



TRAINING BULLETIN

Los Angeles Police Department

Charlie Beck, Chief of Police

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THE METRO RED AND PURPLE LINE SUBWAY SYSTEM - PART I OPERATIONS

The Metro Red and Purple Line Subway System is a modern underground railway that serves over 144,000 commuters daily. The subway travels from Union Station to the Wilshire/Vermont station, where the line splits in two directions. The Metro Red Line branch travels to the North Hollywood Station and the Metro Purple Line goes to the Wilshire/Western Station. Upon completion of the extension project, the Metro Purple Line will extend westward for about nine miles to Century City and Westwood.

The subway system is a unique environment containing many safety concerns. This Training Bulletin describes the function of the Rail Operations Control, the role of the Metro On-Scene Coordinator, station characteristics, and subway hazards. Familiarization with this information will increase officer safety awareness, and minimize risk of personal injury while in the Metro Red and Purple Line Subway System.

Rail Operations Control

The Rail Operations Control (ROC) is the central location responsible for controlling the subway system. The facility operates 24 hours a day, 7 days a week. Rail Operations Control personnel monitor train movement, power conditions for the third rail, signals, switches, and the fire, gas, and intrusion detection system alarms.

Controllers are able to communicate directly with train operators and personnel equipped with Metro Rail hand-held radios. Messages can also be transmitted via the passenger station public address system. All radio calls, emergency trip station telephone calls, and emergency intercom communications are recorded.

On-Scene Coordinator

During an incident requiring Metro Rail support, the ROC will dispatch a Rail Transit Operations Supervisor to act as the On-Scene Coordinator (OSC). The OSC will report to the Emergency Management Panel located on the passenger station mezzanine level. The Emergency Management Panel displays the location of any subway system problem. When responding to a police incident, the OSC will locate the incident commander or first responders. On-Scene Coordinators wear white vests with the words "**ON-SCENE COORDINATOR**" on the back for easy identification. The OSC is the designated liaison between Metro Rail and outside agencies. All requests for Metro Rail assistance, resources, or station information should be directed to the OSC.

Passenger Station Characteristics

The subway system is protected by an elaborate security system that consists of closed circuit television cameras, emergency intercoms/telephones, and intrusion detection system alarms.

Closed Circuit Television

Closed circuit television (CCTV) cameras are mounted at passenger stations, ticket vending machines, and platforms. Rail Operations Control personnel monitor the cameras and are able to record station activity when requested.

Emergency Intercoms/Telephones

All Metro station platforms have a minimum of five emergency intercoms or telephones (ETEL) located by the fire hose/extinguisher panels at each station. They are also located in elevators and walls of the station. These devices are connected directly to the ROC.

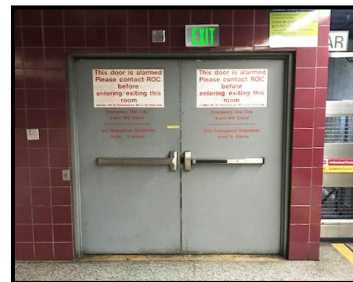


Emergency Intercom

Emergency Exits

There are numerous emergency exits designated by signs located throughout the subway tunnel.

Green Exit Signs identify emergency exits that lead to street level. Exit doors are located throughout the station and at each end of a passenger platform. These exits lead to emergency exit hatches at street level that are built flush to the ground. When emergency exit hatches are opened they activate an alarm at the ROC. A hatch wrench, which is carried by a Metro Rail Transit Operations Supervisor, is required to open these hatches.



Red Exit Signs identify interior emergency exit doors and the cross passages leading from one track to another. Cross passages are located approximately every 750 feet between stations. Red exit signs do not lead to street level access.



Cross Passage

Emergency Exit Hatch

Areas not under CCTV surveillance are protected by the intrusion detection system. When any emergency exit hatch is approached from underground, a loud alarm will

sound at the hatch. The hatch alarm location will be displayed at the ROC when the hatch is opened.



Emergency Exit Hatch

Blue Light Station/Emergency Trip Station

A Blue Light Station (BLS) identifies the location of the Emergency Trip Station (ETS) located at each end of a station platform. These ETS boxes have a telephone, red stop button, and fire suppression activation buttons. Depressing the stop button will de-energize the contact rail power for that specific zone. The telephone is connected directly to the ROC.



Blue Light Station



Emergency Trip Station



Stop Button

Fire Suppression System

Each passenger station has a sophisticated fire suppression and ventilation system to manage fire and smoke. The vents for this system are located beneath the passenger platforms.

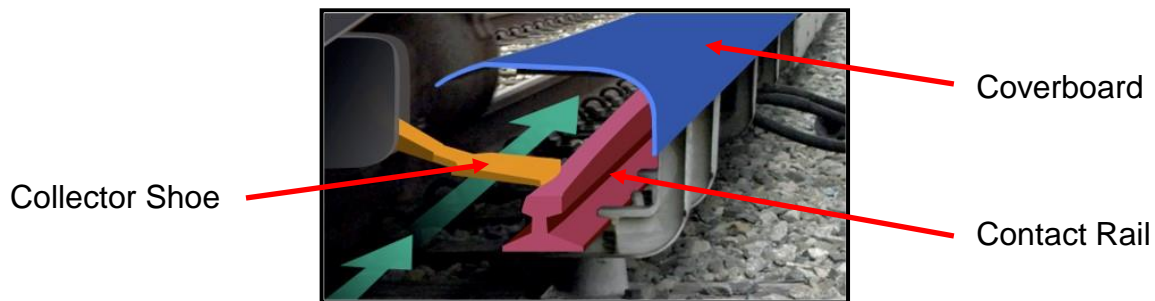
The fire suppression activation buttons can be found inside the BLS boxes located at each end of the station platforms. When activated, the fire suppression system will discharge water upward through high-pressure sprinklers located on the red pipeline between the tracks. Depressing the button to activate the fire suppression system will also de-energize the contact rail power zone associated with that specific track.

The ROC monitors the fire, heat, and smoke sensors located throughout the subway system. When an alarm is activated, ROC personnel will contact the Los Angeles Fire Department and will dispatch an OSC to the scene.

Subway Hazards

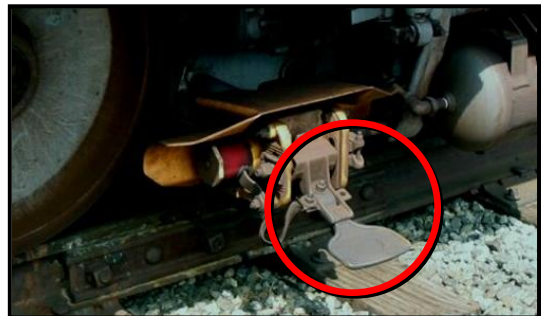
Contact Rail

The contact rail, or "third rail" as it is often called, provides 750 volts of direct electrical current to the subway train. The contact rail is adjacent to the track rail. A fiberglass cover board is suspended over the contact rail, and this should never be used to step, stand, sit or walk upon.



Collector Shoes

There is a collector shoe located between the front and rear set of wheels **on both sides of the subway train**. Collector shoes slide on the contact rail collecting electricity from the electrified contact rail to power the train's electric motors. When one collector shoe is touching the contact rail, **all four collector shoes are energized**.



Collector Shoe

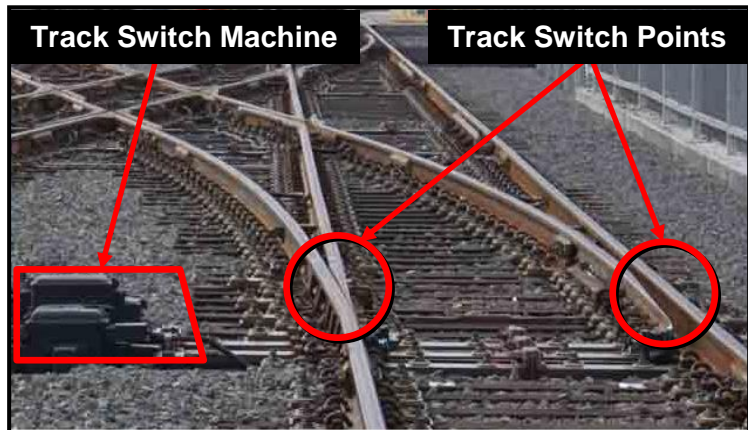
DANGER: Contact rails and collector shoes do not hum, buzz, glow, or vibrate when energized. It is impossible to determine by the naked eye whether or not they are energized or de-energized. **Under no circumstances should an officer touch the contact rail or a collector shoe. This will cause immediate death by electrocution.**

Officers should use **extreme caution** while in the subway system. A dangling baton or other metal objects carried by an officer in close proximity of the contact rail has the potential to arc and cause death by electrocution.

Track Switches

Train routes can be automatically controlled from the ROC or set manually in the field. Track switches change the train from one track to another and cause portions of the track to open or close with a scissor-like motion. These switches are not powered by the same electrical source that energizes the contact rail. **Power to the track switch is controlled by the track switch machine and will be active even when the contact rail is de-energized.**

The track switches open and close quickly, with a force of 500 pounds per square inch. This amount of force can easily crush a person's hand or foot. Track switches should be avoided at all times and officers should not step, stand, sit, or walk on any part of the tracks. If necessary, contact the ROC to terminate track switch movement.



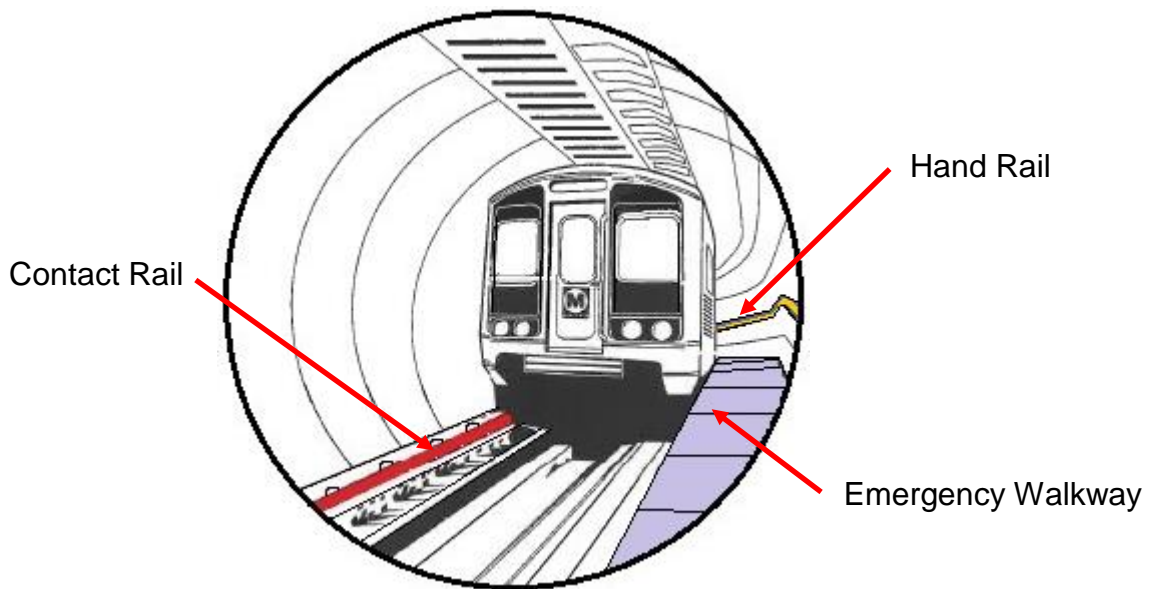
Train Movement

Trains travel at speeds up to 70 miles per hour and are unable to stop quickly. Officers should exercise extreme caution, and expect a subway train at any time, on any track, and in any direction.

There is a narrow clearance between the subway train and tunnel sides. As the high-speed subway train travels through a tunnel it creates a "piston effect," producing a strong wind in front of and suction behind the train. The force of this air stream has the potential to pull officers off an emergency walkway in front of the train or drag officers off a walkway as it passes. To ensure safety, officers performing any duty on a passenger platform should stay behind the white zone at the edge of the platform. This is a safety zone designed to protect passengers from the effects of a passing train.

Emergency Walkways

Emergency walkways are located inside the tunnels between passenger stations. These walkways are designed to evacuate passengers during an emergency when the subway train is stopped. Officers shall contact and notify the ROC when entering an emergency walkway.



DANGER: Walking on an emergency walkway as a train approaches is **extremely dangerous.**

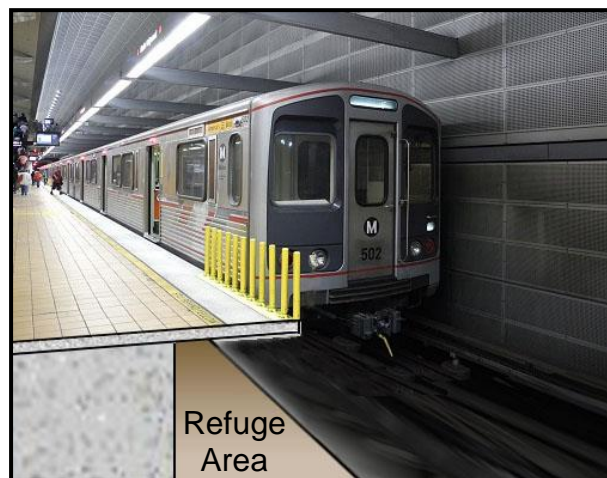
Officers caught on an emergency walkway as a train approaches should face the tunnel wall, crouch low, and hold onto the handrail along the side of the wall.

Refuge Area

There is a safe refuge area under the station platform extending five feet from the edge of the platform. The height of the platform from the track bed is five feet.

Officers walking along a track bed as a train approaches have two options:

- Move quickly onto a station platform, or
- Use the crawl space located underneath the platform for refuge. Crouch low, or lie as close as possible to the wall to avoid the train's collector shoes.



Side View of Station Platform

De-Energizing Contact Rail Power

Normally, officers should contact the ROC on one of the emergency telephones to de-energize the contact rail. To avoid a potentially hazardous situation, stop at the end of a passenger platform before entering a tunnel. Officers should activate the red emergency stop button located inside the BLS **only during a life-threatening emergency**. This button can be depressed to de-energize the power for that particular power zone (contact rail). A map in the BLS identifies the area of the power zone that is de-energized. Be aware that an approaching train can transfer power to the inactive power zone and re-energize the contact rail. Immediately notify the ROC with the telephone located inside the BLS.

Rail Operations Control personnel have the ability to:

- De-energize the contact rail and associated power zones;
- Direct train operators to hold their positions;
- Verify the concerned power zone is actually de-energized;
- Dispatch an On-Scene Coordinator to the scene.

Trains can coast without electrical power at high speed for long distances endangering personnel on the track bed. Officers need to contact the ROC so ROC personnel can contact the train operator and have them stop the train immediately.

Communications

Department radio channel 48 is currently the only frequency that will transmit to or receive messages from Communications Division while inside the Metro subway system. This frequency provides communication with Communications Divisions and other officers at street level.

Officers responding to an incident inside the Metro subway system should advise Communications Division they are entering the subway system, and broadcast their specific location (i.e., Area, station name, platform, level, etc.) in order to direct appropriate resources without delay.

In an emergency situation, officers should consider using the emergency intercom or telephone in the BLS box to contact the ROC. In the event a radio broadcast is made to the RTO at Communications Division, the RTO must then contact the ROC and relay the officer's message, thus resulting in a delay of emergency notification.

CONCLUSION

The Metro Red and Purple Line Subway System provides a vital transportation service within the City. It is important that patrol officers are familiar with subway system operations. There may be instances when officers have to enter a subway station in their area to handle a call or to pursue a suspect. Officers may also be called upon to provide assistance to Transit Services Division officers during a tactical incident or an unusual occurrence.

While inside the subway system, officers should consider all electrical apparatus to be **energized with high voltage at all times**, unless they have positive knowledge the electrical component is de-energized and grounded.

It is recommended that all officers visit the Rail Operations Control facility to see the state-of-the-art equipment and its operational capabilities to gain a practical knowledge of the Metro Rail system.

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Field Training Services Unit
Police Training and Education

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