



# WESTSIDE SUBWAY EXTENSION

## Safety and Security Hazards and Threat Assessment Technical Report



August 2010



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## 1.0 INTRODUCTION

This report describes the baseline safety and security conditions by which the project alternatives are assessed. This report evaluates the accident prevention, crime prevention, and emergency response and potential mitigation measures for the Westside Subway Extension.

Since the build alternatives are all subway heavy rail transit (HRT), certain safety and security concerns may arise. Common safety concerns at rail transit stations include potential for pedestrian and vehicular conflicts on streets providing access to the stations. It is equally important to consider the safety of passengers once they enter or exit the station; therefore, the surrounding station areas should be designed to safely accommodate high volumes of pedestrians and bicyclists, as well as motorists. Another aspect of this study is security, particularly whether the proposed alignment alternatives and transit stations provide security for transit patrons or surrounding communities from potential criminal activity and other environmental hazards. Because the project is located in a seismically active and methane gas area, particular attention should be devoted to ensuring a seismically safe system that is also secured from potential gas leaks. Additionally, it is important to consider all safety precautions necessary during the construction process.

Public perception sometimes associates criminal and terrorist activity with rail transit. The system should be designed to mitigate these concerns by providing an adequate security presence and by following facility design guidelines to ensure a system that incorporates safety and security measures.

In addition to the precautionary measures, the system should be equipped to accommodate adequate emergency response procedures, with responsible agencies readily available and prepared.

In case of emergency the HRT subway system presents a unique challenge of safely evacuating the occupants to a point of safety from the underground system. For the HRT system under consideration the stations would be accessed from street-level entrances by stairs, escalators, and elevators that would bring patrons to a mezzanine level where the ticketing functions are located. The platforms would be one level below the mezzanine level and would allow level train boarding/alighting for full accessibility. For emergency evacuation from a station the provisions for means of egress would comply with NFPA 130 and the California Building Code. The design of the station means of egress would be based on an emergency condition requiring evacuation of the train(s) and station occupants to a point of safety. At least two means of egress remote from each other would be provided from each station platform. An area of refuge would be provided in accordance with Americans with Disabilities Act of 1990 (ADA) and the accessibility requirements of the California Building Code. If elevators are allowed for emergency evacuation by the Authority Having Jurisdiction they would be provided in accordance with NFPA 130 to account for part of the means of egress capacity in stations.

For emergency evacuation from tunnel the system would incorporate a walk surface or other approved means for passengers to evacuate a train at any point along the trainway



so that they can proceed to the nearest station or other point of safety. System egress points would be illuminated. Walking surfaces would have a uniform, slip-resistant design. Exit stairs would be provided for emergency egress from underground or enclosed trainways. Cross-passageways may be used in lieu of emergency exit stairways to the surface where trainways in tunnels are divided by a minimum of 2 hour-rated fire walls or where trainways are in twin bores. An emergency ventilation system would be designed to provide a tenable environment along the path of egress from a fire incident in enclosed stations and enclosed trainways. A tenable environment would be maintained in that portion of the trainway that is not involved in an emergency and that is being used for evacuation. Provisions would be made for evacuating passengers via the non-incident trainway to a nearby station or other emergency exit. The provisions would include measures to protect passengers from oncoming traffic and from other hazards.



## 2.0 PROJECT DESCRIPTION

This chapter describes the alternatives that have been considered to best satisfy the Purpose and Need and have been carried forward for further study in the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR). Details of the No Build, Transportation Systems Management (TSM), and the five Build Alternatives (including their station and alignment options and phasing options (or minimum operable segments [MOS])) are presented in this chapter.

### 2.1 No Build Alternative

The No Build Alternative provides a comparison of what future conditions would be like if the Project were not built. The No Build Alternative includes all existing highway and transit services and facilities, and the committed highway and transit projects in the Metro LRTP and the SCAG RTP. Under the No Build Alternative, no new transportation infrastructure would be built within the Study Area, aside from projects currently under construction or projects funded for construction, environmentally cleared, planned to be in operation by 2035, and identified in the adopted Metro LRTP.

### 2.2 TSM Alternative

The TSM Alternative emphasizes more frequent bus service than the No Build Alternative to reduce delay and enhance mobility. The TSM Alternative contains all elements of the highway, transit, Metro Rail, and bus service described under the No Build Alternative. In addition, the TSM Alternative increases the frequency of service for Metro Bus Line 720 (Santa Monica–Commerce via Wilshire Boulevard and Whittier Boulevard) to between three and four minutes during the peak period.

In the TSM Alternative, Metro Purple Line rail service to the Wilshire/Western Station would operate in each direction at 10-minute headways during peak and off-peak periods. The Metro Red Line service to Hollywood/Highland Station would operate in each direction at five-minute headways during peak periods and at 10-minute headways during midday and off-peak periods.

### 2.3 Build Alternatives

The Build Alternatives are considered to be the “base” alternatives with “base” stations. Alignment (or segment) and station options were developed in response to public comment, design refinement, and to avoid and minimize impacts to the environment.

The Build Alternatives extend heavy rail transit (HRT) service in subway from the existing Metro Purple Line Wilshire/Western Station. HRT systems provide high speed (maximum of 70 mph), high capacity (high passenger-carrying capacity of up to 1,000 passengers per train and multiple unit trains with up to six cars per train), and reliable service since they operate in an exclusive grade-separated right-of-way. The subway will operate in a tunnel at least 30 to 70 feet below ground and will be electric powered.

Furthermore, the Build Alternatives include changes to the future bus services. Metro Bus Line 920 would be eliminated and a portion of Line 20 in the City of Santa Monica would be eliminated since it would be duplicated by the Santa Monica Blue Bus Line 2. Metro Rapid



Bus Line 720 would operate less frequently since its service route would be largely duplicated by the Westside Subway route. In the City of Los Angeles, headways (time between buses) for Line 720 are between 3 and 5 minutes under the existing network and will be between 5 and 11.5 minutes under the Build Alternatives, but no change in Line 720 would occur in the City of Santa Monica segment. Service frequencies on other Metro Rail lines and bus routes in the corridor would be the same as for the No Build Alternative.

### **2.3.1 Alternative 1—Westwood/UCLA Extension**

This alternative extends the existing Metro Purple Line from the Wilshire/Western Station to a Westwood/UCLA Station (Figure 2-1). From the Wilshire/Western Station, Alternative 1 travels westerly beneath Wilshire Boulevard to the Wilshire/Rodeo Station and then southwesterly toward a Century City Station. Alternative 1 then extends from Century City and terminates at a Westwood/UCLA Station. The alignment is approximately 8.60 miles in length.

Alternative 1 would operate in each direction at 3.3-minute headways during morning and evening peak periods and at 10-minute headways during midday. The estimated one-way running time is 12 minutes 39 seconds from the Wilshire/Western Station.

### **2.3.2 Alternative 2—Westwood/Veterans Administration (VA) Hospital Extension**

This alternative extends the existing Metro Purple Line from the Wilshire/Western Station to a Westwood/VA Hospital Station (Figure 2-2). Similar to Alternative 1, Alternative 2 extends the subway from the Wilshire/Western Station to a Westwood/UCLA Station. Alternative 2 then travels westerly under Veteran Avenue and continues west under the I-405 Freeway, terminating at a Westwood/VA Hospital Station. This alignment is 8.96 miles in length from the Wilshire/Western Station.

Alternative 2 would operate in each direction at 3.3-minute headways during the morning and evening peak periods and at 10-minute headways during the midday, off-peak period. The estimated one-way running time is 13 minutes 53 seconds from the Wilshire/Western Station.

### **2.3.3 Alternative 3—Santa Monica Extension**

This alternative extends the existing Metro Purple Line from the Wilshire/Western Station to the Wilshire/4th Station in Santa Monica (Figure 2-3). Similar to Alternative 2, Alternative 3 extends the subway from the Wilshire/Western Station to a Westwood/VA Hospital Station. Alternative 3 then continues westerly under Wilshire Boulevard and terminates at the Wilshire/4th Street Station between 4th and 5th Streets in Santa Monica. The alignment is 12.38 miles.

Alternative 3 would operate in each direction at 3.3-minute headways during the morning and evening peak periods and operate with 10-minute headways during the midday, off-peak period. The estimated one-way running time is 19 minutes 27 seconds from the Wilshire/Western Station.



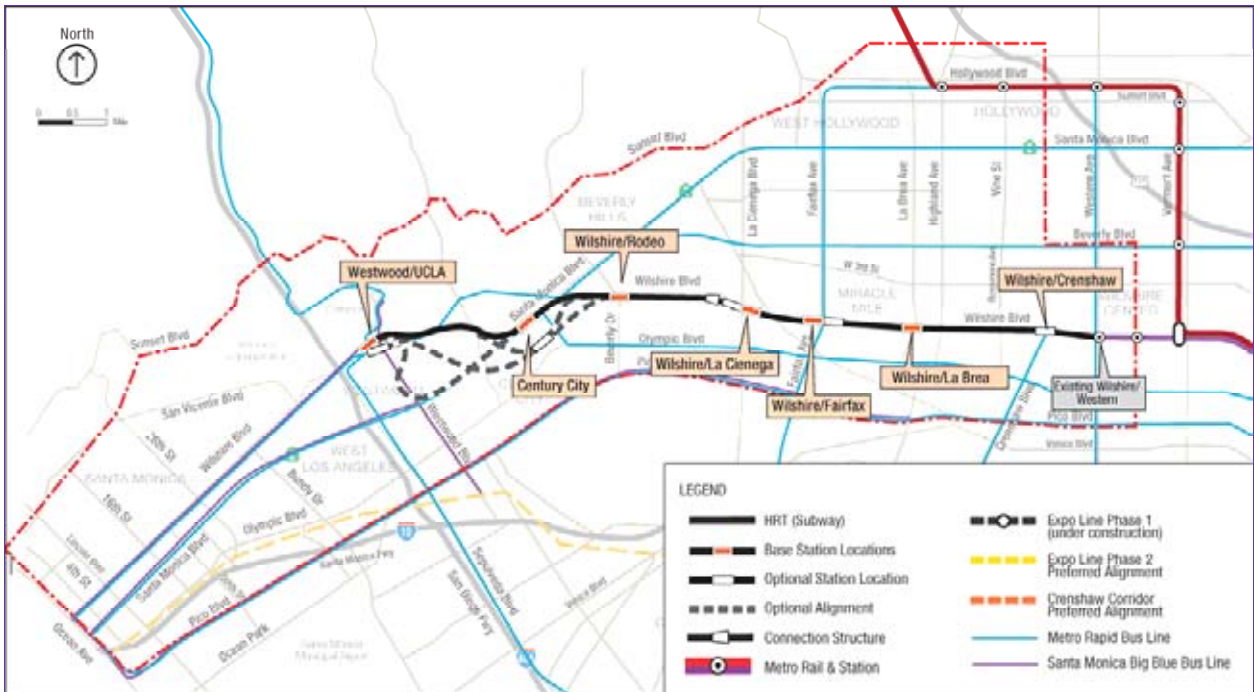


Figure 2-1. Alternative 1—Westwood/UCLA Extension

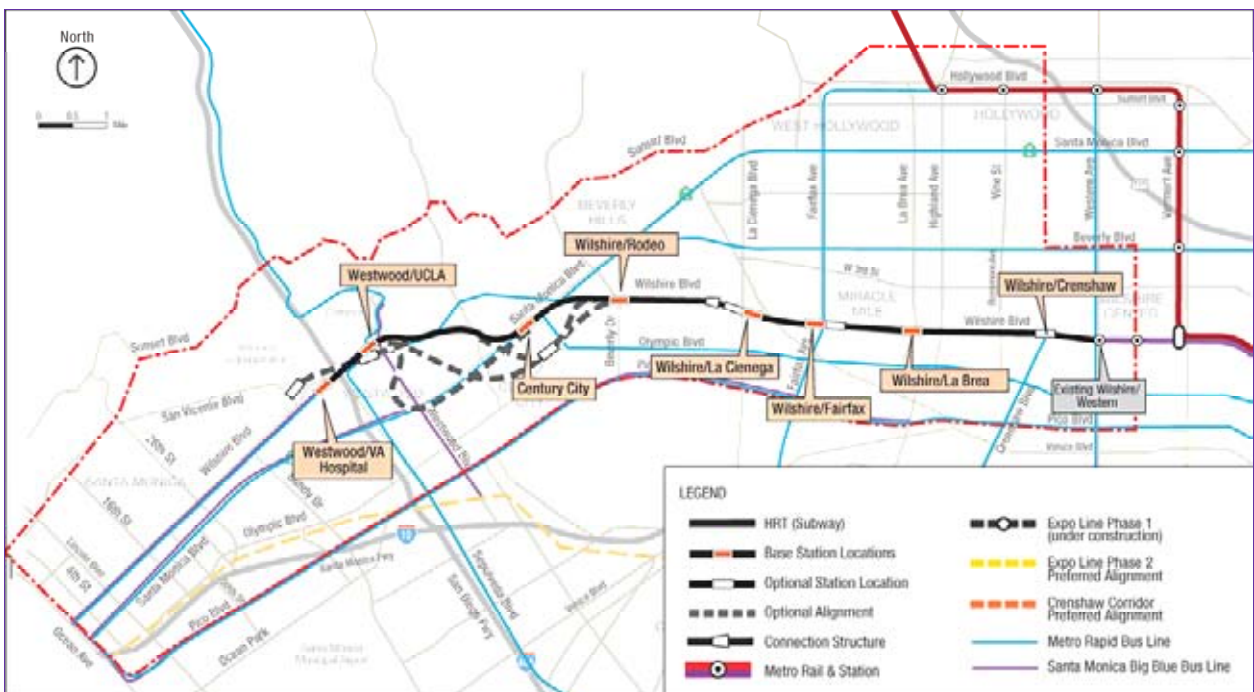


Figure 2-2. Alternative 2—Westwood/Veterans Administration (VA) Hospital Extension

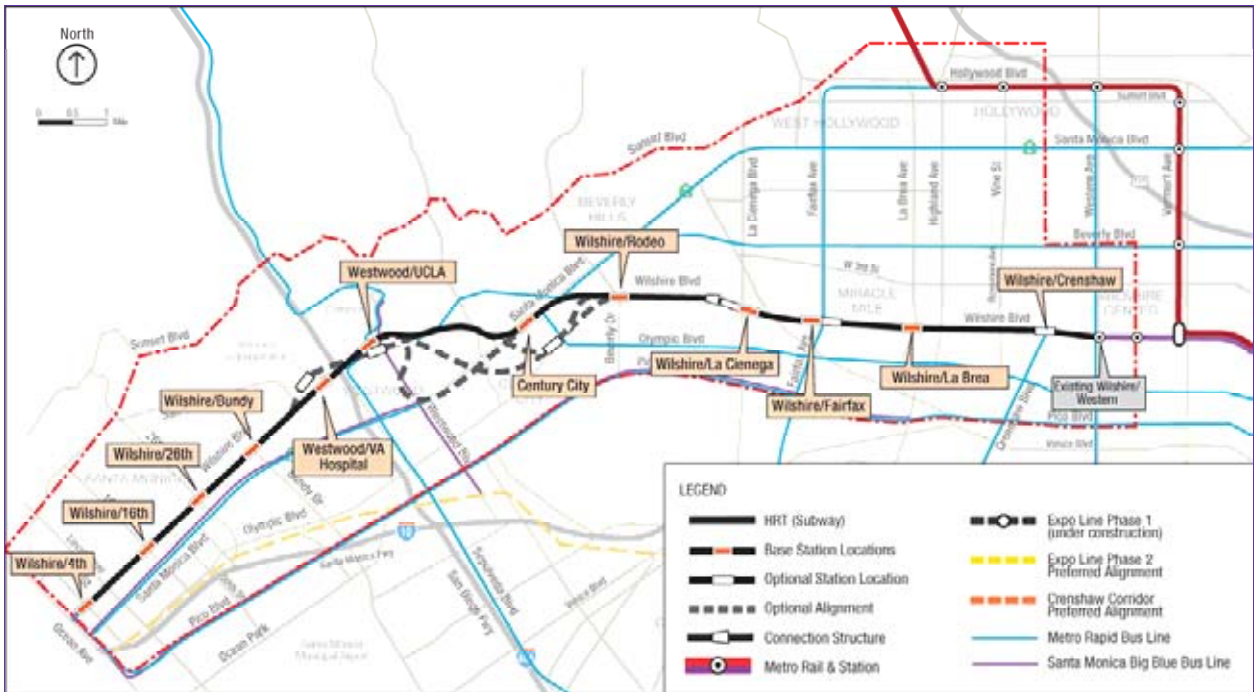


Figure 2-3. Alternative 3—Santa Monica Extension

### 2.3.4 Alternative 4—Westwood/VA Hospital Extension plus West Hollywood Extension

Similar to Alternative 2, Alternative 4 extends the existing Metro Purple Line from the Wilshire/Western Station to a Westwood/VA Hospital Station. Alternative 4 also includes a West Hollywood Extension that connects the existing Metro Red Line Hollywood/Highland Station to a track connection structure near Robertson and Wilshire Boulevards, west of the Wilshire/La Cienega Station (Figure 2-4). The alignment is 14.06 miles long.

Alternative 4 would operate from Wilshire/Western to a Westwood/VA Hospital Station in each direction at 3.3-minute headways during morning and evening peak periods and 10-minute headways during the midday off-peak period. The West Hollywood extension would operate at 5-minute headways during peak periods and 10-minute headways during the midday, off-peak period. The estimated one-way running time for the Metro Purple Line extension is 13 minutes 53 seconds, and the running time for the West Hollywood from Hollywood/Highland to Westwood/VA Hospital is 17 minutes and 2 seconds.

### 2.3.5 Alternative 5—Santa Monica Extension plus West Hollywood Extension

Similar to Alternative 3, Alternative 5 extends the existing Metro Purple Line from the Wilshire/Western Station to the Wilshire/4th Station and also adds a West Hollywood Extension similar to the extension described in Alternative 4 (Figure 2-5). The alignment is 17.49 miles in length. Alternative 5 would operate the Metro Purple Line extension in each direction at 3.3-minute headways during the morning and evening peak periods and 10-minute headways during the midday, off-peak period. The West Hollywood extension would operate in each direction at 5-minute headways during peak periods and 10-minute headways during the midday, off-peak period. The estimated one-way running time for the



Metro Purple Line extension is 19 minutes 27 seconds, and the running time from the Hollywood/Highland Station to the Wilshire/4th Station is 22 minutes 36 seconds.

### 2.3.6 Stations and Segment Options

HRT stations consist of a station “box,” or area in which the basic components are located. The station box can be accessed from street-level entrances by stairs, escalators, and elevators that would bring patrons to a mezzanine level where the ticketing functions are located. The 450-foot platforms are one level below the mezzanine level and allow level boarding (i.e., the train car floor is at the same level as the platform). Stations consist of a center or side platform. Each station is equipped with under-platform exhaust shafts, over-track exhaust shafts, blast relief shafts, and fresh air intakes. In most stations, it is anticipated that only one portal would be constructed as part of the Project, but additional portals could be developed as a part of station area development (by others). Stations and station entrances would comply with the *Americans with Disabilities Act of 1990*, Title 24 of the California Code of Regulations, the California Building Code, and the Department of Transportation Subpart C of Section 49 CFR Part 37.

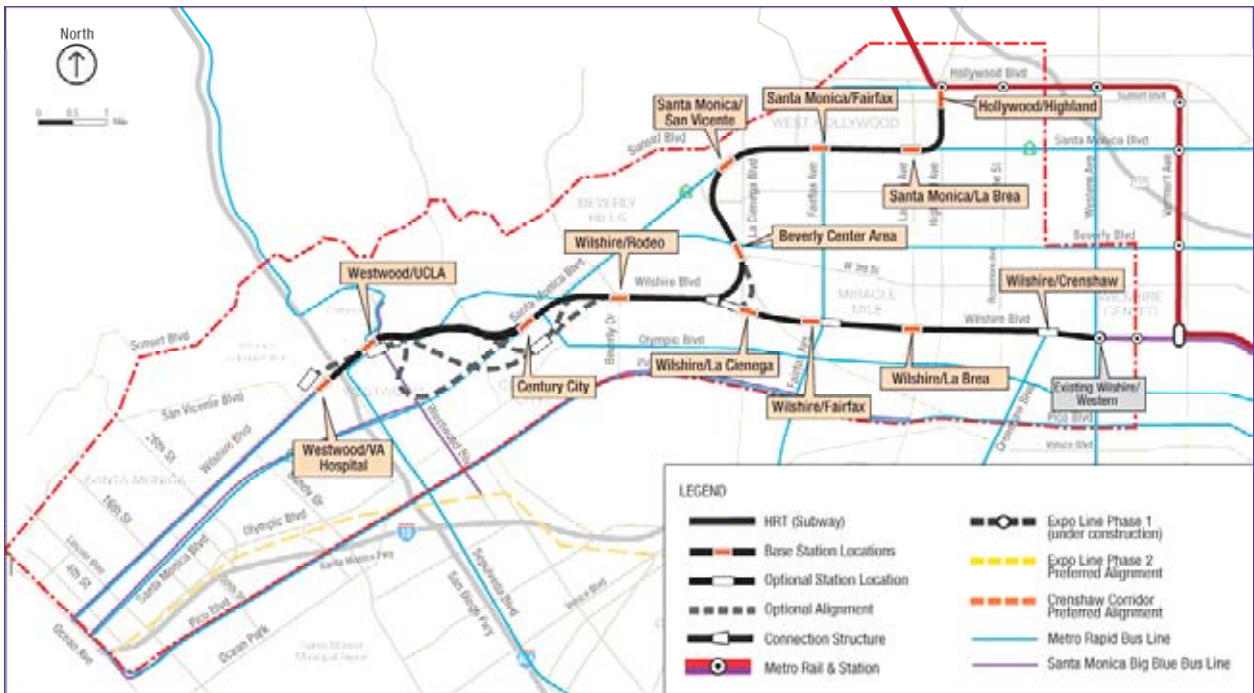


Figure 2-4. Alternative 4—Westwood/VA Hospital Extension plus West Hollywood Extension

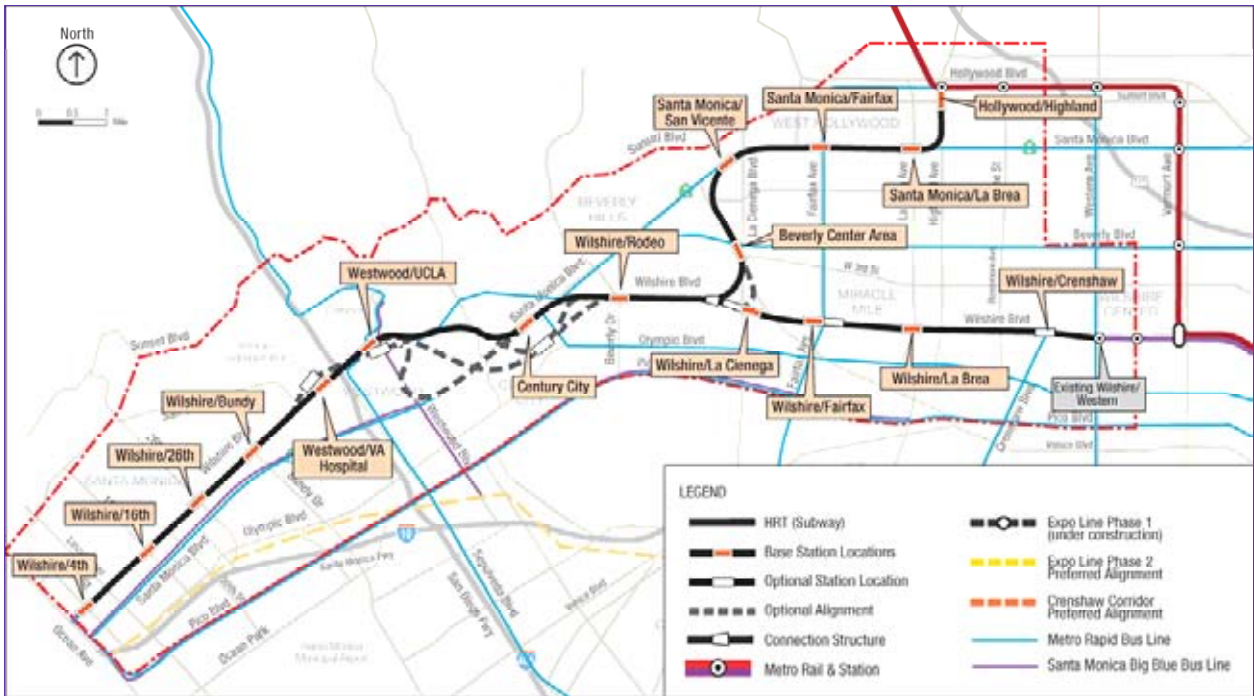


Figure 2-5. Alternative 5—Santa Monica Extension plus West Hollywood Extension

Platforms would be well-lighted and include seating, trash receptacles, artwork, signage, safety and security equipment (closed-circuit television, public announcement system, passenger assistance telephones), and a transit passenger information system. The fare collection area includes ticket vending machines, fare gates, and map cases.

Table 2-1 lists the stations and station options evaluated and the alternatives to which they are applicable. Figure 2-6 shows the proposed station and alignment options. These include:

- Option 1—Wilshire/Crenshaw Station Option
- Option 2—Fairfax Station Option
- Option 3—La Cienega Station Option
- Option 4—Century City Station and Alignment Options
- Option 5—Westwood/UCLA Station Option
- Option 6 – Westwood/VA Hospital Station Option

**Table 2-1. Alternatives and Stations Considered**

Stations	Alternatives				
	1	2	3	4	5
	Westwood/ UCLA Extension	Westwood/ VA Hospital Extension	Santa Monica Extension	Westwood/ VA Hospital Extension Plus West Hollywood Extension	Santa Monica Extension Plus West Hollywood Extension
<b>Base Stations</b>					
Wilshire/Crenshaw	•	•	•	•	•
Wilshire/La Brea	•	•	•	•	•
Wilshire/Fairfax	•	•	•	•	•
Wilshire/La Cienega	•	•	•	•	•
Wilshire/Rodeo	•	•	•	•	•
Century City (Santa Monica Blvd)	•	•	•	•	•
Westwood/UCLA (Off-street)	•	•	•	•	•
Westwood/VA Hospital		•	•	•	•
Wilshire/Bundy			•		•
Wilshire/26th			•		•
Wilshire/16th			•		•
Wilshire/4th			•		•
Hollywood/Highland				•	•
Santa Monica/La Brea				•	•
Santa Monica/Fairfax				•	•
Santa Monica/San Vicente				•	•
Beverly Center Area				•	•
<b>Station Options</b>					
1—No Wilshire/Crenshaw	•	•	•	•	•
2—Wilshire/Fairfax East	•	•	•	•	•
3—Wilshire/La Cienega (Transfer Station)	•	•	•	•	•
4—Century City (Constellation Blvd)	•	•	•	•	•
5—Westwood/UCLA (On-street)	•	•	•	•	•
6—Westwood/VA Hospital North		•	•	•	•

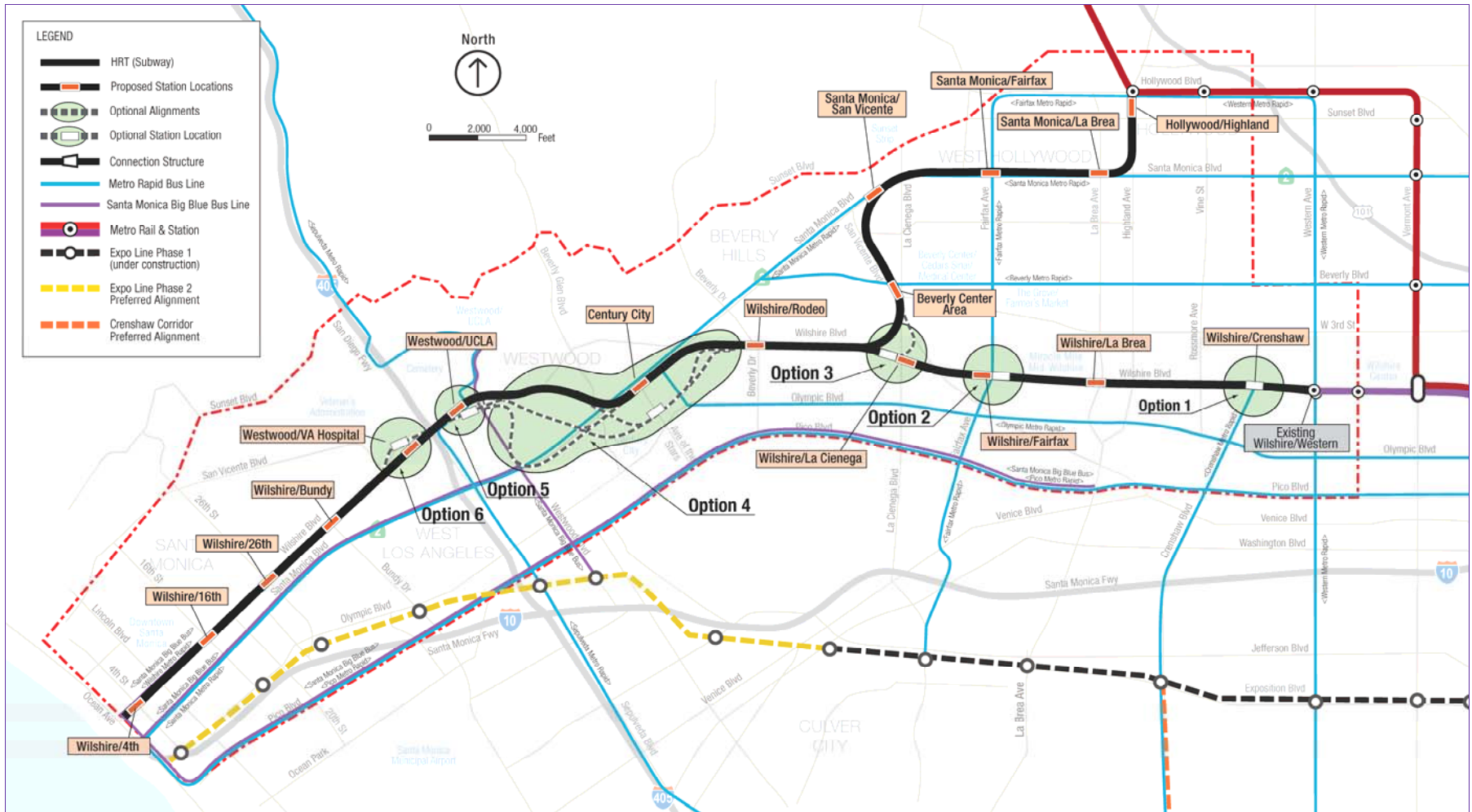


Figure 2-6. Station and Alignment Options



2.3.7 Option 1—Wilshire/Crenshaw Station Option

- **Base Station: Wilshire/Crenshaw Station**—The base station straddles Crenshaw Boulevard, between Bronson Avenue and Lorraine Boulevard.
- **Station Option: Remove Wilshire/Crenshaw Station**—This station option would delete the Wilshire/Crenshaw Station. Trains would run from the Wilshire/Western Station to the Wilshire/La Brea Station without stopping at Crenshaw. A vent shaft would be constructed at the intersection of Western Avenue and Wilshire Boulevard (Figure 2-7).

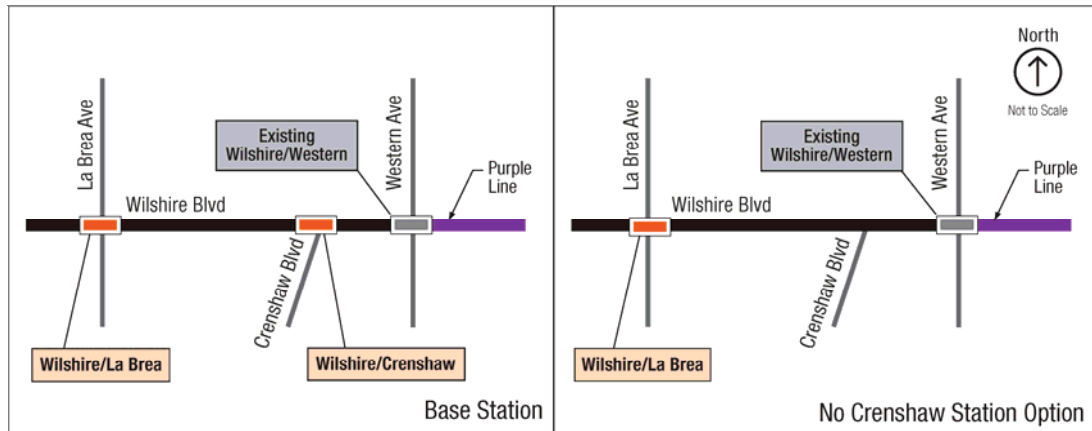


Figure 2-7. Option 1—No Wilshire/Crenshaw Station Option

2.3.8 Option 2—Wilshire/Fairfax Station East Option

- **Base Station: Wilshire/Fairfax Station**—The base station is under the center of Wilshire Boulevard, immediately west of Fairfax Avenue.
- **Station Option: Wilshire/Fairfax Station East Station Option**—This station option would locate the Wilshire/Fairfax Station farther east, with the station underneath the Wilshire/Fairfax intersection (Figure 2-8). The east end of the station box would be east of Orange Grove Avenue in front of LACMA, and the west end would be west of Fairfax Avenue.

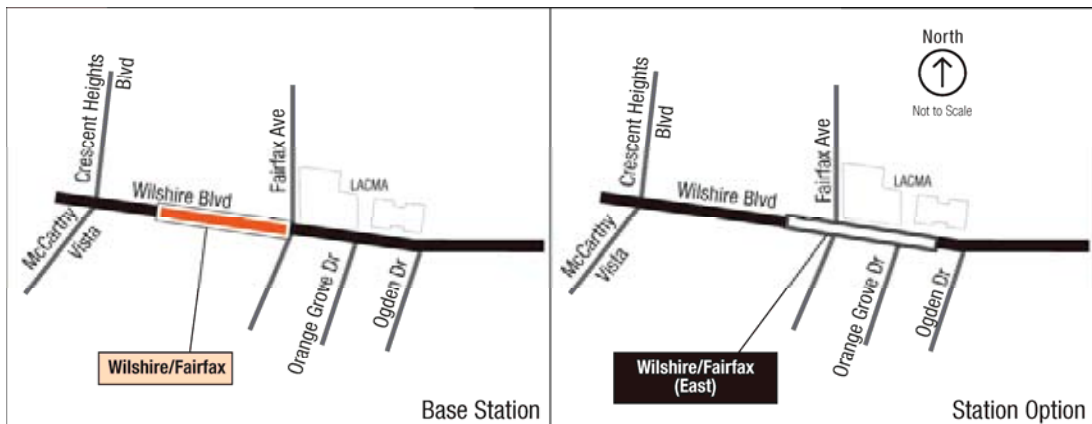


Figure 2-8. Option 2—Fairfax Station Option

2.3.9 Option 3—Wilshire/La Cienega Station Option

- **Base Station: Wilshire/La Cienega Station**—The base station would be under the center of Wilshire Boulevard, immediately east of La Cienega Boulevard. A direct transfer between the Metro Purple Line and the potential future West Hollywood Line is not provided with this station. Instead, a connection structure is proposed west of Robertson Boulevard as a means to provide a future HRT connection to the West Hollywood Line.
- **Station Option: Wilshire/La Cienega Station West with Connection Structure**—The station option would be located west of La Cienega Boulevard, with the station box extending from the Wilshire/Le Doux Road intersection to just west of the Wilshire/ Carson Road intersection (Figure 2-9). It also contains an alignment option that would provide an alternate HRT connection to the future West Hollywood Extension. This alignment portion of Option 3 is only applicable to Alternatives 4 and 5.

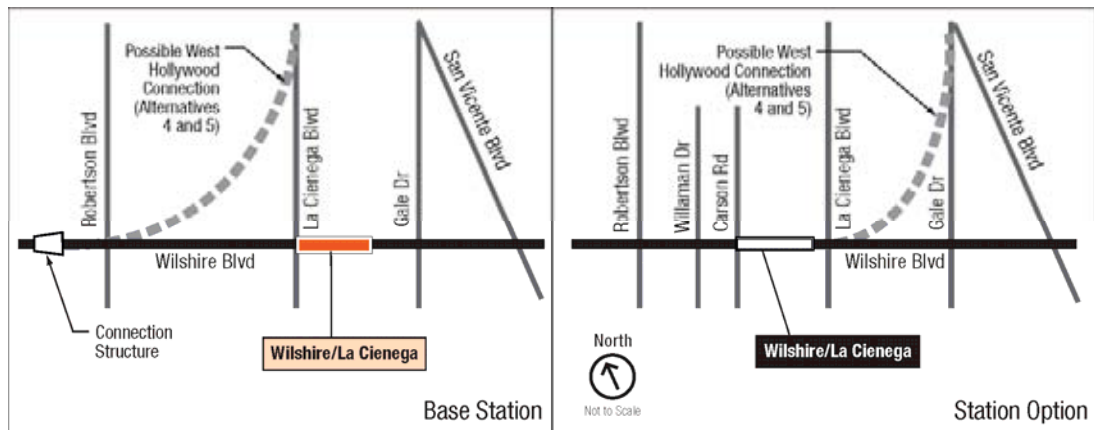


Figure 2-9. Option 3—La Cienega Station Option

2.3.10 Option 4—Century City Station and Segment Options

Century City Station and Beverly Hills to Century City Segment Options

- **Base Station: Century City (Santa Monica) Station**—The base station would be under Santa Monica Boulevard, centered on Avenue of the Stars.
- **Station Option: Century City (Constellation) Station**—With Option 4, the Century City Station has a location option on Constellation Boulevard (Figure 2-10), straddling Avenue of the Stars and extending westward to east of MGM Drive.
- **Segment Options:** Two route options are proposed to connect the Wilshire/Rodeo Station to Century City (Constellation) Station: Constellation North and Constellation South. As shown in Figure 2-10, the base segment to the base Century City (Santa Monica) Station is shown in the solid black line and the segment options to Century City (Constellation) Station are shown in the dashed grey lines.



**2.3.10.1 Century City to Westwood Segment Options**

Three route options considered for connecting the Century City and Westwood stations include: East, Central, and West. As shown in Figure 2-10, each of these three segments would be accessed from both Century City Stations and both Westwood/UCLA Stations. The base segment is shown in the solid black line and the options are shown in the dashed grey lines.

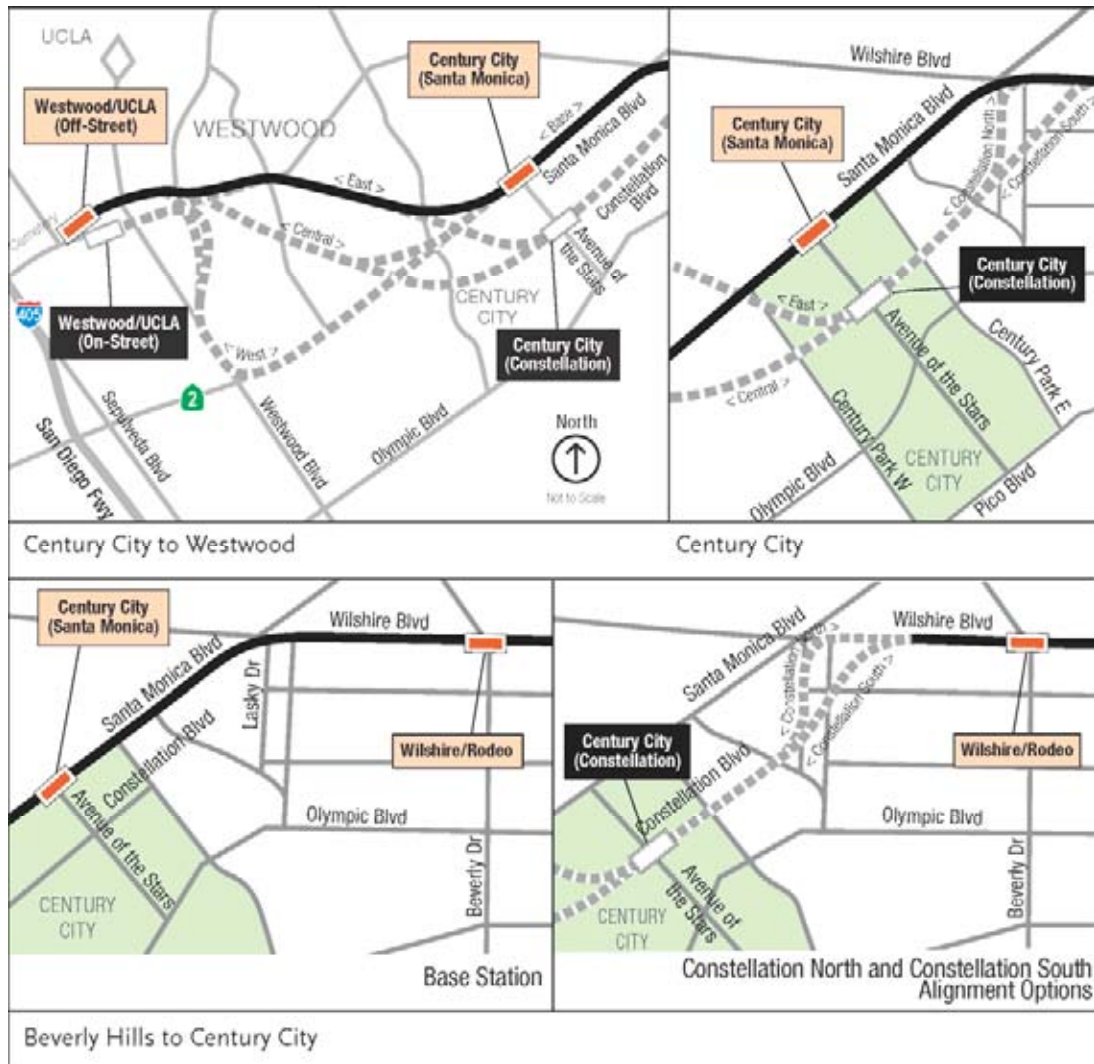


Figure 2-10. Century City Station Options

**2.3.11 Option 5—Westwood/UCLA Station Options**

- **Base Station: Westwood/UCLA Station Off-Street Station Option**—The base station is located under the UCLA Lot 36 on the north side of Wilshire Boulevard between Gayley and Veteran Avenues.
- **Station Option: Westwood/UCLA On-Street Station Option**—This station option would be located under the center of Wilshire Boulevard, immediately west of Westwood Boulevard (Figure 2-11).

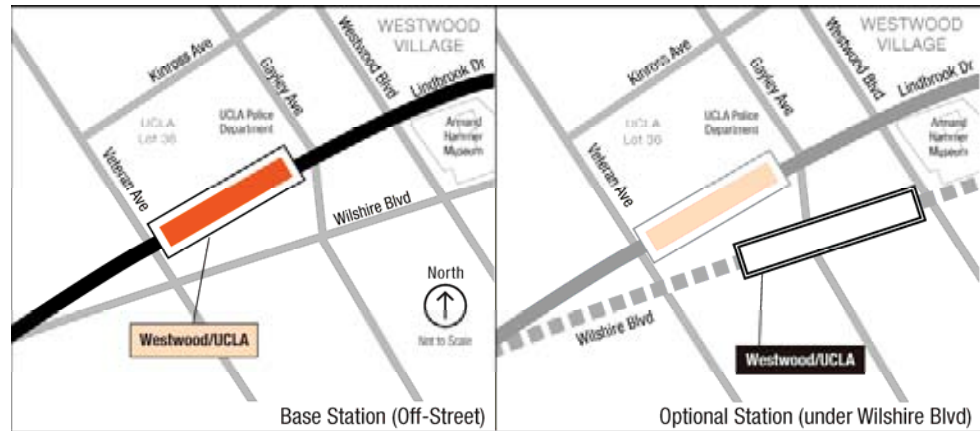


Figure 2-11. Option 5—Westwood/UCLA Station Options

2.3.12 Option 6—Westwood/VA Hospital Station Option

- **Base Station: Westwood/VA Hospital**—The base station would be below the VA Hospital parking lot on the south side of Wilshire Boulevard in between the I-405 exit ramp and Bonsall Avenue.
- **Station Option: Westwood/VA Hospital North Station**—This station option would locate the Westwood/VA Hospital Station on the north side of Wilshire Boulevard between Bonsall Avenue and Wadsworth Theater. (Shown in Figure 2-12)

To access the Westwood/VA Hospital Station North, the alignment would extend westerly from the Westwood/UCLA Station under Veteran Avenue, the Federal Building property, the I-405 Freeway, and under the Veterans Administration property just east of Bonsall Avenue.

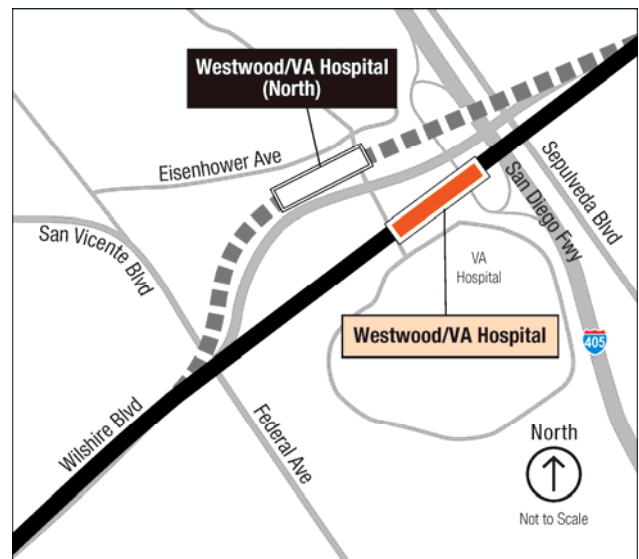


Figure 2-12. Option 6—Westwood/VA Hospital Station North

2.4 Base Stations

The remaining stations (those without options) are described below.

- **Wilshire/La Brea Station**—This station would be located between La Brea and Cloverdale Avenues.



- **Wilshire/Rodeo Station**—This station would be under the center of Wilshire Boulevard, beginning just west of South Canon Drive and extending to El Camino Drive.
- **Wilshire/Bundy Station**—This station would be under Wilshire Boulevard, east of Bundy Drive, extending just east of Saltair Avenue.
- **Wilshire/26th Station**—This station would be under Wilshire Boulevard, with the eastern end east of 26th Street and the western end west of 25th Street, midway between 25th Street and Chelsea Avenue.
- **Wilshire/16th Station**—This station would be under Wilshire Boulevard with the eastern end just west of 16th Street and the western end west of 15th Street.
- **Wilshire/4th Station**—This station would be under Wilshire Boulevard and 4th Street in Santa Monica.
- **Hollywood/Highland Station**—This station would be located under Highland Avenue and would provide a transfer option to the existing Metro Red Line Hollywood/Highland Station under Hollywood Boulevard.
- **Santa Monica/La Brea Station**—This station would be under Santa Monica Boulevard, just west of La Brea Avenue, and would extend westward to the center of the Santa Monica Boulevard/Formosa Avenue.
- **Santa Monica/Fairfax Station**—This station is under Santa Monica Boulevard and would extend from just east of Fairfax Avenue to just east of Ogden Drive.
- **Santa Monica/San Vicente Station**—This station would be under Santa Monica Boulevard and would extend from just west of Hancock Avenue on the west to just east of Westmount Drive on the east.
- **Beverly Center Area Station**—This station would be under San Vicente Boulevard, extending from just south of Gracie Allen Drive to south of 3rd Street.

## **2.5 Other Components of the Build Alternatives**

### **2.5.1 Traction Power Substations**

Traction power substations (TPSS) are required to provide traction power for the HRT system. Substations would be located in the station box or in a box located with the crossover tracks and would be located in a room that is about 50 feet by 100 feet in a below grade structure.

### **2.5.2 Emergency Generators**

Stations at which the emergency generators would be located are Wilshire/La Brea, Wilshire/La Cienega, Westwood/UCLA, Westwood/VA Hospital, Wilshire/26th, Highland/Hollywood, Santa Monica/La Brea, and Santa Monica/San Vicente. The emergency generators would require approximately 50 feet by 100 feet of property in an off-street location. All would require property acquisition, except for the one at the Wilshire/La Brea Station which uses Metro's property.

### **2.5.3 Mid-Tunnel Vent Shaft**

Each alternative would require mid-tunnel ventilation shafts. The vent shafts are emergency ventilation shafts with dampers, fans, and sound attenuators generally placed at both ends of a station box to exhaust smoke. In addition, emergency vent shafts could



be used for station cooling and gas mitigation. The vent shafts are also required in tunnel segments with more than 6,000 feet between stations to meet fire/life safety requirements. There would be a connecting corridor between the two tunnels (one for each direction of train movement) to provide emergency egress and fire-fighting ingress. A vent shaft is approximately 150 square feet; with the opening of the shaft located in a sidewalk and covered with a grate about 200 square feet.

**Table 2-2. Mid-Tunnel Vent Shaft Locations**

Alternative/Option	Location
Alternatives 1 through 5, MOS 2	Part of the connection structure on Wilshire Boulevard, west of Robertson Boulevard
Alternatives 2 through 5	West of the Westwood/VA Hospital Station on Army Reserve property at Federal Avenue and Wilshire Boulevard
Option 4 via East route	At Wilshire Boulevard/Manning Avenue intersection
Option 4 to Westwood/UCLA Off-Street Station via Central route	On Santa Monica Boulevard just west of Beverly Glen Boulevard
Option 4 to Westwood/UCLA On-Street Station via Central route	At Santa Monica Boulevard/Beverly Glen Boulevard intersection
Options 4 via West route	At Santa Monica Boulevard/Glendon Avenue intersection
Options 4 from Constellation Station via Central route	On Santa Monica Boulevard between Thayer and Pandora Avenues
Option from Constellation Station via West route	On Santa Monica Boulevard just east of Glendon Avenue

**2.5.4 Trackwork Options**

Each Build Alternative requires special trackwork for operational efficiency and safety (Table 2-3):

- Tail tracks—a track, or tracks, that extends beyond a terminal station (the last station on a line)
- Pocket tracks—an additional track, or tracks, adjacent to the mainline tracks generally at terminal stations
- Crossovers—a pair of turnouts that connect two parallel rail tracks, allowing a train on one track to cross over to the other
- Double crossovers—when two sets of crossovers are installed with a diamond allowing trains to cross over to another track

**Table 2-3. Special Trackwork Locations**

Station	1	2	3	4	5
	Westwood/ UCLA Extension	Westwood/ VA Hospital Extension	Santa Monica Extension	Westwood/ VA Hospital Extension Plus West Hollywood Extension	Santa Monica Extension Plus West Hollywood Extension

**Special Trackwork Locations—Base Trackwork Alternatives**

Wilshire/Crenshaw	None	None	None	None	None
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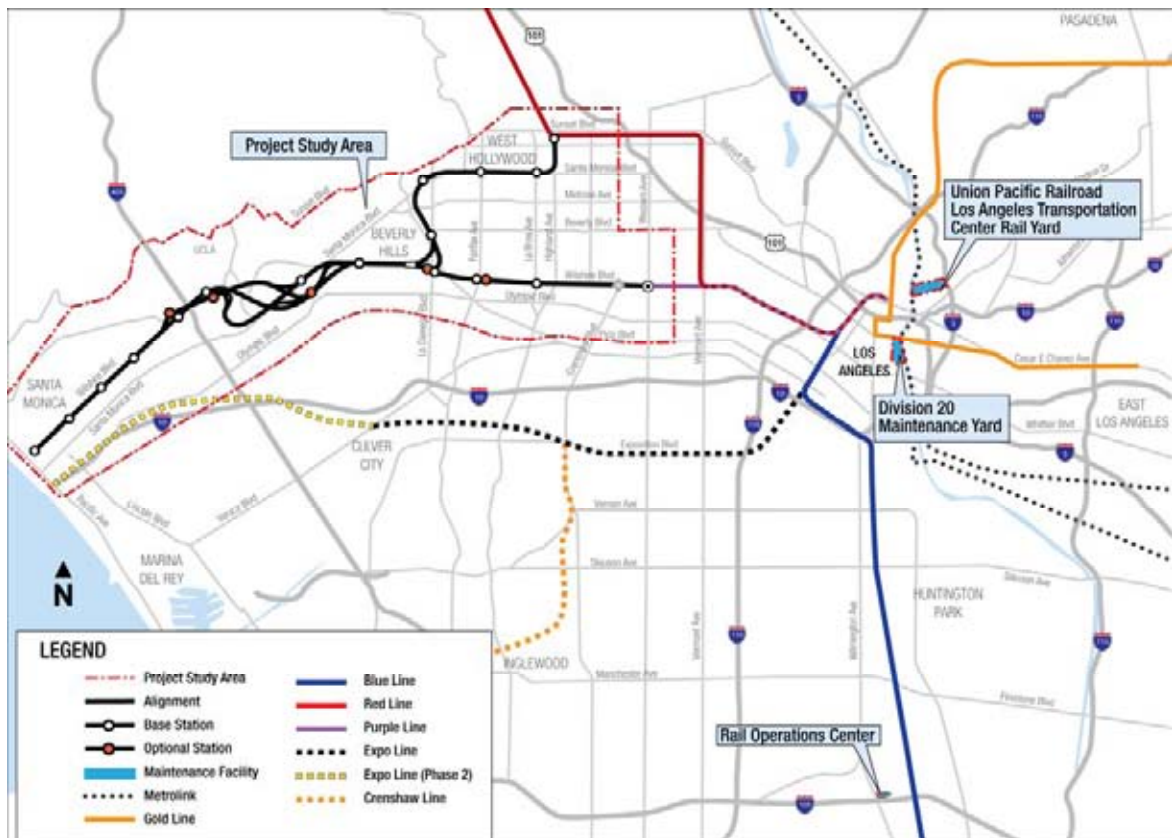
Wilshire/La Brea	Double Crossover	Double Crossover	Double Crossover	Double Crossover	Double Crossover
Wilshire/Fairfax	None <i>MOS 1 Only: Terminus Station with Tail tracks</i>	None <i>MOS 1 Only: Terminus Station with Tail tracks</i>	None <i>MOS 1 Only: Terminus Station with Tail tracks</i>	None <i>MOS 1 Only: Terminus Station with Tail tracks</i>	None <i>MOS 1 Only: Terminus Station with Tail tracks</i>
Wilshire/La Cienega	None	None	None	None	None
<i>Station Option 3 - Wilshire/La Cienega West</i>	Turnouts	Turnouts	Turnouts		
Wilshire/Robertson Connection Structure	Equilateral Turnouts - for future West Hollywood connection	Equilateral Turnouts - for future West Hollywood connection	Equilateral Turnouts - for future West Hollywood connection	Equilateral Turnouts	Equilateral Turnouts
Wilshire/Rodeo	None	None	None	None	None
Century City	Double Crossover <i>MOS 2 Only: Terminus Station with Double Crossover and tail tracks</i>	Double Crossover <i>MOS 2 Only: Terminus Station with Double Crossover and tail tracks</i>	Double Crossover <i>MOS 2 Only: Terminus Station with Double Crossover and tail tracks</i>	Double Crossover <i>MOS 2 Only: Terminus Station with Double Crossover and tail tracks</i>	Double Crossover <i>MOS 2 Only: Terminus Station with Double Crossover and tail tracks</i>
Westwood/UCLA	End Terminal with Double Crossover and tail tracks	Double Crossover	Double Crossover	Double Crossover	Double Crossover
Westwood/VA Hospital	N/A	End Terminal with Turnouts and tail tracks	Turnouts	End Terminal with Turnouts and tail tracks	Turnouts
Wilshire/Bundy	N/A	N/A	None	N/A	None
Wilshire/26th	N/A	N/A	None	N/A	None
Wilshire/16th	N/A	N/A	None	N/A	None
Wilshire/4th	N/A	N/A	End Terminal with Double Crossover. Pocket Track with Double Crossover, Equilateral Turnouts and tail tracks	N/A	End Terminal with Double Crossover, Pocket Track with Double Crossover, Equilateral Turnouts and tail tracks
Hollywood/Highland	N/A	N/A	N/A	Double Crossover and tail tracks	Double Crossover and tail tracks
Santa Monica/La Brea	N/A	N/A	N/A	None	None
Santa	N/A	N/A	N/A	None	None

WESTSIDE SUBWAY EXTENSION

Monica/Fairfax					
Santa Monica/ San Vicente	N/A	N/A	N/A	Double Crossover	Double Crossover
Beverly Center	N/A	N/A	N/A	None	None
<b>Additional Special Trackwork Location (Optional Trackwork)</b>					
Wilshire/Fairfax	Double Crossover	Double Crossover	Double Crossover	Double Crossover	Double Crossover
Wilshire/La Cienega	Double Crossover	Double Crossover	Double Crossover	Double Crossover	Double Crossover
Wilshire/ Rodeo	None	None	None	Pocket Track	Pocket Track
Wilshire/26th	N/A	N/A	Double Crossover	N/A	Double Crossover

### 2.5.5 Rail Operations Center

The existing Rail Operations Center (ROC), shown on the figure below, located in Los Angeles near the intersection of Imperial Highway and the Metro Blue Line does not have sufficient room to accommodate the new transit corridors and line extensions in Metro’s expansion program. The Build Alternatives assume an expanded ROC at this location.



**Figure -2-13: Location of the Rail Operations Center and Maintenance Yards**

### 2.5.6 Maintenance Yards



If any of the Build Alternatives are chosen, additional storage capacity would be needed. Two options for providing this expanded capacity are as follows (see Figure 2-14A and Figure 2-114B):

- The first option requires purchasing 3.9 acres of vacant private property abutting the southern boundary of the Division 20 Maintenance and Storage Facility, which is located between the 4th and 6th Street Bridges. Additional maintenance and storage tracks would accommodate up to 102 vehicles, sufficient for Alternatives 1 and 2.
- The second option is a satellite facility at the Union Pacific (UP) Los Angeles Transportation Center Rail Yard. This site would be sufficient to accommodate the vehicle fleet for all five Build Alternatives. An additional 1.3 miles of yard lead tracks from the Division 20 Maintenance and Storage Facility and a new bridge over the Los Angeles River would be constructed to reach this yard.



Figure 2-14. Maintenance Yard Options



Figure 2-14B. UP Railroad Rail Bridge

## 2.6 Minimum Operable Segments

Due to funding constraints, it may be necessary to construct the Westside Subway Extension in shorter segments. A Minimum Operable Segment (MOS) is a phasing option that could be applied to any of the Build Alternatives.

### 2.6.1 MOS 1—Fairfax Extension

MOS 1 follows the same alignment as Alternative 1, but terminates at the Wilshire/Fairfax Station rather than extending to a Westwood/UCLA Station. A double crossover for MOS 1 is located on the west end of the Wilshire/La Brea Station box, west of Cloverdale Avenue. The alignment is 3.10 miles in length.

**2.6.2 MOS 2—Century City Extension**

MOS 2 follows the same alignment as Alternative 1, but terminates at a Century City Station rather than extending to a Westwood/UCLA Station. The alignment is 6.61 miles from the Wilshire/Western Station.





## 3.0 REGULATORY FRAMEWORK

There are both federal and State regulatory requirements that dictate the safety and security aspects of various transit facilities and systems. Federal requirements include those published by the Federal Transit Administration (FTA). The FTA created a state-managed oversight program for rail transit safety and security. The program is applicable to all states that have within their boundaries a fixed guideway rail system not regulated by the Federal Railroad Administration. The rule requires that transit agencies address the safety and security of their passengers and employees by preparing a system safety program conforming to the state-managed system safety program standard. In California, the State requirements include those contained in State laws administered by the California Public Utilities Commission (CPUC). Metro has developed safety criteria and the Metro Board adopted policies that will be utilized in designing the elements of the project. Industry guidelines will also be used in developing the system design features.

The study area encompasses a number of jurisdictions and agencies which includes the County of Los Angeles and the Cities of Los Angeles, Beverly Hills, West Hollywood and Santa Monica. Local fire and police jurisdictions, general plan policies and ordinances are additional regulatory frameworks related to transit safety and security. The following list provides an overview of the regulatory framework.

### 3.1 Federal

FTA Regulation 49 CFR Part 659: Rail Fixed Guideway Systems; State Safety Oversight  
28 CFR Part 36 ADA, Standards for Accessible Design  
National Fire Protection Association (NFPA) 130 Fixed Guideway Transit Systems  
US Department of Transportation Subway Environment Design Handbook, Volume 1  
National Fire Protection Association (NFPA) 101 Life Safety Code  
TSA Security Directives SD RAILPAX-04-01 Passenger Rail Security  
TSA Regulation 49 CFR Part 1580 Rail Transportation Security

### 3.2 State

California Code of Regulations (CCR), Title 8, Industrial Relations Subchapter 20,  
Tunnel Safety Orders 20  
California Building Code, Chapter 4A, Section 414A-Fixed Guideway Transit Systems  
California Public Utilities Commission (CPUC) General Order 164-D

### 3.3 Local

Metro Rail Transit Design Criteria and Standards, Fire/Life Safety Criteria, Volume IX  
LA County Fire Department Regulations  
LA City Fire Department Regulations



Beverly Hills Fire Department

Santa Monica Fire Department

Local Agency Design Standards/Regulations applicable to the project



## 4.0 ANALYSIS METHODOLOGY

System Safety refers to the prevention of accidents to the riding public, employees, or others present on Metro transit facilities, which include stations, tracks, pedestrian walkways, trains, and the trackway. Such accidents may be caused by events such as fires, faulty equipment, faulty software, inadequate procedures or training, improper boarding and alighting of the rail vehicles or improper passenger drop-off and loading. Fire and life safety considerations involve preventive design criteria and those that provide protection for people and property in the event an emergency should occur. For this study, it includes safety of passengers and pedestrians in locations where they would cross the streets/rights-of-way, enter the stations, or encounter other transit facilities.

Security relates to: i) protection of people from intentional acts that could injure or harm them; and ii) protection of property from such deliberate acts. Topics discussed include: crime prevention, law enforcement, and protection against terrorism.

Pedestrian and passenger safety along the alternatives considered in this document are evaluated on a qualitative level based on the experience of similar rail transit systems with similar alignment characteristics including Metro Red and Purple lines. For the purpose of this study, it is assumed that a significant safety or security impact would occur if:

Construction would expose workers or others to hazards that are not addressed by standard safety procedures mandated by local, state, or federal regulations;

Operation of the project would result in motor vehicle accident rates that would be greater than current motor vehicle accident rates, especially in construction period;

Operation of the project would introduce a new hazard without adequate safety measures designed into the project to prevent accidents;

Operation of the project would introduce a hazardous situation that would encourage people to take unsafe actions, such as providing a circuitous route for pedestrians, thereby encouraging them to jaywalk, or violate traffic signals and controls;

The project would create a condition that facilitates criminal activity; or

The project would create an opportunity for terrorism with a moderate to high likelihood that such an act would be perpetrated.

The starting point for the determination of safety and security impacts is the No Build Alternative which typically consists of existing transit services including any improvements that are planned or committed in 2009 Metro Long Range Transportation Plan (LRTP) and 2008 Southern California of Governments (SCAG) Regional Transportation Plan (RTP). The next step is to consider the Transportation Systems Management (TSM) alternative, which addresses the project needs by optimizing transit operations without a major capital investment. Further, the safety and security impacts associated with the five build alternatives and the two Minimum Operating Segments (MOSs) are compared with the No Build Alternative. The MOSs are possible initial construction segments that would be constructed separately as phases of the Project.



## 4.1 Accident Prevention and Safety

For safety issues related to the construction and operation of the subway line, Metro project design features are analyzed to determine which safety enhancement measures could be included in the project to mitigate any adverse/significant impacts. MTA Rail Transit Design Criteria and Standards, Fire/Life Safety Criteria, Volume IX, and California Building Code are used to develop these design features. Further, any applicable system safety documentation prepared previously is reviewed to extract information appropriate for the environmental document.

## 4.2 Crime Prevention and Security

The analysis of crime prevention and security issues will focus on the potential for violent crimes, property theft, fare evasion, vandalism, quality of life crimes and terrorist attacks. To evaluate security risks, a meeting was held with Metro security personnel to review literature related to security issues on Metro and other similar transit systems. A formal threat and vulnerability assessment (TVA) for the selected alternative would be performed during the Preliminary Engineering design phase. The process for determining vulnerabilities begins with the identification and grouping of transit agency assets based on the criticality to transit operations, their attractiveness as targets for security breaches or terrorist attack, and their vulnerability to the impacts of a successful breach or act of terrorism. Critical assets are defined as the specific assets most critical to the Metro's ability to provide transit services and to protect people. Threat types are then identified using existing crime statistics for the area as well as threat information received from local, state and federal law enforcement sources. Each critical asset is then assessed for its vulnerability of each potential threat, coupled with the frequency probability of each threat actually occurring. Severity of consequences for each threat is then given a rating from catastrophic to negligible. This information is then put into a criticality matrix which organizes the resulting consequences into categories of high, serious, and low. The matrix helps to prioritize consequences and to focus available resources on the most serious threats requiring resolution, while effectively managing the available resources. The TVA will identify the design and procedural mitigations to reduce the likelihood of criminal activity.

## 4.3 Emergency Response

To assess the adequacy of emergency response for each scenario, the station and track design (access, layout, exits, alarms, evacuation) and operational procedures (interagency agreement, training, evacuation, etc.) are to be evaluated to determine the effectiveness and timeliness of emergency response.



## **5.0 EXISTING CONDITIONS/AFFECTED ENVIRONMENT**

Metro oversees the operation of regional bus and rail transit services throughout Los Angeles County. Metro is also responsible for implementing its own System Safety Program Plan (SSPP) and System Security Plan (SSP) during the operational phases of projects, which help to maintain and improve the safety and security of commuter operations, mitigate accidents, and comply with State regulations. Metro's Corporate Safety Department is responsible for ensuring that safety procedures are established and implemented and for monitoring safety performance. The Corporate Safety Department is empowered to develop, implement, and administer a comprehensive and coordinated System Safety Program. The program emphasizes the preventive activities and responsibilities of each department in an effort to identify, control and resolve hazards during the design, development, and operation of transit service. Metro implements security and law enforcement services through a contract with the Los Angeles County Sheriff's Department's Transit Services Bureau as described in Section 5.4. Local fire departments are the primary responders in the event of fire on the Metro system, and would assume overall command of any fire scene in close liaison with the Metro Rail Operations Center (ROC).

### **5.1 Study Area**

The proposed Westside Subway Extension is in western Los Angeles County and includes portions of five jurisdictions: the Cities of Los Angeles, West Hollywood, Beverly Hills, Santa Monica, as well as portions of unincorporated Los Angeles County. Additionally, transit corridors and stations are planned for high-density and mixed-use development that function as destinations for transit users (e.g., jobs, entertainment, and culture) and contain a high number of residents who can conveniently use transit. Some of Southern California's most well-known entertainment, educational, and cultural activity centers are inside the boundaries of the five jurisdictions listed above. The following is a list of activity centers in the area and is further illustrated in Figure 5-1 below.

- Hollywood
- Sunset Strip
- The Grove/Farmer's Market
- Wilshire Center
- Miracle Mile
- Century City
- Westwood/UCLA
- West Los Angeles
- Downtown Santa Monica
- West Hollywood
- Beverly Center/Cedars Sinai
- Beverly Hills/Rodeo Drive

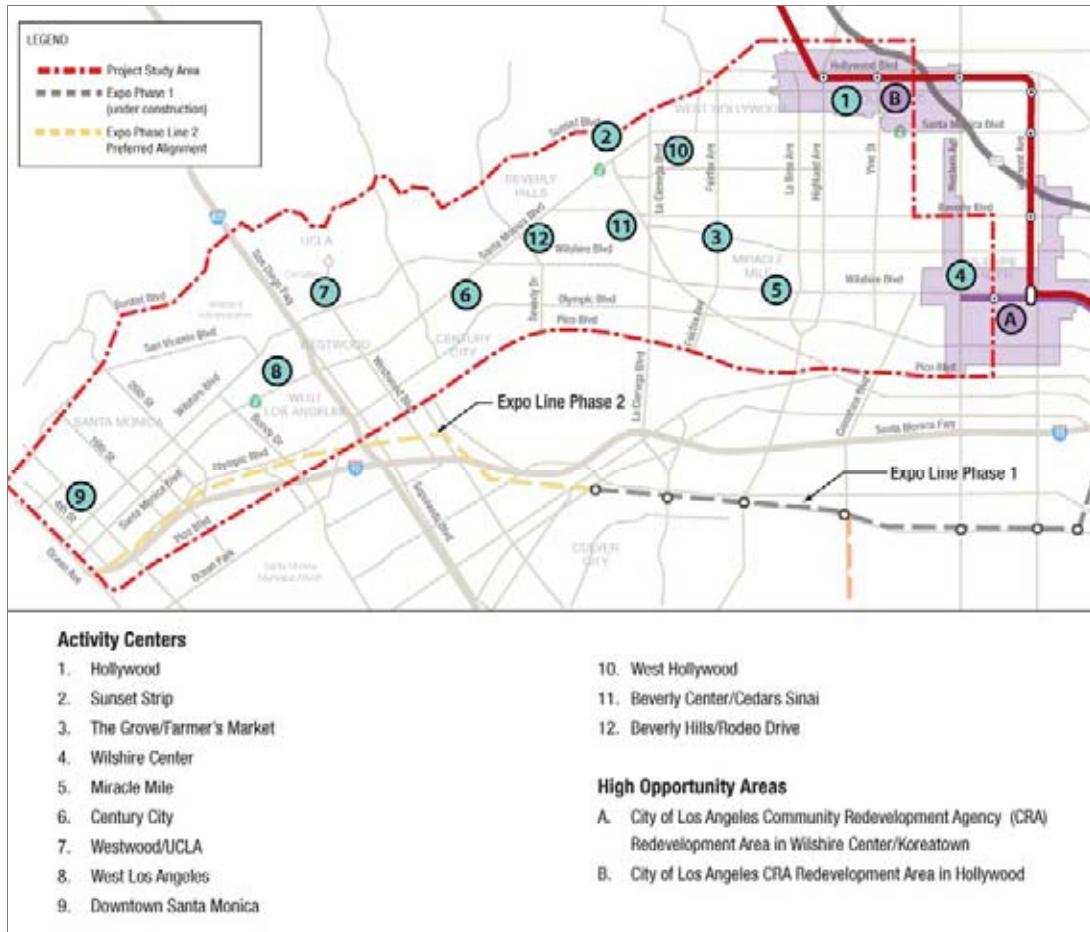


Figure 5-1. Activity Centers in the Study Area

## 5.2 Police Service Areas

The study area encompasses police departments for the Cities of Los Angeles, Beverly Hills, Santa Monica, and West Hollywood (which contracts with the Los Angeles County Sheriff's Department) as well as police departments that cover UCLA, Los Angeles General Services Administration (GSA) Building (also known as the Federal Building), and the VA Hospital site. The Study Area also includes unincorporated portions of Los Angeles County, which is patrolled by the Los Angeles County Sheriff's Department. Each of these police departments are described below:

The Beverly Hills Police Department serves approximately 34,980 residents in a 5.7 square mile area.

The Santa Monica Police Department serves approximately 88,050 residents in an area of 15.9 square miles

The City of West Hollywood contracts with the Los Angeles County Sheriff's Department for police protection. The City of West Hollywood also has a Public Safety and Community Services Division, which provides oversight of law enforcement and coordinates community programs to reduce crime and increase public safety and the



quality of citizens, businesses, and visitors to West Hollywood. The City of West Hollywood has 34,675 residents and covers 1.9 square miles.

The City of West Hollywood is recognized for its social activities, events, and establishments that are reflected by its increased night and weekend population estimates. By comparison, the Cities of Beverly Hills and Santa Monica are also known for their smaller scaled activities, events, and establishments and only capture daytime population numbers. The nighttime and weekend populations for West Hollywood can reach between 80,000 to 100,000 people and up to 500,000 during special events.

Los Angeles County Sheriff Region II patrols unincorporated portions of West Los Angeles and West Hollywood. The Los Angeles County Sheriff Region II also includes the Transit Service Bureau, which provides patrol services for Metro.

The UCLA campus police patrol the 419-acre campus of 4,016 faculty and 23,984 staff, as well as Westwood Village that accommodates 26,536 undergraduate and 12,716 graduate students.

The Federal Protective Service (FPS) is responsible for police patrols of the 19-story Federal Building, located east of Interstate 405 and Sepulveda Blvd and adjacent to the intersection of Wilshire Boulevard and Veteran Avenue. The Federal Building houses numerous federal agency offices and other private enterprises.

VA Hospital campus police patrol the 212.7-acre Veterans Administration campus located west of I-405 freeway on the north and south of Wilshire Boulevard.

The City of Los Angeles is the largest municipality within the Study Area. The Los Angeles Police Department is divided into four bureaus, which are further divided into divisions. The Study Area lies within the West Bureau and the Olympic Area, Wilshire Area, West Los Angeles Area, and Hollywood Area Divisions. The divisions are described below:

The Olympic Community Police Station serves approximately 200,000 residents and cover 6.2 square miles of the Mid-City region, including Koreatown and Miracle Mile.

The Wilshire Community Police Station serves over 251,000 residents, but the day time population grows to approximately half a million people. This community police station covers 13.97 square miles and is bordered by the Cities of Beverly Hills and West Hollywood and the community police stations of Hollywood, Rampart, Southwest, and West Los Angeles.

The West Los Angeles Community Police Station serves over 228,000 residents with the area day time population growing to approximately half a million people due to large employment centers, including UCLA and Century City. Other communities served by the West Los Angeles Community Police include Pacific Palisades, Brentwood, Westwood, West Los Angeles, and Cheviot Hills. The area encompasses 65.14 square miles, making it the largest of the city's 17 community police stations.

The Hollywood Community Police Station covers 17.2 square miles and serves approximately 300,000 residents. The approximate borders are Normandie Avenue on the east, West Hollywood on the west, Mulholland Drive on the north and Beverly



Boulevard on the south. Neighborhoods served by the Hollywood Community Police Station include: Hollywood, Mount Olympus, Fairfax District (North of Beverly Boulevard), Melrose District, Argyle Avenue and Los Feliz Estates.

### **5.3 Fire Departments**

The Build alternatives alignment would pass through one or more of the following fire department's jurisdictions.

Los Angeles County Fire Department  
City of Los Angeles Fire Department  
City of Beverly Hills Fire Department  
City of West Hollywood Fire Department  
City of Santa Monica Fire Department

There are 9 fire stations located in the study area. City of Los Angeles Fire Department Station 29 and Los Angeles County Fire Department Station 8 are immediately adjacent to the Westside Subway Extension. Additional information on the above fire departments is provided in the Parklands and Other Community Facilities Technical Report analysis.

### **5.4 Metro Transit Security**

Currently, Metro contracts security and law enforcement services with the Los Angeles County Sheriff's Department's Transit Services Bureau, now part of the Homeland Security Division. The Los Angeles County Sheriff's Department is the second largest transit policing agency in the nation. The deputies provide police service for the transit system throughout its 1,433 square miles and 73 miles of rail. Security, cameras, and law enforcement for MTA facilities is provided 24 hours per day, seven days per week or with additional resources, Metro focuses to solve specifically targeted problem areas. Criminal reports or arrests, other than those accomplished by special enforcement deputies, remain the jurisdiction of the local law enforcement agency where the activity occurs.

#### **5.4.1 Existing Procedures**

Metro currently employs the security measures listed below to monitor and enforce security throughout the Metro system.

Photo Enforcement  
Transit Safety Awareness Program  
Injury and Illness Prevention Program  
Community Emergency Response Training  
Metro Security Plan  
Security Operation Procedures



**5.4.2 Facility Design**

Metro's facility design requirements provide for natural surveillance, natural access control, and territoriality principles associated with Crime Prevention Through Environmental Design (CPTED) that are implemented in facility designs to monitor and minimize criminal activity.



## **6.0 ENVIRONMENTAL IMPACT/ENVIRONMENTAL CONSEQUENCES**

This section analyzes the safety and security related environmental consequences associated with the TSM Alternative and each build alternative, including the MOSs, which are then compared to the No Build Alternative.

The National Environmental Policy Act (NEPA) requires that all adverse impacts of a proposed project be analyzed. The California Environmental Quality Act (CEQA) requires that effects that are a “significant impact” be identified in an Environmental Impact Report (EIR). One objective of CEQA is to disclose to decision makers and the general public the significant environmental effects of the proposed activities. Therefore, in this joint federal and state report, reference to “significant impacts” will be made to fulfill this requirement under CEQA, pursuant to standards of California law and are addressed in Section 7.0 of this report. However, regardless of level of significance, all potentially adverse safety and/or security environmental impacts are analyzed. The project would have an adverse impact under NEPA and a significant impact under CEQA if it unduly exposes the public to increased danger from accidents or exposes the public to crime. For the safety and security environmental impact analysis, each topic will generally be organized as follows:

**Methodology for Impact Evaluation.** A description of the safety and/or security impact that constitutes an adverse impact under NEPA or a significant impact on the environment for CEQA purposes is included. Based on these criteria, project safety and/or security impacts are classified as: no effect (or no impact), adverse, but not significant (or less-than-significant impact), potentially significant (where potential for significant impact exists, but cannot be definitively determined), significant, or beneficial.

**Impact Analysis.** A discussion regarding long-term safety and/or security impacts of the alternatives in qualitative and/or quantitative terms, along with a conclusion of no impact, less-than-significant impact, potentially significant impact, significant impact, or beneficial effect.

**Summary of Significant Impacts.** A summary of the impacts identified as significant and/or adverse, under CEQA, is listed in Section 7.1 with a specific numbering sequence. (For example, significant safety and/or security impacts are listed as SS-1, SS-2, etc.)

**Mitigation.** Where impacts are identified as adverse or significant, mitigation measures to reduce or avoid the impacts are described (Section 7.2). The proposed mitigation measures are referenced to the safety and/or security impacts using a similar numbering sequence. (For example, mitigation measures for SS-1 are listed as SS-1a SS-1b, etc.)

**Summary of Impacts after Mitigation.** Where mitigation is proposed, a summary is included regarding the effectiveness of the mitigation in reducing CEQA significant impacts to less than significant and to identify remaining significant and unavoidable impacts.

**6.1 Accident Prevention****6.1.1 Passenger Safety****6.1.1.1 No Build Alternative**

The No Build Alternative would maintain transit service as it is at present. It is anticipated that under the No Build Alternative, safety would remain at current levels or follow current trends. Therefore, no adverse affects to passenger are anticipated for the No Build Alternative and no mitigation is required.

**6.1.1.2 Transportation System Management (TSM Alternative)**

Under the TSM alternative, the additional Metro Rapid and local bus services will be provided to meet increased demand in future years. There is a statistical possibility of increased bus and passenger accidents due to increased service that would be mitigated through careful implementation of the safety programs.

**Impact SS-1: Increased bus and passenger accidents due to increased service.**

**6.1.1.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

The build alternatives are all underground heavy rail transit systems. Once the passengers enter the system they may be exposed to safety hazards which can be divided into the following areas.

Fire/Life Safety – Hazards resulting in accidents involving injuries, fatality, or property damage due to fire, smoke, explosion, or toxic due to these causes.

System Safety – Hazards resulting in accidents involving injuries, fatality, or property damage due to system design, equipment operations and maintenance, testing, and material selection.

Presence of any of the hazards in the above categories will have adverse/significant impact on passenger safety and will require implementation of a well designed system safety and fire/life safety program as described in Section 7.0.

**Impact SS-2: Passenger safety in the new rail operation environment.**

**6.1.2 Employee Safety****6.1.2.1 No Build Alternative**

The No Build Alternative would maintain transit service as it is at present. It is anticipated that under the No Build Alternative, employee safety would remain at current levels or follow current trends. Therefore, no adverse affects to employee safety are anticipated for the No Build Alternative and no mitigation is required.

**6.1.2.2 Transportation System Management (TSM Alternative)**

Under the TSM alternative, the additional Metro Rapid bus will be provided to meet increased demand in future years. Under the TSM Alternative Metro employees will continue to perform under similar conditions and in accordance with Metro's established safety program. It is anticipated that under the TSM Alternative Metro employee safety



would remain at current levels or follow current trends. Therefore, no adverse affects to employee safety are anticipated for the TSM Alternative and no mitigation is required.

### **6.1.2.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

The operation and maintenance of any of the alternatives would be very similar to the existing Metro Red and Purple lines. Operation of any of the alternatives would be conducted in accordance with OSHA, state (CALOSHA), CPUC, and Metro policies and practices. Metro's Employee Safety Program includes a wide range of occupational safety and health, injury and illness prevention, hazard communication, industrial hygiene, fire and life safety, emergency preparedness, and operational safety programs. Many of these programs have been developed in accordance with federal, state, and local regulatory requirements. Metro also promotes employee safety through proper training and work safety awareness programs. The goals of these programs are to heighten awareness regarding workplace safety, to reduce the occurrence of injuries, and demonstrate a commitment to safety. These awareness programs provide information to the employees through a variety of methods which include:

Injury and Illness Prevention Program, which addresses workplace safety procedures, communication with employees on health and safety issues, identification and resolution of unsafe conditions, procedures for investigating workplace injuries and illnesses, and occupational health and safety training.

Community Emergency Response Training (CERT) in collaboration with the Los Angeles City Fire Department (LACFD), in which employees are trained in earthquake awareness, disaster medical procedures, and rescue operations.

Due to the implementation of these programs by Metro, workplace accidents have decreased significantly. These practices have been shown to reduce potential impacts on employees' safety to less than adverse under NEPA/ less than significant under CEQA. With current programs in place, no adverse affects to employee safety are anticipated for the Build Alternatives and no mitigation is required.

### **6.1.3 Construction Safety**

#### **6.1.3.1 No Build Alternative**

The No-Build alternative would maintain the current Metro transit routes and services in the study corridor. The No Build Alternative would not include activities that would result in any safety impacts related to construction. Therefore, no adverse effects are anticipated for the No Build Alternative.

#### **6.1.3.2 Transportation System Management (TSM Alternative)**

The TSM alternative is a reconfiguring of Metro Rapid and local bus operations to meet increased demand in future years within the proposed study area and requires no major construction to implement. Construction impacts would be less than adverse impact under NEPA/ less than significant under CEQA in all cities under the TSM alternative.

#### **6.1.3.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

Safety of construction workers and the general public would be a key element of construction activities associated with all Build Alternatives. Construction effects will be



temporary and limited in area as construction proceeds along the length of the project alignment. Introduction of significant pieces of on-site construction equipment, and trucks hauling excavated material from dirt and soil removal sites on local roads would create potential safety hazards for pedestrians, bicyclists, bus riders and motorists because of the number and proximity of vehicles and people adjacent to the construction facilities. In addition, numerous construction workers operating or working in concert with equipment at the various surface construction locations, and underground in tunnel bores, would also create increased opportunities for safety breaches. This would be a temporary adverse impact.

**Impact SS-3: Safety of workers and visitors at work sites during construction.**

**Impact SS-4: The risk of pedestrians and/or bicyclists getting injured in proximity to the construction sites.**

#### **6.1.4 Seismic Safety**

##### **6.1.4.1 No Build Alternative**

The No Build Alternative would not include activities that would result in any new safety impacts related to ground shaking or seismically-induced settlement. Therefore, no adverse effects are anticipated for the No Build Alternative.

##### **6.1.4.2 Transportation System Management (TSM Alternative)**

The TSM Alternative would not include activities that would result in any new safety impacts related to ground shaking or seismically-induced settlement. Therefore, no adverse effects are anticipated for the TSM Alternative.

##### **6.1.4.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

All alternative design options contain structures, including stations and tunnels, along the proposed alignment that may be susceptible to ground shaking and seismically-induced settlement. Therefore, a potential for adverse effects would be anticipated for these design options. During construction of any of the alternatives an earthquake could occur. The associated ground shaking could affect the areas under construction and the safety and health of the construction workers. An earthquake during system operation can affect the safety of operation. Such events will be considered an adverse/significant impact on the safety of workers and the public and will require appropriate mitigation measures.

**Impact SS-5: Diverse/ significant impact on the safety of workers and public due to earthquake during construction/operation.**

#### **6.1.5 Fire Protection and Safety**

##### **6.1.5.1 No Build Alternative**

The No Build Alternative would maintain transit service as it is at present. It is anticipated that under the No Build Alternative fire protection and safety would remain at current levels or follow current trends. Therefore, no adverse affects on fire protection and related safety are anticipated for the No Build Alternative and no mitigation is required.



**6.1.5.2 Transportation System Management (TSM Alternative)**

Under the TSM alternative, additional Metro Rapid and local bus operations will be provided to meet increased demand in future years. Under the TSM Alternative Metro employees will continue to perform under similar conditions and in accordance with Metro’s established safety program. It is anticipated that under the TSM Alternative fire protection and safety would remain at current levels or follow current trends. Therefore, no adverse affects on fire protection and related safety are anticipated for the TSM Alternative and no mitigation is required.

**6.1.5.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

All alternatives will be a heavy rail transit (HRT) underground system. Such a system typically consists of the following major project elements/activities which have a potential risk of fire and related hazards:

Station facilities

Underground Guideway (Tunnels)

Construction

Passenger Vehicles

Maintenance and Storage Facility

Rail Operations Center

The listed elements carry electrical equipment and/or combustible materials and introduce a risk of potential fire and adverse impact on the safety of workers and patrons using the system.

**Impact SS-6: Risk of fire and adverse/significant impact on the safety of Metro workers and patrons using the system.**

**6.1.6 Methane and Hydrogen Sulfide Gas Leak Prevention**

**6.1.6.1 No Build Alternative**

The No Build Alternative would not result in any subsurface excavation. Therefore, the No Build Alternative would not result in any adverse impact related to subsurface gases.

**6.1.6.2 Transportation System Management (TSM Alternative)**

Like the No Build Alternative, the TSM Alternative would not result in any excavation of soil. Therefore, the TSM Alternative would not result in any adverse impact related to subsurface gases.

**6.1.6.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

All alternatives would result in some potential ground disturbances during excavation activities. These alternatives may potentially encounter subsurface gases in the areas where tunneling and excavation would occur which may include the release of methane and hydrogen sulfide gas. Methane is produced naturally by underground oil fields and rises through wells or cracks in the ground. It is substantially lighter than air and forms an explosive agent when mixed with air. Safety rules require that action be taken when



methane is present in concentrations of 20% of the lower explosive limit. For practical purposes, this means a concentration of 1% by volume.

Hydrogen sulfide is present in association with methane often enough that its presence should always be suspected in gassy conditions. It is a cumulative poison and deadly in low concentrations; a whiff at 100 percent concentration is generally instantly fatal. Signs of its presence follow a sequence of headaches, coughing, nausea and unconsciousness. Concentrations should be limited to 10 ppm or less (depending on local regulations) of eight hour exposures.

Discovery of the subsurface gases would potentially result in an adverse effect for all of the design options.

**Impact SS-7: The presence of methane and hydrogen sulfide will have an adverse/significant impact on project safety during construction and operations.**

### **6.1.7 Suicide Prevention at Stations**

#### **6.1.7.1 No Build Alternative**

The No Build Alternative would maintain transit service as it is at present. It is anticipated that under the No Build Alternative the risk of suicide at stations would remain at current levels or follow current trends. Therefore, no adverse affects to passenger safety are anticipated for the No Build Alternative and no mitigation is required.

#### **6.1.7.2 Transportation System Management (TSM Alternative)**

Under the TSM alternative, the additional Metro Rapid bus and Metro Red Line/ Purple Line rail services will be provided to meet increased demand in future years. Under the TSM Alternative Metro will continue to operate under similar conditions and in accordance with Metro's established safety program. It is anticipated that under the TSM Alternative the risk of suicide at Metro Red Line/ Purple Line rail stations would remain at current levels or follow current trends. Therefore, no adverse affects to passenger safety are anticipated for the TSM Alternative and no mitigation is required.

#### **6.1.7.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

All alternatives will be a heavy rail underground system. Transit systems are by nature open to all public without consideration of passenger's mental health. This creates a situation where transit agencies have limited control on the use of their system and to prevent any hazardous activity such as suicide attempt by a determined person. A study on "Suicide Prevention in Transit System" in association with American Public Transportation Association (APTA) has found that the prevalence of average annual number of suicides have varied widely among the transit agencies. Further the study found that the suicide incidents were much more prevalent in tunnel segments than in open cuts or elevated segments. For each of the alternatives there will always be a risk of attempted suicide which will be considered an adverse/ significant impact and will require mitigation measures to reduce suicide attempts in the transit system.

**Impact SS-8: Risk of suicide attempt in the Build Alternatives transit system.**

**6.1.8 Pedestrian and Bicyclist Safety at Stations**

All person trips involving other modes of transportation, such as vehicular traffic, taxi, bicycle, bus, subway, etc., in the area generally include a walking or bicycling component as the first or last mode of travel. These trips contribute to pedestrian volumes using the study area's sidewalks, street corners, ramps, and crosswalks; and the subway station's staircases, escalators, and elevators. Pedestrian facilities in the station outside areas consist primarily of sidewalks along roadways, including arterials and local collector streets, pedestrian push buttons, and signal heads at intersections.

**6.1.8.1 No Build Alternative**

The No Build Alternative would not result in any pedestrian safety impacts, since it will maintain transit service as it is at present. No sidewalk improvements would be undertaken nor would sidewalk narrowing occur. Therefore, no adverse impacts to pedestrians/bicyclists are anticipated for the No Build Alternative and no mitigation is required.

**6.1.8.2 Transportation System Management (TSM Alternative)**

Under the TSM alternative, the additional Metro Rapid and local bus services operating in the Westside Transit Corridor would not result in any pedestrian/bicyclist safety impacts. The TSM Alternative would not alter the width of the sidewalks along the corridor. Therefore, no adverse impacts to pedestrians/bicyclists are anticipated for the TSM Alternative and no mitigation is required.

**6.1.8.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

This section analyzes the potential hazard to pedestrian/bicyclist circulation under the Build Alternatives. A project would create potentially hazardous conditions for pedestrians if it would result in substantial overcrowding on public sidewalks, or otherwise interfere with pedestrian/bicyclist accessibility to the site and adjoining areas. Each of the proposed subway stations would be accessed via stairways, escalators, and elevators descending from the ground level to the subway's mezzanine and platform levels. When provided within an existing sidewalk, station portals reduce the effective sidewalk width available for pedestrians. None of the proposed subway stations would substantially reduce the effective sidewalk widths since most of the station portals would be located away from the sidewalks. Emergency exits will be located away from the main station portals and may require a sidewalk to accommodate a steel hatch to access the exit. However, the establishment of these exits does not affect pedestrian access on the sidewalks.

An initial analysis has shown that the existing sidewalks near the proposed subway stations currently experience moderate to heavy pedestrian volumes and the subway stations would contribute additional pedestrian traffic. The analysis concluded that the existing capacity of sidewalks around the station is adequate to handle pedestrian movements associated with peak travel times. The passenger demand at the proposed stations would not cause substantial overcrowding on public sidewalks or create unsafe conditions for pedestrians/bicyclists. All stations would be constructed below grade, so no on-street sidewalks would be permanently removed to accommodate the project





stations or alignment, therefore no adverse impacts related to the pedestrian/bicyclist safety would occur and no mitigation is required.

## 6.2 Crime Prevention and Security

Table 6-1 summarizes the latest three-year statistics for each jurisdiction.

Table 6-1: Crimes Reported to FBI

	Part 1 Crimes		
	2008	2007	2006
Beverly Hills Police Department	2,334	2,652	2,384
Santa Monica Police Department	6,880	7,408	7,808
West Hollywood Police Department	3,610	3,536	3,484
Los Angeles County	54,510	56,600	54,843
Los Angeles Police Department			
Olympic Area *			
Wilshire Area	7,879	8,086	8,702
West Los Angeles Area	5,067	5,566	5,559
Hollywood Area	6,767	7,549	7,649
<b>Los Angeles City Average</b>	<b>125,528</b>	<b>129,275</b>	<b>134,175</b>

\* LAPD’s Olympic Area was established in January 2009 by combining areas of the Wilshire, Rampart, and Hollywood reporting divisions. 2009 crime analysis findings for this area have not been published.

Sources:

Department of Justice. Federal Bureau of Investigations. 2008 Crime in the United States. Table 8. Beverly Hills, Santa Monica, West Hollywood <[http://www.fbi.gov/ucr/cius2008/data/table\\_08\\_ca.html](http://www.fbi.gov/ucr/cius2008/data/table_08_ca.html)>. Los Angeles County Sheriff’s Department. Filed Operations Region II. Synopsis. <<http://www.lasd.org/sites/yir9600/yir2008/188.pdf>>. Los Angeles Police Department, Statistical Digest 2008. Information Technology Division, Management Report Unit. [http://www.lapdonline.org/crime\\_maps\\_and\\_compstat/content\\_basic\\_view/9098](http://www.lapdonline.org/crime_maps_and_compstat/content_basic_view/9098)

### 6.2.1 Security Preventing Criminal Activity

#### 6.2.1.1 No Build Alternative

The No Build Alternative would not result in any security impacts since present conditions would remain unchanged. No mitigations would be required.

#### 6.2.1.2 Transportation System Management (TSM Alternative)

The TSM Alternative would not result in any impacts to security preventing criminal activities since present conditions would remain unchanged. No additional patrols beyond those currently being performed by law enforcement agencies would be necessary for the TSM Alternative. No mitigations would be required.



**6.2.1.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

All of the Build Alternatives are located in one or more of the following law enforcement department jurisdictions.

Beverly Hills Police Department

Santa Monica Police Department

West Hollywood Police Department

Los Angeles Police Department

Los Angeles Sheriff's Department

Federal Protective Service

An adverse impact to law enforcement services located along the selected alternatives could potentially occur if there is a rise in criminal activity due to an increase in pedestrian circulation in the areas near at-grade station portals and sub grade stations. Another adverse impact to law enforcement services would be that criminal activity could travel by rail throughout the system from one station to another with peak volumes of circulation during high demand hours. Mitigation measures would be required to minimize adverse impact to law enforcement and reduce risk to the community pedestrians and Metro passengers.

**Impact SS-9: Potential risk of increased criminal activity in station areas due to an increase in pedestrian circulation.**

**6.2.1.4 Federal Facilities**

The Westside Subway Extension will require underground easements and construction easements that encroach onto federal facilities at the following locations:

Los Angeles General Services Administration (GSA) Building

Veterans Administration (VA) Medical Center

US Army Reserve (USAR) Facility

GSA is covered by FPS and implements a risk-scenario based methodology for assessing risk to GSA owned and GSA leased properties. This methodology, based on the functions of consequence, vulnerability, and threat, is used by FPS to assess risk at GSA facilities. This process would be used to assess risk at the GSA Building located on Wilshire Boulevard between Veteran Avenue and the I-405 Freeway.

A risk-based methodology is used by the VA to identify risk and recommend security countermeasures in an approach developed by the Federal Emergency Management Agency (FEMA). This five-step quantitative methodology model identifies and rates threats; identifies and values assets; assesses vulnerabilities; assesses risk; and considers mitigation options to reduce risk to VA proprietary sites/facilities.



USAR units apply a standard U.S. Army Reserve risk analysis method to meet local needs and enhance their security to maintain preparedness in support of federal mobilization for Department of Defense missions. The risk analysis method is a six-step process that includes: identifying assets; categorizing assets; determining asset values; determining likelihood that an aggressor wants to compromise an asset; determining a risk value for each asset; and identifying required protective countermeasures.

Metro is committed to following risk assessment processes performed by federal agencies of their sites; the effort and time it may take an agency to complete an assessment; and potential risk security countermeasures that may be recommended by a federal agency to reduce risk at their site.

## **6.2.2 Security Preventing Terrorist Attacks**

### **6.2.2.1 No Build Alternative**

The No Build Alternative would not result in any security impacts preventing terrorist attacks since present conditions would remain. No mitigations would be required.

### **6.2.2.2 Transportation System Management (TSM Alternative)**

The TSM Alternative would not result in any security impacts preventing terrorist attacks since present conditions would remain unchanged. No mitigations would be required.

### **6.2.2.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

All of the Build Alternatives are located in one or more of the following law enforcement department jurisdictions.

Beverly Hills Police Department

Santa Monica Police Department

West Hollywood contracted out to Los Angeles County Sheriff's Department

Los Angeles Police Department

Los Angeles Sheriff's Department

UCLA Campus Police

Veteran Affairs Hospital Campus Police

Fire Protection Service

Mass transit systems could be a target for terrorists due to their large ridership and the potential to inflict mass casualties and cause significant damage or disrupt critical infrastructures. A significant impact to law enforcement agencies located along the selected alternatives would occur from a potential terrorist threat targeting the increase in pedestrian circulation and critical infrastructures at or near at-grade station portals, mezzanines, and platforms. Mitigation measures would be required to minimize the significant impact to law enforcement and reduce risk to the community, pedestrians and Metro passengers.

**Impact SS-10: Potential risk of terrorist activity in station areas due to an increase in pedestrian circulation.**



### **6.3 Emergency Response**

#### **6.3.1.1 No Build Alternative**

The No Build Alternative could adversely affect response times for police, fire, and emergency services since traffic congestion on Corridor roadways is expected to increase substantially in future. The increased response times would also impede the ability of these City departments to quickly respond to safety and security problems involving Metro patrons or facilities. The No Build Alternative would have no effect on current community safety services and no mitigation would be required.

#### **6.3.1.2 Transportation System Management (TSM Alternative)**

The TSM Alternative could adversely affect response times for police, fire, and emergency services since traffic congestion on Corridor roadways is expected to increase substantially in future. The increased response times would also impede the ability of these City departments to quickly respond to safety and security problems involving Metro patrons or facilities. The TSM Alternative would have no effect on current community safety services and no mitigation would be required.

#### **6.3.1.3 Wilshire Boulevard, Wilshire/Santa Monica Boulevard and MOS Alternatives**

All Build alternatives are located in one or more of the following fire departments' jurisdictions.

Los Angeles County Fire Department

City of Los Angeles Fire Department

City of Beverly Hills Fire Department

City of West Hollywood Fire Department

City of Santa Monica Fire Department

A significant impact on fire and police services would occur if a selected alternative would result in an overtax on the department's services, emergency response, and major disaster response resources by resulting in unacceptable service ratios, response times, the need for additional personnel or additional training, or a reduction in other performance objectives.

The Build alternatives may have a potential of adverse effect on local community safety services and would require mitigation measures to minimize the possibility for increased demand on such services, particularly the Fire Departments.

**Impact SS-11: Potential of adverse effect on local community safety services due to increase demands on the fire, medical emergency response, and police services.**



## 7.0 MITIGATION MEASURES

### 7.1 Summary of Significant and/or Adverse Impacts

- Impact SS-1: Increased bus and passenger accidents due to increased service.
- Impact SS-2: Passenger safety in the new rail operation environment.
- Impact SS-3: Safety of workers and visitors at work sites during construction.
- Impact SS-4: The risk of pedestrians and/or bicyclists getting injured in proximity to the construction sites.
- Impact SS-5: Adverse/ significant impact on the safety of workers and public due to earthquake during construction/operation.
- Impact SS-6: Risk of fire and adverse/significant impact on the safety of Metro workers and patrons using the system.
- Impact SS-7: The presence of methane and hydrogen sulfide will have an adverse/significant impact on project safety during construction and operations.
- Impact SS-8: Risk of suicide attempt in the Build alternative transit system.
- Impact SS-9: Potential risk of increased criminal activity in station areas due to an increase in pedestrian circulation.
- Impact SS-10: Potential risk of terrorist activity in station areas due to an increase in pedestrian circulation.
- Impact SS-11: Potential of adverse effect on local community safety services due to increase demands on the fire, medical emergency response, and police services.

### 7.2 Proposed Mitigation Measures

#### Mitigation Measures for Impact SS-1

As a policy Metro gives all employees and departments the responsibility of upholding the highest level of safety for passengers. Some of these programs and policies include employee rulebooks, operations manuals, and training programs. Metro also promotes safety and security through passenger and public awareness programs. The goals of the passenger and public awareness programs are to heighten awareness regarding safety, to reduce the occurrence of passenger injuries, and demonstrate a commitment to safety. These awareness programs provide information to the public through a variety of methods which include:



The Transit Safety Awareness Program, which communicates safety information to motorists and pedestrians through transit user aids, bus stop information signs, and the Internet.

The “Safety Begins With Me” Campaign, which promotes safety around Metro trains and buses by placing newspaper and outdoor advertisements urging safety and by supporting a community safety outreach program designed to remind citizens of their responsibility and awareness of their own safety when riding Metro rail and buses.

The “Metro Experience” mobile safety-theater, which educates the public about rail safety through the use of advanced video and 3-D effects to simulate the true operation of a Metro train. It provides an opportunity to make a compelling and lasting impression on children and adults about rail safety.

The Rail Safety Orientation Program offers guided tours for students. Student-only tours include safety and system information and limited rides on the Metro Gold, Metro Red, or Metro Blue Lines.

**Mitigation Measure SS-1a: Implementation or continuation of public safety awareness and employee training program**

The proposed mitigation measure would minimize the potential for accidents and reduce the safety impact to less than adverse/ less than significant.

**Mitigation Measures for Impact SS-2**

Each build alternative and MOS have three major components, stations, vehicles and tunnels, which will have direct impact on passenger safety in project operation and will require safety features to mitigate safety impacts.

***Station Characteristics***

All fixed guideway stations will have similar design elements to make system use easier for all patrons, including infrequent users, the elderly, and persons with disabilities. All platforms will be high level (at the same level as the vehicle floor) to provide level boarding for all passengers and to accommodate wheelchairs. In addition to stairs and escalators, elevators will be provided at all stations to accommodate elderly and disabled riders.

***Station Safety Measures***

The station design will comply with Metro Fire/Life Safety Criteria and California Building Code (CBC). Each station would include stairs, elevators, and escalators for access. Emergency stairs dedicated to emergency egress and for use by emergency responders will be provided. Platform edges will be delineated with high-contrast visual and textured markings. All stations will have audible and visual messaging systems and an intercom link to the Rail Operations Center (ROC). Extensive signage and graphics would be provided at key decision points with the capability of displaying remotely activated messages associated with both normal and emergency operations. The stations would contain a fully automated sprinkler system, and an under-car deluge system would be provided in each of the track rights-of-way serving the station platforms. Extensive



emergency ventilation would be provided throughout the platform levels to address a potential railcar, platform or mezzanine fire. The ventilation system would operate in both an exhaust and supply mode from adjacent fan plants depending on the location and extent of the incident. A under platform exhaust system is planned and may supplement the tunnel emergency ventilation system in the event of a train fire in the tunnel as well for gas mitigation in addition to removing heat from train propulsion. An overhead track exhaust system is also planned in the station areas.

### ***Vehicles***

Metro transit vehicles are equipped with physical safety and security measures to support the overall operation of the transportation system. In addition, Metro vehicles are regularly inspected for any unsafe or unhealthy condition.

### ***Tunnel***

A System Safety approach would be applied for safety enhancements for the Build Alternative tunnels. The safety-related issues relating to tunnels' design, construction and operation, will be as outlined in the Metro Fire/Life Safety Criteria.

Emergency services for the tunnels would include ventilation systems that would be Supervisory Control and Data Acquisition (SCADA) controlled from the Rail Operations Center (ROC), providing the means to move smoke and heat away from passengers and emergency responders in the event of a fire. This condition would require training Metro operating personnel to activate the tunnel ventilation system functions based on the location of the fire. The tunnels would also be equipped with a standpipe system and multipurpose fire extinguishers located in appropriate areas. "Blue Light" stations would be located in designated areas within the tunnels in compliance with Metro Fire/Life Safety criteria. These "Blue Light" stations would enable removal of electric traction power locally and provide a communication system to the ROC and emergency responders. Passengers would be provided a safe means of egress from within the tunnels in the event of an incident requiring train evacuation. This egress would be afforded by designated passageways constructed between the two tunnel tubes, for use when one of the tubes must be shut down for response to an emergency. Appropriate lighting systems would be installed for the full length of the system with emergency backup systems to facilitate tunnels maintenance and emergency response.

Fan plants/access shafts would be constructed, as required, to provide emergency tunnels ventilation in the event of a fire, in addition to tunnels ventilation under normal operations.

Each Build Alternative will comply with safety rules and regulations of General Order (GO) 164-D of Public Utilities Commission of the State of California (CPUC). In accordance with the requirements of GO 164-D the existing Metro System Safety Program Plan (SSPP) will be revised, as necessary, to address the safety requirements for the selected Build Alternative.



The System Safety and Security process would begin during the planning phase and continue through the life cycle of the Build Alternative. The SSPP would provide systematic procedures for the identification, elimination, and control of hazards in the new facilities by building safety into the design through adherence to applicable codes and standards, the use of sound engineering principles, and the implementation of a detailed safety certification program. During the Preliminary Engineering phase, a project specific System Safety and Security Certification Plan (SSCP) would be developed to outline the safety and security technical and management strategies for identification, assessment, prevention, and control of safety hazards and security threat and vulnerabilities associated with the Build Alternative. The plan would also delineate responsibilities for implementing and administering the safety and security programs for the project.

A preliminary hazard analysis (PHA) and other related analyses would serve to identify potential hazards associated with the Build Alternative stations, as well as tunnel and train operations. Project design engineers would then mitigate or protect against identified hazards in their design. A Fire/Life Safety Committee (FLSC) consisting of project management would be established and would function through each phase of the Build Alternative, to review design drawings and address safety-related issues. The new construction would be divided into “Certifiable Elements,” such as track, electrical systems, and fire protection. It is the responsibility of the design engineer, with the assistance of the safety team (Metro FLSC), to ensure that federal, state, and local safety regulations, and Metro fire/life and system safety design criteria are met. These elements would be closely analyzed for design criteria, industry standard, and code compliance. Safety-related requirements would then be placed on a checklist that would be used to verify that the design criteria meets applicable codes and regulations and that the Build Alternative has been constructed in accordance with the design criteria.

The FLSC would be responsible to approve the Safety Certification Checklists. The design engineer would then be required to sign each line item on the checklists, verifying that the design complies with applicable safety requirements, including adherence to codes and regulations, development of operations and maintenance rules and procedures, and development and implementation of appropriate safety training programs. The safety certification checklist would then be given to the contractors to sign each line item, verifying that the Build Alternative was constructed in accordance with the design drawings and specifications. If a given item is not completed, the item would then be reviewed by the FLSC for an acceptable workaround or hazard mitigation prior to advancing into revenue service. The final document in the safety certification process would be the Safety Certification Verification Report (SCVR), which would include certificates of operational readiness for each certifiable element. Any workarounds for incomplete construction or open safety hazards would be listed in this report, with the appropriate mitigation for revenue service. Open safety hazards or line items would be tracked to ensure that approved mitigation measures are implemented to close the items. Certification would support improved integration of operational considerations into project design, which would result in reduction in hazards in service and maintenance activities.





It is assumed that the implementation of the Project SSPP and compliance with the CPUC requirements would maximize the safety and security of passengers so that the Project would not create any significant unsafe conditions for the passengers.

- Mitigation Measure SS-2a: Station design in accordance with CBC and Metro Fire/Life safety criteria**
- Mitigation Measure SS-2b: Tunnel design in accordance with CBC and Metro Fire/Life safety criteria**
- Mitigation Measure SS-2c: Development and Implementation of project specific safety certification Plan**
- Mitigation Measure SS-2d: Safety certification of all certifiable project elements.**

With the implementation of proposed mitigation measures the impact on passenger safety would be less than adverse/ less than significant.

### **Mitigation Measures for Impact SS-3**

The contractor will be responsible for the safety of the work site, work personnel, and maintaining California Occupational Safety and Health Administration (Cal-OSHA) work practices during construction. The contractor will be required to prepare the following plans to mitigate construction impacts related to construction safety:

Construction Safety and Security Plan: this plan will meet the FTA requirement in 49 CFR 633 and address fire prevention, emergency preparedness and response, and protection of the general public and private property from construction activities, including exposure to toxic materials.

Construction Health and Safety Plan: this plan will meet the requirements of 29 CFR 1910 and 1926 and all other applicable Federal, State, and Local regulations and requirements. Included would be a comprehensive emergency procedure and a “checking-in” procedure to identify those construction workers on site at any given time. It will also include provisions for identifying asbestos and lead-based paint that may be disturbed by the Project.

The Build Alternative project management would ensure that the contractor implements actions to insure the safety of workers and work sites during construction. Project management will be responsible for general plan review, construction site inspection, review, and approval of the contractor’s safety plan, and compliance with the Metro’s Operating Rules and Procedures. Potential safety impacts during the construction period would be addressed through compliance with federal Occupational Safety and Health Administration (OSHA), state (Cal-OSHA), and Metro policies that provide for protection of workers and site visitors. These practices have been shown to reduce potential impacts to less than adverse/ less than significant.

- Mitigation Measure SS-3a: Implement safety rules, procedures and policies to protect workers and work sites during construction.**



With the implementation of proposed mitigation measure the impact on workers safety would be less than adverse/ less than significant.

**Mitigation Measures for Impact SS-4**

Pedestrian and bicycle access will be maintained as much as possible during all phases of construction as safety allows. Warning and/or notification signs of modification to bicycle and pedestrian facilities during construction will be provided. Sidewalk diversions will be made when necessary. Proposed pedestrian detours will be submitted to the cities for review and approval to ensure they are reasonable for all pedestrians and meet ADA regulations. The public would be physically separated from work areas. Proper deterrents, such as barriers or fencing, will be placed to prevent access (shortcuts) through the construction area. Measures to maintain safe and efficient pedestrian and bicycle access could include the following:

Channelizing pedestrian flow in areas where sidewalks are near construction—  
channelized structures are generally steel-framed, three-sided plywood structures built above existing sidewalks

Providing alternative routes to avoid hazardous areas

Making extensive use of signage to direct pedestrians and bicyclists to the safest and most efficient routes through construction zones—signs will warn pedestrians and bicyclists well in advance of sidewalk and bike lane closures.

**Mitigation Measure SS-4a: Provide warning and/or notification signs, detours, and barriers.**

The proposed measure would minimize the potential for accidents and reduce the construction period safety impacts to less than adverse/ less than significant.

**Mitigation Measures for Impact SS-5**

Construction of underground tunnels, shafts, and excavations will be conducted in accordance with all applicable federal, state and local codes and practices. The federal regulations are included in Part 1926, Section 800 of Title 29 of the Code of Federal regulations (29 CFR 1926.800) which is administered by the Occupational Safety and Health Administration (OSHA) and covers the safety and health of underground workers. California regulations are documented in Title 8 of the California Code of Regulations and are enforced by Cal/OSHA.

The contractors would be required to submit a site-specific earthquake preparedness and emergency response plan as part of compliance with bid specifications. The plan would identify an emergency coordinator/team, provisions for emergency power and communication, evacuation procedures, and procedures for post-earthquake safety inspection.

The system design will provide a high level of assurance that public safety will be maintained during and after a Maximum Design Earthquake. Station platforms, pedestrian ramps, pedestrian bridges, mezzanines, building framing and components will be designed to resist earthquake motions in accordance with Metro Supplemental Seismic Design Criteria (Metro SSDC).



Seismic event reporting and recording devices will be provided to advise of and record a seismic event of sufficient intensity which could cause potential damage to facilities. The devices would be installed at intervals and locations to provide comprehensive coverage of the total systems. Seismic alarms would be annunciated at the ROC and that will initiate an Emergency Gas Operating Procedure (EGOP) which activates a pre-determined ventilation scenario to purge hazardous gases that the seismic event might have caused to enter the Rail System. The Metro operating procedures assume safe shut down and inspection before returning to operation.

**Mitigation Measure SS-5a:      Implement Metro design criteria, safety rules, procedures and policies to protect workers and work sites during construction and provide employees and public safety in operations.**

With the implementation of proposed mitigation measure the impact on workers, employees and public safety would be less than adverse/ less than significant.

### **Mitigation Measures for Impact SS-6**

Fire protection and safety from fire hazard on a fixed guideway transit system is achieved through a composite of facility design, operating equipment, hardware, procedures, and software subsystems that are integrated to provide requirements for the protection of life and property from the effects of fire. The level of fire safety desired for the Project would be achieved by complying with the Metro Fire/Life Safety Criteria and California Building Code (CBC). The CBC contains regulations relating to the construction and maintenance of buildings and to the use of their premises. Topics addressed in the CBC include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire safety requirements, for new and existing buildings and their premises. The CBC contains specialized technical regulations related to fire and human safety.

The fire protection features and safety from fire hazard for each subsystem is briefly described below.

#### ***Stations***

The design of stations and their appurtenances would conform to CBC, local City Building Codes, California Code of Regulations (CCR) Title 8, CCR Title 19, and California Public Utilities Commission (CPUC) General orders, and Metro Fire/Life Safety Criteria. The station occupancy classification would be Group A as defined in the CBC. The stations would be a minimum Type I or Type IB constructions as defined in CBC. Fire separations within station public and ancillary areas and between station public and ancillary occupancies and nontransit occupancies would be provided as defined in Metro Fire/Life Safety Criteria and CBC. Protection would be provided from flammable and combustible liquid intrusion. Normal and emergency ventilation may be necessary to preserve the safety of underground facilities in the event of intrusion of toxic or flammable gasses. Emergency ventilation would be provided for the stations for the protection of passengers, employees and emergency personnel. The stations would house emergency ventilation fan shafts at both ends of the stations to remove smoke and fumes



in the event of a fire. Emergency back-up power supply would be available to enable gas purging in the event of an area-wide utility power outage. All elevators and escalators would be constructed of non-combustible materials and conform to CBC and Title 8 Elevator Safety Orders. State-of-the-art fire protection systems would be installed, providing for standpipe and sprinkler systems, smoke detection and communication systems. “Blue Light” stations located at the station platform level would facilitate traction power shut off and communication in the event of an electrical emergency or fire at track level. Passenger access and egress would meet NFPA standards. There shall be sufficient means of egress to evacuate the station occupant load based on the emergency condition from the station platforms in 4 minutes or less. The station would also be designed to permit evacuation from the most remote point on the platform to a point of safety in 6 minutes or less. No point of the station platform(s) or mezzanine(s) would be more than 300 feet from a point of safety.

### ***Underground Guideway (Tunnels)***

When line sections are to be constructed by the cut-and-cover method, perimeter walls and related construction would be not less than Type IB construction as defined in the CBC. When line sections are to be constructed by a tunneling method through earth, unprotected steel liners, reinforced concrete, or equivalent would be used. Walkways designated for evacuation of passengers would be constructed of noncombustible materials. Noncombustible rail ties or direct fixation fasteners would be used in underground guideway. Ancillary structures and areas within tunnels would be separated from trackway areas by approved fire resistive construction.

Training will be required for both new and present employees on the software/controls for the ventilation system and emergency response scenarios for the Westside Subway Extension. The tunnels would include ventilation systems that would be SCADA-controlled from the ROC, providing the means to move smoke and heat away from passengers and emergency responders in the event of a fire. This condition would require training Metro operating personnel to activate the tunnels’ ventilation system functions based on the location of the fire. “Blue Light” stations would be located in designated areas within the tunnels in compliance with Metro FLS Criteria. These “Blue Light” stations would enable removal of electrical power locally and provide a communication system to the ROC and emergency responders. Passengers would be provided a safe means of egress from transit vehicles in tunnels and through tunnels to a point of safety in the event of an incident requiring train evacuation. Cross passages would be constructed between the two tunnel tubes, for use when one of the tubes must be shut down for response to an emergency. Appropriate lighting systems would be installed for the full length of the system with emergency backup systems to facilitate tunnels maintenance and emergency response. Ancillary structures adjoining the guideway, including ventilation structures, would be fire resistive construction.

Protective signaling and automatic fire sprinkler systems would be provided in all ancillary spaces. The tunnels would also be equipped with a Class I Automatic-Wet Standpipe system to provide protection throughout the underground guideway system.

***Fire Protection during Construction***

Following mitigation measures would be applied to protect from fire hazard during construction.

The contractor would be required to establish a fire prevention plan referencing OSHA, and NFPA standards including a layout drawing showing storage and volume of all flammable and/or combustible liquids, gases or other hazards. Furthermore, the Contractor's representative would conduct fire hazard inspections of the entire project on a regular basis. Immediate correction of substandard conditions would be mandatory. Documentation of the inspection would be kept on file and made available upon request.

A manual-wet standpipe system, either temporary or permanent in nature, would be installed in tunnels under construction, before the tunnel has exceeded a length of 200 ft beyond any access shaft, and would be extended as tunnel work progresses.

Particular care would be taken when welding and cutting in locations where combustibles are exposed. When such welding or cutting is done, the surrounding area must be protected and an adequate number of approved fire extinguishers must be immediately available.

The use of operation and maintenance of temporary heating equipment would be specified to create no fire hazards.

All flammable and combustible materials would be stored, piled and handled with due regard to their fire characteristics. Flammable liquids would be stored in an approved manner, and dispensed only in acceptable safety containers by rated and approved pumps.

Rubbish and debris would not be allowed to accumulate. Jobsites would be kept clean and orderly during the duration of the project.

Appropriately rated fire extinguishers would be located throughout the work site as required by local fire protection authority, CALOSHA and/or Federal OSHA. The fire extinguishers would be checked at least once each month and certified annually. Records would be kept as to service and maintenance.

***Passenger Vehicles***

Metro currently has a fleet size of 104 heavy rail vehicles (HRV) operating on the existing Metro Red/Metro Purple Lines. Increased operational headways in the future for the No Build Alternative and each of the Build Alternatives will require additional HRVs. Metro existing vehicles comply with fire protection requirements of NFPA 130 standard. Any future vehicles will have the same fire protection features and would be in compliance with Metro FLS criteria.

***Maintenance and Storage Facilities***

Currently, Metro stores and maintains its Metro Red Line/Purple Line vehicle fleet at the existing Division 20 Maintenance and Storage Facility (MSF). As indicated in the previous section on vehicles, each Build Alternative would have requirements for additional vehicle storage and maintenance. Expansion and/or new construction of the



MSF or satellite yard storage yards will have fire protection and safety features as required by Metro FLS Criteria. Some of those salient features are described below.

The maintenance and storage facilities would be classified into occupancies in accordance with CBC to determine fire separation and protection requirements.

Fire separations would be provided and maintained to separate occupancies as required by the CBC.

An adequate, reliable water supply from two separate sources (two mains) would be available for fire protection including a sufficient number of properly located hydrants, in accordance with other appropriate local fire ordinances.

Emergency access would be provided to system structures, yards, and outside storage areas in accordance with appropriate local ordinances.

Blue Light Stations (BLS) would be provided throughout the maintenance yard and train storage areas.

Emergency exiting for maintenance facilities would be as required by the CBC.

Emergency lighting would be provided for all exits within the maintenance facilities, in accordance with the CBC.

Where there is a potential for fire and/or explosion, drainage systems would use noncombustible piping.

Where flammable/combustible liquids and/or hazardous materials are used in pit areas and associated below floor level areas, such areas would be designed to meet applicable code provisions.

In all pit areas where undercar maintenance may generate vapors of a combustible nature (e.g., blowdowns of transit vehicles) a positive mechanical exhaust ventilation system would be provided.

Automatic sprinkler systems would be installed in all areas of enclosed structures in accordance with NFPA 13 and local codes.

Automatic Fire Detection Systems conforming to NFPA 72 would be installed in traction power rooms and train control rooms in each facility structure, except where normally charged automatic sprinklers are installed.

A Class III wet standpipe system complying with the requirements of NFPA 14 and CBC would be installed throughout the vehicle maintenance facility.

Portable fire extinguisher of approved rating, suitably housed and spaced in accordance with local ordinances would be installed throughout all maintenance facilities buildings.

### ***Rail Operations Center***

The physical arrangement of the existing ROC does not have sufficient room to accommodate the various new transit corridors and line extensions included in the Build Alternatives. Additional space is needed to accommodate training and conferences, as well as the expanded operating, maintenance, and administration staff. In addition, the



existing ROC communications and computer rooms have limited space availability to accommodate the additional equipment racks that are needed to support the new corridors and line extensions.

Each Build Alternative would require expansion of the existing ROC to provide an integrated control facility that accommodates the expansion programs and enables Metro to effectively manage the operation and maintenance of its expanded rail network, including any future growth. Any expansion and/or new construction of ROC will have fire protection and safety features as required by Metro FLS Criteria. Some of those salient features are described below.

Two-hour minimum fire separations would be provided and maintained to separate occupancies as required by the CBC<sup>1</sup>.

All structural assemblies and building appurtenances in ROC areas would be of noncombustible materials.

Site fire flows (water supplies) and hydrants would conform to local codes.

The building housing the ROC would be protected throughout by automatic sprinklers.

Standpipes as required by the CBC and local codes would be installed in the ROC building.

Standpipe and automatic sprinkler water supplies would meet the requirements of NFPA Standards 13 and 14 and the local code.

Pre-action automatic sprinkler systems or other approved special extinguishing system protection would be provided for underfloor areas of equipment rooms and operations rooms.

A fire alarm system complying with the requirements of the CBC and NFPA 72 would be provided for protection throughout the ROC building.

Products of combustion detectors, other than heat detectors, would be installed in all areas of the ROC, in accordance with NFPA 72.

Portable fire extinguishers would be installed throughout the ROC, as required, in accordance with NFPA 10.

**Mitigation Measure SS-6a:**      **Design in accordance with Metro Fire/Life safety Criteria, California Building Code and other applicable federal, state and local rules and regulations.**

With the implementation of listed mitigation measures it is anticipated that the impact will be reduced to less than adverse/ less than significant.

#### **Mitigation Measures for Impact SS-7**

A number of mitigation measures will be implemented to provide safety from gas related hazards during construction and system operations. These measures are described in detail in Task 14.01.09: Geotechnical/Subsurface/Seismic/Hazardous Materials and are briefly discussed in this section:



Physical barriers to keep gas out of the tunnels: During construction, the pressure face Tunnel Boring Machines (TBMs) would isolate gas from workers and the public, while gassy soil and tar sands would be separated and treated appropriately. Tunnels will be designed to provide a redundant protection system against gas intrusion. Special liner requirements may be imposed to assist in the control of natural gas intrusion and, if necessary, double gaskets for the tunnel lining or other measures may also be installed.

Physical barriers to keep gas out of the stations: Appropriate station construction methods would be used to provide protection against gas inflows both during and after construction. If an additional structural liner is needed for station walls flexible sealants such as gas resistant poly-rubber gels and/or High Density Polyethylene (HDPE) will be installed between the two walls to provide increase resistance to gas intrusion.

Ventilation Systems: Enhanced ventilation systems will be used where necessary to ensure tunnel and station safety. Methane and other gases are readily diluted and flushed from tunnel and station by a properly designed ventilation system. The ventilation system would consist of many components as described below:

- a. Tunnel Ventilation System (TVS): Multi-purpose, variable speed, reversible fans located at both ends of subway stations will serve the emergency ventilation system and the gas mitigation system.
- b. Underplatform Exhaust (UPE) System: For a typical station, two fans at each end of the station would be provided with ducted connection to the plenums below the platform. The UPE system may be used during emergencies to supplement the airflow of the emergency fans to purge gas from the system.
- c. Overhead Trackway Exhaust (OTE) System: The OTE will use the tunnel ventilation system. It will be used for normal operations cooling, control of smoke from a fire and gas purging.
- d. Concourse Exhaust System (CES): The same fans that serve the OTE and the tunnel will operate at approximately 10 percent capacity to exhaust smoke from small fires in the concourse and will also be used for gas mitigation.

In areas classified as "Potentially Gassy" or "Gassy", all ventilation systems may be used for gas mitigation. To prevent accumulation of gases during non revenue hours a nighttime purge ventilation mode would be provided. This mode would operate one fan at each end of each station in either supply or exhaust mode. Ventilation systems will also be provided in ancillary spaces to maintain an optimum environment and to mitigate possible gas accumulation.

Gas detection systems with alarms: Permanent gas monitoring equipment would be installed in each station and tunnel cross passages to monitor hazardous gases during operations. Each gas monitoring alarm would be annunciated at the ROC and at the EMP in the station where the gases are detected. The system would initiate a minor or major alarm depending on the lower explosion level (LEL) set for methane and the threshold limit value (TLV) set for hydrogen sulfide. Presence of an alarm





would initiate the appropriate Emergency Gas Operating Procedure (EGOP) which would activate a predetermined ventilation scenario to purge the gas and can prompt an automatic evacuation.

**Mitigation Measure SS-7a: Design in accordance with Metro Fire/Life safety Criteria, Metro ventilation criteria and according to the findings in Geotechnical/ Subsurface/ Seismic/ Hazardous Materials report.**

With the implementation of listed mitigation measures, it is anticipated that the impact will be reduced to less than adverse/ less than significant.

### **Mitigation Measures for Impact SS-8**

The main objective of a transit system is to provide service to the public. Because of this objective the risk of suicide cannot be completely eliminated. Strategies, however, can be employed to reduce suicide attempts. Following mitigation measures would be employed to achieve this goal.

Platform will have end gates with intrusion alarms to restrict access to the guideway

Platform edges will have warning tiles and safety announcements will be broadcast over PA during service hours.

A safe refuge area will be provided under the platform lips in the event of an accidental fall to track level or if a person intending suicide has a last second change of heart.

Blue light stations will be provided at the end of platforms with emergency power cut switches and an emergency telephone to the ROC for emergency reporting by employees and patrons. Traction power can be cut by designated employees. This is an important safety device for situations when the train has not yet entered the station.

Closed Circuit Television (CCTV) systems will be provided for surveillance of platforms and access to track level.

Telephone communication devices will be provided at platforms for communication to the ROC.

Metro personnel will be equipped with radios and trained to notify the ROC of unusual events or sightings on guideway. Permits and work orders filed with Operations/Safety and the ROC will be required for access to guideway or work near guideway by contractors. Any personnel accessing guideway will have radio equipped escort.

Extensive safety education and employee training program regarding safety information specific to danger on the right-of-way will be provided.

**Mitigation Measure SS-8a: Implementation of public safety awareness, employee training program and system design features.**



With the implementation of listed mitigation measures and taking into consideration almost no suicide attempts on the existing Metro heavy Rail system it is anticipated that the impact will be reduced to less than adverse/ less than significant.

**Mitigation measures for Impact SS-9**

The Build Alternative provides community residents with an inherently open means of access to mass transportation for travel to, from, and within metropolitan areas with relative ease. Passengers expect public transportation agencies to provide a level of security against crime while using public transportation facilities and systems. However, crime from intentional acts against people, assets, and facilities cannot be completely eliminated. The following mitigation measures can be implemented to achieve the goal of reduced criminal activity for passengers traveling to or from public transportation stations and while waiting on station platforms.

Provide lighting levels at at-grade station entry portals that illuminate the stairs, escalators, elevators, and stations platforms without causing darkness or shadow areas or that result in light trespass to adjacent properties.

Communication devices, e.g., Passenger Telephones (PT), Public Address Systems (PAS), and Silent Alarms (SA) will be provided at station locations. PT's will be monitored by the ROC; PAS's will broadcast announcements from the ROC to stations for passengers; and SA's will, when activated, trigger an annunciation at the ROC to indicate an emergency situation.

Closed Circuit Television (CCTV) systems will be provided for surveillance of at grade station entry portals, sub-grade platforms, and critical infrastructures or restricted areas. Fixed cameras should be mounted where a constant and uninterrupted view is required (i.e., ticket vending machines, access portals, critical infrastructures or restricted areas); whereas, mount pan-tilt-zoom cameras where a range of views are desired.

Design stations by applying the natural surveillance, natural access control, and territoriality principles associated with Crime Prevention Through Environmental Design (CPTED). For example, if trees are planted they should be "limbed (cut) up" to provide an unobstructed view of adjoining streets and business enterprises; various access points to and from at-grade station entry portals should offer passenger entry from several areas; and the distinct property boundary limits should be portrayed.

Provide vandal resistant designs and materials to surfaces exposed to or accessible to the public.

Post signs in plain view that provides passengers with crime awareness and reporting information.

Assign and randomly post law enforcement officers to provide a physical presence at Metro locations within their station jurisdictions.

**Mitigation Measure SS-9a:      Implementation of security features to reduce criminal activities.**



With the implementation of listed mitigation measures and taking into account Part 1 reported crimes in the jurisdictions of the Build Alternative, it is anticipated that the impact will be reduced to less than adverse.

**Mitigation measures for Impact SS-10**

The Build Alternative provides community residents with an inherently open means of access to mass transportation for travel to, from, and within metropolitan areas with relative ease. Passengers using public transportation facilities and systems expect those public transportation agencies provide a level of protection against terrorist activities. However, crime from intentional acts against people, assets, and facilities cannot be completely eliminated. The following mitigation measures can be implemented achieve the goal of reduced criminal activity for passengers traveling to or from public transportation stations and while waiting on station platforms.

Prepare procedures to appropriately respond to increases in the Homeland Security Advisory System National Threat Level, as part of the agencies Security Plan. This may include the removal of trash containers on station platforms, increased public awareness announcements, an increase in law enforcement presence at stations, etc.

Extensive security education and employee training program information specific to terrorism awareness will be provided.

Provide lighting levels at at-grade station entry portals that illuminate the stairs, escalators, elevators, and stations platforms without causing darkness or shadow areas or that result in light trespass to adjacent properties.

Communication devices, e.g., Passenger Telephones (PT), Public Address Systems (PAS), and Silent Alarms (SA) will be provided at station locations. PT's will be monitored by the Rail Operations Center (ROC); PAS's will broadcast announcements from the ROC to stations for passengers; and SA's will, when activated, trigger an announcement at the ROC to indicate an emergency situation.

Closed Circuit Television (CCTV) systems will be provided for surveillance of at grade station entry portals, sub-grade platforms, and critical infrastructures or restricted areas. Fixed cameras should be mounted where a constant and uninterrupted view is required (i.e., ticket vending machines, access portals, critical infrastructures or restricted areas); whereas, mount pan-tilt-zoom cameras where a range of views are desired.

Design stations by applying the natural surveillance, natural access control, and territoriality principles associated with Crime Prevention Through Environmental Design (CPTED). For example, if trees are planted they should be "limbed (cut) up" to provide an unobstructed view of adjoining streets and business enterprises; various access points to and from at-grade station entry portals should offer passenger entry from several areas; and the distinct property boundary limits should be portrayed.

Post signs in plain view that provides passengers with suspicious activity and reporting information.

Assign and randomly post law enforcement officers at Metro locations to provide a physical presence to security.



Provide an area on the station platform to conduct random screening of passenger's bags and hand carry items.

Restrict unauthorized vehicles from parking near at-grade level station entry portals.  
Design removal type vehicle barriers for installation at station portals to enforce standoff distances.

Restrict access near or alongside air vent/circulation system intakes to prevent the introduction of airborne hazards or dangerous chemicals into the sub grade station or tunnel portal.

**Mitigation Measure SS-10a: Implementation of security features to reduce terrorism activities.**

With the implementation of listed mitigation measures for the Build Alternative, it is anticipated that the impact will be reduced to less than significant.

**Mitigation Measures for Impact SS-11**

The Build Alternatives would introduce a new type of use in some of the study areas, which would create new demands on the fire, medical emergency response, and police services. The primary responsibility for police services for the system would be the Metro Transit Security Bureau, which is currently provided by contract by the Los Angeles County Sheriff's Department. This force would be expanded, as necessary, to serve the new system. As necessary, assistance may be requested from the local jurisdiction's police, but these incidents would be rare and would not require the local police forces to hire additional staff.

The local fire departments would provide fire protection for the Build Alternatives and would serve as the first responder in the event of a fire on the Metro System. The fire fighters would assume overall command of any fire scene in close liaison with Metro's ROC. In addition to fire suppression, the local Fire Department will also be the first response agency for medical treatment.

For all public services, response time during emergencies is critical and, for most of them, access to the sites of emergencies requires the use of public roadways. The Build Alternatives will improve the operation of the roadway network as compared to the No Build Alternative by reducing congestion and will improve emergency response times. The Build Alternatives will not affect police, fire, or emergency medical facilities adjacent to the alignment.

Operation of the Build alternatives would require the development of a comprehensive Emergency Preparedness Plan (EPP) that can be integrated with Metro's existing EPP procedures. The overall objective of emergency preparedness and planning is to ensure fast and efficient response to emergencies or disasters in a manner that minimizes risk to the safety and health of passengers, employees, and emergency response personnel as well as unnecessary property loss. The EPP will establish the roles and responsibilities that will be carried out not only by Metro personnel, but also by various emergency response agencies in the event of a fire or security emergency. To further educate the emergency responders, a Fire Life Safety Report will be developed to



explain the safety features in the proposed tunnels and station, the design specifics related to emergency access and egress, and the security and fire suppression systems.

The Build Alternatives would require special training for emergency response personnel. During the testing phase of the built alternative (before the beginning of operation), Metro would provide training to local emergency responders for practice of emergency procedures. This training would include how to access vehicles under various conditions, how to work around the direct current electrical power, access for station and tunnels, and similar information.

**Mitigation Measure SS-11a: Development and implementation of a comprehensive emergency preparedness plan (EPP), employee and emergency responders training and system design features.**

With the implementation of above mitigation measures it is anticipated that the impact will be reduced to less than adverse/less than significant.

### **7.3 Impact Remaining After Mitigation**

Implementation of the recommended mitigation measures would reduce the impacts related to safety during the construction and operational phases of the project to less than significant for all of the alternatives.



## 8.0 REFERENCES

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