TABLE OF CONTENTS

This Page Intentionally Left Blank

PURPOSE:

The purpose of the BART Fire Manual is to provide fire jurisdictions in the BART service area fundamental information about the BART System. It is NOT intended as a standalone document, but rather to augment fire service policy/operational manuals for each respective jurisdiction. It also contains sections on ventilation, water supply, fire protection systems, response notification protocols, and Incident Command Posts/communications that deal directly with emergency response operations. These sections are intended to provide Incident Commanders with the tools and knowledge that will enhance their operational strategy and tactics, and assist with their decision making.

Supplement station maps and other jurisdictional specific documentation will be issued to each fire service agency under separate cover.

As revisions are made to this Manual and supplements (jurisdiction-specific material), a new revision date will be indicated on the revised Table of Contents or Index page, and the revised page(s). Distribution of revisions will be through the respective Fire Liaison Committee representative. Fire agencies will be responsible for maintaining manuals and supplements within their jurisdiction.

BART SYSTEM FACTS:

The Bay Area Rapid Transit District (BART) is a 107-mile, automated rapid transit system serving the San Francisco Bay Area. BART operates in four counties: Alameda, Contra Costa, San Francisco and San Mateo with an average weekday ridership exceeding 400,000.

Forty-five BART stations are located along eight lines of double tracks. Trains traveling up to 80 mph connect San Francisco to Millbrae and the San Francisco International Airport to the west and the East Bay communities of Richmond on the north, Pittsburg/Bay Point to the east, Fremont and Warm Springs to the south and Dublin/Pleasanton to the southeast.

Train service is provided between the hours of 4 am and midnight Monday through Friday, 6 am and midnight on Saturdays and 8 am and midnight on Sundays and major holidays.

Board of Directors:
Nine elected members representing nine election districts in three BART counties of Alameda, Contra Costa, and San Francisco.

BART Lines

Lines:	Locations:
A-Line	Oakland Wye to Fremont Station
C-Line	Oakland Wye to Pittsburg/Bay Point Station
L-Line	Bay Fair to Dublin/Pleasanton Station
M-Line	Oakland Wye to Colma Station
R-Line	MacArthur to Richmond Station
S-Line	Fremont to Warm Springs (Spring 2017)
W-Line	Colma to Millbrae Station
Y-Line	San Francisco International Airport Station to the W-Line, Northbound connects South of San Bruno Station. South bound connects North of the Millbrae Station

Stations:
There are 45 stations: 16 surface, 14 aerials and 15 subways. Four of the subway stations in downtown San Francisco are combination of BART and San Francisco Municipal Transportation Agency stations. The Millbrae Station is an Intermodal terminal connecting to Caltrain.

Transbay Tube:
3.6-mile-long concrete and steel structure; 24 feet high and 48 feet wide buried in a trench ranging from 75 to 135 feet below the surface of the bay.

Berkeley Hills Tunnel:
3.2-mile-long tunnel through the East Bay hills connecting Alameda and Contra Costa counties on the C-Line.

Oakland Airport Connector: BART to Oakland International Airport (OAK) is a 3.2-mile extension of BART from the Coliseum Station to Oakland International Airport, via a new Automated Guideway Transit (AGT) System. The BART to OAK AGT is a driverless people mover system on a mostly elevated guideway structure along the length of the Hegenberger Road.

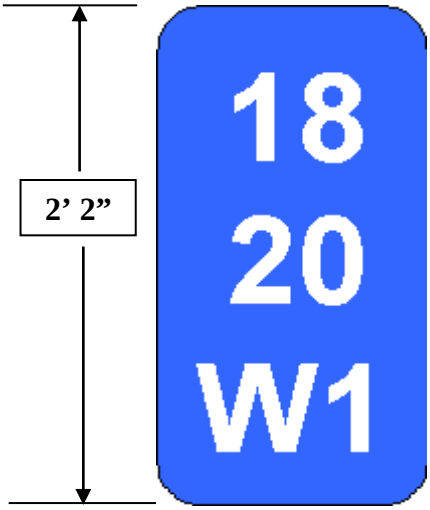
BART to OAK includes a new station platform level at the south end of the Coliseum Station and a new station at the end of the line: The Oakland International Airport Station.

The system has four 3-car trains powered by cable-propelled technology that is housed in the new stations and at a new Maintenance and Storage Facility located near the midpoint of the system. The route between Oakland Coliseum Station and the airport is mostly elevated, largely in the median of Hegenberger Road, with one underground section as it passes under Doolittle Drive, and one at-grade section just west of that point, before the AGT enters airport property on an elevated guideway.

ORIENTATION OF BART TRACKWAYS:

Oakland is the hub of the BART system. All tracks (with the exception of the Y-Line) radiate from Oakland and Milepost Markers identify distances from the Oakland Wye. Milepost markers have a blue background with white reflective lettering.

Example of a milepost marker can be found to the right. The location indicated by the milepost marker is milepost 18.20 on the W1 track. This location is approximately 18.20 miles from the Oakland Wye.



Markers are used to show a District standard system of measuring distances in the trackway from the Oakland Wye (or San Francisco International Airport for the Y-Line). Markers on aerial or at grade track give distances every one-tenth of a mile (528 feet). Markers in the underground are every one-fiftieth of a mile (105 feet). The track south of Colma Station has milepost markers every one-hundredth of a mile (53 feet). The upper portion of the marker displays these distances. The top row shows whole miles and the second row shows tenths and hundredths of a mile.

Each track and line also has an alphanumeric identification displayed on the lower portion of the marker. The alpha portion designates the line over which the tracks run. A-Line: Oakland Wye to Fremont. C-Line: Oakland Wye to Pittsburg/Bay Point. L-Line: Bay Fair to Dublin/Pleasanton. M-Line: Oakland Wye to Colma. R-Line:

MacArthur to Richmond. S-Line Fremont to Warm Springs (the S-Line is a continuation of the A-Line). W-Line: Colma to Millbrae (the W-Line is a continuation of the M-Line). Y-Line: San Francisco International Airport to Millbrae and San Bruno.

In the numeric portion the odd number designates tracks where trains normally travel away from the Oakland Wye, and even numbers where they normally operate toward the Oakland Wye.

ACCESS TO THE BART SYSTEM:

The BART system consists of passenger stations, vehicle storage yards, maintenance and support facilities and at-grade, aerial and subway trackways. All at-grade BART trackway is enclosed within right-of-way fencing.
The easiest way to access the BART system is through a passenger station. Passenger stations have stairways, elevators and escalators to provide access to the station platform and trackway adjacent to the station.
PROTECTION FROM TRAIN MOVEMENT MUST BE CONFIRMED WITH THE BART OPERATIONS CONTROL CENTER PRIOR TO ENTERING THE TRACKWAY. Fire Department personnel are encouraged to attend the BART Roadway Worker Protection training.

At-grade locations are also accessible through access gates in the right-of-way fence. The gates are generally located at least every ½ mile.

Aerial trackway can be accessed for firefighting and emergencies from the surface streets. The status of third rail power should always be verified before placing equipment against third rail and coverboard. Access to aerial locations should be through passenger stations or by rescue train whenever possible. A rescue train can be requested through the BART Operations Control Center.

Subway and other underground track (tunnels and tubes) can be accessed from passenger stations, emergency egress locations, and subway and tunnel portals.

Subways, tunnels and tubes contain emergency walkways normally on one side of the trackway. These walkways provide a means to access a train or incident location.

CROSS PASSAGE DOORS:

Cross Passage Doors provide access to adjacent trackways for extended underground trackway sections. These locations are: Berkeley, Oakland Wye, Transbay Tube, San Francisco, Berkeley Hills Tunnel, Walnut Creek and Highway 4

Tunnels, Warm Springs Subway and most of the San Mateo County. The Transbay Tube is the only underground location that has a center passageway, or Lower Gallery, between the two trackways. All other underground trackway cross passage doors open either directly to the adjacent trackway, or into a corridor that leads to the adjacent trackway.

There are two types of cross passage doors, one type swing on hinges while the other slide on rollers. In general, swinging doors open into passageways that will not extend into the adjacent trackway, while SLIDING DOORS OPEN DIRECTLY INTO THE ADJACENT TRACKWAY. The following table identifies the spacing between cross passage doors for each jurisdiction and location, and identifies fire service equipment and facilities at those sites:

Cross Passage Doors

Jurisdiction(s)	Location	Spacing	Hose Connection	Yellow Fire Phone	Fire Extinguisher
San Mateo County	Millbrae-Colma	250-300'	✔	✔	✔
SFFD	Embarcadero-Glen Park	Variable	✔		
SFFD/OFD	Trans Bay Tube	330'	✔	✔	
OFD	Oakland Wye	Variable	✔		
OFD/MOFD	Berkeley Hills Tunnel	1000'	✔	✔	
Berkeley	Berkeley Underground	Variable	✔		
CCC FPD	Walnut Creek Tunnel	300'	✔		
CCC FPD	Highway 4 Tunnel	Only one	✔		
Fremont FD	Warm Springs Subway	Variable	✔		

EMERGENCY EGRESS:

Throughout the BART system, selected underground trackways and stations that have limited avenues of egress are provided with emergency egress routes. Signage is provided for all emergency egress doors, passageways, and stairs that lead away from confined areas to safety. Emergency egress information and maps are provided in the *BART Fire Manual Supplement* to each fire service jurisdiction.

REVENUE VEHICLES:

BART operates 669 revenue vehicles. This includes 59 A-cars, 380 B-cars, and 230 C-cars. A and C cars are control cars and can function as lead or trail cars in a train. A train consists of from three to ten cars. Each car is approximately 70 feet long, 10 ½ feet wide and 10 ½ feet high. Each revenue vehicle weighs approximately 60,000 pounds empty and 96,000 to 100,000 pounds at crush load (200+ passengers).

The car body is aluminum with some structural steel in the door and underfloor areas. The truck frames are steel or cast iron. All window glass is laminated safety glass. Interior components are fabricated from fire resistant and low smoke materials (a list of materials is included in the table below).

List of Revenue Vehicle Interior Materials

Cab (A-Car)	Matted shells of fiberglass
Rubber Flooring	Fire resistant rubber covering, noraplan® mobil (mix 931)
Floor Panels	Balsa wood core sandwiched with phenolic resin coated structural fiberglass
Interior Liners	Fiberglass applied to a flame retardant polyester resin
Lamp Lens	Lexan plastic
Seat Covers	Vinyl coated fabric, OMNOVA PreVail with PreFixx Extreme
Seat Bottoms	Polychlorophene latex compound foam wrapped in muslin
Seat Backs	Melamine foam wrapped in muslin
Window Seals	Neoprene rubber

The 1,000 volt direct current (V DC) power from the third rail is used for traction power (propulsion) and is converted to single and three phase alternating current (AC) and 36 V DC for operating systems on the vehicle. When third rail power is removed from the vehicle, stored 1000 V DC bleeds off within 5 minutes. The only remaining electrical source at that point is battery power. BART personnel can remove battery power if requested.

The primary electrical system is a nominal 36 V DC battery system. All safety related systems such as doors, communications, and emergency lighting operate on battery power. The friction brake system is fail safe in that brakes are applied when no voltage is present.

The vehicle uses high pressure (2000 psi) hydraulic fluid for the friction brakes, R22 refrigerant for air conditioning, and compressed air at less than 150 psi for air suspension and other minor functions. There are small quantities of lubricants in gearboxes, compressors and motor bearings.

REVENUE VEHICLE SYSTEMS:

Auxiliary Power: All train borne control, communications, electrical, air conditioning and ride comfort systems are operated by electrical power provided by the Auxiliary Power Supply Equipment (APSE). The APSE is a high voltage inverter which inverts 1,000 V DC to 208 V AC and 36.5 V DC. The APSE is powered by the 1,000 V DC third rail power.

Batteries: Batteries provide power to the side door motors, emergency lighting, intra-train public address system, and train radio system. In case of loss of third rail power, batteries can provide power for a maximum of two hours.

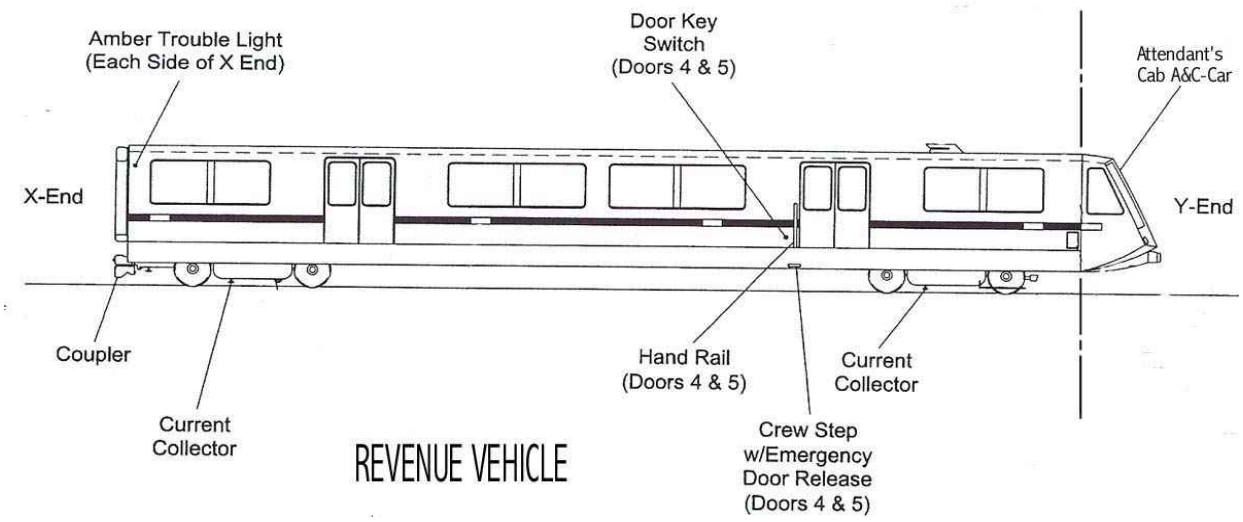
Brakes: All revenue vehicles utilize both high speed dynamic braking and low speed friction braking. Friction brakes also act as a parking brake and are considered the primary braking system.

Car Bodies: Car bodies are designed to absorb all of the anticipated stresses and support its own loaded weight. This is accomplished with semi-monocoque design and construction. The body is integral with the chassis and bears most of the loads and stresses as they are uniformly distributed throughout the skin and chassis of the vehicle.

The entire body is constructed of aluminum, with the exception of the fiberglass operator's cab on "A" cars. Other components, such as axles, undercarriage, draft gear, couplers and some reinforcing frames are steel. The wheels are a combination of aluminum and steel.

Car Types: There are three types of revenue vehicles:

- "A"-Car: A lead car unit equipped with a double-walled molded fiberglass Operator's cab, automatic train operating equipment, and communications system.
- "B"-Car: An intermediate car, without an Operator's cab.
- "C"-Car: The C-car is capable of operating as a lead unit or as an intermediate car. Each car is equipped with a painted aluminum cab similar to the A-Car to facilitate the Operator's compartment. The main benefit of the C-Car is the addition of two swing out doors (flipper doors) mounted in the front center of the cab which allow the C-Cars' dual function. With the flipper doors closed the C-car performs as a lead unit, when the doors are locked open the C-car assumes the operation of an intermediate unit.



D and E Cars are currently in the testing phase. Additional information for these vehicles will be included in future revisions of this Manual.

- "D"-Car: The D-car is capable of operating as a lead unit or as an intermediate car. Personnel will not be able to passed through D cars positioned as intermediate units.

- "E"-Car: An intermediate car, without an operator's cab.

Chocks: Wheel chocks are located in compartments by the Operator's cab. BART personnel may chock the car wheels as a safety measure. Although the track may appear leveled, often it is not.

Collector Shoes: BART cars receive their 1,000 V DC propulsion power through collector shoes that rest on top of the third rail. The shoes are located on each side of each truck assembly and are spaced 55 feet apart. The 55-foot spacing prevents a car from spanning the 60-foot non-bridgeable gaps in the third rail, as explained in the electrical section of this manual.

WARNING: THE EXPOSED COLLECTOR SHOES ARE EXTREMELY HAZARDOUS AND MUST BE AVOIDED AT ALL TIMES. A CAR MAY BE IN CONTACT WITH THE THIRD RAIL ON EITHER SIDE OF THE VEHICLE. IF ANY SHOE IS ENERGIZED, THE OTHER THREE COLLECTOR SHOES ON THAT CAR ARE ALSO ENERGIZED.

1,000 V Collector Assembly

Communications: There are two internal car communications systems, intercom and public address systems

Intercom: Intercom boxes are located adjacent to the intercar access between each car. The intercoms are available for use by any passenger to communicate with the Train Operator.

Public Address: Each Train is equipped with a public address system which may be activated by either the Train Operator or patched through by radio to the BART Operations Control Center.

Doors: There are emergency door release mechanisms both inside and outside cars:

- Emergency Operation (inside): In an emergency, one panel from each set of side doors may be opened from inside of the car by activation of the emergency door release lever. The levers can be found adjacent the doorway behind a cover plate labeled "EMERGENCY DOOR RELEASE." A steady pull on the lever in the direction of the arrow unlocks the nearest door panel, opens the door a few inches, and disconnects the electric power to the door mechanism. A firm push on the door will completely open it and it will remain in the open position until it is physically closed.

- Emergency Operation (outside): All revenue vehicles have an emergency door release pull handle on the exterior of the car. The "T" handles are located on each side of the car, on the right hand set of doors, inside the footwell below the vertical handrail. The step is below platform level. A firm steady pull is required to unlock the side door, remove battery power to the motor, and open the door a few inches. A gentle push will completely open the door.

Intercar Doors: Intercar doors permit travel from car to car (except for D cars). Because each car has a set of doors, two door sets must be opened for passage between cars. The doors are self-closing.

Train Door Key: The train door (barrel) key will open and close exterior doors and provide access to the Train Operator's compartment, hostling controls, fire extinguisher, Higgins Plank and ladder.

The exterior train door key switch is located on each side of the car to the left of the vertical handrail. There is one handrail per car side. From the interior of the car, the door key switch is found in the windscreen on the right side when facing each pair of exterior doors.

Insertion of the key and a quarter turn clockwise will open the door. Return the key counter clockwise one-quarter turn to the neutral position and the door will remain open. This position allows easy removal of the door key. In order to close the door from an open position, insert the key and turn one-quarter turn counter-clockwise to close the door. Return the key to the neutral position and the door will remain closed.

Emergency Ladder: Each C-Car contains an emergency ladder. The ladder is a short (5') extension ladder for use in evacuating through the (Y) front-end flipper door. The ladder is stored behind the seatback at the rear (X) end of each car. The access panel is labeled "EMERGENCY LADDER". Access into the ladder compartment is with a train door key. BART personnel will assist with the location and the removal of the ladder.

Emergency Plank (Higgins Plank): Each A, B and some C-Cars contain an emergency plank (Higgins Plank). The plank is 12 inches wide, 5 feet long when extended and will support 450 pounds at the midpoint. One plank is stored behind the seatback at the rear (X) end of each car. The access panel is labeled "EMERGENCY PLANK". Access into the plank compartment is with a train door key. The plank is used to evacuate passengers from an incident train to a rescue train. BART personnel will assist with the location and removal of the plank.

Two planks placed side by side and slightly separated can accommodate a wheelchair. A Fire Department pike pole positioned between two adjacent doors may function as a handrail when using the planks.

The planks may not be long enough for passenger transfer between adjacent trains when the trackways are curved, where the roadbeds are not on the same level and where the track separation is too great.

Fire Extinguisher: Each car is equipped with two 10A40BC dry-chemical fire extinguishers. In the A-Car, one extinguisher is mounted on the bulkhead near the Operators seat. The second extinguisher is located in the passenger area at the opposite end of the car. In the B and C-Cars, extinguishers can be found near either end door, located in the bulkhead behind the seats nearest the intercar access way.

Hostling Control: Cars can be uncoupled and independently moved by hostling controls. The controls are located behind a locked panel by the intercar doorframe at both ends of B-Cars and at the (X) rear end of A and C-Cars.

Note: ONLY PROPERLY TRAINED BART PERSONNEL HAVE THE AUTHORITY TO OPERATE THE HOSTLING CONTROLS.

Propulsion: Each BART car utilizes third rail power through four traction motors, one on each axle or two per truck. Trains have a top speed of 80 mph, accelerate, and decelerate at a maximum rate of 3 mph per second.

Seating: All seats are bolted to the sides of the car. Seating is arranged permanently with the seats next to the doors facing the aisle while the rest of the seating is placed with half the seats facing forward and half facing the rear.

Undercar Components: There are many components under each car, including air conditioning equipment, auxiliary power supply equipment, propulsion and braking controls and battery. Access to the underside of the car is very difficult because there is very little clearance between the equipment and the running rails. There is also the added hazard of the collector shoes to work around.

The heating, ventilating and air-conditioning (HVAC) units are the most extensive system carried on each car. The refrigerant used is R 22. Each unit contains a specific amount of refrigerant, which varies for each application. Refrigerant escaping from a ruptured line may initially be mistaken for smoke, but will quickly dissipate. The warm or cool air from the HVAC unit is delivered to the passenger area of the cars through Kydex ducting. With the application of sufficient heat, these ducts may burn and add fuel to a fire and release smoke into the passenger area.

Windows: All passenger windows are triple layered laminated safety glass mounted in a fixed position within the car body.

The Train Operator's windshield is high impact resistant glass similar to that used in aircraft. The Operator's side window on the A-Car opens inwardly. The C-Car windows slide down to open. The Operator windows on both A and C-Cars are tinted laminated glass.

ELECTRIFICATION:

BART revenue vehicles operate on 1,000 volts (V) direct current (DC) traction power supplied by the electric third rail. The 1,000 V DC is fed through circuit breakers to the various electric third rail sections. Gap breaker stations allow sections of electric third rail to be isolated or connected. Station power, (480 V AC), is supplied by the Pacific Gas and Electric Company (PG&E).

Traction Power: Power for the BART system is received from PG&E as 115 kV or 34.5 kV AC through switching stations located throughout the system. 115 kV power is reduced to 34.5 kV. The 34.5 kV power is then transmitted to substations located near passenger stations, or underground installations.

34.5 kV for the BART system is transmitted along the trackway in two ways. At grade level, the cables are buried underground next to the trackway. A concrete cover provides additional protection. Cables running through the aerial, subway and tunnel sections are sealed inside a four-inch pipe pressurized with nitrogen gas for protection and moisture control. Although the pipe can be damaged, they don't pose a great danger. If the cables are exposed or damaged in any way, they should be treated as a high voltage emergency.

Substations convert the 34.5 kV AC to 1,000 V DC and supply it to the third rail. Each substation has transformers to make the conversion. Many of the transformers are oil filled. Those transformers once contained polychlorinated biphenyl (PCB); but they have been converted to non-toxic oils. Trace levels of PCB remaining in the transformers are below Federal guidelines.

Gap breaker stations contain circuit breakers that are used to join or isolate individual third rail Sections. Most Gap breaker station circuit breakers are 1,000 V DC feeder breakers with bidirectional overcurrent tripping capabilities.

The San Mateo County system south of the Colma Station and the Warm Springs Extension, south of the Fremont Station have a more flexible electrical system where traction power and utility power can back each other up in case of failure.

Location information on facilities including electrical substations, switching stations gap breaker stations, and high voltage substations are provided in a supplement package for each jurisdiction.

Third Rail: The third rail is a steel and aluminum composite I-beam mounted on ceramic insulators and a metal base bolted to the trackway or cross ties. All third rail sections are shielded by fiberglass coverboards, which are rated to support 200 pounds (when new). The coverboard is supported every ten feet by a plastic/aluminum bracket. *BART Operations Rules and Procedures Manual, Rule 2303 states: "Employees shall not step, stand, sit or recline on the third rail coverboard."* The third rail coverboard is a protective shield and not intended to support weight.

The third rail is laid out in sections throughout the system. The sections, identified by a section number, vary in length from 150 feet to several miles. A physical gap has been created between each section to allow for part of the third rail to be shut down without shutting down the entire system. There are two types of gaps: bridgeable and non-bridgeable.

A bridgeable gap has a length of less than 55 feet, the distance between collector shoes on a BART revenue vehicle. This means a revenue car parked so that it spans the bridgeable gap could possibly carry power from an energized third rail section to a de-energized section. BART has addressed this by setting up zones in these areas such that when power off is requested, all third rail power on both sides of the section requested is in a power off status to the nearest non-bridgeable gap.

A non-bridgeable gap is a physical separation of third rail sections greater than 55 feet. As stated previously, the distance between collector shoes on a revenue vehicle is 55 feet, which means third rail power (1,000 V DC) cannot be passed from an energized section to a de-energized section of the third rail.

Fire Departments can notify BART to power off any section of track by any one of the following:

- Request through the BART Liaison (preferred method).
- Direct phone call by the Fire Department to the Operations Control Center on public telephone.
- Emergency red phones connected directly to the Operations Control Center are located in all Station Agent's booths and in fire hose cabinets in newer stations (see table below).
- Emergency phone at blue light stations.
- PABX phones in the BART stations, in the Station Agents booth, and on the platforms.

Stations with Emergency Red Phones Located in Fire Hose Cabinets

Jurisdiction	Station Location	Jurisdiction	Station Location
ACFD	Castro Valley	SSF FD	South San Francisco
ACFD/LPFD	West Dublin & Dublin/Pleasanton	SB FD	San Bruno
CCC FPD	North Concord/Martinez	MFD	Millbrae
CCC FPD	Pittsburg/Bay Point	SFFD (SFO)	San Francisco Intl' Airport
FFD	Warm Springs		

Fire Department personnel can power off the third rail using the platform trip on the station platforms or the third rail trip button at the blue light stations in underground areas. The Operations Control Center must be notified immediately by any of the above listed methods when third rail power trip has been activated.

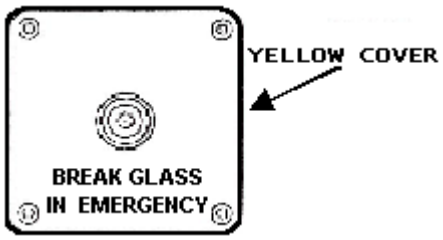
BART's definition of power off is a condition where the Operations Control Center has indications on their display board through remotely monitored equipment that circuit breakers are open and a sensor attached to the third rail is annunciating a power off status. Activities that may contact the third rail or other normally energized components should not be attempted with power off status. In a power off status, limited fire suppression and life safety activity can be accomplished.

Electrical Safe Clearance: In an event where direct contact with the third rail or collector shoe is necessary, BART will dispatch Electricians to establish an electrical safe clearance upon request. An electrical safe clearance ensures that the remotely controlled circuit breakers are physically disabled by racking them out and tagging them. A ground clamp is then placed between the third rail and the running rail. IF DIRECT CONTACT WITH THE THIRD RAIL OR COLLECTOR SHOES IS NECESSARY, REQUEST FOR AN ELECTRICAL SAFE CLEARANCE. It may take as long as 1 ½ hours for Electricians to establish an electrical safe clearance, depending on the length of the third rail section and the number of electrical feed points. The Operations Control Center can provide an estimate of when an electrical safe clearance is expected to be established.

THIRD RAIL POWER TRIPS:

The Operations Control Center maintains control of all third rail power on mainline and has the capability of removing power to any or all third rail sections in the system. Emergency power trip stations are provided throughout the system. When activated, these stations will de-energize third rail power locally for limited distances in the vicinity of the trip station. It is mandatory to notify the Operations Control Center when any emergency power trip is activated. There are three types of third rail power trips: platform trips, blue light station trips, and yard and tail track trips.

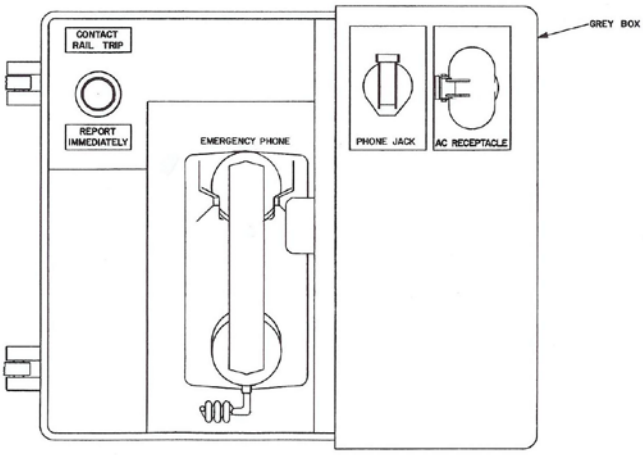
Platform Trips: platform trip stations are located at the center of the platform on each side adjacent to each track. A yellow third rail trip sign is near the ceiling level above each third rail trip station. To activate: break glass and a button will pop out and remove the power to the third rail only on the track adjacent track. It will remove the power, at a minimum, for the entire station on the affected track, and beyond the station as far as the continuous third rail extends (this distance will vary from station to station).



NOTE: It is possible to temporarily re-energize third rail power by depressing and holding the platform trip button. Depressing the button does NOT reenergize the rail, but allows the Operations Control Center to reenergize the third rail. This type of operation can be used to move a train. This process is most often used to move trains off of persons that are under trains adjacent station platforms. The Incident Commander and BART Liaison should coordinate the operation with the Operations Control Center prior to depressing the button and requesting the Operations Control Center to re-energize the third rail.

BLUE LIGHT STATION:

Trip buttons for de-energizing third rail sections within subway bores and tunnels are located in emergency panels referred to as blue light stations. The blue light above the panel readily identifies these stations.



Pushing the third rail trip button will cut power to the third rail section on the adjacent track. It does not cut power to any other track. Immediately notify the Operations Control Center (on the emergency phone in the blue light station) after activating the trip. More than a single third rail section may be involved in the incident, and the Operations Control Center can assist in determining if additional sections are involved and de-energize them as appropriate. The Operations Control Center will verify that power has been removed and will NOT return power to the third rail until directed to do so by the Incident Commander.

NOTE: The Transbay Tube is the one exception to the immediate area rule. By pushing the blue light station third rail trip button in the Transbay Tube, the third rail power will be de-energized in the entire bore. This may not be desirable if other trains are still in the affected bore trying to evacuate. If time permits, Incident Commanders are encouraged to check with the Operations Control Center before de-energizing the entire Transbay Tube incident bore.

Adjacent blue light stations are within line of sight and not more than 1,000 feet apart.

Blue light stations contain:

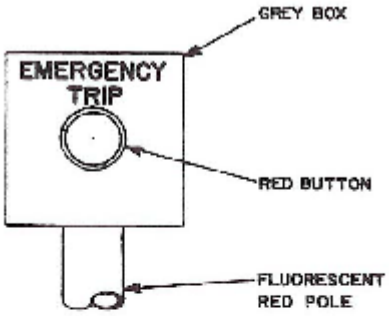
- Emergency third rail power trip station
- Emergency telephone directly connected to the Operations Control Center
- A 120 V AC, 5 A outlet
- A metal plate on the exterior of the door indicating distance in feet to the nearest exit in each direction
- ABC type extinguishers are located near each blue light station.

Blue light stations in the Transbay Tube Lower Gallery contain:

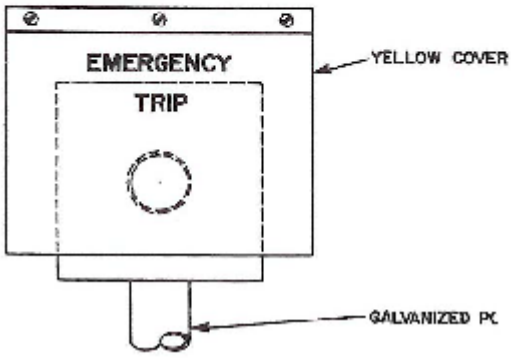
- Emergency telephone directly connected to the Operations Control Center
- A Fire Department yellow phone jack.

YARD TRIPS:

Yard trips are located in all BART train yards. They are located on the walkway side across the tracks from the third rail. The trips are mounted on galvanized pipe stanchions, and can be identified by the red reflector strips running down the pipe. Tripping any one of the yard trips will de-energize the entire yard.



Once a trip has been activated, use the emergency telephone located next to the Yard Trip (if present) or other means to notify BART. This ensures the area will remain de-energized until the incident scene is secure and released back to BART.



STATION POWER:

480 V AC station power is provided separately from traction power and is more vulnerable to local power outages. In the case of a station power outage, stations may be closed for safety reasons with trains running through without stopping. The San Mateo County system south of the Colma Station has a more flexible electrical system where utility power and traction power can back each other up in case of failur

EVENT NOTIFICATION/EMERGENCY RESPONSE PROTOCOL:

Normally, notification of incidents or accidents will only be given to the fire service jurisdiction in which the event has occurred, unless existing procedures or mutual response plans specify otherwise.
Examples of these exceptions include:

- San Mateo County Dispatch handles all jurisdictional notifications and responses within their county.
- The Oakland and San Francisco Fire Departments both respond to incidents in the Transbay Tube.

Some BART notifications made to fire agencies do not require emergency response. An example of this would be when removing/returning fire protection systems from/to service due to routine repair or maintenance.

Advisories are given to fire agencies when a condition or event has occurred but there is insufficient information to determine if an emergency exists. A BART ADVISORY may be given to the affected fire jurisdiction while more information is being received to determine if an emergency response is warranted. An example of this would be if haze was reported on the trackway.

A Fire Department emergency response will be requested whenever there is a:

- Medical emergency or accident that results in (known or suspected) injury or death
- Fire
- Stranded train outside a station requiring fire service assistance in evacuation

When requesting the fire service response to an emergency, BART will report the location and nature of the emergency, and any additional information available that will better prepare the fire agency to mitigate the emergency. Trackway incidents in San Mateo County will be reported by track number and milepost marker. Incidents in all other jurisdictions will be reported by track number and milepost marker, the nearest cross street, and the nearest trackway access point.

When arriving at a BART emergency, the first arriving fire unit should receive an incident update from the BART Incident Commander on the scene. The BART Incident Commander will then transfer command to the Fire Department and remain as the BART Liaison to the Fire Department Incident Commander. The BART Liaison will then serve as a technical advisor and resource manager, and provide a direct communication link to the Operations Control Center.

If the BART Incident Commander does not immediately report to the first arriving fire unit at a BART emergency, the fire unit should have their dispatch direct the Operations Control Center to have the BART Incident Commander report to them.

If a BART representative at the point of trackway entry does not meet fire units responding to an emergency on the trackway, they MUST NOTIFY THE OPERATIONS CONTROL CENTER (through their dispatch) of both the track number and entry point PRIOR TO ENTERING THE RIGHT-OF-WAY.

Example: *"AlCo Dispatch, Engine 3452 on the scene at BART & Hwy 238; nothing showing. "There are no BART personnel on scene.*
"Engine 3452 investigating; NOTIFY THE OPERATIONS CONTROL CENTER WE ARE ENTERING THE L2 TRACK AT THE KENT COURT ACCESS GATE."

Caution: Unless otherwise notified by BART, fire units entering trackway should assume that THIRD RAIL POWER MAY BE ON AND TRAINS MAY BE RUNNING. Fire units arriving on the scene of a BART trackway incident should determine which trackway(s) are de-energized, and direct any changes they deem necessary to safeguard emergency operations and protect their personnel.

Warning: Incident Commanders should always ensure third rail power is cut before operating hose streams in the trackway or activating the under car deluge system.

Incident Commanders should NOT attempt to extinguish any electrical or substation fire until a BART ELECTRICIAN on the scene has advised it is safe to do so.

Third rail (fiberglass) coverboards, supported by end brackets at ten-foot intervals, are not intended to support the weight of equipment or personnel. Incident Commanders should NOT place ground or aerial ladders against the third rail coverboard of elevated trackways until they have confirmed the power has been de-energized.

INCIDENT COMMAND POSTS AND COMMUNICATIONS:

It is understood that fire service agencies responding to emergencies at BART will establish Incident Command Posts (ICPs) at any site which will best facilitate control of the incident and command of units on the scene. To facilitate this, BART has provided fixed facility ICPs at critical locations and has equipped them with both radio and wire communications.

In the San Mateo County underground and the Warm Springs Extension, ICPs are in the Emergency Management Panel (EMP) rooms at stations and have interconnecting communications with all other EMP rooms. Surface Command Posts are provided at all underground stations in San Francisco, Oakland, Berkeley and Fremont. ICPs are provided at both ends of the Transbay Tube and Berkeley Hills Tunnel with interconnecting communications. Additionally, all BART Station Agent booths can be utilized as ICPs.

Communications includes all means of communications (public address, wire, and radio) between elements of BART, the public, and emergency response agencies.

RADIOS:

All fire service agencies in BART service areas use FM radios for emergency operations. FM radios operate on the principal of electrical line of sight and therefore generally do not work well in underground areas.

To overcome this difficulty, BART provides an 800 MHz radio communications capability throughout the BART system (including all underground locations). This 800 MHz communications system functions within ½ mile of at grade and aerial track and in underground areas. This capability is provided by two major components: physical equipment and communications channels.

- Physical Equipment: The physical equipment that facilitates good underground communications consists of an underground antenna system, portable radios, and strategically placed remote radio call boxes:
  - Radio antenna cable in the trackway relays 800 MHz radio transmissions throughout the underground.
  - 800 MHz portable radios are provided to all fire service agencies with underground track that do not use compatible radios.
  - Remote radio call boxes (fixed-position radio transmitters) are provided at ICPs and other sites requested by fire service agencies in order to communicate with emergency response units in underground areas.

Remote Radio Call Box Locations

Jurisdiction	Location
SFFD	Balboa Station, Surface Command Post
SFFD	End of Havelock St @ Balboa Park, MW 02
SFFD	Glen Park Station, Surface Command Post
SFFD	24th Street Station, Surface Command Post
SFFD	16th Street Station, Surface Command Post
SFFD	Civic Center Station, Surface Command Post
SFFD	Powell Street Station, Surface Command Post
SFFD	Montgomery Street Station, Surface Command Post
SFFD	Embarcadero Street Station, Surface Command Post
SFFD	Transbay Tube Command Post Embarcadero Concourse
OFD	4th St. and Jefferson St.., West Wye Portal Access
OFD	9th and Harrison Streets, Emergency Egress
OFD	7th St. & Broadway
OFD	8th & Oak Streets, Lake Merritt Station, Surface Command Post
OFD	5th Ave. & East 8th St., Oakland Shops, East Wye Portal Access
OFD	12th Street Station, Surface Command Post
OFD	19th Street Station, Surface Command Post
OFD	23rd and Northgate St., Track Walkway
OFD	23rd and Northgate St., West Gate
OFD	7th & Maritime St., Transbay Tube Surface Command Post
OFD	OFD's Berkeley Hills Tunnel Command Post, Chabot Rd.
BFD	Berkeley South Portal, East Fence
BFD	Ashby Station (South), Surface Command Post
BFD	Ashby Station (North), Surface Command Post
BFD	Berkeley Station, Surface Command Post
BFD	North Berkeley Station, Surface Command Post
BFD	Northside Ave., North Portal, West Fence
CCCFD	Hwy 24, North East Corner of Portal, Camino Diablo, MW 12
CCCFD	HWY 4 at Port Chicago Ramp, South Portal
MOFD	MOFD's Berkeley Hills Tunnel Command Post
NCFA	Junipero Serra Blvd. & Citrus Ave., Emergency Egress MXS
NCFA	Junipero Serra Blvd., Underground, Track Level, M3 Track MXS
NCFA	School St. and Station Ave. Emergency Egress
NCFA	Washington Street
Colma FD	Colma Station, TM Zone Tower, 2nd Floor, South Platform

Training materials for the use of the radio remote call boxes and portable radios are available and included in the remote call boxes, but not included in this manual.

Communications Channels: There are two 800 MHz talk group systems and fourteen talk groups reserved for underground fire service use.

Trunk Radio Systems and Talk Groups:

System 1: Thirteen pre-designated 800 MHz band Talk Groups (TG) prioritized for use by jurisdictions as follows:	
SFFD Underground:	System 1, TG 1 & 2
Oakland Underground:	System 1, TG 3 & 4
Berkeley Underground:	System 1, TG 5 & 6
Berkeley Hills Tunnel:	System 1, TG 7 & 8
Contra Costa County FPD	System 1, TG 7 & 8
West Bay Extension:	System 1, TG 9 & 10
Warm Springs Extension	System 1, TG 11&12
Incident Command Chan:	System 1, TG 13
System 2: OES High Fire Mutual Aid:	
	System 2, TG 1

It is expected that for all incidents at above grade locations, emergency response agencies will use their organizational radios for conducting operations. Although the BART 800 MHz radios will operate above ground (within ½ mile of BART at grade and aerial track) use by the Fire Services should be restricted to underground BART incidents.

TELEPHONE SYSTEMS:

There are a number of telephone systems at BART facilities available for fire service use. The following table lists the telephone systems, which are described in more detail later in this section:

Telephone Systems

Telephone System Name	Location
Yellow Fire Phones (FD Handsets)	Phone Jacks installed in Transbay Tube, Berkeley Hills Tunnel, West Bay Subways, & Warm Springs Subways
Vertical Yellow Phones	Underground Stations
Red Phones	Transbay Tube & Berkeley Hills Tunnel ICPs, and W-Line & S-Line EMP Rooms
Mine Phones	Transbay Tube
Green Phones	Command Posts on both ends of the Berkeley Hills Tunnel and Transbay Tube
SFFD Main Line Phone	SFFD Transbay Tube ICP
OFD Main Line Phone	Transbay Tube & Berkeley Hills Tunnel ICPs
Moraga Orinda Main Line Phone	Moraga Orinda Berkeley Hills Tunnel ICP
White Courtesy Phones	Stations
PA System	Station Agent Booth or the Operations Control Center

BART PABX telephones	Station Platforms
Emergency Phones:	
Elevator Phones	Station Elevator
Blue Light Station phones	Underground Trackway and Lower Gallery
Red Emergency Phones	Station Agent Booths

Yellow Fire Phones: Yellow Phones are available for use at fixed command locations and with portable handsets for use at operational locations. Yellow phone jacks are installed in the Transbay Tube, Berkeley Hills Tunnel and in the W-Line subway, and Warm Springs subway.

The fixed locations are at ICP locations in the EMP rooms of the W & S Lines, and the ICPs for San Francisco, Oakland, and Moraga/Orinda Fire Departments that service the Transbay Tube and Berkeley Hills Tunnel respectively. Fixed yellow phones are also located in the San Francisco ventilation structure (at the top of the stairs).

Fire Departments have yellow phone portable handsets to issue to fire units responding into the underground locations mentioned above. Phone Jacks to plug into are available at cross passage doors in the Transbay Tube. The Berkeley Hills Tunnel has them at cross passage doors and along the track walkway. In the W & S Lines, they are found approximately every 300 feet and are co-located with Fire Department wet standpipe connections.

The yellow fire phone is used as a hard wire link between jurisdictional ICPs and also serves as a party line for anyone with a yellow phone hand set when plugged in at the jacks located in the underground. Note: Using more than six instruments at a time will seriously degrade communications.

"Vertical" Yellow Phones: These phones are located at all underground stations in San Francisco, Oakland and Berkeley, and at selected underground Emergency egress locations (see table). A BART padlock key (10 x 14 located in the Knox Box) must be used to open the Vertical Yellow Phone box. When ANY vertical yellow phone is lifted off of it's receiver, ALL vertical yellow phone beacons at that location will begin to flash. The flashing light is an indicator that either the ICP is wishing to talk to a unit at the below grade incident site, or vice versa. This telephone system operates as a party line. Anyone picking up a receiver in the station can listen to and participate in the conversation. This telephone is best used where use of the radio would be inappropriate, such as long or detailed discussions on strategies or when describing incident scene details that would be inappropriate for bystanders to overhear on radio receivers.

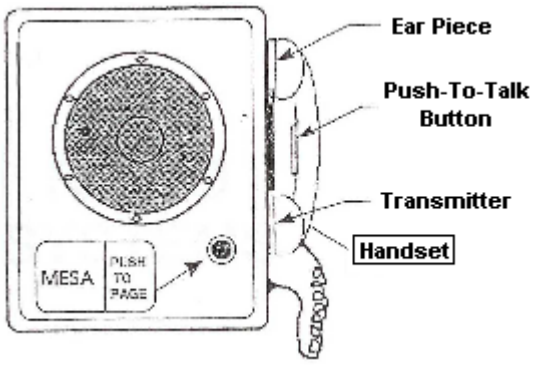
Emergency Egress Vertical Yellow Phone Locations:

Jurisdiction	Location	EE #
CCCFD	Walnut Creek Tunnel at Hwy 24 meridian east of Curtola Blvd.	EE8
CCCFD	Walnut Creek Tunnel EE on Camino Diablo Blvd.	EE9
OFD	7th and Broadway	EE1
OFD	9th and Harrison	EE2
SFFD	Valencia Street	EE12
SFFD	Randall Street Vent	EE15

Red Phones Located in Command Posts of Transbay Tube and Berkeley Hills Tunnel and EMP Rooms of the W and S Lines:
An exclusive hard wire line linking both the SFFD to OFD ICPs for the Transbay Tube, and the OFD to the MOFD ICPs for the Berkeley Hills Tunnel. Red phones are also located inside of the EMP rooms on the W and S Lines. When the receiver is lifted, it automatically rings the other phone and activates a light on the other phone.

Green Phones: An exclusive hard wire line links the Operations Control Center to both ICPs of the Transbay Tube (OFD & SFFD) and Berkeley Hills Tunnel (MOFD & OFD). When either ICP receiver is picked up, it rings only in the Operations Control Center and does not ring in the adjacent ICP. If, however, the call is originated from the Operations Control Center, the phones in both ICPs will ring until one is picked up, and a three-way conference call can then be conducted. This is not intended to replace the Red Phone (ICP to ICP) discussed above, but rather provides the Operations Control Center with the ability to discuss issues (power, ventilation, water supply, etc.) with either or both ICPs.

Mine Phones in the Transbay Tube: Mine phones are located in the Transbay Tube every 330' at cross passage doors in the Lower Gallery. These phones operate throughout the lower gallery of the Transbay Tube and can also be used to communicate with the Operations Control Center. To operate these phones, pick up the phone receiver on the right side of the yellow box, and push the push to talk (PTT) switch on the receiver to speak. A small light flashes on all the mine phone Boxes in the Transbay Tube when the PTT is depressed, so anyone looking at a mine phone in the TBT can see that someone is talking.



There is also a button on the face of the mine phone box which, if depressed while speaking in the handset (and using the PTT), will cause every mine phone in the TBT to act as a PA Speaker. This is especially useful in an evacuation where

emergency responders can give directions to patrons that may have started walking down the lower gallery and are out of earshot.

Fire Department Main Line Phones:

- SFFD Main Line Phone in the SFFD Transbay Tube ICP: The SFFD Main Line is an intra-Fire Departmental direct line to their Communications Center and all SFFD internal locations (offices, stations, etc.) This line is dedicated to the internal use of the SFFD.

- Millbrae and South San Francisco Main Line Phone in the West Bay EMP Rooms: The Millbrae and South San Francisco Main Line is an intra-Fire Departmental direct line to their Communications Center and all internal locations (offices, stations, etc.) These lines are dedicated to the internal use of the North County Fire District Agencies.

- OFD Main Line Phone in the OFD Transbay Tube & Berkeley Hills Tunnel ICP: The OFD Main Line is an intra-Fire Departmental direct line to their Communications Center and all OFD internal locations (offices, stations, etc.) This line is dedicated to the internal use of the OFD.

- Moraga Orinda Main Line Phone in the Moraga Orinda Berkeley Hills Tunnel ICP: The Moraga Orinda Main Line is an intra-Fire Departmental direct line to their Communications Center and all Moraga Orinda FD internal locations (offices, stations, etc.) This line is dedicated to the internal use of the Moraga Orinda FD.

- FFD Main Line Phone in the Fremont and Warm Springs ICP: The FFD Main Line is an intra-Fire Departmental direct line to their Communications Center and all FFD internal locations (offices, stations, etc.) This line is dedicated to the internal use of the FFD.

Station White Courtesy Phones: White courtesy phones are located throughout BART station concourse and platform areas. This phone can be used to speak to the Station Agent in the Station Agent booth.

Station Agent Booth PA System: Each BART Station has a public address system that can be activated by either the Station Agent or the Operations Control Center. This system would be useful in ordering station evacuations or to convey other information to patrons and responders throughout a station.

BART PABX Telephones: The BART PABX is an intra-BART line to all BART internal locations (offices, stations, Control Center, Police, etc.). This line is dedicated to the internal use of BART. These phones are in locked cabinets on BART platform levels, usually co-located with emergency third rail trip stations. In the extension stations (Castro Valley, Colma, Dublin/Pleasanton, Millbrae, North

Concord, Pittsburg/Bay Point, SFO, San Bruno, South San Francisco, and Warm Springs) the cabinets (including hose cabinets) also contain Emergency Red Phones that go directly to the Operations Control Center. PABX Boxes in all future BART Station construction will also have both phones.

Emergency Phones: There are three types of emergency phones in the BART system: elevator phones, wayside emergency phones, and red emergency phones located in Station Agent booths and some PABX phone boxes and fire hose cabinets.

- Elevator Phones: located in elevators for the use of patrons in the event they are incapacitated or there is a problem with the functioning of the elevator itself. These phones are directly connected to the Station Agent booth and will transfer to the Operations Control Center if not picked up in 90 seconds.

- Wayside Emergency Phone: located throughout the BART system on the mainline trackway, at blue light stations, yards, and some tail tracks. Inside the metal box is a phone handset that goes directly to the Operations Control Center, or in the case of yards, the Yard Towers. In addition, blue light stations in the Lower Gallery of the Transbay Tube have a yellow fire phone jack to be used by fire units equipped with yellow fire phone handsets.

- Red Emergency Phones: Red emergency phones in the Station Agent booths connect directly to the Operations Control Center. These phones enable Incident Commanders to talk directly to the Operations Control Center for the purpose of gathering information, confirming “Power Off”, or any other purpose. They are located in all Station Agent booths, and in Platform PABX phone boxes and hose cabinets of all extension stations (Castro Valley, Colma, Dublin/Pleasanton, Millbrae, North Concord, Pittsburg/Bay Point, SFO, San Bruno, South San Francisco, and Warm Springs). They will also be similarly installed in all future construction of BART Stations.

FIRE PROTECTION SYSTEMS:

All BART stations and maintenance facilities are equipped with sprinklers, wet standpipes, extinguishers, and alarm systems (annunciator panels detect and read out smoke, water flow, and manual pull stations). The spacing of these devices are in accordance with existing codes.

Fire Protection Systems unique to BART Stations: These systems include FM200, Wet Standpipes, Fire Pumps and Undercar Deluge Systems.

FM 200: is the brand name for heptafloropropane, or CF_3CHFCF_3. It is a "clean" fire retardant compressed gas, similar to halon, used in train control rooms and other electronic component rooms. It is a non-persistent, non-toxic, simple asphyxiant that will not damage electronic components. The following table lists the fire jurisdictions, stations, and locations of FM 200 System installations:

FM 200 Locations

Fire Jurisdiction	Station	FM 200 Location
Alameda County FD	Castro Valley	Train Control Room
AC FD/ LP FD	W Dublin/Dublin/Pleasanton	Train Control Room
Contra Costa Consol. FPD	Pittsburg/Bay Point	Train Control Room
Oakland FD	Lake Merritt	Train Cont.- Computer-Phone
South San Francisco FD	South San Francisco	Train Control Room
Millbrae FD	Millbrae	Train Control Room
San Francisco FD	San Francisco Intl' Airport	Train Control Room
Fremont FD	Warm Springs	Train Control Room

Wet Standpipe System: All BART station platform and concourse levels are equipped with class 3 wet standpipe fire hose cabinets with both 1 ½" and 2 ½" outlets (exception: San Francisco uses 3" fire hose connections). Some stations also have stand-alone class 2, 2 ½" wet standpipe outlets for Fire Department use.

Fire Pumps: Auxiliary fire pumps are located at eight BART stations and each end of both the Transbay Tube and Berkeley Hills Tunnel. The capacities of these pumps range from 100-1600 GPM and can be seen in the table below. In addition to auxiliary pumps, all station and underground trackway water supply systems can be supplemented by pumping into Fire Department connections (refer to your Department's Station Maps). Due to the variations in friction loss in each station to the most distant outlets on the platform level, it is recommended that Fire Departments be prepared to augment pressure if firestreams are inadequate.

BART Auxiliary Pump Locations and Capacities:

Fire Jurisdiction	Station or Location	Capacity
El Cerrito FD	El Cerrito Plaza	100 GPM
El Cerrito FD	El Cerrito Del Norte	100 GPM
AC FD/ LP FD	W Dublin/Dublin/Pleasanton	1250 GPM
San Francisco FD	San Francisco Vent	2 X 500 GPM
Oakland FD	Oakland Vent	2 X 500 GPM
Oakland FD	MacArthur	100 GPM
Oakland FD	Lake Merritt	100 GPM
Oakland FD	Rockridge	100 GPM
Oakland FD	Berkeley Hills Tunnel West	250 GPM
Moraga/Orinda Fire District	Berkeley Hills Tunnel East	200 GPM
Contra Costa County FPD	North Concord	1600 GPM
Contra Costa County FPD	Pittsburg Bay Point	1000 GPM
Fremont FD	Warm Springs	1250 GPM

Under Car Deluge System: The stations listed in the table below are equipped with dry under car deluge systems. The purpose of these systems is to remotely pump water under BART cars in the event of undercarriage fires on trains in stations. Each station trackway equipped with deluge systems will contain one to five sets of dry pipe zones. Stations in San Francisco, Berkeley, and Oakland are equipped with FD Hose Storage Cabinets which contain lengths of 2 ½" or 3" hose. To operate the system in these cities, firefighters extend hose from the platform wet Stand Pipe outlet to the deluge inlet. Inlets and deluge pipe sections are labeled in these jurisdictions, however firefighters should be familiar with inlet and corresponding deluge pipe locations, as fire conditions will make it very difficult to see the labeling during fire attack operations.

Stations equipped with under car deluge systems, other than San Francisco, Oakland, Berkeley, and Millbrae, have pre-plumbed dry pipe systems that are labeled in a similar fashion, but they are controlled by valves in the trackway at either end of the platform. In Millbrae, the pre-plumbed dry pipe deluge system is remotely controlled from the EMP room and there is only one deluge zone per trackway. For more detailed information, see the Under Car Deluge System Table below.

Under Car Deluge Systems

Fire Jurisdiction	Station	No. of Tracks Covered	No. of Deluge Sections per Track	Type of Connection	Deluge Inlets Supplied From:
SF FD	Embarcadero	2	5	Hose	Platform*
SF FD	Montgomery	2	5	Hose	Trackway
SF FD	Powell	2	5	Hose	Trackway
SF FD	Civic Center	2	5	Hose	Trackway
SF FD	16th Street	2	5	Hose	Platform**
SF FD	24th Street	2	5	Hose	Platform**
SF FD	Glen Park	2	5	Hose	Platform**
Colma FD	Colma	2	5	Pre Plumbed	Trackway
SSF FD	South San Francisco	2	5	Pre Plumbed	Trackway
San Bruno FD	Storage Track	1	2	Pre Plumbed	Trackway
San Bruno FD	San Bruno	2	5	Pre Plumbed	Trackway
Millbrae FD	Millbrae	3	1	Pre Plumbed	EMP Room
SF FD (SFO)	San Francisco Airport	3	5	Pre Plumbed	Platform***
Oakland FD	12th Street	3	5	Hose	Plat**/Track
Oakland FD	19th Street	3	5	Hose	Plat**/Track
Oakland FD	Lake Merritt	2	5	Hose	Platform**
Berkeley FD	Ashby	2	5	Hose	Platform**
Berkeley FD	Berkeley	2	5	Hose	Platform**
Berkeley FD	N. Berkeley	2	5	Hose	Platform**
CCC FPD	N. Concord	1	5	Pre Plumbed	Trackway
LPFD	West Dublin	2	5	Pre Plumbed	Platform
Fremont FD	Warm Springs	2	5	Pre Plumbed	Platform
Platform*= Deluge inlets are adjacent to each deluge section and supply the SAME side of the platform.					
Platform**= Deluge inlets are adjacent to each deluge section and supply the OPPOSITE side of the platform.					
Platrorm***= A bank of valves at each end of the center platform control deluge sections on the op-					
posite end of the station. The bank of valves control the deluge systems for all three trackways.					
Trackway deluge inlets supply the deluge sections at the opposite ends of stations in the same trackway.					
Pre Plumbed trackway valves supply deluge sections at the opposite ends of stations in the same trackway.					

Warning: Under normal fire ground procedures, power will be cut to the third rail in stations where there is a fire in or under a train, however INCIDENT COMMANDERS SHOULD CONFIRM WITH THE OPERATIONS CONTROL CENTER THAT THIRD RAIL POWER IS OFF BEFORE ORDERING DELUGE SYSTEMS CHARGED!

WATER SUPPLY:

Local domestic water supplies are used at BART facilities. Static and residual pressures, as well as fire flow, will fluctuate with local peak usage, pressure zone locations, valve closures, efficiency of the grid system, distributor size and age, etc. See your jurisdiction's Water Supply Officer for hydrant pressures and fire flow information at BART facility locations.

Except for the auxiliary fire pumps (discussed above) water supply can be categorized into the areas of stations above grade, below grade, and underground trackways.

Stations above grade: Stations above grade have platforms approximately thirty feet above grade. Firefighters will experience a head pressure loss of about 15 psi in addition to the friction loss in the wet standpipe system. Fire Departments should be prepared to augment the pressure as needed by pumping into the wet standpipe Fire Department connection at each station (refer to station maps for your department).

Stations below grade, one level: Stations having the platform one level below grade will experience an increase of approximately 15 psi nozzle pressure compared to pump panel discharge pressure. This pressure increase is not significant. Fire Departments should still be prepared to augment pressure, as needed, by pumping into the wet standpipe Fire Department connection at each station (refer to station maps for your department).

Stations below grade, multiple levels: Stations with platforms multiple levels below grade may experience increased head pressure of up to 45 psi above pump panel discharge pressure, depending on the distance of fire operations below grade. This is a significant increase that will effect both firestream operations and firefighter safety. Incident Commanders may wish to consider having hose lines gated back to retard fire flow. Stations affected include Oakland's 12th and 19th Street Stations, and San Francisco's BART platform from the Embarcadero to Civic Center stations.

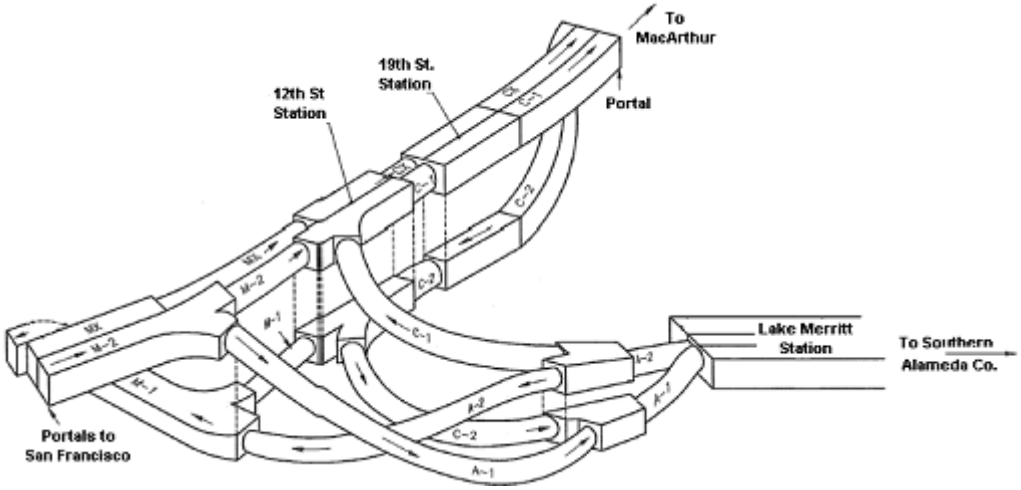
Water supply features common to all tunnels: Except for the Oakland Wye and Berkeley Hills Tunnel, underground trackways consist of two parallel bores with cross passage doors, and have wet standpipe systems with 2 ½" (3" in San Francisco) outlets approximately every 250-300 feet (in each bore). Each outlet is marked with a blue dot on the walkway directly under the outlet, and a blue reflector mounted on the opposite tunnel wall. It is designed so fire attack crews can reach the seat of any fire in the underground with no more than three lengths of hose from one direction.

Fire Department connections are available to augment wet standpipe water supply if needed.
Note: An exception to the 250-300' outlet spacing standard is the Transbay Tube, where the distance is 330', adjacent each cross passage doors.

Tunnels at Grade Level: Technically, tunnels must be below grade level. But for the purposes of water supply head pressure, we will consider the Walnut Creek Tunnel and Highway 4 Tunnel/Underpass to be at grade level. The increases in head pressure at these locations are:

- Walnut Creek tunnel: Less than 15 psi
- Highway 4 tunnel/underpass: Zero

The Oakland Wye: The Oakland Wye consists of seven interconnecting bores (see diagram) that range in below grade depths of -20' (at exit portals) to -90' (at platform # 2 of the 12th & 19th Street Stations). The Oakland Wye wet standpipe system is interconnected and has Fire Department connections at the three stations (12th, 19th Streets and Lake Merritt) and near each of the portals (7th & Broadway ventilation structure, 5th Ave & E. 8th St., and 23rd & Northgate). Wet standpipe outlets (2 ½") are spaced every 250-300', however cross passage doors spacing is NOT consistent due to bore configuration. The bores change elevation as they go over and under each other underground. Incident Commanders should not assume what the head pressure is at track locations but should be prepared to augment water pressure, at the request of fire attack crews, by pumping into the Fire Department connections. If excessive firestream pressures are encountered, Incident Commanders may consider having hose lines gated back to retard fire flow.



San Mateo County Underground: Wet Standpipes are interconnected throughout the entire San Mateo County underground. Additionally, Fire Department connections are dispersed throughout the system so that the water supply can be augmented at multiple locations. This tunnel complex is one level below grade and fire attack crews will experience an increase of no more than 15 psi head pressure compared to discharge readings of pumpers adjacent to the incident.

Caution: There is an approximate 180-foot elevation change from the highest point (Colma Portal +155') to the lowest point (Sylvan ventilation structure –24') of the interconnected San Mateo County underground wet standpipe system. Incident Commanders may wish to consider that augmenting the pressure of the underground from the Fire Department connections in the vicinity of an incident will

provide predictable pressures below grade. However, augmenting the underground pressure from the Fire Department connections at distant *higher* elevations may over-pressurize fire attack lines operating in (comparatively) lower elevations of the underground. The reverse is also true (Example: Pumpers at the South San Francisco Station augmenting the water supply for a fire at the Colma portal will need to add 55-60 psi to their discharge pressure to compensate for the 115 foot higher elevation of Colma).

Berkeley Hills Tunnel:

The Berkeley Hills Tunnel consists of two parallel bores that are 3.2 miles long with cross passage doors approximately every 1,000 feet; 2 ½" wet standpipe outlets supplied by 6' mains are spaced every 250-300' in each bore. The major concern with the Berkeley Hills tunnel is an elevation drop of approximately 250 feet from the Orinda to the Oakland ends of the tunnel.

There are NO pressure reduction valves in the Berkeley Hills Tunnel.

The Orinda and Oakland ICPs are equipped with tunnel maps that indicate vertical pressure zones (based on milepost markers). If it is necessary for fire-attack line pressures to be increased, the maps indicate what pressures must be pumped into the Fire Department connections to achieve needed nozzle pressures for each vertical pressure (milepost) zone.

If the pressure needs to be augmented, either side of the tunnel could supply the pressure. Examples:

- Orinda would have to pump 135 psi to supply the Orinda end of the tunnel, and 70 psi to augment the Oakland end of the tunnel.
- Oakland would have to pump 150 psi to supply the Oakland end of the tunnel, and 250 psi to augment the Orinda end of the tunnel.

THERE ARE TWO SIGNIFICANT WATER SUPPLY ISSUES TO BE CONSIDERED FOR THE BHT:

- (Oakland) Incident Commanders should consider if it is safe to pump into supply lines at pressures equal to the maximum test pressure of their hose for extended periods, and
- During fire attack, lines may have to be gated back to achieve effective firestreams and prevent injuries to firefighters.

Transbay Tube:

The water supply to the Transbay Tube consists of an eight inch main supplied from both the San Francisco and Oakland sides and 3" outlets in both bores at cross passage doors approximately 330' apart.

The water main is a wet system with three motor operated valves. One is at either end of the Tube in the Oakland and San Francisco ventilation structures, and the third one is in the center of the Tube (in the upper Gallery). Although this is a wet system, these valves remain CLOSED until there is a fire or other event that requires them to be opened, such as service and testing. These valves are remotely opened by the Operations Control Center when water is needed. However, they can be operated locally by fire personnel by either switching from remote to local control and turning on the motor to open the valve, or by disengaging the motor and operating the valve manually. The valves are standard OS&Y valves.

There are two auxiliary pumps, connected in parallel, in each ventilation structure with 500 GPM capacities. Whether activated remotely by the Operations Control Center or locally by Fire Department personnel, they can be turned on individually or together. When both are turned on, they deliver 1,000 GPM from each ventilation structure site.

At the lowest point of the Tube, there is over 60 psi of head pressure, and there are no pressure reduction valves in the system. Incident Commanders may consider having hose lines gated back to retard fire flow.

Fire Department connections are located at both the San Francisco and Oakland ventilation structures to augment the pressure if needed. However, due to the extreme head pressure in the Tube, the only reason for augmenting pressure by the Fire Departments would be in the event of a total loss of domestic water supply. In that event, the Fire Department connections on the San Francisco side of the Tube are adjacent to the Bay, and could be supplied either by their fireboat or by drafting.

VENTILATION:

In the event of a fire in any BART underground location, ventilation protocols are designed to expose the minimum number of patrons (and cars) to the effects of heat and smoke. These protocols will vary depending on the location of the fire on the BART train and where it occurs in the tunnel system.

Transbay Tube: The Transbay Tube is composed of fifty-seven steel and reinforced concrete sections, each averaging 330 feet in length. It is approximately 3.5 miles in length with a continuous walkway on one side of each bore and cross-passage doors at nominal 330-foot intervals. The Tube is connected at each end to a ventilation structure. There are two chambers between the trackways. The upper chamber is an exhaust duct and the lower a utility gallery. Both chambers run throughout the length of the Tube.

The utility chamber, or lower gallery, allows access and egress between each trackway through the cross-passage doors. The lower gallery also provides access and egress with the surface through either ventilation structure. Personnel moving between the incident and non-incident bores must ensure the cross-passage door(s) on one side are closed prior to opening the opposite side door(s). With doors to both bores open smoke can migrate into the non-incident bore through the lower gallery and contaminate the non-incident bore.

The exhaust duct has remotely operated dampers to each trackway at 1,000-foot intervals. The exhaust duct is routed to a pair of exhaust fans at each ventilation structure.

Smoke and heat are “pulled” from a trackway by opening the proper damper and turning all four fans to EXHAUST. The proper damper to open is the one that will pull the smoke away from the greatest number of patrons/cars. Replacement air is drawn down the trackway from the relief shafts at both ventilation structures, and line fans in the approaches (just inside the bore entrances on the Oakland and San Francisco side) are operated in SUPPLY to further boost replacement air flow.

The lower gallery in the Transbay Tube is supplied with air from a pair of fans, one in each of the ventilation structures. Both the San Francisco and Oakland ventilation fans operate in the supply mode. These fans maintain positive pressure in the lower gallery.

Berkeley Hills Tunnel: The Berkeley Hills Tunnel is a twin bore tunnel between the Rockridge and Orinda Stations. It is approximately 3.2 miles in length with a continuous walkway on one side of each bore and cross passage doors at approximately 1,000-foot intervals. Four emergency ventilation fans are located in the east portal structure; two for each bore.

Each bore of the east portal structure houses rolling metal doors that must be closed before activating the ventilation fans and each bore can be ventilated independently.

The Operations Control Center must ensure there are no trains near the east portal before closing the rolling metal doors and begin ventilation. Once this has been done, fans can then be activated in either the supply or exhaust mode. SUPPLY to push heat and smoke out the west portal or EXHAUST to pull the heat and smoke out of the fan shaft.

For a fire on the west end of the train in this tunnel, fans will be turned on in the SUPPLY mode. For a fire on the east end of the train in this tunnel, the fans will be turned on in the EXHAUST mode. If the fire is mid-train, the instructions are to clear smoke away from the end of the train that is the greatest distance from a cross-passage door.

THE ROLLING METAL DOORS SHOULD NOT BE OPENED IF VENTILATION IS TO SUCCEED. The Berkeley Hills Tunnel rises 250 feet from the Rockridge to the Orinda portals. If the fans were operating in the push mode (east to west-*downhill*) and the rolling metal door were opened, the *chimney effect* could override the fans and reverse the direction of the smoke flow.

Subway: The subway is separated into two single-track tunnels (three at the Oakland 12th & 19th Street Stations) with a continuous walkway on one side of each trackway and cross-passage doors at approximately 1,000-foot intervals. Line fans are located in each trackway at the ends of the stations in a combined relief ventilation and fan shaft. During revenue service, the ventilation shaft acts as a relief for the piston effect of a train entering and leaving a station. For emergency ventilation, the relief ventilation shaft dampers are closed and airflow is established with the line fans either in supply or exhaust mode. Longer tunnels have additional line fans spaced between stations.

A push-pull method of fan operation is used to rid the tunnel of smoke and heat in the event of a fire. If the north end of a train is on fire, at least four fans to the north are turned on in exhaust mode to pull heat and smoke from the train and passengers. Simultaneously, at least four fans to the south of the train are turned on in the supply mode to push air to the train and provide fresh air for evacuating passengers. The process is reverse for a fire on the south end of the train. If the fire is mid-train the fans are operated so that the greatest number of cars are clear of smoke.

If a fire incident train is adjacent to a line fan, that particular fan is operated in the exhaust mode with up to four sets of fans on both sides of the incident operated in the supply mode. If the incident train is located at a portal and the fire car is inside the tunnel, at least four fans are operated in the supply mode to force heat and smoke out of the tunnel.

Oakland Wye: The Oakland Wye connects three subway lines on two levels in downtown Oakland: The A-Line to the south, the C-Line to the north and the M-Line to the west. The intersection of those lines is shaped like the symbol delta (see diagram on page 31).

The M-Line segment has two, the A-Line has six and the C-Line twelve emergency ventilation fans. Normally all fans within the Wye will be operated in the event of a fire. The six legs of the Wye are ventilated like a subway section with a push-pull method. Airflow in the incident leg may be reduced since air can divert to other legs of the Wye.

Crossovers: Crossovers, also known as Interlockings, are locations where rail vehicles to cross from one track to another. Underground crossovers have a dramatic affect on smoke migration because it allows the smoke to escape the containment of the bore shaft into a much more expansive area.

Fans are located as close as possible (in all four tunnel bores) adjacent to crossovers and they can be run in either supply or exhaust. These fans are in addition to the line fans located adjacent to stations. The same ventilation protocols are used for train fires in tunnels adjacent to crossovers as those used for train fires in single tunnels between stations.

Underground Track Crossovers

Jurisdiction	Stations on Each Side of Crossover
San Francisco FD	Embarcadero and Montgomery
San Francisco FD	24th Street and 16th Street
Berkeley FD	Berkeley and North Berkeley
San Bruno FD & SSF FD	San Bruno and South San Francisco
San Bruno & SFO	San Bruno and San Mateo Co. Mutual Aid
Millbrae & SFO (2)	Millbrae and San Mateo Co. Mutual Aid

For train fires located in crossovers, due to the large open area involved, line fans in adjacent bores will be run in parallel (as double track tunnels) using the same protocol as single bore train fires. Firefighters can expect smoke conditions similar to positive pressure cross ventilation of gymnasium and warehouse type structures.

The crossovers at Embarcadero, 24th Street, and San Bruno Stations are adjacent to stations. Line fans at the end of the station and the end of the crossover encompass both the station and the crossover.

The crossover between Berkeley and North Berkeley Stations is a 650-foot long opening in the tunnel with line fans near each end. The ventilation protocol for a train fire in this crossover is to place the line fan on the same trackway in exhaust with the line fan on the non-incident trackway turned off. Air supply is provided from the line fans upstream in the incident bore, to maintain a smoke free environment in the non-incident bore.

There are twelve ventilation structures in the subway sections of the W-Line. Ventilation can be established to remove smoke from any subway incident location.

Stations: All of the underground stations have line fans located at both ends of each platform level with three exceptions. Embarcadero and 24th Street Stations have line fans at one end of the platform and at the end of the adjacent crossover with no line fan between the station platform and the crossover. The San Bruno Station has fans at the south end of the station and fans over the mainline track at the pocket track north of the station.

A push-pull mode of ventilation is set up to rid the station of smoke and heat. The line fan on the incident trackway is turned on in the exhaust or pull mode. Line fans downstream of the incident fan are turned on in exhaust and the upstream line fans in supply or push mode.

If an incident train does not make it completely into the station, the line fan at that end of the station is turned on in the exhaust mode and surrounding fans in the supply mode.

STATION FAMILIARIZATION TOURS:

Station Familiarization Tours for the Fire Service emphasize elements of the station critical to the fire services when they respond to emergencies. A typical tour addresses the location and a description of:

- Knox Box: A vandal proof storage box containing station or facility keys accessible only by a proprietary Fire Department key
- Fire department connections: Points of connection for Fire Department use to augment the water supply and pressure for the wet standpipe (fire hose) and sprinkler systems.
- Sprinkler system valve room: Where the isolation control valve/s for the sprinkler system/s are located in the event that the sprinklers are activated. The water flow can be stopped and the fused sprinkler/s replaced from the spare head cabinet also located in the room.
- Elevator equipment rooms: Elevators are either hydraulically or electrically operated. The elevator equipment rooms have control valves to lower stranded hydraulic elevators so rescue personnel can lower elevator cabs for ease of access. Requesting BART elevator mechanics is always recommended before initiating forcible extrication.
- Communication devices: The various forms of communication the Incident Commander has available when conducting emergency operations on BART facilities. They include means to communicate with the Operations Control Center, BART personnel, Fire Department personnel, and the public.
- Stair Chair: A lightweight device used to evacuate a disabled person from a train by rescue personnel. Also known as a stretcher chair or an Evac-Chair.
- Fire alarm annunciator panel: The panel indicates what the fire alarm condition is and where it originated.
- Main electrical panel for the Station: The main breaker and sub breakers control station power (480/277 V AC).
- Third rail power trip: Located mid-platform, this switch will remove traction power to the third rail (1,000 V DC).
- Emergency Management Panel (EMP) room: The Fremont, Warm Springs, South San Francisco, San Bruno, Millbrae and the San Francisco International Airport Stations have EMP rooms containing communications equipment, alarm panels and emergency ventilation controls. EMP rooms will be utilized as ICPs in emergencies.

GLOSSARY:

A-1 Track	A code for designating BART trackways. "A" indicates Oakland/Fremont Line. “1” indicates right-hand track, facing away from the Oakland Wye
A-2 Track	A code for designating BART trackways. "A" indicates Oakland/Fremont Line. “2” indicates left-hand track, facing away from the Oakland Wye.
A-CAR	A vehicle equipped with a cab and capable of operating as a lead or trail car of a train.
AERIAL	The elevated portion of the trackway
BART KEYS	Keys made available to the Fire Department that are capable of opening locked doors, gates, access and control of elevators and escalators: 1. Grand master key 2. 10X14 (wayside padlocks) key 3. PABX (BART telephone box key) 4. Elevator key 5. Escalator key 6. Train door key 7. Fire hose cabinet key 8. Wet standpipe cabinet key
BART LIAISON	The BART Liaison is responsible for coordinating and communicating with other BART personnel, the Operations Control Center and the Fire Department Incident Commander at the direction of the Fire Department Incident Commander.
BART POLICE DEPARTMENT (BPD)	BART department responsible for law enforcement within the BART system, including the investigation of crimes, apprehension of perpetrators, traffic control, accident investigation, and protection of the District’s revenue operations.
BART TRAIN DOOR KEY	Key (barrel type) made available to the Fire Department personnel capable of opening and the passenger doors and access doors of BART revenue vehicles.
B-CAR	A vehicle not equipped with a control cab. B-Cars are used between two control cars in a train.
BERKELEY HILLS TUNNEL (BHT)	A 3.2-mile twin-bore tunnel between the Rockridge Station and the Orinda Station.
BLUE LIGHT STATION	Emergency panels located along underground trackways, not over 1,000 feet apart and within line of sight, containing a third rail power trip button, an emergency telephone, and a 120 V AC outlet. A blue light is located above the panel.

BUS BRIDGE	Bus transportation provided for BART passengers between stations where train service has been temporarily discontinued.
CAB	The compartment of an “A” or “C” car, which houses controls for the operation of a train and the Train Operator's position.
CAPACITOR TRAY	An electrical unit located inside an equipment box on the underside of BART cars that is capable of storing charged electrical energy. Built-in safeguards protect against and make accidental shock extremely unlikely, but even so firefighters should not work around these units for up to 5 minutes after third-rail power has been turned off.
C-CAR	A vehicle equipped with a cab and capable of operating as a lead, trail or middle car of a consist.
CLEARANCE	An official authorization to perform an activity subject to clearance rules, also known as Work Orders.
COLLECTOR SHOE	Part of the assembly that rides the third rail to transfer the 1,000 V DC to the vehicle. COLLETOR SHOES SHOULD BE AVOIDED AT ALL TIMES (also referred to as collector paddle).
COMMAND POST	The physical location of the Incident Commander during an emergency.
CONSIST	A string of rail cars. Sometimes used interchangeably with train.
COUPLER	A device located at each end of a car that can be engaged with a similar device at the end of another car to provide a physical connection between cars.
COURTESY PHONE	White phones located throughout stations. They can provide a means of communication with the Station Agent's booth.
CROSSOVER	Track switches arranged to allow rail vehicles to cross from one track to another. Also known as an Interlocking.
CROSS PASSAGE DOORS	Steel doors that provide access from one tunnel bore to the adjacent bore.
CRUSH LOAD	Maxim passenger load (200 passengers per car is maximum potential capacity). Typically, the maximum vehicle load that BART experiences is 150 passengers.
D-CAR	A vehicle equipped with a cab and capable of operating as a lead, trail or middle car of a consist. Personnel will not be able to passed through D cars positioned as intermediate units.
DEDICATED FIREFIGHTER PHONE	Telephones found in the Incident Command Posts of the Transbay Tube, Berkeley Hills Tunnel and the W-Line subway for fire service use in emergencies (See COMMUNICATIONS).

E-CAR	A vehicle not equipped with a control cab. B-Cars are used between two control cars in a train.
ELECTRICAL SAFE CLEARANCE	A BART procedure that will ensure a section of the third rail is de-energized.
EMERGENCY EGRESS	Labeled emergency exit provided for patron egress in the event of an emergency.
EMERGENCY MANAGEMENT PANEL (EMP)	EMP rooms contain equipment that provide information and control of emergency systems. EMP rooms are Incident Command Posts for those stations.
EMERGENCY SCENE	The area within designated boundaries where an emergency situation has occurred and to where emergency response personnel/agencies report, work within and control all operations.
EMERGENCY TELEPHONE SYSTEM	Used to make direct calls to the Operations Control Center from blue light stations, Station Agent booths, elevators and selected ventilation structure locations.
GAP BREAKER STATION	Electrical switching station containing components for connecting or isolating power between sections of the third rail.
HIGGINS PLANK	Emergency evacuation planks located in every A, B and some C cars. It is designed to reach from the doorway of a disabled train to the doorway of a rescue train. It is located in a cabinet behind the seat at the X-end of the car (ask Train Operator for assistance in retrieving Higgins Planks).
HI-RAIL VEHICLE	Vehicle equipped with a combination of flanged wheels and rubber tires, powered by means other than third rail power, which is capable of operation on tracks or highways.
HOSTLING PANEL	A control panel located at each end of transit vehicles (except the cab end of A and C cars) for manually operating from that car.
INCIDENT COMMANDER	The Fire Department Officer or BART representative who has been designated in charge of and is responsible for all activities at an emergency scene. The Fire Department is the Incident Commander at all emergency scenes.
INCIDENT TRAIN	A train that is involved in an emergency situation.
INTERLOCKING	An arrangement of control apparatus so interconnected that rail vehicle movements must succeed each other in proper sequence. This permits rail vehicle movements over controlled routes only when safe conditions exist. Also known as a crossover.

LADDER	Emergency evacuation ladder is located in every C car. It extends to 5' and is designed to reach from the front of the C-Car to the trackway for passenger evacuation. It is located in a cabinet behind the seat at the X-end of the car.
MAINLINE	Trackage under the control of the Operations Control Center.
MAINTENANCE OF WAY ACCESS POINTS	Various locations for emergency access and BART hi-rail vehicle access to mainline trackways.
MANUAL TRAIN OPERATION	Train movement is completely controlled by the Train Operator in compliance with Operations Rules and Procedures.
MILEPOST	A marker at the side of the track indicating the track number and the distance in miles from the Oakland Wye or the SFIA Station on the Y-Line.
OAKLAND WYE	A track configuration, resembling the letter "Y", where three main track lines are joined by switches and connecting tracks in such a manner that a train entering from the main track of any line can exit via either of the other lines. The underground location is in Oakland where the A, C, and M lines meet.
OPERATION CONTROL CENTER (OCC)	A facility in the Lake Merritt Administration Building from which mainline operations and remotely controlled systems are monitored and controlled.
PABX PHONE	Phones are located at mid-platform on each platform and in the Station Agents booth. PABX phones are capable of communicating within the BART system, including the Operations Control Center and BART Police.
PARKING BRAKE	A hydraulic brake system used to prevent movement of the train once it has stopped.
PASSENGER LOADS	Light: cars with some vacant seats. Seated: cars with all seats occupied. Heavy: cars with standing patrons. Crush: maximum patron capacity.
PLATFORM	The area of a station located adjacent to or between the trackways from which patrons enter or leave trains.
POLICE DISPATCH	A facility at the Lake Merritt Administration Building from which BART Police operations are controlled.
POWER-OFF	An indication of de-energized 1,000 V DC and 34.5kV AC systems. This indication provides no assurance of safety (See Electrical Safe Clearance).

PUBLIC ADDRESS	A communication system from the Train Operator to passengers on trains. The Operations Control Center or Station Agents have public address systems to broadcast messages to patrons in the station.
REMOTE CONTROL SWITCH	A track switch controlled from the Operations Control Center or Yard Control.
RESCUE TRAIN	A revenue train which has been cleared of patrons for use by Fire Departments to reach an emergency scene.
REVENUE SERVICE	Transportation of fare-paying passengers on mainline routes.
RIGHT-OF-WAY	That portion of the BART system within protective fencing, tunnels, tubes, subway stations or aerial structures wherein trains operate. (see wayside and trackway)
RUNNING RAILS	The two rails comprising the track upon which BART rail vehicles move.
SAFE CLEARANCE	See Electrical Safe Clearance
STATION	A facility which provides a means for passengers to board and exit trains, contains equipment for collecting fares and which houses automatic train control and electrification equipment serving its area of operations.
STATION AGENT BOOTH	Enclosures located inside near the entrance to the BART station, containing station controls, and communication equipment.
SUBSTATION	A facility used to transform and rectify 34.5kV AC to 1,000V DC for distribution to the third rail.
SWITCHING STATION	A facility that receives 34.5kV AC from high voltage substations for distribution on BART cables to substations.
TAIL TRACKS	End of line mainline tracks for buildup and breakdown of consists and storage of trains.
THIRD RAIL	A rail mounted to the outside of the running rail for supplying 1,000V DC power to trains.
THIRD RAIL COVERBOARD	A protective cover (guard) mounted over the third rail.
THIRD RAIL GAP	The third-rail system is sectioned off into different sections. This is so that any one or combination of sections of the third rail can be shut down without affecting the rest of the system. There are physical gaps between the third rail sections.

THIRD RAIL TRIP	An electrical switch (button) to be used to de-energize a section of the third rail. There is a third rail trip under a glass cover for each track in every station. The third rail trip is located near the center of the platform. When activated, they de-energize the third rail on the adjacent track. Third rail trip buttons are also found in blue light stations and yard and tail track trips.
TRACKWAY	That mainline portion of the BART system within protective fencing, tunnels, tubes, subway stations or aerial structures wherein trains operate (see right-of-way and wayside).
TRAIN	Three to ten cars coupled with a control car (A or C car) at each end.
TRAIN INTERCOM	Communication link to the Train Operator for use by the passengers from locations at the end of every vehicle except at the operator cab end of A cars.
TRAIN OPERATOR	An employee who performs all necessary functions for trains in both manual and automatic operation.
TRAIN RADIO	A radio system that establishes communications between the trains and the Operations Control Center.
TRANSBAY TUBE	The 3.6-mile underwater tube between the ventilation structures in Oakland and San Francisco. It consists of two trackways, an upper exhaust gallery and a lower utility gallery between the trackways.
UNDERCAR DELUGE SYSTEM	A dry deluge system located between the trackways in all underground stations and the Millbrae, San Francisco International Airport, and Warm Springs Station, West Dublin/Pleasanton Stations. The system is activated by Fire Department connections or valves located at the platform level or EMP room.
VENTILATION	The operation of a fan, or combination of fans, so that air moves in a prescribed direction in subway areas.
WAYSIDE	That portion of the BART system within protective fencing, tunnels, tubes, subway stations or aerial structures wherein trains operate (see right-of-way and trackway).
X-END (of BART Car)	The X-end of all A and B Cars contains the car control panel. The X-end of all A, B and C Cars contain a hostling panel on the interior and the amber trouble light on the exterior.
Y-END (of BART Car)	The Y-end of an A Car has the Train Operators cab. The Y-end of a C Car has the Train Operators' cab and the car control panel. The Y-end of a B Car is the opposite end from the X-end and contains a hostling panel on the interior. Each end of a car is designated as part of the car number identification.