



# WESTSIDE SUBWAY EXTENSION

## Cumulative Impact Assessment Technical Report



August 2010





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## Acronyms and Abbreviations

APM	automated people mover
BMP	best management practice(s)
CEQ	President’s Council on Environmental Quality
CEQA	<i>California Environmental Quality Act</i> (PRC 21000-21177)
CFR	Code of Federal Regulations
GHG	greenhouse gas(es)
HRV	heavy rail vehicles
LAX	Los Angeles Airport
L RTP	Long Range Transportation Plan
MOS	minimum operable segment
NEPA	<i>National Environmental Policy Act</i> (42 USC 4321-4347)
NPDES	National Pollutant Discharge Elimination System
PEIR	Program Environmental Impact Report
RCPG	<i>Regional Comprehensive Plan and Guide</i>
RTIP	<i>Regional Transportation Improvement Plan</i>
RTP	<i>Regional Transportation Plan</i>
SCAG	Southern California Association of Governments
SUSWMP	standard urban storm water mitigation plans
TBM	tunnel boring machine
TOD	transit-oriented development
VA	Department of Veterans Affairs
VMT	vehicle miles traveled
WCCOG	Westside Cities Council of Governments



## 1.0 INTRODUCTION

This report examines the potential cumulative impacts that could result from implementing the Westside Subway Extension Project when considered in combination with the identified past, present and foreseeable future projects.





## **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 Long Range Transportation Plan (LRTP) and the Southern California Association of Governments (SCAG) Regional Transportation Plan (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**

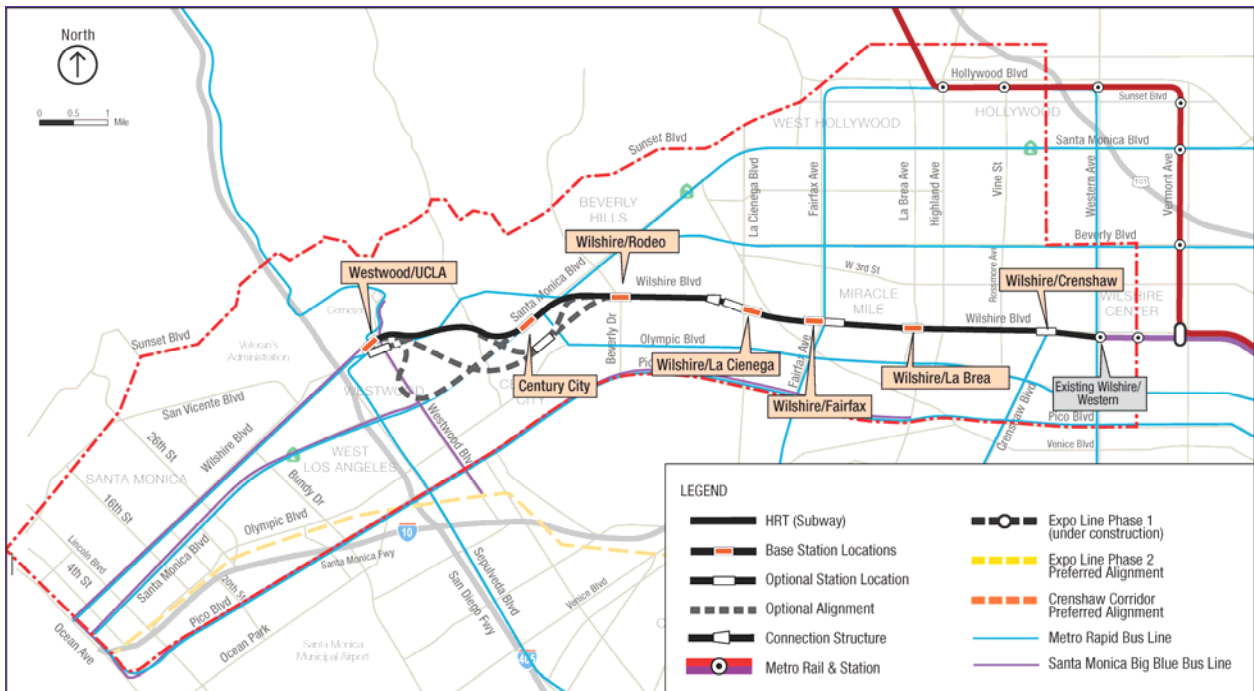
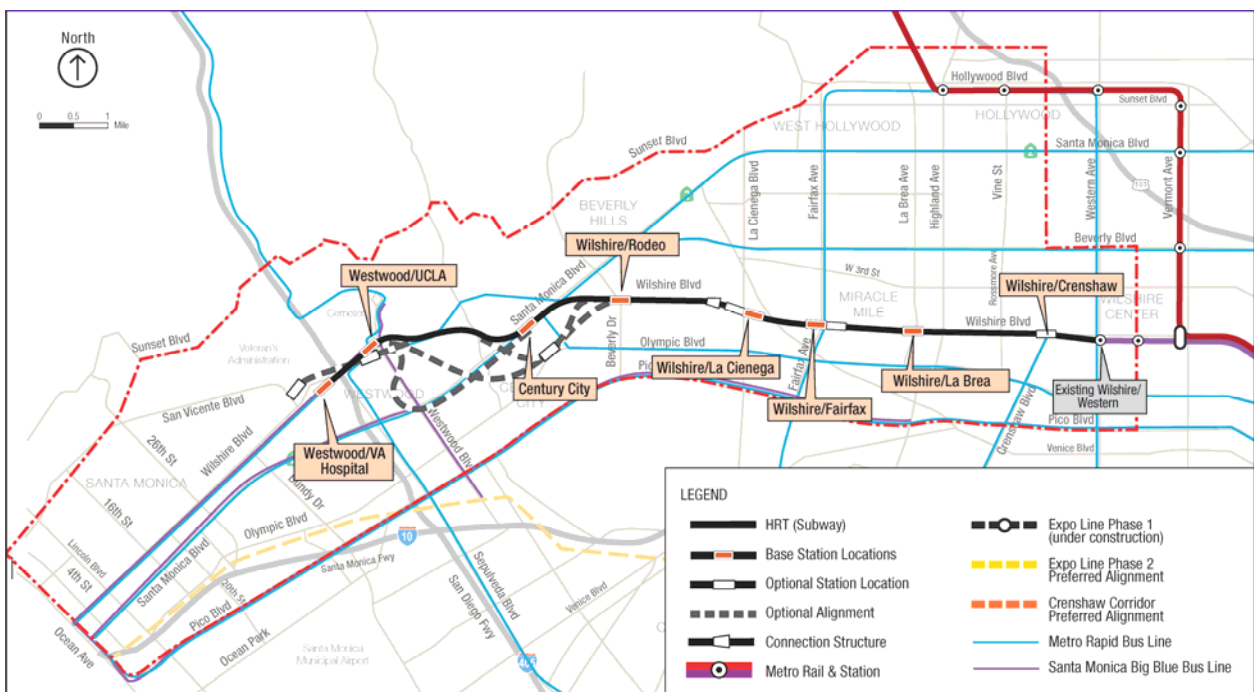
This alternative extends the existing Metro Purple Line from the Wilshire/Western Station to a Westwood/VA Hospital Station (Figure 2-2). Similar to Alternative 1, Alternative 2 extends the subway from the Wilshire/Western Station to a Westwood/UCLA Station. Alternative 2 then travels westerly under 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.

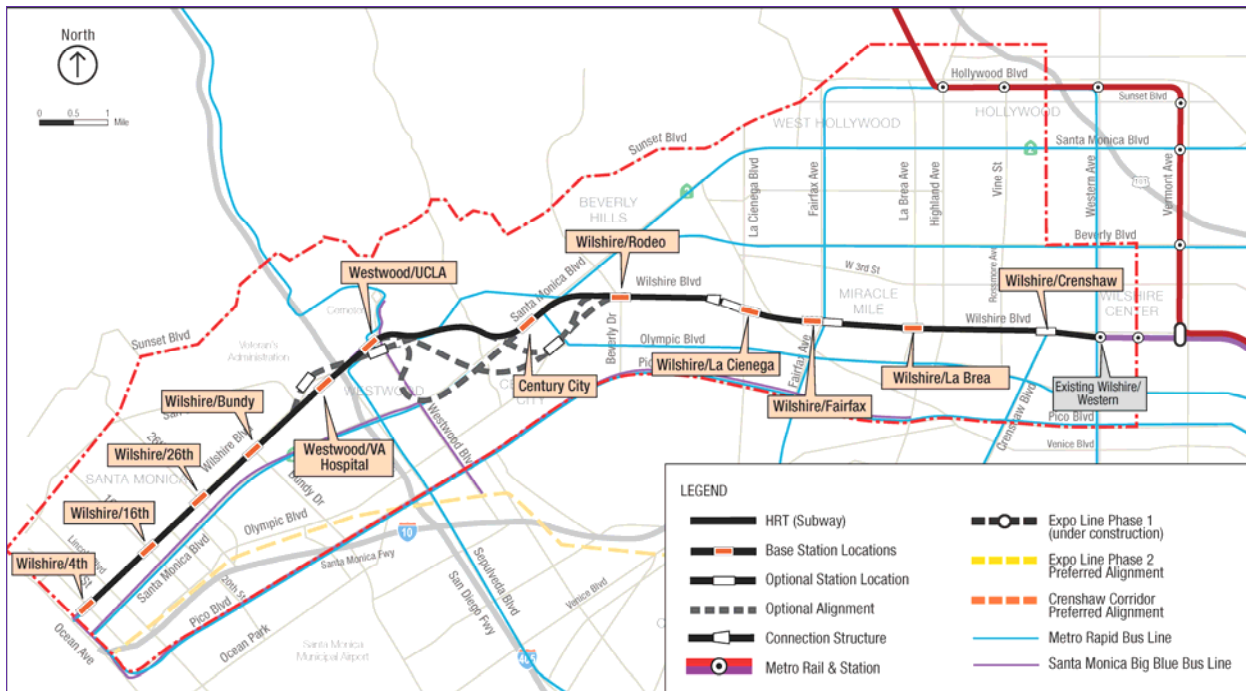
Alternative 2 would operate in each direction at 3.3-minute headways during the morning and evening peak periods and at 10-minute headways during the midday, off-peak period. The estimated one-way running time is 13 minutes 53 seconds from the Wilshire/Western Station.

### **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.

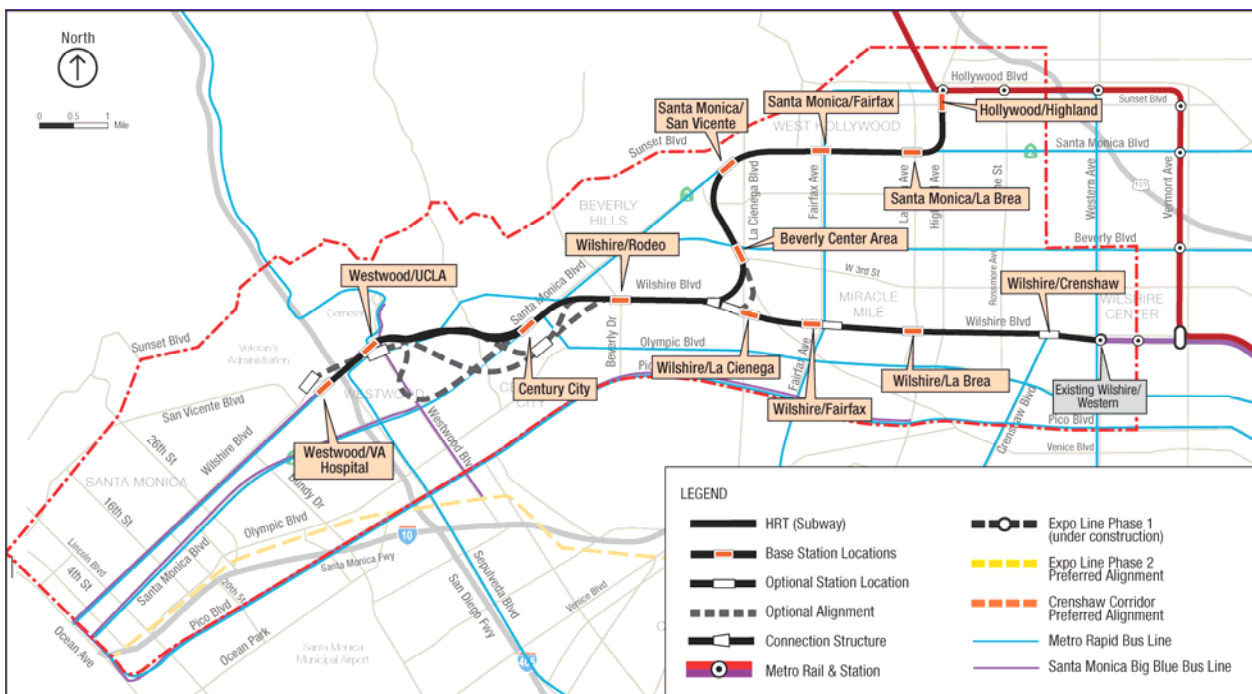
**2.3.5 Alternative 5—Santa Monica Extension plus West Hollywood Extension**

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

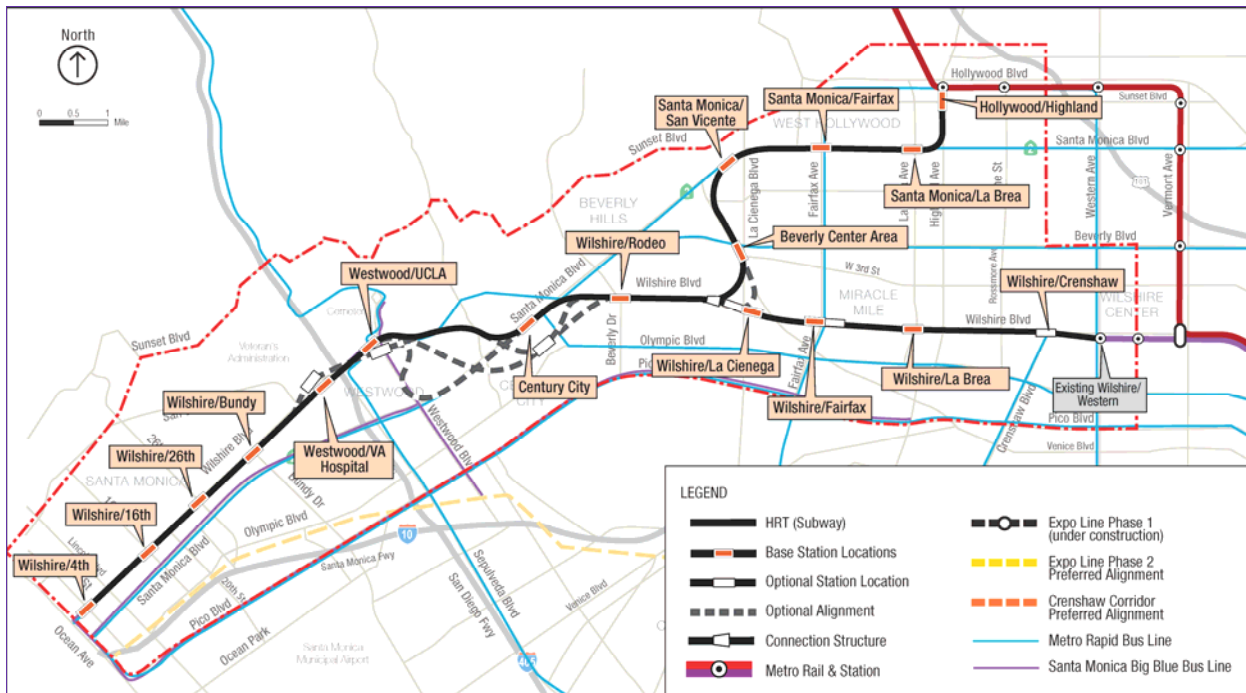
Metro Purple Line extension is 19 minutes 27 seconds, and the running time from the Hollywood/Highland Station to the Wilshire/4th Station is 22 minutes 36 seconds.

### 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		•	•	•	•

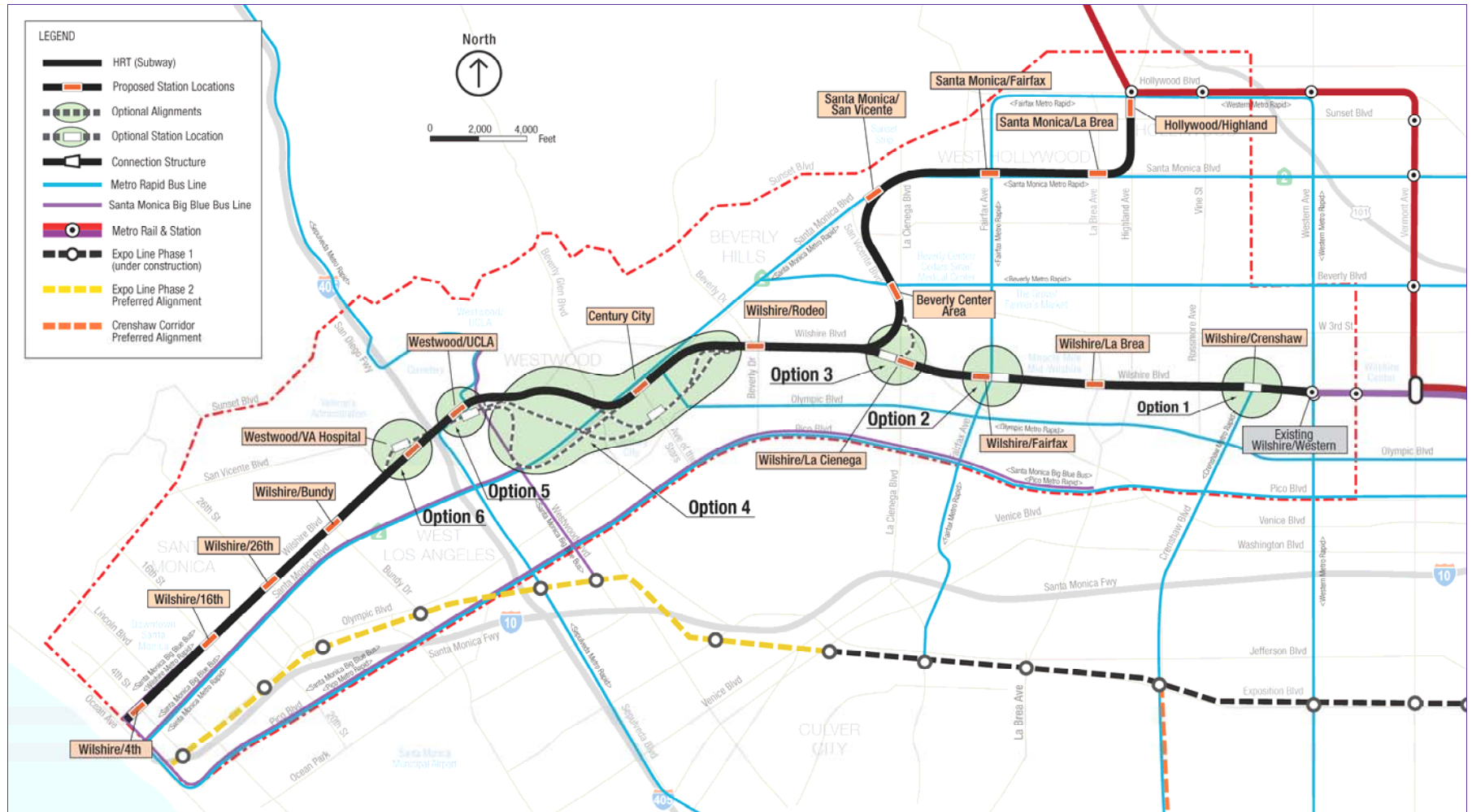


Figure 2-6. Station and Alignment Options

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).

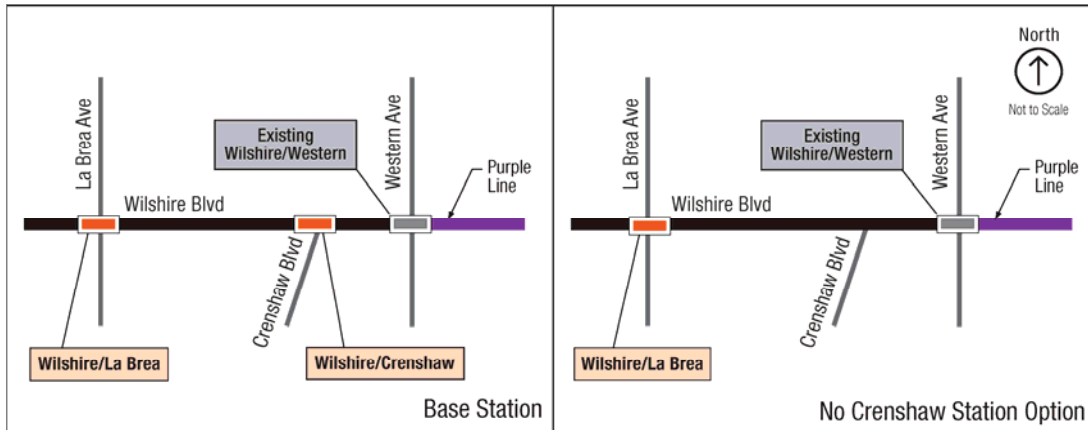


Figure 2-7. Option 1—No Wilshire/Crenshaw Station Option

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.

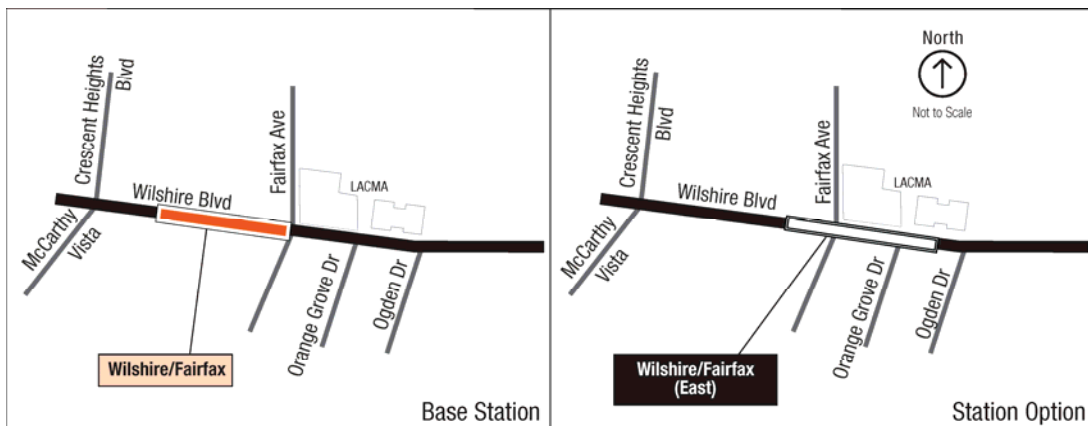


Figure 2-8. Option 2—Fairfax Station Option

### 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.

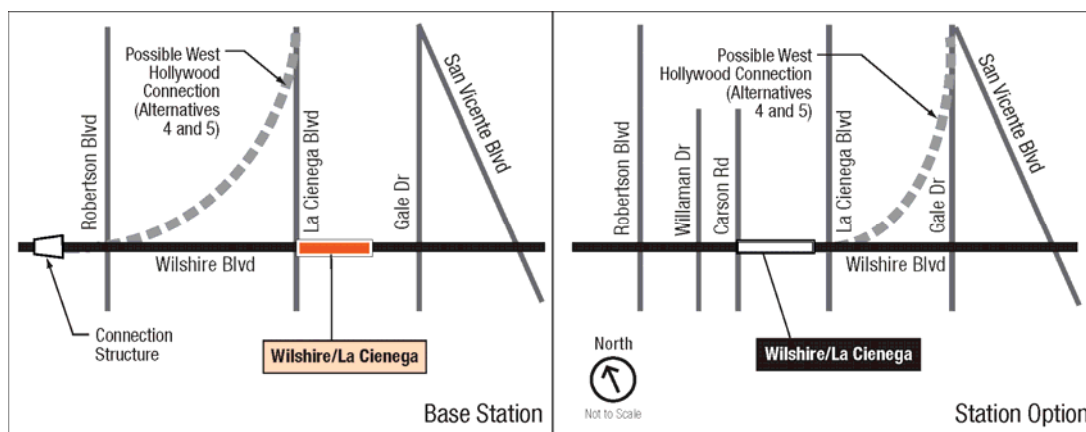


Figure 2-9. Option 3—La Cienega Station Option

### 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.

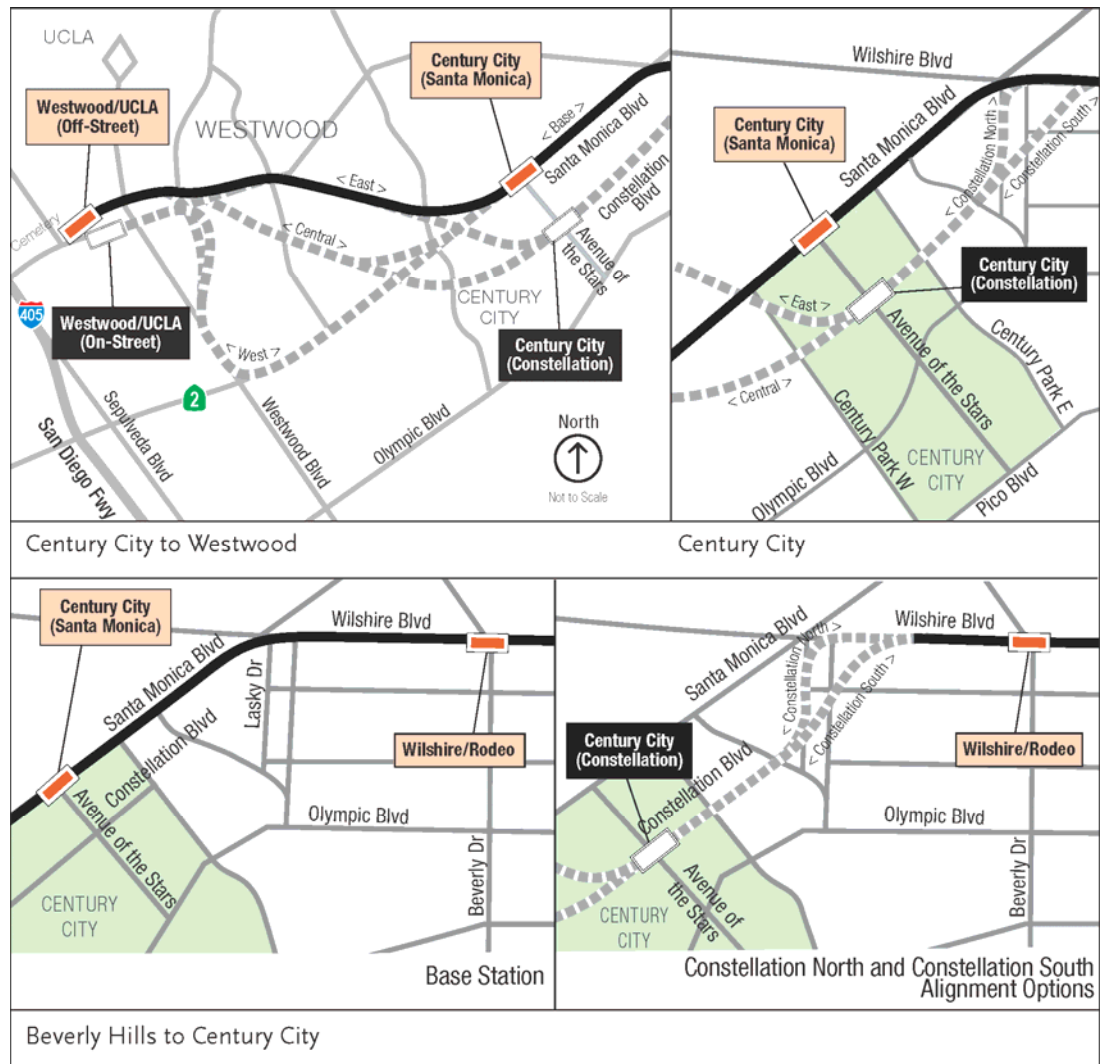


Figure 2-10. Century City Station Options

### 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).

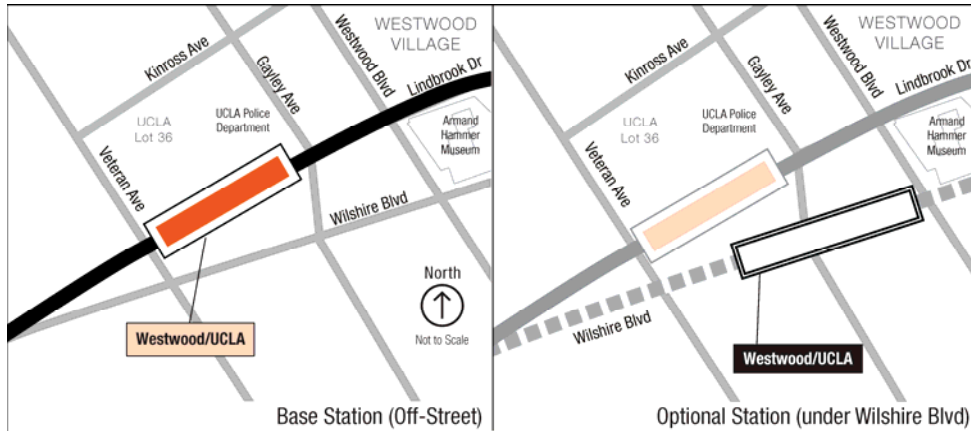


Figure 2-11. Option 5—Westwood/UCLA Station Options

### 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.

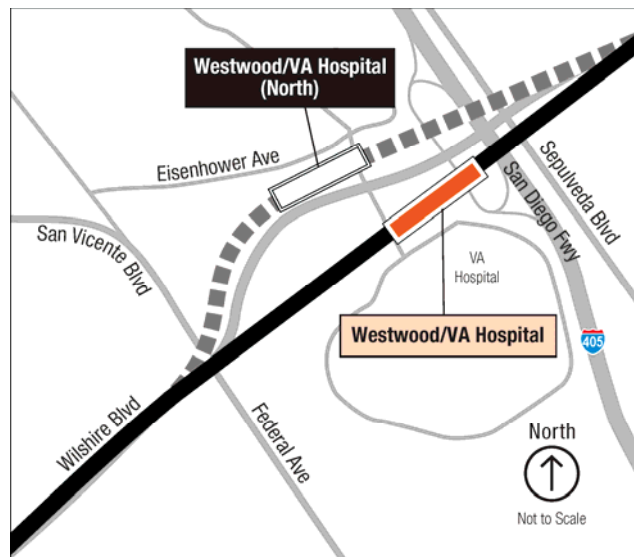


Figure 2-12. Option 6—Westwood/VA Hospital Station North

## 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
Wilshire/La Brea	Double Crossover	Double Crossover	Double Crossover	Double Crossover	Double Crossover
Wilshire/Fairfax	None	None	None	None	None

	<i>MOS 1 Only: Terminus Station with Tail tracks</i>	<i>MOS 1 Only: Terminus Station with Tail tracks</i>	<i>MOS 1 Only: Terminus Station with Tail tracks</i>	<i>MOS 1 Only: Terminus Station with Tail tracks</i>	<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 Monica/Fairfax	N/A	N/A	N/A	None	None
Santa Monica/ San Vicente	N/A	N/A	N/A	Double Crossover	Double Crossover
Beverly Center	N/A	N/A	N/A	None	None

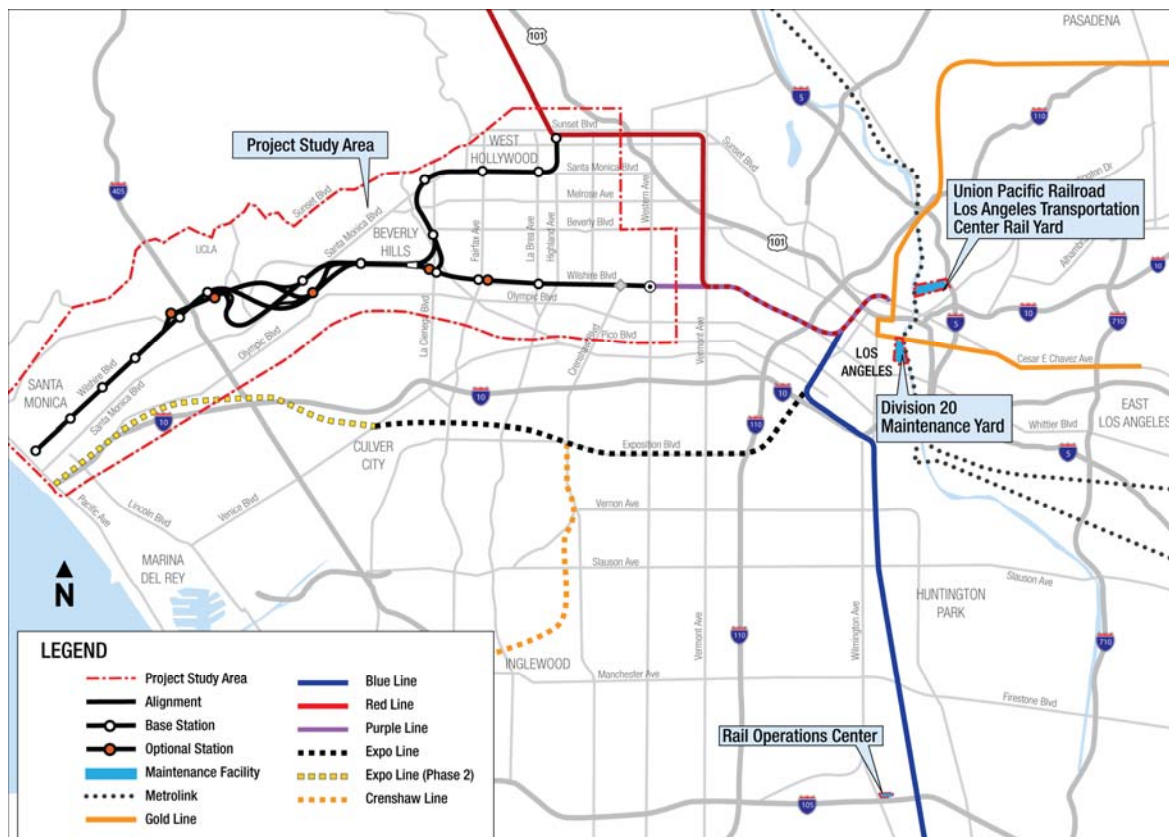
**WESTSIDE SUBWAY EXTENSION**

**Additional Special Trackwork Location (Optional Trackwork)**

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.



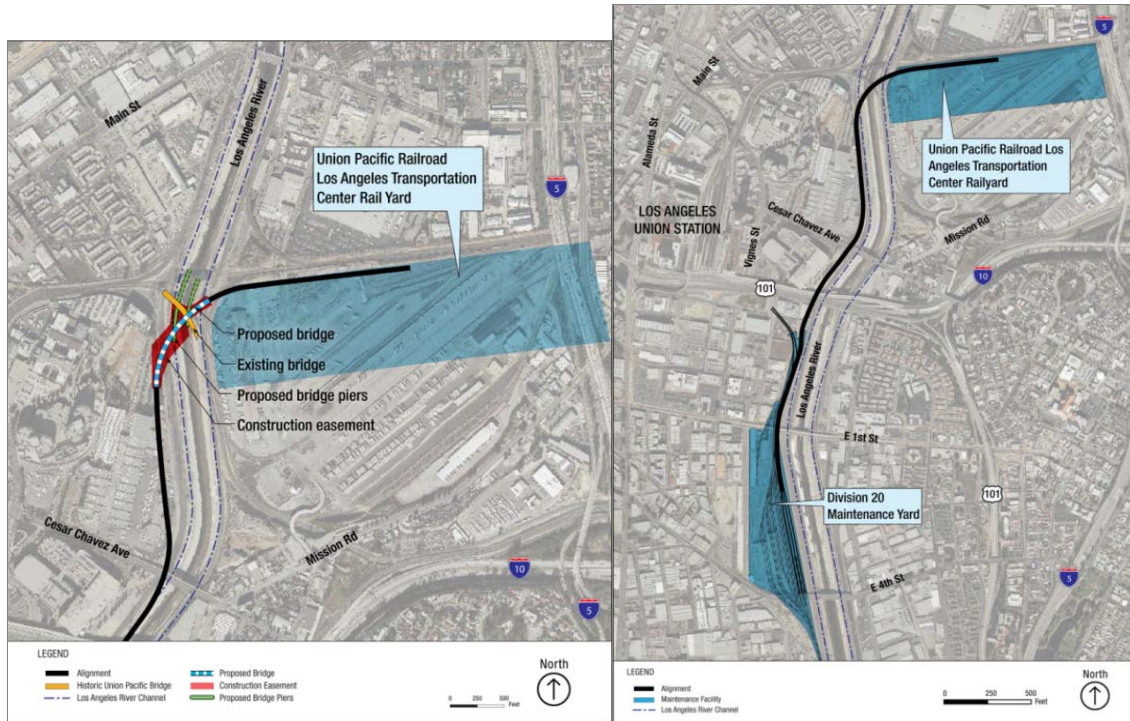
**Figure -2-13: Location of the Rail Operations Center and Maintenance Yards**

**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:

- 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 2-15).



**Figure 2-15A. UP Railroad Rail Bridge**

**Figure 2-15B. Maintenance Yard Options**

## 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



Guidance for analyzing potential cumulative impacts has been established by both federal and state regulations, as described below.

### **3.1 NEPA Guidance**

The Council on Environmental Quality (CEQ) regulations regarding the implementation of the National Environmental Policy Act (NEPA) defines cumulative effects as those effects that result from incremental impacts of a proposed action when added to past, present, and reasonably foreseeable future actions, regardless of which agency (federal or nonfederal) or person undertakes such actions.

Cumulative effects can result from individually minor, but collectively significant actions that take place over a period of time (40 CFR 1508.7).

### **3.2 CEQA Guidance**

Section 15355 of the California Environmental Quality Act (CEQA) Guidelines defines cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

Cumulative impacts can result from individually minor, but collectively significant projects taking place over a period of time (Section 15355(b)).

### **3.3 Regional Growth Management Plans**

The Southern California Association of Governments (SCAG) is the federally-designated metropolitan planning organization MPO for a 6-county southern California region (which includes the counties of Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial). SCAG develops regional growth management plans with the goals to provide for efficient movement of people, goods, and information; enhance economic growth and international trade; and improve the quality of life for the Southern California region.

The 2008 SCAG Regional Comprehensive Plan and Guide (RCPG) describes the action plan for implementing short term-strategies and long-term initiatives and guiding principles for a sustainable and livable region. The RCPG focuses on specific planning and resource management areas, including land use and housing, open space and habitat, water, energy, air quality, solid waste, transportation, security and emergency preparedness, and economy. The RCPG, Growth Management chapter addresses issues related to growth and land use and enumerates guiding principles for development that supports the overall RCPG goals.

The 2008 SCAG Regional Transportation Plan (RTP) contains regional population, housing, and employment growth projections through the year 2035. These projections are used as growth guidelines in each jurisdiction within the SCAG region.

SCAG is also conducting a comprehensive growth visioning process, the Southern California Compass. The objective of the Compass process is to further developing the ways to accommodate growth while maintaining mobility, prosperity, and sustainability goals for the region's residents.

### **3.4 Analysis Methodology**



The cumulative impact analysis follows the guidelines provided in “Considering Cumulative Effects under the National Environmental Policy Act” (CEQ, January 1997). The analysis is also consistent with CEQA guidelines, Section 15130(b)(1), which directs cumulative impact analyses to include “a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.”

This cumulative impact analysis incorporates the regional projections from the RTP. The RTP is a regional planning document that establishes the goals, objectives, and policies for the region’s transportation system and establishes an implementation plan for transportation investments through the year 2035. The SCAG region’s budget for the next 30 years totals an estimated \$568.9 billion. The RTP recommends “closing critical gaps in the transit system to improve service and extending routes to serve a greater number of passengers,” and has identified \$163.7 billion (roughly 29 percent of the budget) for proposed, committed, and programmed transit projects.

The region-wide impact analysis conducted in the 2008 RTP Program Environmental Impact Report (PEIR) (SCH No. 2007061126, May 2008) serves as the basis for this cumulative impacts analysis , pursuant to Section 15130(b)(1) of the CEQA guidelines.

In addition to long-term cumulative effects, cumulative effects associated with short-term (temporary) construction effects of the Project when combined with potential construction effects of other transportation, including transit, projects are also addressed.





## **4.0 EXISTING CONDITIONS/AFFECTED ENVIRONMENT**

### **4.1 Study Area**

The study area for cumulative effects generally encompasses the SCAG region, including the areas traversed by the Project, i.e. the two SCAG subregions comprised of the City of Los Angeles and the Westside Cities Council of Governments (WCCOG) subregions - where the Cities of Beverly Hills, West Hollywood and Santa Monica are located. The SCAG region encompasses 6-county southern California region (including counties of Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial).





## 5.0 ENVIRONMENTAL IMPACT/ENVIRONMENTAL CONSEQUENCES

### 5.1 No Build Alternative

The No Build Alternative includes all existing highway and transit services and facilities, and the committed highway and transit projects in the *2009 Metro Long Range Transportation Plan* (LRTP) and the *2008 SCAG RTP*.<sup>1</sup> Under the No Build Alternative, no new infrastructure would be built within the study area, except for projects currently under construction or projects funded for construction, environmentally cleared, planned to be operating by 2035, and identified in the Metro LRTP. These projects and their anticipated completion dates are:

Exposition Boulevard Light Rail Phase 1 (Expo 1), summer 2011

Exposition Boulevard Light Rail Phase 2 (Expo 2), 2015

Gold Line Foothill Extension, 2017

Eastside Transit Corridor Phase 2, 2035

Crenshaw Transit Corridor Project, 2018

Green Line Extension to Los Angeles Airport (LAX), 2035

South Bay Green Line Extension to Torrance Transit Center, 2035; and

The LAX automated people mover (APM), 2028, depending on the availability of funding

These projects are anticipated to be completed and operational within the same planning horizon as the proposed Westside Subway Extension project. Of these projects, Expo Phase 1 and Phase 2 and the Crenshaw Transit Corridor project would be located closest to the proposed Westside Subway Extension Project.

In addition to the Metro lines, the No Build Alternative includes the proposed LAX Automated People Mover, which is part of the LAX Master Plan. The No Build Alternative also includes all the existing bus service provided by LA Metro and other transit agencies and incorporates the following three planned projects: the Metro Orange Line Extension which is expected to be in service in 2012; Wilshire Bus Rapid Transit Design and construction that is expected to begin in late 2010, and the 910 El Monte Station–Artesia Transit Center via Downtown, that started in December 2009. The nearly completed Metro Rapid Bus Program is also included.

The region-wide impact analysis conducted in the PEIR (SCH No. 2007061126, May 2008) identified considerable cumulative effects associated with the 2008 RTP, which is included in the No Build Alternative. These effects are a result of a substantially increased urbanization within the SCAG region by 2035. The provision of new and enhanced transportation projects and improvements under the No Build Alternative would increase mobility and provide opportunities for local land use development -

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<sup>1</sup> Metro is working with SCAG to update the RTP, which would add the projects identified in Metro's LRTP into the RTP. It is anticipated that the update will be completed in Summer 2010.

including transit-oriented development (TOD) within the region, and thus, influence the urbanization pattern.

The associated cumulatively considerable effects identified in the 2008 RTP Program EIR include: traffic; air quality (short-term and long term effects associated with criteria air pollutant emissions and green house gas emissions from construction and operation activities); visual character; biological resources; cultural resources; energy consumption; geotechnical hazards; hazardous materials transport to areas outside the SCAG region; land use; noise (as a result of expanded or new transportation facilities and increased use of existing transit facilities); open space; some public services and utilities; fire hazard; water quality and flooding; and existing water supplies and infrastructure.

## 5.2 TSM Alternative

The TSM Alternative enhances the No Build Alternative by expanding the Metro Rapid bus services operating in the Westside Transit Corridor. This alternative emphasizes more frequent service to reduce delay and enhance mobility. In addition to the local bus routes, a Metro Rapid Bus route would also be enhanced as part of the TSM Alternative. This route includes Santa Monica–Commerce via Wilshire Boulevard and Whittier Boulevard (Line 720). The enhanced bus services would not result in a substantial permanent change to the physical environment of the Study Area or the region. However, with the additional bus service, this alternative would contribute to the No Build Alternative’s cumulatively considerable effects associated with an increase in regional traffic and with air pollutant emissions, even though Metro operates natural gas-powered “clean air” bus system that is one of the lowest emissions generating systems in the nation and its contribution to the cumulative impact would therefore be relatively limited.

## 5.3 Build Alternatives

In the discussion of potential impacts, the Build Alternatives are addressed as a group, not individually, because potential impacts would be the same or similar for each of the Build Alternatives. It is important to note that while potential impacts would be generally similar, they would increase as the length of the proposed alignment increases. Table 5-1 briefly describes the Westside Subway Extension Project Build Alternatives and their alignment lengths.

**Table 5-1: Westside Subway Extension Project Alternatives**

Number	Description	Length (miles)
1	Westside/UCLA Extension	8.60
2	Westwood/VA Hospital Extension	8.96
3	Santa Monica Extension	12.38
4	Westwood/VA Hospital Extension Plus West Hollywood Extension	14.06
5	Santa Monica Extension Plus West Hollywood Extension	17.49
MOS 1	Fairfax Extension	3.10
MOS 2	Century City Extension	6.61

MOS = minimum operable segment



Generally, the alternatives follow the Westside/UCLA Extension alignment but extend incrementally farther until the subway reaches Santa Monica. This cumulative impacts discussion provides an assessment of the overall cumulative effects of these Build Alternatives; if there are substantial impact differences among the alternatives, those differences are noted.

### **5.3.1 Transit**

The Build Alternatives would add significant additional fixed- guideway capacity under a congested corridor, and thus, the incremental effect of the Build Alternatives on the transit network would be beneficial. Even allowing time spent for accessing subway service (including vertical movement to platforms) under the Build Alternatives, they would result in substantial increases in transit speeds and reduced travel times versus the No Build and TSM Alternatives. When combined with other planned transit projects and improvements pursuant to the 2008 RTP, a significant beneficial cumulative effect would accrue to the entire SCAG region, and in particular, to the Los Angeles county subregion.

### **5.3.2 Traffic**

Project would result in one significant adverse traffic impact at one intersection (Wilshire Boulevard and 16<sup>th</sup> Street in Santa Monica) under Alternatives 3 and 5. However, this impact would be minimized with the implementation of the mitigation measure to signalize the intersection. In general, the Build Alternatives are projected to result in fewer vehicle trips and vehicle miles traveled (VMT) compared to the 2035 No Build Alternative and thus, the incremental effect of all Build Alternatives on the cumulative traffic impacts at the analyzed study intersections would not be cumulatively considerable. Therefore, the Build Alternatives would not contribute to the projected 2035 cumulative traffic increase.

### **5.3.3 Parking**

The Build Alternatives are expected to result in significant on-street parking impacts that would result from residential neighborhood spillover. The projected increase in population within a ½- mile walking distance of potential station locations would most likely result in an increase in parking demand. Therefore, the Build Alternatives' parking impact would be cumulatively considerable when considered together with the increased parking demand that would result from higher population density in station areas of the Westside Subway Extension and stations of other transit projects and improvements. The mitigation recommendations contained in the Parking Policy for the Build Alternatives or similar measures developed for each individual future transit project would be expected to help reduce the magnitude of this impact. This includes measures to monitor the on-street parking activity in the area prior to the opening of service and monitor the availability of parking monthly for six months following the opening of service. If a parking shortage is identified due to the parking activity of the Westside Subway Extension patrons, Metro shall work with the appropriate local jurisdiction and affected communities to assess the need for and specific elements of a residential permit parking program for the impacted neighborhoods. Also, Metro would consider developing a shared parking program with operators of off-street parking facilities to accommodate Westside Subway Extension parking demand, allowing subway riders to utilize excess capacity in these facilities. Nonetheless, even with the implementation of these measures,

the cumulative impact would remain significant as a result of projected regional and localized population growth and density, and the associated higher parking demand.

The Build Alternatives could result in the loss of private, off-street, non-code required parking at two station locations, the Westwood/UCLA and Westwood/VA Hospital Stations. The parking analysis indicates, that this impact would not be significant, since the parking at the VA Hospital would be replaced and it is anticipated that other parking facilities owned by UCLA would be able to absorb any displaced demand, and the parking demand itself could be reduced by the provision of the proposed new subway transportation option.

In addition, the Build Alternatives could result in the loss of private off-street parking due to the station entrances. Station entrances, including the corridor to connect the station entrance from the platform to the street-level, may impact underground parking facilities at the Beverly Center, Wilshire/La Cienega, Wilshire/Rodeo, Century City, Westwood/UCLA, Wilshire/4<sup>th</sup> Street and Santa Monica/La Brea Stations. This impact would depend on the station entrance selected. At many of these locations, the underground parking exceeds the levels required by local parking ratios. Metro would replace any impacted parking, as appropriate. Therefore, the Project's contribution to the potential cumulative impact associated with loss of off-street parking would be limited.

#### **5.3.4 Air Quality**

The Build Alternatives are predicted to reduce regional VMT and regional air pollutant emissions burden levels, and thus would not contribute to the cumulative air quality impacts. The Westside Subway Extension project is included in the Draft Amendment #08-34 to the Region Transportation Improvement Plan (RTIP) as Project ID #UT101, #1TR1002 and #1TR1003 (refer to page 5 of Draft Amendment). The Westside Subway Extension is also included in Metro's LRTP under Candidates for Private Sector Financial Participation—Transit Projects (refer to Figure K on page 25). The plan includes a transportation conformity determination for the entire region, as it accounts for future emissions from all mobile sources and ensures that attainment will not be delayed by future projects.

#### **5.3.5 Climate Change**

The project was analyzed using traffic projections that consider the foreseeable future. Though a greenhouse gas (GHG) conformity analysis is not done at this time, the project is included in the Draft Amendment #08-34 to the 2008 RTIP as Project ID #UT101, #1TR1002 and #1TR1003 (refer to page 5 of Draft Amendment). The Westside Subway Extension is also included in Metro's 2009 LRTP under Candidates for Private Sector Financial Participation—Transit Projects (refer to Figure K on page 25). As such, the project is part of a program that accounts for future criteria pollutant emissions from all mobile sources and ensures that attainment will not be delayed by future projects.

Furthermore, when considering the combined effect of reduced roadway VMT and increased power usage for the rail system, most of the project alternatives show no measurable change in GHG emissions, while those that do show a change (Alternative 4) show an overall decrease in GHG emissions. As such, the Build Alternatives are not expected to have a cumulative impact on GHG emissions.



### **5.3.6 Noise and Vibration**

Noise impacts to the environment from introducing transit system noise generally results from operations of at-grade and elevated transit systems. The Westside Subway Extension Build Alternatives would operate heavy rail vehicles (HRV) up to 60 feet below the ground surface. Noise from subway rail transit operations, including the interaction of wheels on track, motive power, signaling and warning systems would be well below ground, and noise from these components would not be audible at ground level and above. Thus, the Build Alternatives would not contribute to a cumulative noise impact from these components.

The Build Alternatives would use the existing road and sidewalk network for passenger access to the underground stations. While noise could be generated in the above-ground portion of stations from pedestrians, bicyclists, and passenger drop off activities, these activities are not significant noise generators. Any such noise would be brief and minimal, and would not result in long-term noise impacts. Each component would be typical of all stations and communities and would not result in direct or indirect impacts, or contribute to cumulative operational noise impacts.

The vibration analysis indicated that no adverse impacts associated with subway operation are anticipated. All alternatives will be designed and built in compliance with FTA noise and vibration standards to eliminate noise and vibration impact. Any groundborne noise or vibration impacts would be minimized to levels that comply with Federal noise and vibration impact criteria. Operational noise and vibration emissions from the TSM and all build alternatives of this Project would occur only at very specific locations (e.g., TPSSs, emergency electrical power generators, subway tunnel vent discharge/emergency egress locations) and do not result in area-wide impacts. Therefore, the Build Alternatives would not contribute to cumulative operational vibration impacts.

### **5.3.7 Land Use and Development**

The Build Alternatives would provide opportunities for implementing local and state land use policies or local planning objectives, which may encourage transit-oriented development, including station area planning and/or housing density bonuses adjacent to transit corridors and stations. All such future development (including mixed-use, residential, and commercial) within the County and City of Los Angeles, Westside Cities COG, and the entire SCAG region would be consistent with applicable land use and community plans and subject to all applicable requirements and regulations of local jurisdictions where the stations would be located. Therefore, the Build Alternatives are not anticipated to indirectly facilitate development either inconsistent with the applicable local land use and community plans or beyond that already anticipated in the regional plans and SCAG regional projections. Nonetheless, when combined with other transportation projects and improvements pursuant to the 2008 RTP that would provide similar development opportunities around the station areas, the indirect cumulative effect of such future development would be part of the cumulatively considerable regional impact to land use and would change land use intensity and patterns in some areas.

### **5.3.8 Community and Neighborhood Impacts**

The Build Alternatives would travel through or near numerous neighborhoods and local jurisdictions, and would not introduce any new barriers which could divide the community. The Build Alternatives together with other future transit and transportation improvements projects would provide opportunities for future stations and station area development in those neighborhoods and communities. This development is anticipated to enhance circulation and connectivity with the greater region, which in turn may help to enhance the character and cohesion of these communities and neighborhoods. Also, the new and expanded transit services would provide enhanced access directly to those neighborhoods, and by improving service throughout the day, they would improve access to and support employment opportunities and job retention, as well as the use of community, institutional, education and recreational facilities in those areas. No adverse cumulative impact is anticipated.

### **5.3.9 Parklands and Other Community Facilities**

The Build Alternatives would not reduce existing parkland or require full acquisition of community facilities, and thus, would not directly contribute to the potential cumulative impact.

Indirectly, the Build Alternatives would provide opportunities for transit-oriented development around the station areas, which includes residential uses component. Those residential uses may result in an increased demand for local parks and other community facilities, and potentially a demand for additional recreation and other facilities. When combined with similar opportunities provided by other transit and transportation improvement projects pursuant to the 2008 RTP, the potential indirect impact would be cumulatively considerable.

### **5.3.10 Visual Effects**

The visual effects analysis indicates that the Build Alternatives would not directly result in adverse impacts on scenic highways and vistas, visual character, or light and glare, and therefore, would not contribute to such direct cumulative effects. Indirectly, the Build Alternatives would provide opportunities for development around the station areas that may result in a more densely developed urban environment. When combined with similar development opportunities provided by other transit and transportation improvements projects pursuant to the 2008 RTP, the potential indirect contribution to impacts on the overall visual character of the existing landscape setting would be cumulatively considerable.

### **5.3.11 Cultural Resources**

The cultural resources assessment indicates that the Build Alternatives would affect cultural resources.

#### **5.3.11.1 Historic Resources**

All Build Alternatives would require removing two historic buildings, and Alternatives 3 and 5 would require removing an additional historic building. Removing these resources is considered a significant direct impact. When combined with potential effects of other



transit and transportation improvements projects pursuant to the 2008 RTP on historic resources, this impact would be cumulatively considerable.

#### **5.3.11.2 Archaeological Resources**

The Build Alternatives have the potential to affect previously undisturbed and some known archaeological sites and/or resources. Therefore, when combined with potential effects of other transit and transportation improvements projects pursuant to the 2008 RTP on archeological resources, this impact would be cumulatively considerable.

#### **5.3.11.3 Paleontological Resources**

All Build Alternatives involve tunneling in the soils in the general area of the La Brea Tar Pits that has yielded the heaviest concentration of known fossil deposits and provided the most prolific record of Late Pleistocene vertebrate animal life discovered anywhere in the world. Station excavation at or near such potential fossil deposits would be designed to facilitate fossil recovery. Also, Metro would coordinate with the Page Museum of La Brea Discoveries and the Natural History Museum of Los Angeles County concerning any maintenance activities that might impact paleontological resources. Overall, with an increased likelihood of encountering scientifically significant paleontological resources in soils, it is likely that the Build Alternatives would encounter previously unknown fossils as well. Therefore, this is considered a potentially significant direct impact on paleontological resources and a cumulatively considerable impact when combined with potential effects of excavation activities associated with other transit and transportation improvements projects pursuant to the 2008 RTP.

#### **5.3.12 Energy**

The Build Alternatives would use energy during operations. However, the Build Alternatives are expected to reduce automobile passenger-miles of travel and associated fossil-fuel-based energy consumption. Reducing automobile travel also reduces vehicle congestion, which reduces energy consumption associated with vehicle idling and vehicle travel at slower speeds. The Project is expected to remove passenger cars from the regional roadway network, easing the increase in regional vehicle miles traveled by 340 to 380 thousand miles and reducing mobile source energy consumption up to nearly 535 billion BTUs compared to the No Build Alternative.

All of the alternatives would decrease regional energy consumption resulting in a beneficial energy impact. The energy consumption associated with these alternatives is not considered a cumulatively considerable impact when combined with energy use associated with other transit and transportation projects pursuant to the 2008 RTP

#### **5.3.13 Water Quality**

The Build Alternatives would not result in either an increase in impervious surfaces, siltation, or changes in the existing amount or runoff patterns within the watershed. With full compliance with existing regulations (including developing and implementing site-specific standard urban storm water mitigation plans (SUSWMP) that would contain design features and appropriate best management practices (BMP) to reduce post-construction pollutants in storm water discharges and implementing identified mitigation measures, the Build Alternatives would not result in a significant water quality

impact, and their contribution to the cumulative effect on water quality within the region would be minimal.

#### **5.3.14 Geotechnical Hazards**

As with any transportation and other development projects within the seismically-active southern California region, the Build Alternatives are subject to hazard from fault rupture (the active Santa Monica fault crosses the project corridor in at least four places). While the impact from fault rupture hazard would be reduced through implementing specialized construction techniques, it cannot be completely eliminated, and therefore the Build Alternative would contribute to the significant regional cumulative effect associated with this hazard. The potential impacts from seismic ground shaking, hazardous gases, liquefaction, expansive soils, subsidence and collapse would not be significant with implementing the identified mitigation measures, and the overall contribution of the Build Alternatives to the significant cumulative regional geotechnical effects associated with the implementation of the 2008 RTP transportation projects and improvements would be limited.

#### **5.3.15 Hazardous Materials**

Several facilities included on hazardous materials site lists were identified along the Build Alternatives' alignments and the two proposed maintenance yards. Implementing the identified mitigation measures, such as evaluating whether soils and/or groundwater would require sampling to develop a soil management/groundwater management or contingency plan and implementing this plan as needed, would reduce this impact to a less than significant level. The potential hazards associated with tunneling within the methane gas soils would be reduced to a less than significant level with the identified design and operation features and no cumulative impact would occur.

#### **5.3.16 Ecosystems/Biological Resources**

The Study Area is within a densely developed and urbanized area with limited biological resources. Although 41 Federally- and/or State-listed threatened, endangered, species of concern, and/or candidate plant or wildlife species were reported by the CNDDDB and California Native Plant Society (CNPS) as occurring within the project Study Area, none of these species or suitable habitat for these species occurs in the Study Area. No wetland areas are in the Study Area. Also, the Los Angeles River in the vicinity of the Division 20 Rail Yard and Union Pacific Los Angeles Transportation Center Rail Yard is a concrete-lined channel, and no fish are expected to be present. Any removal, pruning and/or replacement of protected trees would be in compliance with applicable regulations and tree protection ordinances. Based on these factors, the Build Alternatives would not result in adverse impacts to ecosystems/biological resources. As a result, no cumulative impacts could occur.

#### **5.3.17 Construction Effects**

The construction impacts assessment indicates that the Build Alternatives would result in following cumulative impacts.

**5.3.17.1 Traffic**

Constructing the Build Alternatives would result in the temporary disruption and rerouting of traffic, including buses, which would contribute to the cumulative increases in congestion within the corridor study area. Therefore, this cumulative impact would be significant, particularly along Wilshire Boulevard, from Western Avenue (current Metro Purple Line terminus) to near Westwood Boulevard. In addition to being one of the Study Area's major travel corridors, Wilshire Boulevard is a major transit link that includes Metro Rapid bus service and a future dedicated bus lane.

**5.3.17.2 Parking**

The Study Area is densely developed and built out with limited opportunities for off-street parking. Station construction under an active thoroughfare necessitates that the station be "decked" over with a supporting steel structure and deck panels. Since the deck structure cannot be used for public parking, there would be a parking space loss. In general, public parking would spill over onto side streets on a first come basis. This spillover would be further aggravated by the parking of commuting vehicles for construction personnel. To the extent possible within this densely developed urban area that has very little available space to use for temporary parking, a separate parking area for construction personnel would be designated with busing provided to and from the work site. A separate additional area for the public to park may also be provided if there is additional space available for such temporary parking. Nonetheless, when combined with similar parking effects associated with other transit and transportation projects pursuant to the 2008 RTP, the public parking loss during construction would be a significant cumulative impact.

**5.3.17.3 Pedestrian and Bicycle Circulation**

High levels of transit boarding activities occur along the affected portions of Wilshire Boulevard, including station locations such as Fairfax Avenue, Century City, and Westwood Boulevard. In Westwood, affected transit operations include buses operated by Metro, Santa Monica Transit Big Blue Bus, Culver City Bus, and the UCLA Campus Shuttle. Pedestrian and bicycle movements could be affected at bus stops, street crossings, and along portions of streets affected by construction. Pedestrian and bicycle access in the construction areas could also be affected. This includes street crossings, movements along sidewalks/bike lanes, access to local businesses, and access/waiting involving existing bus zones, which require temporary pedestrian diversions. The Build Alternatives would be a component of regional disruptions associated with construction of the 2008 RTP transportation projects and improvements on pedestrian and bicycle circulation. With numerous transit and other transportation projects planned for construction within the same planning horizon as the proposed Westside Subway Extension Project, construction overlap among those projects is highly likely. When combined, the cumulative effect would be considerable within some areas.

**5.3.17.4 Air Quality**

Constructing the Build alternatives, including stations, support facilities, subway tunnels and infrastructure, would result in emissions from construction equipment and dust from excavations. Except for nitrous oxides (NO<sub>x</sub>), construction emissions of criteria pollutants would be below SCAQMD thresholds. The Build Alternatives would contribute to a cumulative effect of NO<sub>x</sub> emissions during construction. Although with the implementation of mitigation measures emissions of PM<sub>10</sub> and PM<sub>2.5</sub> for the Build

Alternatives would be below SCAQMD thresholds, the Study Area is in a nonattainment area for these pollutants. The Build Alternatives would contribute to cumulative effects in regards to  $PM_{10}$  and  $PM_{2.5}$ . When combined with construction-related emissions generated by other transit and transportation projects, the cumulative air quality impact for NOx and particulate matter would be significant.

**5.3.17.5 Noise and Vibration**

Construction noise and vibration impacts include noise and vibration associated with construction activities and equipment, rerouting traffic, employee vehicle trips, and truck traffic along haul routes. When combined with potential concurrent construction of other projects, the cumulative impact would be significant, albeit intermittent at various locations.

**5.3.17.6 Community and Neighborhood Effects**

Constructing the Build Alternatives would be disruptive. However, construction would be phased and not all of the project communities would experience construction effects at the same time. Nonetheless, if the Westside Subway Extension Project occurs at the same time as other projects in a particular community, cumulative effects associated with noise and vibration, street closures and traffic, parking, aesthetics, access to businesses, parks and public facilities, and other construction-related effects would be significant during construction.

**5.3.17.7 Hazardous Materials**

Construction would involve excavating and transporting soils affected by hazardous materials (spoils) for disposal. While contaminated groundwater may be encountered during tunneling and other excavations, groundwater treatment during excavation and/or tunneling activities would ensure that no contaminated water enters the waterways.

Spoils would be disposed off-site at licensed disposal facilities. However, because all tunneling would be performed with pressure-face tunnel boring machines (TBM), the spoils would undergo partial treatment (drying of EBB-TBM spoil; or de-sanding and other processing of slurry-TBM spoil), on-site before being loaded on trucks for off-site disposal. After treatment, those spoils would be disposed at appropriate licensed facilities. Since there is only a limited number of disposal facilities within the SCAG region, when combined with disposal associated with constructing other transit and transportation projects pursuant to the RTP, the cumulative effect of transporting hazardous materials outside the SCAG region would be significant.

**5.3.17.8 Water Quality**

Constructing the Build Alternatives would proceed in strict compliance with existing regulations and requirements, including National Pollution Discharge Elimination System (NPDES) permit requirements, incorporating best management practices, and implementing a standard urban stormwater management plan. The construction would not result in converting pervious land to impervious land or in a substantial alteration of the existing amount or pattern of runoff. As such, no substantial increases in erosion, siltation, flooding, or exceedance of the storm water drainage systems capacity would occur. As a result, no significant impact to water quality is anticipated and the project's contribution to cumulative impacts on water quality from construction would be limited.

**5.3.17.9 Visual Effects**

Temporary impacts during construction, including increased dust, stockpiling construction related materials, presence of heavy equipment (i.e., cranes, bulldozers, graders, scrapers, and trucks), temporary barriers and enclosures would result in an adverse and locally significant impact on the visual environment. With similar effects associated with construction of other transit and transportation projects pursuant to the 2008 RTP, the combined impact would be significant, albeit dispersed throughout the area and the region.

**5.3.17.10 Biological Resources**

The project area is a densely developed urban area with limited biological resources. However, construction within such an area could result in removing locally protected trees, and tree removal permits would be required to replace or otherwise mitigate the loss of these resources. Also, the existing urban landscape may provide nesting habitat for migratory birds at some locations. If so, construction may disturb nesting habitat during the migratory birds breeding season at those locations. In such instances mitigation would be implemented to reduce migratory birds' impacts as required under the Migratory Bird Treaty Act. Implementing these measures, would reduce such potential impacts to a less than significant level. Since the Build Alternatives would be contained within a densely built-out urban environment and not affect undisturbed natural areas, the potential to contribute to significant cumulative effects on biological resources - including wetlands, sensitive habitats, and wildlife movement corridors, is limited.

**5.3.18 MOS 1—Fairfax Extension and MOS 2—Century City Extension**

As both MOS 1 and MOS 2 represent potential phases of the Project, cumulative effects associated with these segments are similar to cumulative effects associated with Build Alternatives as discussed in Section 5.3. The implementation of interim terminal stations at Wilshire/Fairfax and Century City would result contribute to cumulative impacts similar to the Build Alternatives, particularly in regards to spillover parking at the terminal stations.

**5.3.19 Alignment Options**

The impacts related to cumulative effects of any of the station and alignment options are generally the same as those discussed for Build Alternatives in Section 5.3.





## 6.0 REFERENCES

- SCAG 2008a Southern California Association of Governments, Regional Council. 2008. *2008 Regional Transportation Plan* (RTP).
- SCAG 2008b Southern California Association of Governments, Regional Council. 2008. *2008 Regional Transportation Plan Program Environmental Impact Report* (PEIR).