrails.	Work Area Clearance Category B
Y2	0.79	0.89	50	At-Grade	N	W33, MP 0.89 Y2 = W MP 22.54. Do Not Request For W33 To Avoid Confusion With High Speed Subway Area. Request Actual Mile Post Limits Instead. Personnel Should Remain On Walkways and exercise Caution when Near the MW21 And Tunnel Portal.	Work Area Clearance Category B
Y3/Y4	0.44	0.73	50	Aerial	N	Aerial - Walkways Without Handrail.	Work Area Clearance Category B
Y3/Y4	0.73	0.85	50	At Grade	N	Personnel Should Remain On Walkways and exercise Caution when Near the Tunnel Portal.	Work Area Clearance Category B
Y3/Y4	0.85	1.12	50	Subway	N	MP 1.12 Y3/Y4 = 23.55 W. Subway With Train Speeds On Adjacent W1/2 Track In Excess Of 50 Mph. W37 Interlocking In High Speed Subway.	Work Area Clearance Category B
R Line							
R	2.32	2.38	36	At-Grade	N	K35, Clear of Track zone Possible between Tracks.	Work Area Clearance Category B. Category A Possible.
R	2.38	2.41	36	Aerial	N	K35, Walkways With Handrails. Visibility Restricted.	Work Area Clearance Category B
R	2.41	2.49	36	At-Grade	N	K35/F & K35/G, Personnel Should Remain On Walkways. Visibility Restricted. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
R	2.49	2.53	50	Subway	N	Personnel Should Remain On Walkways. Visibility Restricted. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
R	2.53	2.56	50	Aerial	N	Short Aerial Under C-Line Tracks At K35. Walkways With Handrails. Personnel Should Remain On Walkways. Visibility Restricted. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
R	2.56	2.62	50	Subway	N	Area Under C2 & C4, Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
R	2.62	2.73	50	Aerial	N	Walkways With Handrails.	Work Area Clearance Category B
R	2.73	3.36	50	Aerial	N	Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
R	3.36	3.52	50	U-Wall	N	Ashby Portal-Aerial To Subway Transition, Visibility restricted, High Train Speeds.	Work Area Clearance Category B
R	3.52	3.9	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
R	3.9	4.03	50	Station	N	R10, Ashby, trains may run through the station at 36 MPH.	Work Area Clearance Category B
R	4.03	5.1	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
R	5.1	5.23	50	Station	N	R20, Berkeley, trains may run through the station at 36 MPH.	Work Area Clearance Category B
R	5.23	5.63	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
R	5.63	5.75	50	Subway	N	R25, equipment located 12 ft off Walkway on R2 Track at MP 5.74 contains equipment reducing clearance.	Work Area Clearance Category B
R	5.75	6.15	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
R	6.15	6.26	50	Station	N	R30, North Berkeley, trains may run through the station at 36 MPH.	Work Area Clearance Category B
R	6.26	6.65	50	Subway	N	Walkway with Handrail.	Work Area Clearance Category B
R	6.65	6.81	70	U-Wall	N	MW08, Aerial To Subway Transition, Limited Clearance, Visibility Restricted, High Train Speeds. Only cross the tracks when the protection has been established.	Work Area Clearance Category B
R	6.81	8.35	80	Aerial	N	Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
R	8.35	8.49	80 MPH	Station	N	R40, El Cerrito Plaza, trains may run through the station at 36 MPH.	Work Area Clearance Category B
R	8.49	10.19	80	Aerial	N	R45 Aerial - Walkways Without Handrail. Walkways With Handrails (Not Continuous) R2 MP 10.08 - 10.10, R1 MP 10.10 - 10.14, R2 MP 10.14 - 10.16.	Work Area Clearance Category B
R	10.19	10.33	80	Station	N	R50, El Cerrito Del Norte, trains may run through the station at 36 MPH.	Work Area Clearance Category B
R	10.33	10.84	70	Aerial	N	Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
R	10.84	10.87	70	At-Grade	N	Personnel Should Remain On Walkways. Visibility Restricted.	Work Area Clearance Category B
R	10.87	10.91	70	Subway	N	I-80 Subway Subway With Train Speeds In Excess Of 50 Mph. Walkway without Handrail.	Work Area Clearance Category B
R	10.91	11	70	At-Grade	Y	Clear of Track zone Possible outside R1 and R2.	Work Area Clearance Category B Category A possible.
R	11	11.15	70	Subway	N	Railroad Overpass. Subway With Train Speeds In Excess Of 50 Mph. Walkway without Handrail.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
R	11.15	11.42	70	At-Grade	Y	MW16 Clear of Track Possible outside of tracks.	Work Area Clearance Category B Category A possible.
R	11.42	11.43	70	Bridge	N	Walkways With Handrails.	Work Area Clearance Category B
R	11.43	11.95	70	At-Grade	Y	Clear of Track zone Possible outside R1 and R2.	Work Area Clearance Category B Category A possible.
R	11.95	12.3	50	Aerial	N	Aerial - Walkways Without Handrail. Catwalk.	Work Area Clearance Category B
R	12.3	12.48	50	At-Grade	Y	Clear of Track zone possible between R1 and R2.	Work Area Clearance Category B Category A possible.
R	12.48	12.51	50	Aerial	N	Walkways With Handrails.	Work Area Clearance Category B
R	12.51	12.64	50	Station	N	R60, Richmond, trains may run through the station at 36 MPH.	Work Area Clearance Category B

R	12.64	12.7	36	At-Grade	Y	Clear of Track zone Possible between R1 and R2.	Work Area Clearance Category B Category A possible.
R	12.7	12.73	36	Bridge	N	R65, Walkways With Handrails.	Work Area Clearance Category B Category A possible.
R	12.64	13	36	At-Grade	N	R65. Northbound Tracks routed into Richmond Yard. Be aware of changing Operating jurisdiction.	Work Area Clearance Category B Category A possible.

YARDS

Hayward Yard (OHY)	ALL TRACKS		10 MPH WITHIN YARD, 36 MPH ON TRANSFER TRACKS	Yard		Including Local Control & Transfer Tracks & Yard Leads. Transfer Tracks Are Joint Jurisdictions Between Yard Tower Control And Operations Control Center. Yard Lead Tracks Are The Jurisdiction Of Operations Control Center. Walkway between Relay Track 91 and Mainline requires Category B Work Area Clearance. No Access To & From Hayward Test Track.	Yard Access requires Access Authorization. Access to Track Zone within Yard and Local Control Areas requires Category C Work Area Clearance.
Concord Yard (OCY)	ALL TRACKS		10 MPH WITHIN YARD, 36 MPH ON TRANSFER TRACKS	Yard		Including Local Control & Transfer Tracks & Yard Leads. Transfer Tracks Are Joint Jurisdictions Between Yard Tower Control And Operations Control Center. Yard Lead Tracks Are The Jurisdiction Of Operations Control Center.	Yard Access requires Access Authorization. Access to Track Zone within Yard and Local Control Areas requires Category C Work Area Clearance.

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
Daly City Yard (ODY)	ALL TRACKS		10 MPH WITHIN YARD, 36 MPH ON TRANSFER TRACKS	Yard		Including Local Control & Transfer Tracks & Yard Leads, Including Subway Area. Transfer Tracks Are Joint Jurisdictions Between Yard Tower Control And Operations Control Center. Yard Lead Tracks Are The Jurisdiction Of Operations Control Center. DTF04 is not included in any clearance given for the station platform. No Refuge Zone Located On RT-3 walkway near the South End Of Portal (MP 16.58-16.60).	Yard Access requires Access Authorization. Access to Track Zone within Yard and Local Control Areas requires Category C Work Area Clearance.
Richmond Yard (ORY)	ALL TRACKS		10 MPH WITHIN YARD, 36 MPH ON TRANSFER TRACKS	Yard		Including Local Control & Transfer Tracks & Yard Leads. Transfer Tracks Are Joint Jurisdictions Between Yard Tower Control And Operations Control Center. Yard Lead Tracks Are The Jurisdiction Of Operations Control Center.	Yard Access requires Access Authorization. Access to Track Zone within Yard and Local Control Areas requires Category C Work Area Clearance.

SPECIAL TRACKS							
Hayward Test Track (HTT)	17.45	19.71	80	At-Grade		Hayward Test Track is under the jurisdiction of the Operations Control Center. Access from MW19 requires Physical Barrier Clearance, Category B work area Clearance is required beyond the physical barrier. No Refuge Zone between the A2 track and the physical barrier. No Access To & From Hayward Test Track And Hayward Yard.	Test track requires work Area Clearance Category B.
A15 SPUR	1.21	1.38	25 MPH (80 MPH)	At-Grade		A15 Spur track, runs from Oakland Shop MW13 to A15 Gate E. Within A15 Interlocking, Mainline Thru Trains at 80 Mph.	Physical Barrier Area, Do not Pass Barrier.
AS02	11.05	11.32	36	At-Grade		Within A55 & A57 Interlockings.	Work Area Clearance Category B
A55 POCKET	11.07	11.33	50	At-Grade		Within A55 & A57 Interlockings.	Work Area Clearance Category B
A55 MOW TRACK	11.1	11.25	10	At-Grade		Within A55 Pocket.	Work Area Clearance Category B
KE SIDING/KX SPUR	1.16	1.69	10	At-Grade/Aerial/Bridge		Within K23 Interlocking. Walkways With Handrails.	Work Area Clearance Category B
C35 POCKET	12.19	12.48	36	At-Grade/Bridge		Within C35 Interlocking. Walkways With Handrails.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
CS01 CS02	23.53	23.97	27	At-Grade		C75 Storage Tracks, Within C75 Interlocking.	Work Area Clearance Category B
L13 POCKET	14.04	14.7	36	At-Grade/Bridge		Within L13 Interlocking. Walkways With Handrails.	Work Area Clearance Category B
L15 POCKET	18.85	19.58	36	At-Grade/Bridge		Within L15 Interlocking. Walkways With Handrails.	Work Area Clearance Category B
L15 MOW TRACK	19.62	19.8	10	At-Grade		Within L15 Interlocking.	Work Area Clearance Category B
ME SPUR	14.88	15.03	10	At-Grade		Within M87 Interlocking.	Work Area Clearance Category B

W25 POCKET	20.76	21.08	36 MPH ON POCKET. 80 MPH ON ADJACENT NON-SEPARATED SUB-WAY TRACKS.	Subway		Subway With Train Speeds In Excess Of 50 Mph.	Work Area Clearance Category B
------------	-------	-------	--	--------	--	---	--------------------------------

INTERLOCKINGS

A05	0	0.26	27	Subway		Oakland Wye.	Work Area Clearance Category B
A15	1.37	1.79	80 MPH	At-Grade		Mainline Thru Trains at 80 Mph. A15 Spur track, runs from Oakland Shop MW13 to A15 Gate E (Physical Barrier Clearance once protection is verified).	Physical Barrier Area, Do not Pass Barrier.
A25	4.8	5.52	80	Aerial		Interlocking Extends Through Station Platform On A2 Track.	Work Area Clearance Category B
A45	8.76	8.87	80	Aerial			Work Area Clearance Category B
A55	10.86	11.12	50	At-Grade/Aerial		Includes MW14. Walkways With Handrails. Interlocking Extends Through Station Platform. Walkways With Handrails Within Interlocking.	Work Area Clearance Category B
A57	11.24	11.83	70	At-Grade/Aerial		Walkways With Handrails Within A55 Interlocking.	Work Area Clearance Category B
A65	13.88	14.2	70	At-Grade			Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
A75	18	18.25	80	At-Grade			Work Area Clearance Category B
A77	18.75	19.17	80	At-Grade		No Refuge Zone between the A2 track and the physical barrier.	Work Area Clearance Category B
A85	23.55	23.64	80	At-Grade			Work Area Clearance Category B
K17	0.25	0.84	36	Subway			Work Area Clearance Category B
K23	1.29	1.86	50	At-Grade/ Bridge/Aerial		Includes KE/KX Tracks. Personnel Should Remain On Walkways Or KE/KX Tracks And Exercise Caution In And Near Subway Areas.	Work Area Clearance Category B
K25	1.88	2.08	50	At-Grade		Includes MW07.	Work Area Clearance Category B
K35	2.31	2.73	70	At-Grade/ Bridge/Aerial			Work Area Clearance Category B
C15	4.15	4.37	70	At-Grade/Aerial			Work Area Clearance Category B
C19	7.73	7.8	70	At-Grade/ Subway		North portal, Berkeley Hills Tunnel. Subway speeds in excess of 50 MPH.	Work Area Clearance Category B
C25	8.62	8.88	80	At-Grade			Work Area Clearance Category B
C35	12.19	12.48	80	Bridge/At-Grade		Includes C35 Pocket Track Walkways With Handrails Within Interlocking.	Work Area Clearance Category B
C45	16	16.1	70	At-Grade			Work Area Clearance Category B
C47	16.5	16.7	70	At-Grade			Work Area Clearance Category B
C53	17.53	17.62	50	At-Grade			Work Area Clearance Category B
C54	19.54	19.68	70	At-Grade/Bridge			Work Area Clearance Category B
C55	20.28	20.65	70	At-Grade/ Bridge/Aerial			Work Area Clearance Category B
C57	21.01	21.28	70	At-Grade		Walkways With Handrails Within C57 Interlocking. C57 Interlocking Extends Through Station Platform.	Work Area Clearance Category B
C75	23.32	23.85	50	At-Grade		Includes MW30 And CS01/CS02 Tracks.	Storage Tracks are considered Access Authorization Area. Work Area Clearance Category B is required for set-on.
C77	25.84	26.11	80	At-Grade			Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
C85	28.21	29.02	50	At-Grade		Includes MW32 And C85 Tail Tracks. Work Orders Required To Access Inspection Pit. Electrical Safe Clearance Required To Be In Inspection Pit Under Revenue Vehicle.	Storage Tracks are considered Access Authorization Area. Work Area Clearance Category B is required for set-on.
L07	12.19	12.48	80	Bridge/At-Grade		Walkways With Handrails.	Work Area Clearance Category B
L13	14.03	14.67	70	Bridge/At-Grade		Includes L13 Pocket Track. Walkways With Handrails.	Work Area Clearance Category B
L15	18.84	19.82	80	Bridge/At-Grade		Includes MW41 And L15 Pocket Track. Walkways With Handrails.	Work Area Clearance Category B
L25	22.52	22.61	80	At-Grade			Work Area Clearance Category B
L35	24.21	24.84	50	Bridge/At-Grade		L30 To End Of Track, Including L35, L35 Tail Tracks & MW42. Walkways With Hand Rails. Work Orders Required To Access Inspection Pit. Electrical Safe Clearance Required To Be In Inspection Pit Under Revenue Vehicle.	Storage Tracks are considered Access Authorization Area. Work Area Clearance Category B is required for set-on.
M03	0.37	0.67	36	Aerial/At-Grade/ Subway		Includes MW05/06. M03, gate A And M03, gate D Are Located In Adjacent Subway.	Work Area Clearance Category B
M15	1.85	2.32	70	Aerial			Work Area Clearance Category B
M17	7.2	7.77	36	Subway		No Refuge Zone On M1 & M2 Tracks Between Turnouts. Personnel Should Remain On Walkways And Exercise Caution.	Work Area Clearance Category B
M55	10.49	10.72	50	Subway		No Refuge Zone On M1 & M2 Tracks Between Turnouts. Personnel Should Remain On Walkways And Exercise Caution.	Work Area Clearance Category B
M85	14.08	14.17	50	Aerial			Work Area Clearance Category B
M87	14.99	15.36	36	At-Grade		Includes MW01 And Me Spur.	Work Area Clearance Category B
M93	15.57	15.99	50	Aerial/At-Grade/ Subway		Personnel Should Remain On Walkways And Exercise Caution. Walkways With Handrails.	Work Area Clearance Category B
M97	16.15	16.4	50	At- Grade/Subway		Personnel Should Remain On Walkways And Exercise Caution.	Work Area Clearance Category B
W07	16.51	16.64	36	At- Grade/Subway		Personnel Should Remain On Walkways And Exercise Caution.	Work Area Clearance Category B
W15	16.91	17.33	50	At- Grade/Subway		Includes MW20. Personnel Should Remain On Walkways And Exercise Caution While Near MW20 And Tunnel Port. Subway Areas With Speeds In Excess Of 50 Mph.	Work Area Clearance Category B
W25	20.75	21.08	80	Subway		Subway With Train Speeds In Excess Of 50 Mph.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
W33	21.92	W 22.65 Y1 1.00 Y2 0.82	70	Subway/ At-Grade		Portions Of Interlocking In Subway With Train Speeds In Excess Of 50 Mph. Do Not Request For W33 To Avoid Confusion. Request Actual Mile Post Limits Instead. MW21 Within Interlocking On W2 Track Only. Personnel Should Remain On Walkways And Exercise Caution While Near MW21 And Tunnel Portal.	Work Area Clearance Category B
W37	W 23.40 Y 0.82	23.61	70	Subway		Subway With Train Speeds In Excess Of 50 Mph. MP 1.12 Y3/Y4 = 23.55 W.	Work Area Clearance Category B
W39	23.79	24.13	70	Subway		Interlocking In Subway With Train Speeds In Excess Of 50 Mph. Personnel Should Remain On Walkways And Exercise Caution While Near Tunnel Portal.	Work Area Clearance Category B

W45	24.28	24.72	50	At-Grade		MW22 & MW23 Within Interlocking. Work Orders Required To Access Inspection Pit. Electrical Safe Clearance Required To Be In Inspection Pit Under Revenue Vehicle.	Storage Tracks are considered Access Authorization Area. Work Area Clearance Category B is required for set-on.
Y05	0.17	0.45	50	Aerial		Walkways With Handrails. Personnel Should Remain On Walkways And Exercise Caution where Visibility is Restricted.	Work Area Clearance Category B
R25	5.63	5.75	50	Subway		Personnel Should Remain On Walkways And Exercise Caution.	Work Area Clearance Category B
R45	10.07	10.16	36	Aerial			Work Area Clearance Category B
R65	12.68	12.99	36	At-Grade		R65. Northbound Tracks routed into Richmond Yard. Be aware of changing Operating jurisdiction.	Work Area Clearance Category B Category A possible.
MAINTENANCE OF WAYS							
MW01	M	15.04	50	At-Grade		M-Line MP 15.04 - M1 Track Only.	Work Area Clearance Category B
MW02	M	13.12	50	At-Grade		M-Line MP 13.12. Personnel Should Remain On Walkways And Exercise Caution.	Work Area Clearance Category B
MW03	M	7.42	36	Subway		M-Line MP 7.42. Within M17 Interlocking. No Refuge Zone On M1 & M2 Tracks Between Turnouts At M17. Personnel Should Remain On Walkways.	Work Area Clearance Category B
MW04	M	2.58	70	U-Wall		M-Line MP 2.58. Aerial To Subway Transition, Limited Clearance, Limited Visibility, High Train Speeds.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
MW05/06	M	0.49	36	At-Grade		M-Line MP 0.49. Within M03 Interlocking. Personnel Should Remain On Walkways.	Work Area Clearance Category B
MW07	C	2.08	50	At-Grade		C-Line, MP 2.08. Within K25 Interlocking.	Work Area Clearance Category B
MW08	R	6.75	70	U-Wall		MW08 Aerial To Subway Transition, Limited Clearance, Limited Visibility, High Train Speeds.	Work Area Clearance Category B
MW09	C	4.57	70	At-Grade		C-Line, MP 4.57. Personnel Should Remain On Walkways And Exercise Caution.	Work Area Clearance Category B
MW10	C	7.93	70	At-Grade		C-Line, MP 7.93.	Work Area Clearance Category B
MW11	C	11.76	70	At-Grade		C-Line, MP 11.76.	Work Area Clearance Category B
MW12	C	14.52	80	At-Grade		C-Line, MP 14.52. Personnel Should Remain On Walkways.	Work Area Clearance Category B
MW13	A15 SPUR	1	10	At-Grade		Mainline Thru Trains at 80 Mph. A15 Spur track, runs from Oakland Shop MW13 to A15 Gate E (Physical Barrier Clearance once protection is verified).	Physical Barrier Area, Do not Pass Barrier.
MW14	A	11.15	80	At-Grade		A-Line, MP 11.15. Within A55 Interlocking.	Work Area Clearance Category B
MW15	A	21.23	80	At-Grade		A-Line, MP 21.23.	Work Area Clearance Category B
MW16	R	11.19	70	At-Grade		R-Line, MP 11.19.	Work Area Clearance Category B
MW17	C	18.45	70	At-Grade		C-Line, MP 18.45.	Work Area Clearance Category B
MW18	A	14.5	80	At-Grade		A-Line, MP 14.50.	Work Area Clearance Category B
MW19	HTT	18.78	80	At-Grade		Hayward Test Track is under the jurisdiction of the Operations Control Center. Access from MW19 requires Physical Barrier Clearance, Category B work area Clearance is required beyond the physical barrier. No Refuge Zone between the A2 track and the physical barrier. No Access To & From Hayward Test Track And Hayward Yard.	Test track requires work Area Clearance Category B.
MW20	W	17.07	50	At-Grade		W-Line, MP 17.07, MW Access Within W15 Interlocking. Personnel Should Remain On Walkways And Exercise Caution While Near MW20 And Tunnel Portal.	Work Area Clearance Category B
MW21	W	22.48	70	At-Grade		W-Line, MP 22.48, MW Access Within W33 Interlocking. Personnel Should Remain On Walkways And Exercise Caution While Near MW21 And Tunnel Portal.	Work Area Clearance Category B

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
MW22	W3	24.55	36	At-Grade		W-Line, MP 24.55, Mw Access Within W45 Interlocking. W3 Track Only.	Storage Tracks are considered Access Authorization Area. Work Area Clearance Category B is required for set-on.
MW23	W	24.62	50	At-Grade		W-Line, MP 24.62, Mw Access Within W45 Interlocking. W1, W2 And W4 Tracks Only.	Storage Tracks are considered Access Authorization Area. Work Area Clearance Category B is required for set-on.
MW30	C	23.69	50	At-Grade		C-Line, MP 23.69. Within C75 Interlocking.	Access road is Access Authorization Area, all Trackway access requires Work Area Clearance Category B.
MW31	C	25.1	80	At-Grade		C-Line, MP 25.10.	Work Area Clearance Category B

MW32	C	28.7	50	At-Grade		C-Line, MP 28.70. Within C85 Interlocking.	Storage Tracks are considered Access Authorization Area. Work Area Clearance Category B is required for set-on.
MW40	L	15.8	70	At-Grade		L-Line, MP 15.80.	Work Area Clearance Category B
MW41	L	19.62	80	At-Grade		L-Line, MP 19.62.	Work Area Clearance Category B
MW42	L1	24.63	50	At-Grade		L-Line, MP 24.63, L1 Track Only. Within L35 Interlocking.	Storage Tracks are considered Access Authorization Area. Work Area Clearance Category B is required for set-on.

STATIONS

A10	0.51	0.64	50	Subway		Station, Lake Merritt; 800 Madison Street, Oakland.	Work Orders Required
A20	3.26	3.39	50	Aerial		Station, Fruitvale; 3401 East 12th St, Oakland.	Work Orders Required
A30	5.36	5.5	50	Aerial		Station, Coliseum; 7200 San Leandro St, Oakland. A25 Interlocking Extends Through Station Platform On A2 Track.	Work Orders Required
A40	8.32	8.45	50	Aerial		Station, San Leandro; 1401 San Leandro Blvd. San Leandro.	Work Orders Required
A50	10.87	11.01	50	Aerial		Station, Bay Fair. 15242 Hesperian Blvd, San Leandro. A55 Interlocking Extends Through Station Platform.	Work Orders Required
A60	13.74	13.88	50	Aerial		Station, Hayward; 699 B St, Hayward.	Work Orders Required
A70	16.68	16.82	50	Aerial		Station, South Hayward; 28601 Dixon St, Hayward.	Work Orders Required

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
A80	20.43	20.57	50	Aerial		Station, Union City; 10 Union Square, Union City.	Work Orders Required
A90	23.64	23.78	50	Aerial/At-Grade		Station, Fremont. 2000 Bart Way, Fremont.	Work Orders Required
K10	0.28	0.41	50	Subway		Station, 12Th Street; 1245 Broadway, Oakland. K17 Interlocking Extends Through Station Platform On CX Track.	Work Orders Required
K20	0.64	0.77	50	Subway		Station, 19Th Street; 1900 Broadway, Oakland. K17 Interlocking Extends Through Station Platform On CX Track.	Work Orders Required
K30	2.16	2.29	50	Aerial		Station, Macarthur; 555 40th St, Oakland.	Work Orders Required
C10	3.73	3.86	50	Aerial		Station, Rockridge; 5660 College Ave, Oakland.	Work Orders Required
C20	8.12	8.25	50	Aerial		Station, Orinda; 11 Camino Pablo, Orinda.	Work Orders Required
C30	11.87	12.01	50	Aerial/At-Grade		Station, Lafayette; 3601 Deer Hill Rd, Lafayette.	Work Orders Required
C40	15.34	15.47	50	Aerial		Station, Walnut Creek; 200 Ygnacio Valley Blvd, Walnut Creek.	Work Orders Required
C50	17.05	17.18	50	Aerial		Station, Pleasant Hill; 1365 Treat Blvd, Walnut Creek.	Work Orders Required
C60	21.11	21.25	50	Aerial/At-Grade		Station, Concord; 1451 Oakland Ave, Concord. C57 Interlocking Extends Through Station Platform.	Work Orders Required
C70	23.34	23.48	50	U-Wall		Station, North Concord; 3700 Port Chicago Highway, Concord. C75 Interlocking Extends Through Station Platform.	Work Orders Required
C80	28.23	28.37	50	At Grade		Station, Pittsburg/Bay Point; 1700 West Leland Ave, Pittsburg. C85 Interlocking Extends Through Station Platform On C2 Track.	Work Orders Required
L10	13.87	14.01	50	Aerial/At-Grade		Station, Castro Valley; 3301 Norbridge Dr, Castro Valley.	Work Orders Required
L20	22.37	22.5	50	At Grade		Station, West Dublin/Pleasanton; 6501 Golden Gate Dr, Dublin.	Work Orders Required
L30	23.93	24.07	50	Aerial/At-Grade		Station, Dublin/Pleasanton; 5801 Owens Dr, Pleasanton.	Work Orders Required
M10	1.4	1.53	50	Aerial		Station, West Oakland; 1451 7th St, Oakland.	Work Orders Required
M16	7.27	7.41	50	Subway		Station, Embarcadero; 298 Market St, San Francisco. M17 Interlocking Extends Through Station Platform.	Work Orders Required
M20	7.63	7.77	50	Subway		Station, Montgomery; 598 Market St, San Francisco. M17 Interlocking Extends Through Station Platform.	Work Orders Required
M30	8.07	8.2	50	Subway		Station, Powell Street; 899 Market St, San Francisco.	Work Orders Required
M40	8.57	8.71	50	Subway		Station, Civic Center; 1150 Market St, San Francisco.	Work Orders Required

ROADWAY WORKER PROTECTION MANUAL

LINE	MP BEGIN	MP END	Maximum ATO train speeds within area	Construction	Possible Mainline Track Zone Clearance Yes/No	Notes	Minimum Access Requirements When Trains are Operating
M50	9.69	9.83	50	Subway		Station, 16Th Street; 2000 Mission St, San Francisco.	Work Orders Required
M60	10.57	10.71	50	Subway		Station, 24Th Street.; 2800 Mission St, San Francisco. M55 Interlocking Extends Through Station Platform.	Work Orders Required
M70	12.23	12.36	50	Subway		Station, Glen Park; 2901 Diamond St, San Francisco.	Work Orders Required
M80	13.38	13.52	50	Subway		Station, Balboa Park; 401 Geneva Ave, San Francisco.	Work Orders Required
M90	15.18	15.31	50	Aerial		Station, Daly City; 500 John Daly Blvd, Daly City. M87 Interlocking Extends Into Station Platform.	Work Orders Required
W10	16.76	16.89	50	U-Wall		Station, Colma; 365 D St, Colma. W15 Interlocking Extends Through Station Platform On DTF4 Track.	Work Orders Required
W20	18.69	18.78	50	Subway		Station, South San Francisco; 1333 Mission Rd, South San Francisco.	Work Orders Required
W30	21.07	21.21	50	Subway		Station, San Bruno; 1151 Huntington Ave, San Bruno.	Work Orders Required
W40	24.12	24.25	50	At-Grade		Station, Millbrae; 200 North Rollins Rd, Millbrae.	Work Orders Required
Y10	0	0.13	50	Aerial		Station, San Francisco International Airport; 497 N Link Rd, San Francisco.	Work Orders Required
R10	3.9	4.03	50	Subway		Station, Ashby; 3100 Adeline St, Berkeley.	Work Orders Required
R20	5.1	5.23	50	Subway		Station, Berkeley; 2160 Shattuck Ave, Berkeley.	Work Orders Required
R30	6.15	6.29	50	Subway		Station, North Berkeley; 1750 Sacramento St, Berkeley.	Work Orders Required
R40	8.35	8.49	50	Aerial		Station, El Cerrito Plaza; 6699 Fairmount Ave, El Cerrito.	Work Orders Required
R50	10.19	10.33	50	Aerial		Station, El Cerrito Del Norte; 6400 Cutting Blvd, El Cerrito.	Work Orders Required
R60	12.51	12.64	50	At-Grade		Station, Richmond; 1700 Nevin Ave, Richmond.	Work Orders Required

ROADWAY WORKER PROTECTION MANUAL

Form Examples

To order printed District-wide forms, please submit the [District Forms Request](#). To view or print Safety forms directly, go to WebBART. Under Documents & Procedures, select Download Forms and click on the Safety category to access the forms.

BART ACCESS AUTHORIZATION FORM

Personnel accessing the Right of Way (ROW) in access authorization areas and not performing work must obtain an access authorization from the control center having jurisdiction.

Access Authorization Areas include; Local Control Area, Yards, C75 Storage Tracks & C75 Training Facility on Paved Road ONLY, C85 TMZ & ST, L35 TMZ & ST, W45 TMZ & ST, OKV, SFV, and TBT lower gallery.

Note: Understand third rail is Energized (1000 volts).

EIC will initiate the Access Authorization and retain this completed form while in the ROW. Parties must comply with the 15 second rule.

EIC will Job Safety Brief all personnel in party going into the ROW on the limits of the Access Authorization, potential hazards and safety procedures to eliminate / protect against hazards and any other relevant information as required.

EIC Preplan the safest location to access and travel through the Access Authorization Area.

EIC must have a District Approved working radio in their possession as a means of communication with the control center having jurisdiction.

Name of EIC: _____ Date: _____
 _____ with a party of _____
 (Call sign) (Total number of people)

has Access Authorization at _____
 (Location)

Until: _____ at: _____ Time Cleared: _____
 (Requested time limit) (Control Center OK Time)

I/We will follow all roadway worker protection rules.

I/We will not interfere with mainline/yard operations.

Check appropriate speed and brief all personnel in the party as to the minimum sight distance

Max Train Speed (Mph)	Min Required Sight Distance for 15 seconds		Max Train Speed (Mph)	Min Required Sight Distance for 15 seconds	
	(Feet)	(Mile)		(Feet)	(Mile)
5	125	0.025	18	400	0.08
10	250	0.05	25-27	600	0.10

EIC will submit this form to their supervisor.

Supervisor Signature _____ employee# _____

FORM 13-73-0001a (Rev. 02/2016-System Safety)

BART RIGHT OF WAY WORK ORDER FORM

Personnel accessing NON-access authorization areas or performing work in ANY Right of Way (ROW) must obtain Work Orders from the control center having jurisdiction.

EIC will initiate Work Orders and retain this completed form while in the ROW. Parties must comply with the 15 second rule.

EIC will Job Safety Brief all personnel in party going into the ROW on the: limits of the work order, protection provided, access/egress point(s), potential work hazards, safety procedures to eliminate / protect against hazards, work to be completed and any other relevant information as required.

EIC and Watchperson must have a District Approved working radio in their possession as a means of communication with the control center having jurisdiction.

Name of EIC: _____ Date: _____

Name of SEIC: _____

Name of Watchperson: _____
 _____ with a party of _____
 (Call sign) (Total number of people)

TYPE of WORK ORDER (Clearance)

Work Area

A (Non-Track Zone)

B (Track Zone)

C (Yard, and Local Control Area)

Physical Barrier Area

Equipment and/or Facility Area *(This Clearance does not provide protection from train movement, nor convey permission to enter the ROW.)*

Blanket Area Work Order (Clearance)

Work: _____
 (Tracks(s) / Facility / Equipment / Physical Barrier)

Between: _____ and _____

Until: _____ at: _____ Time Cleared: _____
 (Requested time limit) (Control center OK time)

PROTECTION/CONDITION:

Power Off Power On

Electrical Safe Clearance Physical Barrier

Prohibit / Inhibit Blue Light

Other: _____

Restrictions: _____

Access/Egress: _____

EIC will submit this form to their supervisor.

Supervisor Signature _____ employee# _____

FORM 13-73-0001b (Rev. 02/2016-System Safety)

Always check for updated forms on WebBART.

ROADWAY WORKER PROTECTION MANUAL

ROADWAY WORKER RIGHT TO CHALLENGE

Every Roadway Worker has the right to challenge and/or refuse, in good faith any Roadway Worker 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 track until the challenge is resolved. If the Employee in Charge (EIC) cannot resolve the Roadway Workers concerns then this form must be completed. While completing the form the supervisor must make a determination of "Resolve" or "Un-Resolved" by marking the appropriated box. The completed form then must be promptly faxed or other transmitted to Safety at (510) 464-7552 (ext. 7552) and Dept. Management, regardless of determination.

Employee Name Print _____ Signature _____ Employee #: _____

Incident Date/Time: _____ Incident Location: _____

Employee Statement: Reference page and paragraph of the violated safety rule and/or RWPM procedure.

EIC Name Print _____ Signature: _____ Employee # _____

Incident Date/Time: _____ Incident Location: _____

EIC Statement: Reference page and paragraph of the violated safety rule and/or RWPM procedure.

Supervisor Name Print: _____ Employee #: _____

Supervisor Statement: _____

Resolve Un-Resolved Supervisor Signature _____ Date: _____

Form No. 13-73-0005 (Rev. 2/2014 - System Safety)

Print Form

Always check for updated forms on WebBART.

ROADWAY WORKER PROTECTION MANUAL

JOB SAFETY BRIEFING

- The general work plan
- Potential hazards and safety procedures to eliminate/protect against hazards, including but not limited to:
 - No Refuge Zones within the work area?
 - On-rail vehicles in work area?
 - Third rail power status
 - Protection, speed restriction, blue lights, etc?
 - Work limits
 - Work time
 - Ambient noise interference
 - Presence of any adjacent tracks
 - Need to widen the track zone
 - Access/egress
 - Type of authorization/clearance
 - Maximum vehicle speed
 - Clear of Track location
- Personal Protective Equipment required?
- Name and location of Watchperson
- Name of EIC
- Blue light and/or red light placement
- Communication among Roadway Workers
- Communication with on-rail vehicle operators
- If Watchperson is being used, review Watchperson duties with all Roadway Workers:

The Watchperson's sole duty is to provide effective warning in compliance with the 15-second rule to Roadway Workers of approaching on-rail vehicles, does not perform or assist in any other work aside from the watchperson duty, and remains clear of the track zone.

 - The means of warning can include: whistle, horn, flashlight etc.
- Acknowledgement by each roadway worker that they understand the rules to be used.
- If work or job conditions change, a follow up Job Safety Briefing is required.

Note: A Lone Roadway Worker Briefing is a talk with the person granting access.

Building a

SAFETY CULTURE

Together