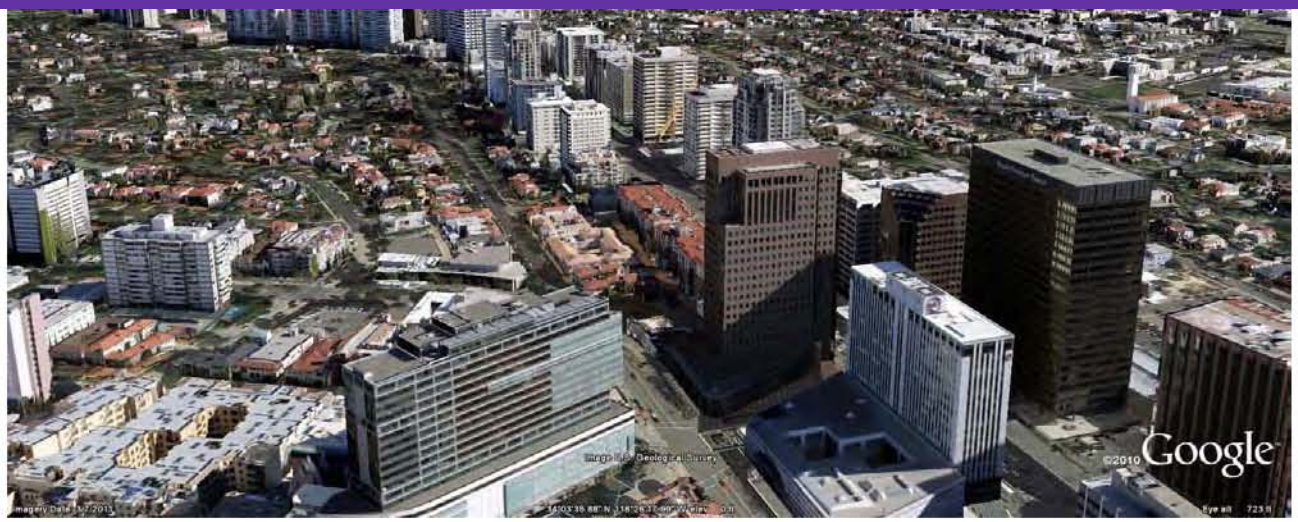
Los Angeles County
Metropolitan Transportation Authority

Westside Subway Extension

Final Environmental Impact Statement/Environmental Impact Report

> **Executive Summary**
March 2012



Westside of Los Angeles (Westwood Village looking east toward Century City and Downtown Los Angeles)

This Executive Summary provides an overview of the information contained in the Westside Subway Extension Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR).

Metro

U.S. Department of Transportation
Federal Transit Administration

Introduction

The U.S. Department of Transportation Federal Transit Administration (FTA) and the Los Angeles County Metropolitan Transportation Authority (Metro) are analyzing the Los Angeles Westside Subway Extension. On October 28, 2010, the Metro Board of Directors selected the Westwood/VA Hospital Extension (Alternative 2 in the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR)) as the Locally Preferred Alternative (LPA) for further evaluation in this Final EIS/EIR.

The LPA will improve mobility and provide fast, reliable, high-capacity, and environmentally sound transportation solutions in the Westside of Los Angeles.

This Final EIS/EIR for the LPA was prepared, with specific direction from the Metro Board of Directors, to further evaluate station and alignment options and rail support facilities. The Final EIS/EIR evaluation includes two station location options for each of the Century City, Westwood/UCLA, and Westwood/VA Hospital Stations, and station entrance options at most of the LPA station locations. The results of these evaluations will be used by the Metro Board of Directors to select the project for implementation (Figure S-1).

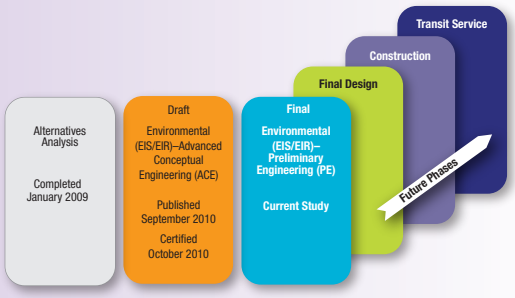


Figure S-1. Steps in the FTA Project Development Process

At the conclusion of the Final EIS/EIR process, a Notice of Determination will be issued by the State and a Record of Decision will be issued by FTA, thereby completing the environmental clearance process.

The Study Area population and employment densities are among the highest in the metropolitan region. Approximately 5 percent of the Los Angeles County population and 10 percent of the jobs are concentrated in the Study Area.

The Study Area for the Project is located in western Los Angeles County and encompasses approximately 38 square miles. The Study Area is east/west oriented and includes portions of the Cities of Los Angeles, West Hollywood, Beverly Hills, and Santa Monica, as well as portions of unincorporated Los Angeles County. The Study Area boundaries generally extend north to the base of the Santa Monica Mountains along Hollywood, Sunset, and San Vicente Boulevards; east to the Metro Rail stations at Hollywood/Highland and Wilshire/Western; south to Pico Boulevard; and west to the Pacific Ocean (Figure S-2).

The LPA will extend heavy rail transit (HRT), in subway, approximately 9 miles from the existing Metro Purple Line western terminus at the Wilshire/Western Station to a new western terminus at the West Los Angeles Veterans Affairs (VA) Hospital (Westwood/VA Hospital Station, (Figure S-3)). The LPA will include seven new stations spaced in approximately 1-mile intervals, as follows:

- Wilshire/La Brea
- Wilshire/Fairfax
- Wilshire/La Cienega
- Wilshire/Rodeo
- Century City (Century City Santa Monica or Century City Constellation)
- Westwood/UCLA (Westwood/UCLA On-Street or Westwood/UCLA Off-Street)
- Westwood/VA Hospital (Westwood/VA Hospital South or Westwood/VA Hospital North)

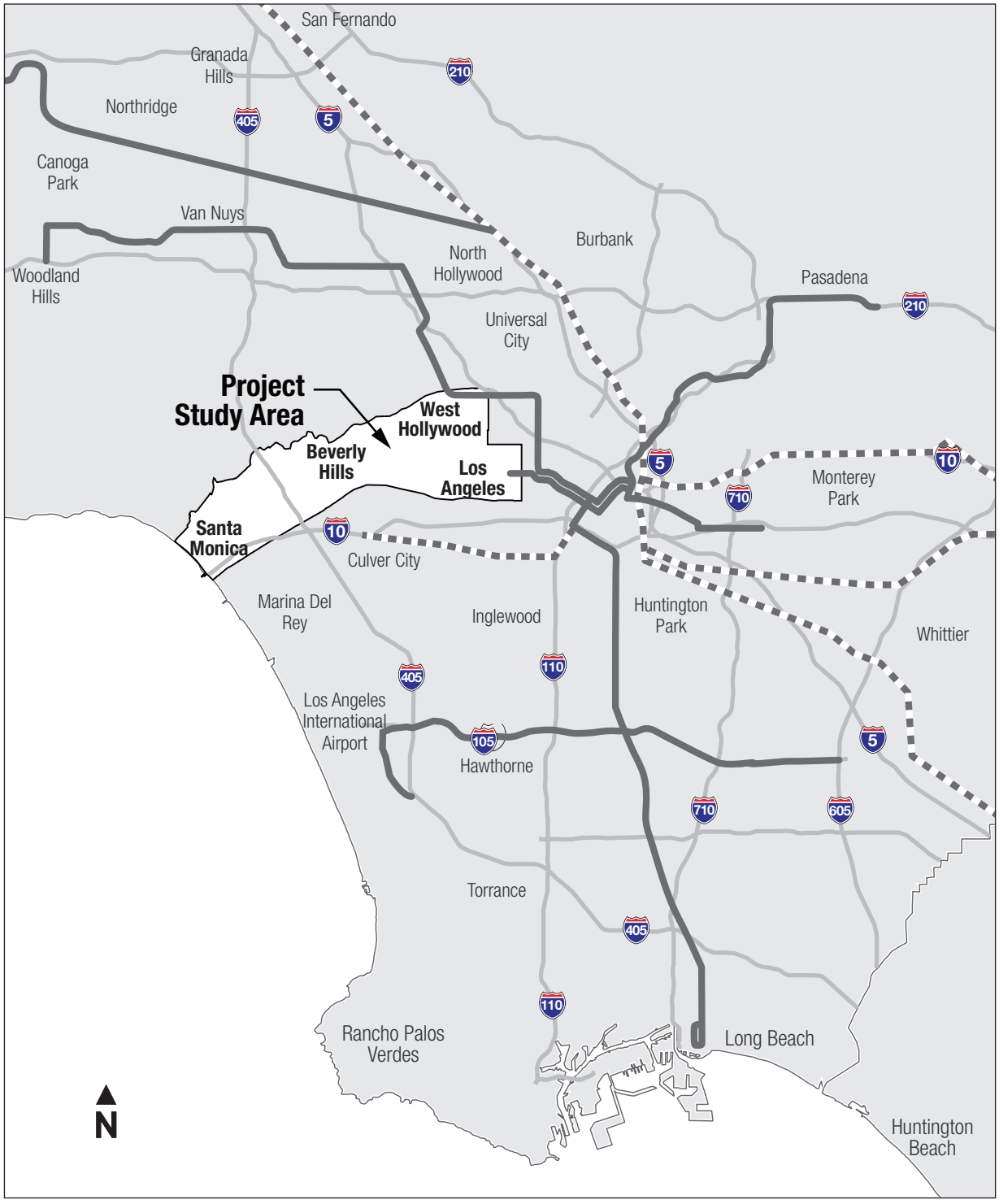


Figure S-2. Westside Subway Extension Project Area

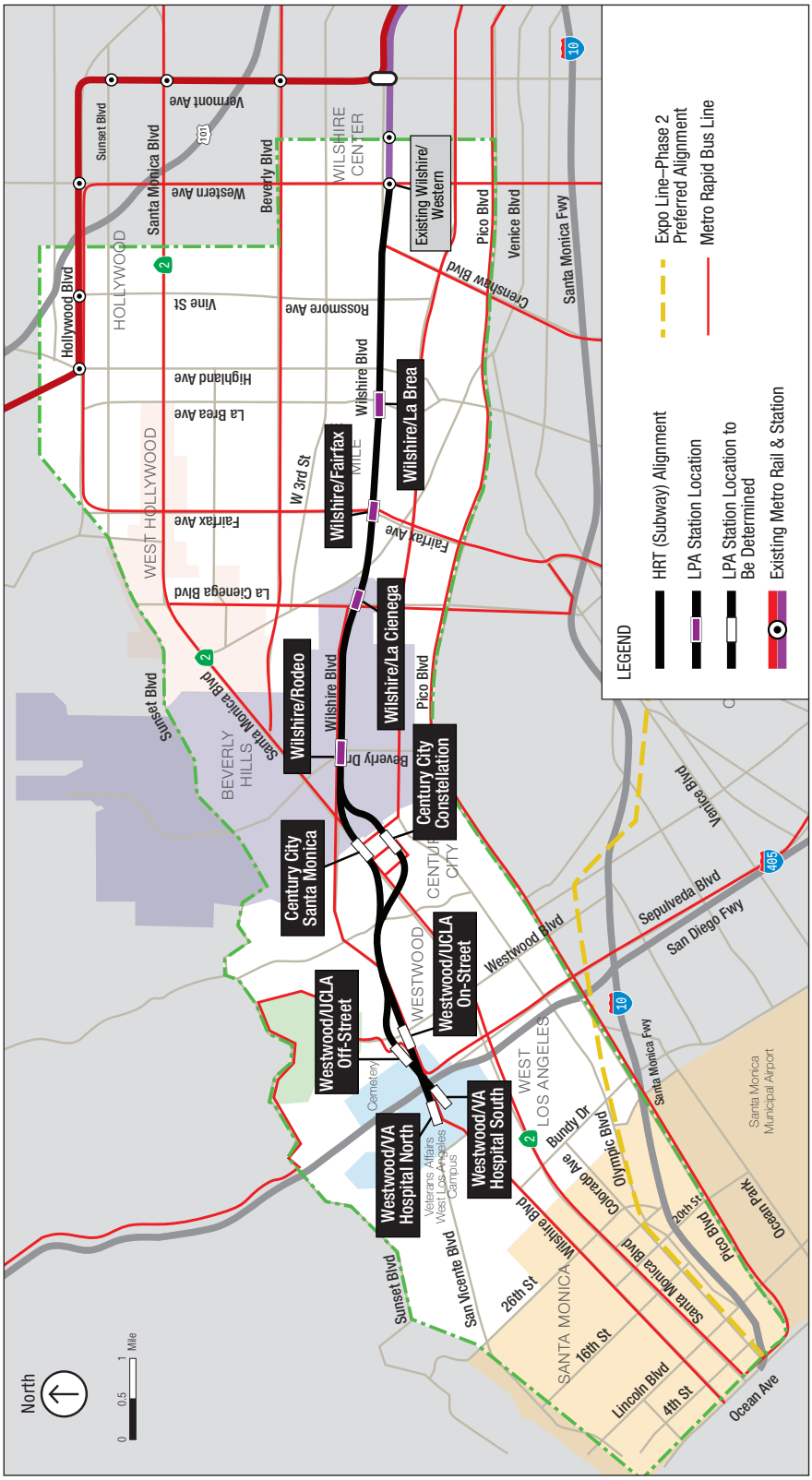


Figure S-3. Westside Subway Extension Project

The estimated one-way running time ranges from approximately 14 minutes, 26 seconds to 15 minutes, 21 seconds from the Wilshire/Western Station to the Westwood/VA Hospital Station depending on the alignment between the Wilshire/Rodeo and Westwood/VA Hospital Stations. Total projected daily boardings for the LPA range from approximately 46,000 to 49,300 per day.

> Recommendations for further refinements to the LPA are detailed on page S-87 of this Executive Summary and Chapter 7 of the Final EIS/EIR. The Metro Board of Directors will decide on further refinements to the LPA following the circulation and public review of this Final EIS/EIR.

As part of the LPA, Metro also is planning several enhancements to the Division 20 Maintenance and Storage Facility located in Downtown Los Angeles. All of the LPA elements are listed in Table S-1 and are detailed in Chapter 2 of this Final EIS/EIR.

The construction schedule for the LPA is partially dependent on the timing of Federal funding availability. Two LPA construction scenarios are considered in this Final EIS/EIR – the America Fast Forward (30/10) Scenario (Concurrent Construction) and the Metro Long Range Transportation Plan (LRTP) Scenario (Phased Construction).

Under the Concurrent Construction Scenario, the LPA is expected to be operational to Westwood/VA Hospital in 2022, with construction beginning in 2013. Under this scenario, the parallel construction of portions of the alignment and stations will allow the entire LPA to be open and operational at the same time rather than opening in phases.

In the event that accelerated Federal funding is not secured, the LPA will be constructed in three sequential phases under the Phased Construction Scenario. The first phase to the Wilshire/La Cienega Station will open in 2020; the second phase to the Century City Station will open in 2026; and the final phase to the Westwood/VA Hospital Station will open in 2036.

The LPA is estimated to cost approximately $5.66 billion (in Year of Expenditure dollars) if constructed under the Concurrent Construction Scenario. Alternatively, if the LPA is constructed under the Phased Construction Scenario, it is estimated to cost approximately $6.29 billion (in Year of Expenditure dollars).

Stations

Typical HRT stations consist of a station "box," or area in which the basic components are located. The station box will be accessed from street-level entrances by stairs, escalators, and elevators that will bring patrons to a concourse level where the ticketing functions and fare gates will be located. The 450-foot-long platforms will be one level below the concourse level and will allow level boarding (the train car floor will be at the same level as the platform) for full accessibility. Stations will have a center platform.

Each station will be constructed with one entrance, with the exception of the Westwood/UCLA Station, which will have two entrances due to projected high ridership. This Final EIS/EIR analyzes several possible station entrance locations for a number of the stations. The station entrance location recommendations are detailed on page S-87 and will be decided by the Metro Board of Directors following the circulation and public review of this Final EIS/EIR.

The LPA will include seven new stations, each serving major activity and employment centers on the Westside of Los Angeles.

Table S-1. LPA Elements

LPA Element	Description
Tunnel Alignment	• Approximately nine miles of twin-bored tunnels extending west from the existing Wilshire/Western Station to a Westwood/VA Hospital Station • Tunnels approximately 20 to 21 feet in diameter and bored side-by-side and separated by a pillar of ground between; subway train tracks range from 35 to more than 100 feet below the surface (Figure S-4) • Tunnels primarily under city streets and public rights-of-way; however, in a few areas between the Wilshire/Rodeo and Westwood/VA Hospital Stations, tunnels will be located beneath private properties
Stations	Seven stations located in approximately one-mile intervals along the alignment (Figure S-5): • Wilshire/La Brea • Wilshire/Fairfax • Wilshire/La Cienega • Wilshire/Rodeo • Century City[1] (Century City Santa Monica OR Century City Constellation) • Westwood/UCLA[1] (Westwood/UCLA On-Street OR Westwood/UCLA Off-Street) • Westwood/VA Hospital[1] (Westwood/VA Hospital South OR Westwood/VA Hospital North)
Station Entrances	• One station entrance at each of the seven stations, with the exception of the Westwood/UCLA Station, which will have two station entrances
Construction Laydown Areas	• Four station construction sites, each approximately one to two acres, located at the Wilshire/Fairfax, Wilshire/La Cienega, Wilshire/Rodeo, and Westwood/UCLA Stations • Three combined tunnel boring machine launch and station construction sites, each approximately three acres, located at the Wilshire/La Brea, Century City, and Westwood/VA Hospital Stations • Two additional construction staging sites to support construction activities, each approximately one acre, located at the existing Wilshire/Western Station and the Wilshire/Crenshaw intersection
Special Trackwork	• Five sets of double crossovers located at the Wilshire/La Brea, Wilshire/La Cienega, Wilshire/Rodeo, Century City, and Westwood/VA Hospital Stations • Tail tracks at the Westwood/VA Hospital Station
Traction Power Substations (TPSS)	• One TPSS at each of the seven stations, with the exception of the Wilshire/Fairfax Station
Emergency Generators	• Two emergency generators, one located at the Wilshire/La Brea Station and one located at the Westwood/VA Hospital Station
Emergency Exit Shafts	• One emergency exit shaft located at the western terminus of the tail track, west of the Westwood/VA Hospital Station
Maintenance Yard	• Expansion of the Division 20 Maintenance and Storage Facility to accommodate additional heavy rail vehicles
Replacement Parking Structure	• Permanent parking structure at the Westwood/VA Hospital South Station to replace parking losses on the VA property resulting from construction staging activities
Operating Plan	• Seven days per week, 365 days per year, 4:30 a.m. to 1:30 a.m. • Peak-period headways of 4 minutes • Off-peak headways of 10 minutes

[1]Station location to be determined by the Metro Board of Directors following the circulation and public review of this Final EIS/EIR

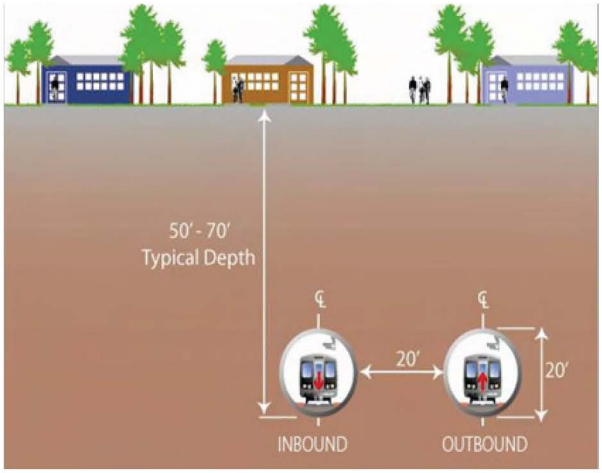


Figure S-4. Typical Subway Tunnels

Figure S-5. Typical Subway Station

The Wilshire/La Brea Station will be located in a commercial and residential area and will serve as a key transit connection (Figure S-6). The entrance will either be on the northwest or the southwest corner of the Wilshire Boulevard and La Brea Avenue intersection. The recommendation is to locate the entrance on the northwest corner at the current site of the Metro Customer Service Center. Both the northwest and southwest corners will be used as construction staging sites. If the LPA is constructed under the Phased Construction Scenario, the Wilshire/La Brea Station will be constructed as part of Phase 1.

The Wilshire/Fairfax Station will offer access to a major cultural and tourism hub, including the Los Angeles County Museum of Art (LACMA), the Page Museum, the La Brea Tar Pits, and the Petersen Automotive Museum, and it also will provide access to points north of Wilshire Boulevard, including the nearby Farmer's Market, shops along West 3rd Street and Beverly Boulevard, and The Grove (Figure S-7). The entrance will either be immediately west of Johnie's Coffee Shop on the northwest corner of Wilshire Boulevard and Fairfax Avenue, in LACMA West (the former May Company Building) on the northeast corner of Wilshire Boulevard and Fairfax Avenue, or on the southeast corner of Wilshire Boulevard and Orange Grove Avenue. The recommendation is to locate the entrance on the northwest corner, immediately west of Johnie's Coffee Shop. If the LPA is constructed under the Phased Construction Scenario, the Wilshire/Fairfax Station will be constructed as part of Phase 1.

The Wilshire/La Cienega Station will provide access to La Cienega Boulevard's "Restaurant Row" and a mixture of commercial, residential, and restaurant uses (Figure S-8). The entrance will be located on the northeast corner of the intersection of Wilshire and La Cienega Boulevards at the current site of the CitiBank building and the restaurant located immediately to the north. Construction staging and laydown areas will be located at the station entrance site and the northwest corner of Wilshire Boulevard and Gale Drive. If the LPA is constructed under the Phased Construction Scenario, the Wilshire/La Cienega Station will be constructed as part of Phase 1.

The Wilshire/Rodeo Station will serve the Beverly Hills "Golden Triangle," a local and regional commercial office and shopping destination as well as a hub for tourists visiting the famous Rodeo Drive and shops along Wilshire Boulevard, Beverly Drive, and other streets (Figure S-9). The entrance will either be on the southwest corner

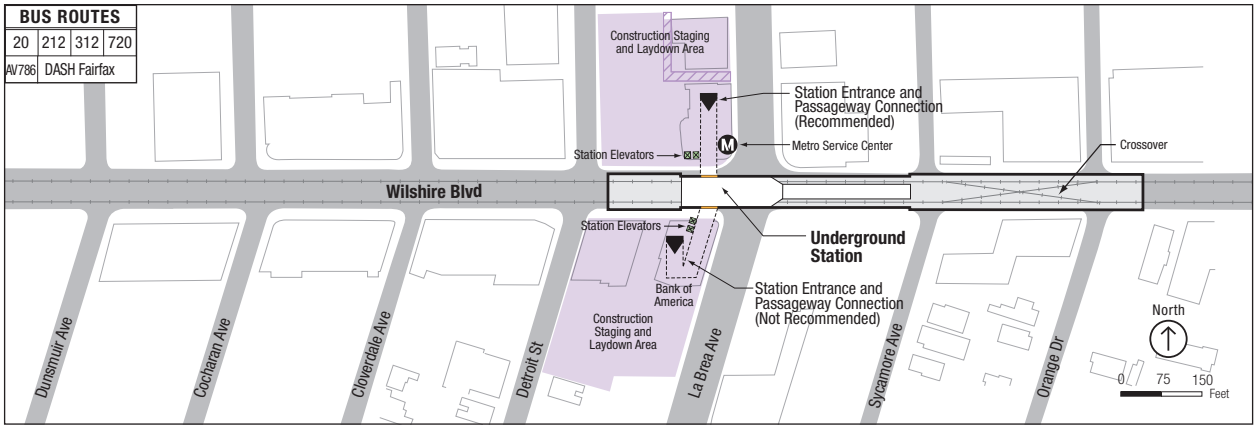


Figure S-6. Wilshire/La Brea Station

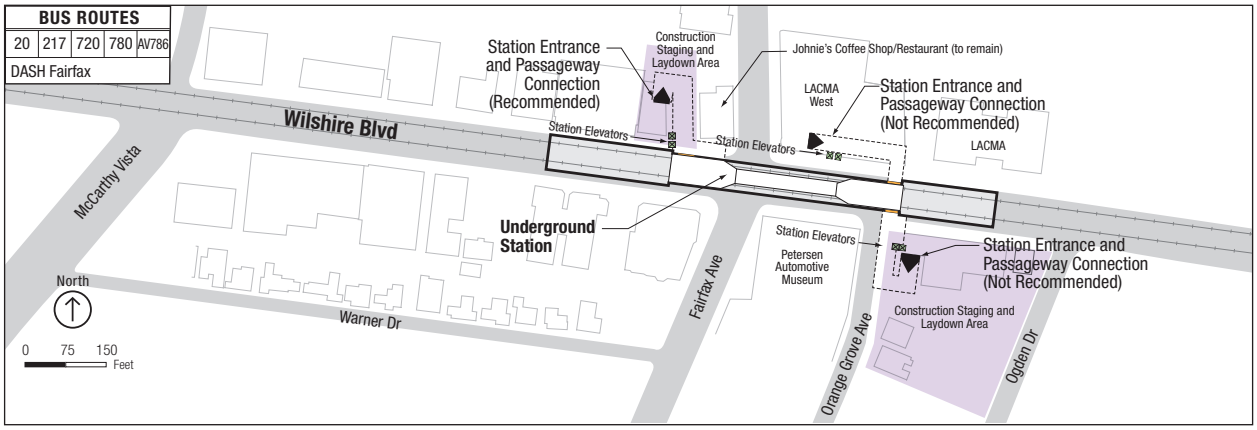


Figure S-7. Wilshire/Fairfax Station

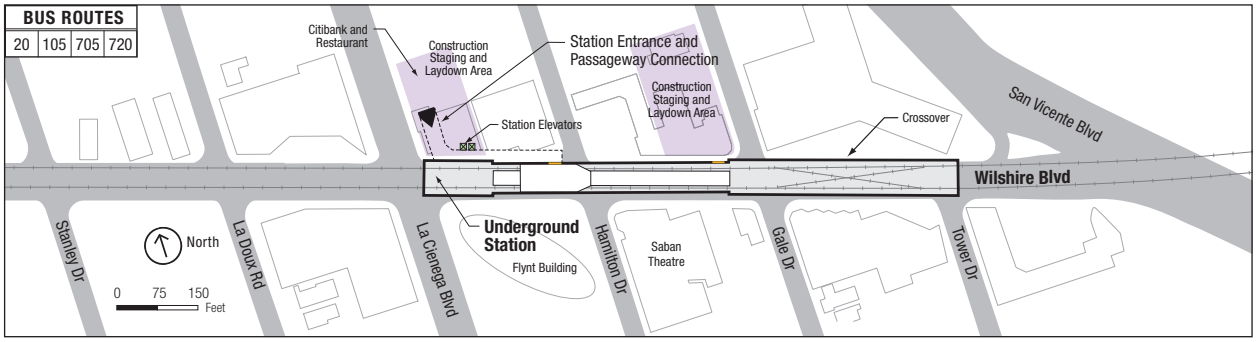


Figure S-8. Wilshire/La Cienega Station

of Wilshire Boulevard and Reeves Drive at the current site of the Ace Gallery, on the northwest corner of Wilshire Boulevard and Beverly Drive (adjacent to the Bank of America building), or on the southeast corner of the Wilshire Boulevard and El Camino Drive intersection at the current site of the Union Bank building parking garage. The recommendation is to locate the station entrance on the southwest corner of Wilshire Boulevard and Reeves Drive at the current site of the Ace Gallery. Construction staging and laydown will be located on the Ace Gallery site and the northeast corner of Wilshire Boulevard and Canon Drive. If the LPA is constructed under the Phased Construc-

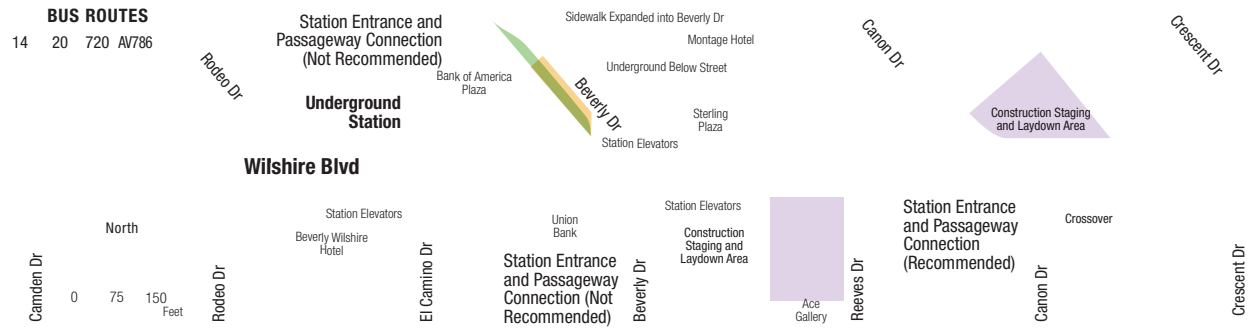


Figure S-9. Wilshire/Rodeo Station

tion Scenario, the Wilshire/Rodeo Station will be constructed as part of Phase 2.

The Century City Station will serve a high-density commercial, employment, and residential center. As part of the LPA selection at the end of the Draft EIS/EIR phase in October 2010, the Metro Board of Directors directed the continued study of two station locations in Century City (Santa Monica Boulevard and Constellation Boulevard). The location of the Century City Station will affect the tunnel alignment to the east and west of the station. The location of the Century City Santa Monica Station evaluated in this Final EIS/EIR (at Century Park East) is located farther east than the location in the Draft EIS/EIR (at Avenue of the Stars). As part of the seismic analysis, conducted during the Final EIS/EIR phase, Metro determined that the location of the Century City Santa Monica Station at Avenue of the Stars is directly above the Santa Monica Fault zone and is not a safe location and thus not considered a viable option for the station. As a result, the Century City Santa Monica Station location was shifted approximately one-third of a mile to the east to Century Park East. Subsequent to shifting the station location, further seismic and geotechnical testing were conducted in Century City, which determined that the Century City Santa Monica Station at Century Park East is located above a northern extension of the Newport-Inglewood Fault zone, and also is not a safe location and thus not considered a viable option for the station. The recommendation is to locate the Century City Station along Constellation Boulevard based on the evaluation of seismic safety as well as higher ridership projections. If the LPA is constructed under the Phased Construction Scenario, the Century City Station will be constructed as part of Phase 2.

The Century City Santa Monica Station would be located underneath Santa Monica Boulevard from just west of Century Park East to Moreno Drive. A separate crossover box would be located east of Moreno Drive. The entrance would be located on the southwest corner of Santa Monica Boulevard and Century Park East (Figure S-10). Construction staging and laydown would be located at the former Robinson May parking garage and along the median between Santa Monica Boulevard and Little Santa Monica Boulevard. Based on the *Westside Subway Extension Century City Fault Investigation Report* (Metro 2011w), this location is not considered a viable option due to seismic safety issues.

The Century City Constellation Station would be located underneath Constellation Boulevard from west of Avenue of the Stars to just west of Century Park East. The entrance would be located either at the northeast corner of Constellation Boulevard and Avenue of the Stars or at the southwest corner of Constellation Boulevard and Avenue of the Stars near the Century Plaza Hotel (Figure S-11). The recommendation is to locate the entrance on the northeast corner. Construction staging and lay-

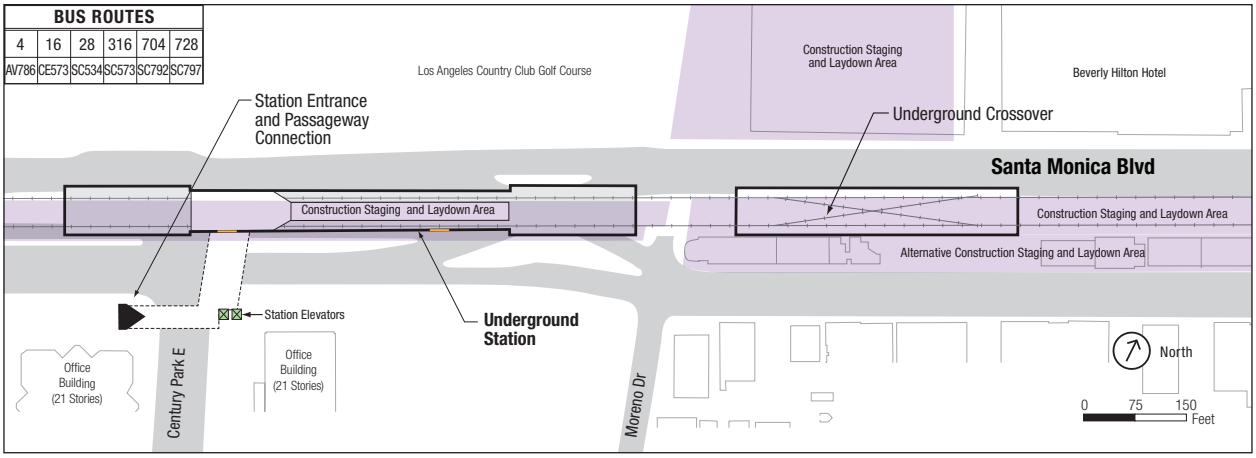


Figure S-10. Century City Santa Monica Boulevard Station (not recommended)

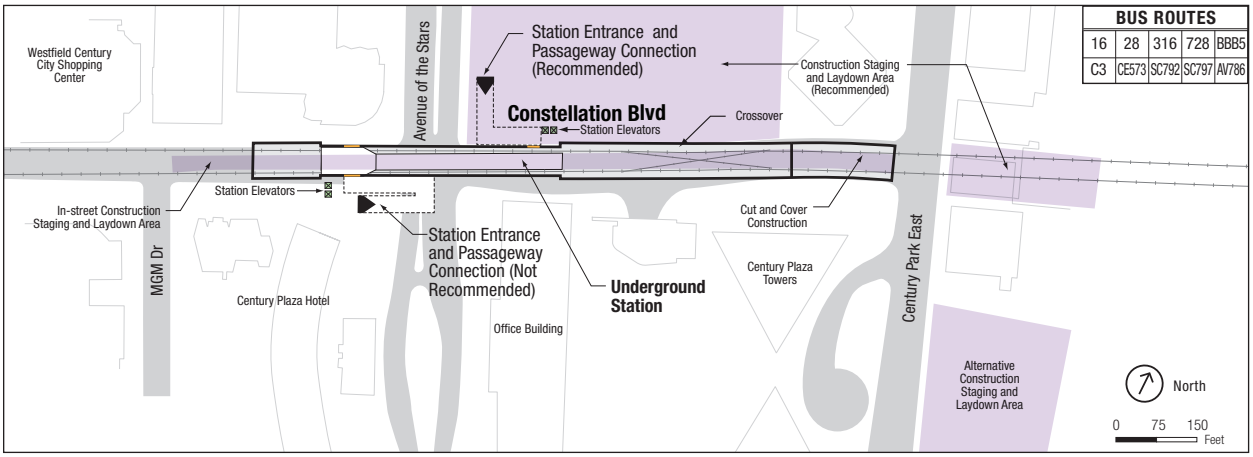


Figure S-11. Century City Constellation Boulevard Station (recommended)

down would be located on the northeast corner of Constellation Boulevard and Avenue of the Stars. In the event that this land is developed prior to construction of the subway, alternative construction staging sites are identified along Century Park East.

The Westwood/UCLA Station will serve as a major hub station for tourists, the University of California, Los Angeles (UCLA), and medical center users, students, professors, and employees in Westwood Village. As part of the LPA selection at the end of the Draft EIS/EIR phase in October 2010, the Metro Board of Directors requested the continued study of two station locations at Westwood/UCLA (Off-Street and On-Street). Two entrances will be constructed given the high ridership projections at this station. Based on analysis conducted during the Final EIS/EIR phase, the recommendation is to locate the Westwood/UCLA Station On-Street along Wilshire Boulevard and to split the second station entrance between the north and south sides of Wilshire Boulevard. If the LPA is constructed under the Phased Construction Scenario, the Westwood/UCLA Station will be constructed as part of Phase 3.

The Westwood/UCLA Off-Street Station would be located underneath UCLA Lot 36, north of Wilshire Boulevard between Gayley and Veteran Avenues. The entrances would be on the north-

west corner of the Wilshire Boulevard and Gayley Avenue intersection and the northeast corner of the Wilshire Boulevard and Veteran Avenue intersection (Figure S-12). This station site and entrance locations are not the recommended station location for Westwood/UCLA.

The Westwood/UCLA On-Street Station would be located under Wilshire Boulevard, extending just west of Westwood Boulevard to west of Gayley Avenue, almost to Veteran Avenue. Two configurations for the entrance are under consideration. In the first option, both station entrances would be located on the north side of Wilshire Boulevard (the northwest corner of Wilshire Boulevard and Gayley Avenue and the northwest corner of Wilshire Boulevard and Westwood Boulevard). In the second option, one entrance would be located at the northwest corner of Wilshire Boulevard and Gayley Avenue, but the second entrance at the intersection of Wilshire and Westwood Boulevards would be split between the north and south sides of Wilshire Boulevard (Figure S-13). This is the recommended location for the Westwood/UCLA Station. The recommended entrance configuration is to split the entrance at the intersection of Wilshire and Westwood Boulevards between the north and south sides of Wilshire Boulevard to improve pedestrian access.

The Westwood/VA Hospital Station will serve veterans, visitors, and workers using the VA campus and provide connections to the West Los Angeles, Brentwood, and Santa Monica communities. As

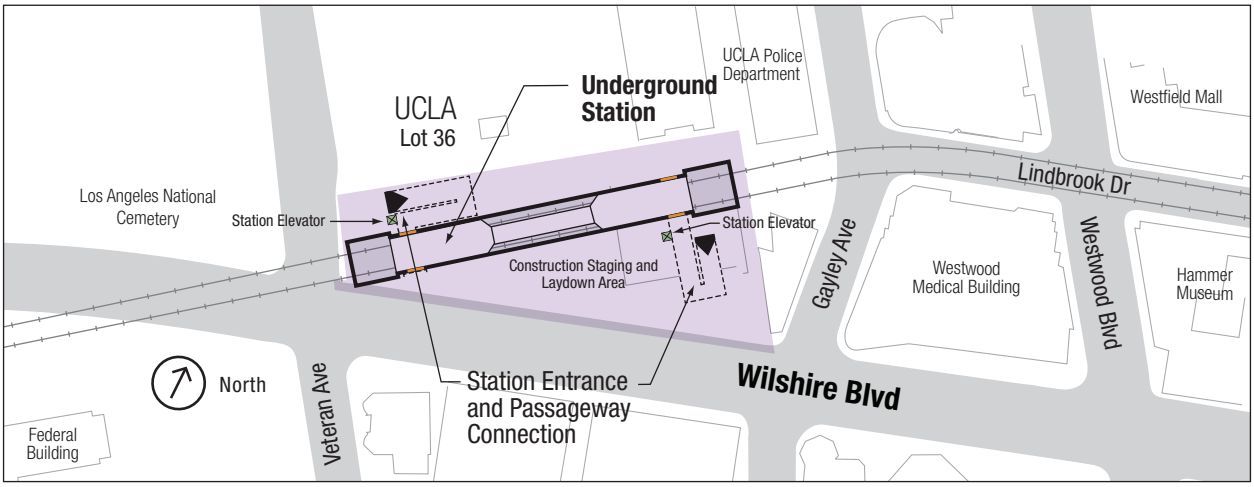


Figure S-12. Westwood/UCLA Off-Street Station (not recommended)

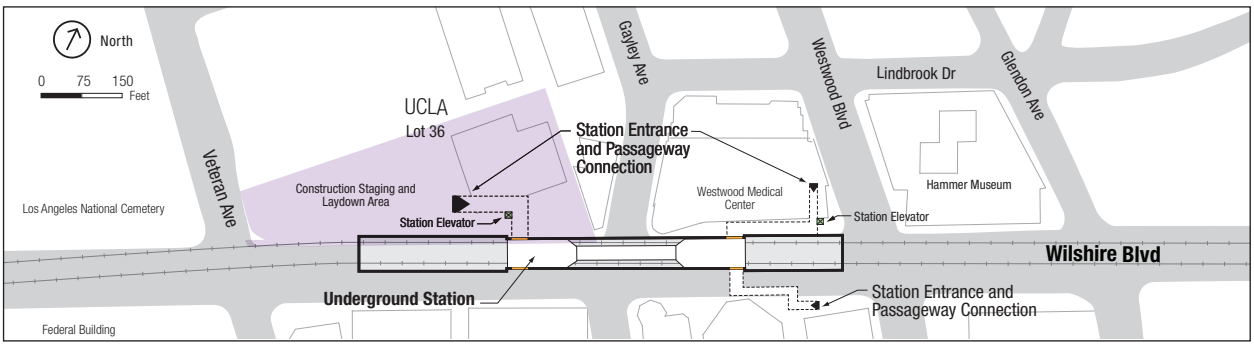


Figure S-13. Westwood/UCLA On-Street Station (recommended)

part of the LPA selection in October 2010, the Metro Board of Directors requested the continued study of two station locations at Westwood/VA Hospital. The recommendation is to locate the Westwood/VA Hospital Station on the south side of Wilshire Boulevard. If the LPA is constructed under the Phased Construction Scenario, the Westwood/VA Hospital Station will be constructed as part of Phase 3.

The Westwood/VA Hospital South Station would be located at the northern edge of the VA Hospital parking lot, adjacent to Wilshire Boulevard (Figure S-14). The entrance would be located on the Bonsall level, beneath the bus drop-off area, to the north of the VA Hospital parking lot. To accommodate the grade separation at this site, additional stairs, escalators, and elevators connecting the Wilshire level and the Bonsall level would be located on both the north and south sides of Wilshire Boulevard. A parking structure providing both permanent and temporary replacement parking would be located in the existing physicians' parking lot, east of the VA Hospital. Based on the analysis conducted during the Final EIS/EIR phase, this is the recommended station location for the Westwood/VA Hospital Station.

The Westwood/VA Hospital North Station would be located on the north side of Wilshire Boulevard (Figure S-15). The entrance would be located along the north side of Wilshire Boulevard, just west of Bonsall Avenue and south of the station box on the Bonsall level. As with the South Station, to accommodate the grade separation at this site, stairs, escalators, and elevators connecting the Wilshire level and the Bonsall level would be located on both the north and south sides of Wilshire Boulevard. Based on the analysis conducted during the Final EIS/EIR phase, this is not the recommended station location for the Westwood/VA Hospital Station.

History and Background of the Westside Subway Extension Project

Metro's Westside Subway Extension has been an integral element of local, regional, and Federal transportation planning since the early 1980s. Extending westward from the Los Angeles Central Business District, the Westside Subway Extension

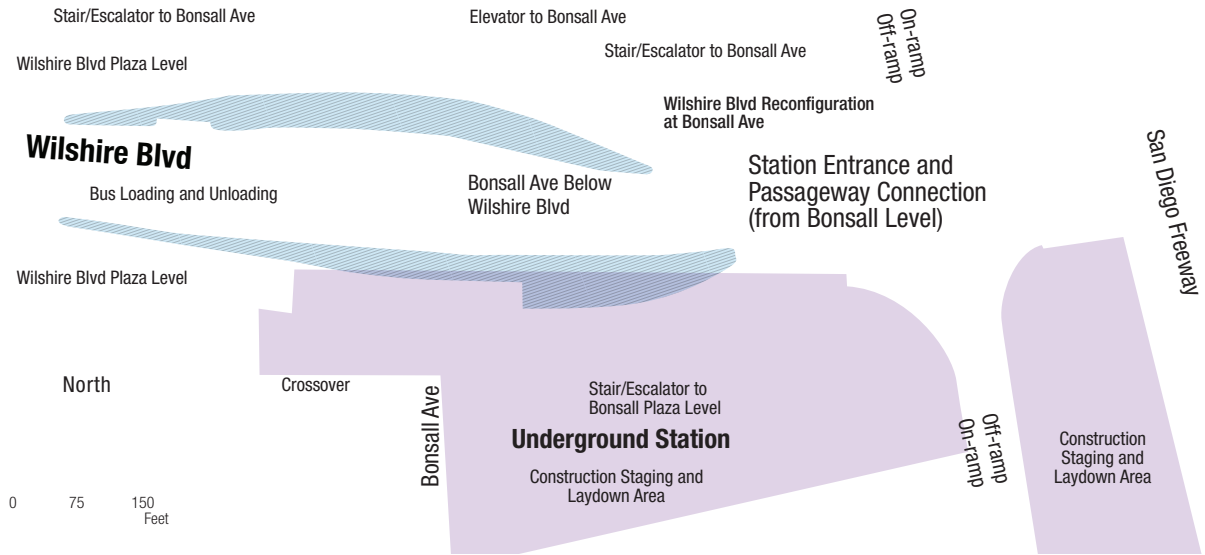


Figure S-14. Westwood/VA Hospital South Station (recommended)

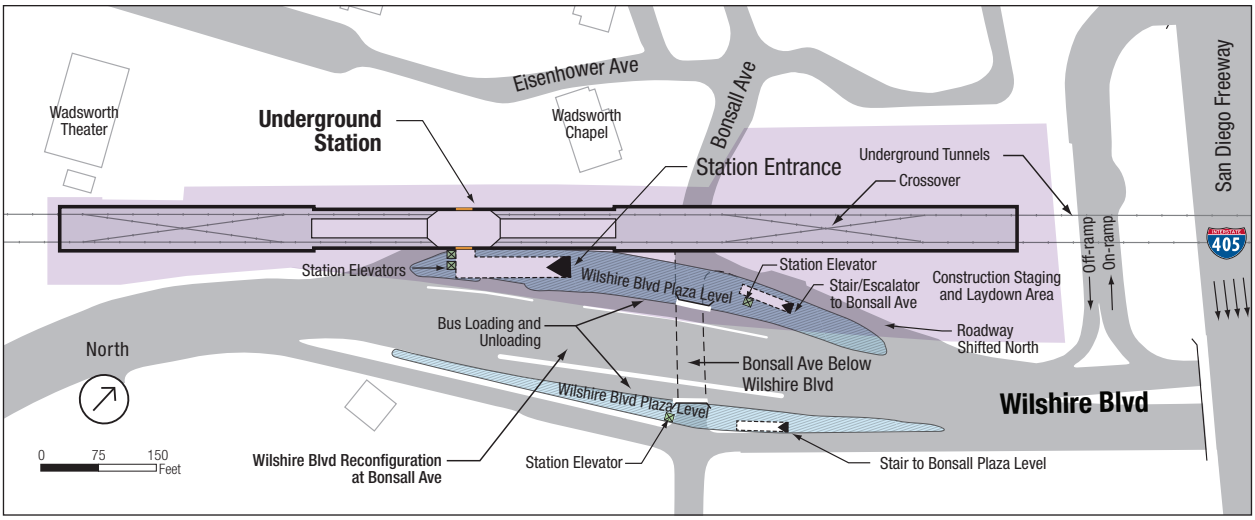


Figure S-15. Westwood/VA Hospital North Station (not recommended)

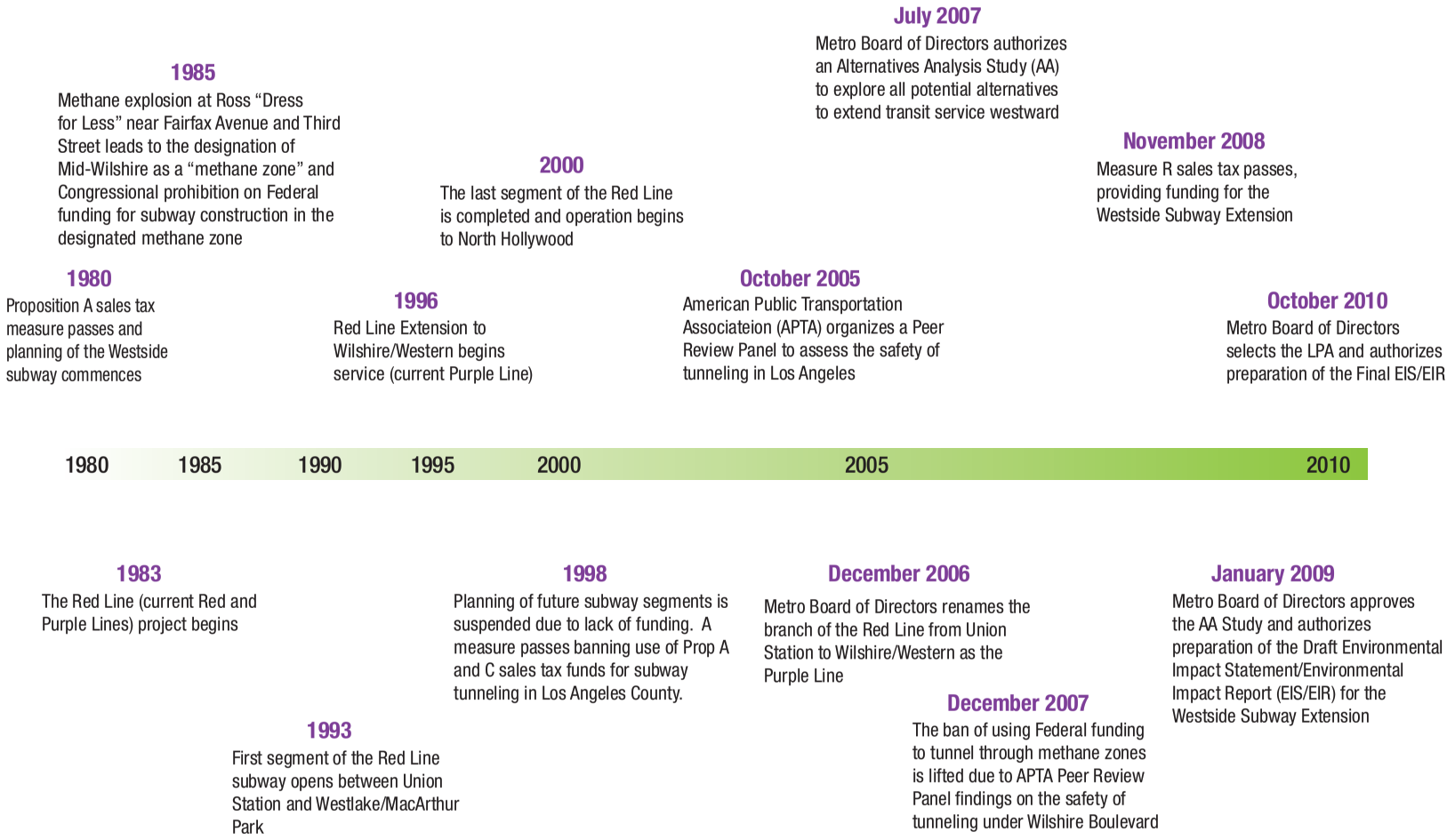
has been the subject of in-depth technical studies and extensive community involvement during this period. The transit investment has historically been envisioned to extend toward Beverly Hills, Century City, Westwood (UCLA), West Los Angeles, and Santa Monica. Figure S-16 summarizes the history of the Project.

An Alternatives Analysis (AA) Study was initiated in 2007 for all reasonable fixed-guideway alternative alignments and transit technologies. The evaluation of alternatives in the AA Study resulted in the identification of HRT as the preferred technology and the recommendation of two alternative alignments for further consideration in the Draft EIS/EIR. These two alignment alternatives were: (1) Extend the Metro Purple Line Subway via Wilshire Boulevard to Santa Monica, and (2) Extend the Metro Purple Line Subway via Wilshire Boulevard to Santa Monica plus extend a subway from the Metro Red Line Subway Hollywood/Highland Station via Santa Monica Boulevard to connect with the Wilshire line. In January 2009, the Metro Board of Directors approved the AA Study and authorized preparation of the Draft EIS/EIR.

During preparation of the AA Study, the voters of Los Angeles County approved Measure R in November 2008, a one-half cent sales tax that provides funding for several important new transportation projects in Los Angeles County. A total of $4.2 billion, comprised of local sales tax dollars and Federal matching funds, was identified over a period of 30 years for the Westside Subway Extension.

The FTA and Metro prepared the Draft EIS/EIR for the Westside Subway Extension in 2010. The FTA is the lead agency for the National Environmental Policy Act (NEPA), and Metro is the lead agency for the California Environmental Quality Act (CEQA). The Draft EIS/EIR defined the Purpose and Need of the Project and described and evaluated the alternatives, including a No Build Alternative, a relatively low-cost Transportation System Management (TSM) Alternative, and five heavy rail subway alternatives. The Draft EIS/EIR documented the evaluation of the potential transportation and environmental impacts and benefits, mitigation measures, operating and maintenance and capital costs, and potential funding sources for the alternatives. It also included a comparison of alternatives and a discussion of the public and

Figure S-16. Westside Subway Extension Timeline



agency outreach. The Draft EIS/EIR was published in September 2010.

The Metro Board of Directors reviewed and considered the findings of the Draft EIS/EIR and the public and agency comments on the Draft EIS/EIR received during the official comment period. On October 28, 2010, after careful deliberation of the benefits and impacts of all the alternatives analyzed and the public comments, the Metro Board of Directors approved the Draft EIS/EIR and identified Alternative 2 (Westwood/VA Hospital Extension) as the LPA.

In January 2011, the FTA granted approval for Metro to enter into the Preliminary Engineering (PE) phase. This step in the FTA project development process allows the Final EIS/EIR to be prepared at the New Starts PE level of engineering

This Final EIS/EIR for the LPA was prepared, with specific direction from the Metro Board of Directors, to further evaluate station and alignment options and rail support facilities. The Final EIS/EIR evaluation includes two station location options for each of the Century City, Westwood/UCLA, and Westwood/VA Hospital Stations, and station entrance options at most of the LPA station locations. The results of these evaluations will be used by the Metro Board of Directors to select the project for implementation.

At the conclusion of the Final EIS/EIR process, a Notice of Determination will be issued by the State and a Record of Decision will be issued by FTA, thereby completing the environmental clearance process. At that time, Metro will apply for entry into the FTA Final Design phase. Once authorized by FTA for Final Design, Metro will be able to acquire right-of-way, relocate utilities, prepare final construction plans and specifications (including construction management plans), construction cost estimates, and bid documents. The LPA's financial plan will then be completed—which is required for all projects seeking a Full Funding Grant Agreement from the FTA. Once Final Design is complete, Metro will begin construction of the LPA, perform project testing, and then initiate transit service (Figure S-17).

Figure S-17. Steps in the FTA Project Development Process

Purpose and Need for Transit Improvements in the Study Area

The purpose of this Project is to improve transit travel time and provide more reliable transit service to the 286,250 transit riders who travel through the highly congested Study Area today, as well as to future riders who will be attracted to the system. More specifically, the Project's purpose is as follows:

- Improve Study Area mobility and travel reliability
- Improve transit services within the Study Area
- Improve access to major activity and employment centers in the Study Area
- Improve opportunities for transit-supportive land use policies and conditions
- Improve transportation equity
- Provide a fast, reliable, and environmentally sound transit alternative
- Meet regional transit objectives through the Southern California Association of

Governments' (SCAG's) Performance Indicators of mobility, accessibility, reliability, and safety

The need for the Project, as described in Chapter 1 of this Final EIS/EIR, is based on population and employment growth, the high number of major activity centers served by the Project, high existing transit usage, and severe traffic congestion. The Study Area has 12 large population and employment centers located along the corridor, which are served by extremely congested road networks that will deteriorate further with the projected increase in population and jobs. This anticipated growth will further affect transit travel speeds and reliability, even with a dedicated lane for express bus service on Wilshire Boulevard. The improved capacity that will result from the subway extension is the best solution to improve travel times and reliability and to provide a high-capacity, environmentally sound transit alternative.

Major Activity Centers and Destinations

Los Angeles has been characterized as a collection of urban centers. The City of Los Angeles "Centers Concept" from the 1960s and 1970s identified urban centers of various types throughout the region that represented concentrations of job centers and higher-density housing. Wilshire Center, Hollywood, Miracle Mile, Sunset Strip, Beverly Hills, Westwood, Santa Monica, and others were all designated centers in the plan. The Centers Concept envisioned that these areas would be interconnected by transit infrastructure. The Westside Subway Extension will implement a portion of the plan by linking some of these high-density centers via transit to reduce reliance on automobiles.

The Westwood and Century City business districts each have more jobs than many mid-sized downtowns.

Figure S-18. Century City

The Westside Study Area has the second-highest concentration of employment centers and major attractions in the Southern California region after Downtown Los Angeles. The Study Area is widely recognized as one of the preeminent employment generators in California. The three largest activity centers with the highest density levels are Beverly Hills (26,000 jobs per square mile), Century City (43,000 jobs per square mile) (Figure S-18), and Westwood (42,000 jobs per square mile). Approximately 147,000 jobs were located in these three centers in 2006.

Major activity centers in the Study Area are shown in Figure S-19. Some of Southern California's most well-known entertainment, educational, and cultural activity centers are located within the Study Area along the high-density Wilshire and Santa Monica Boulevard corridors.

Travel Markets, Transit Usage, Congestion, and Mobility in the Study Area

Currently, the transportation network consists of a well-defined grid of arterials and freeways generally following an east/west or north/south orientation. These freeways and streets carry some of the highest traffic volumes in California and throughout the country.

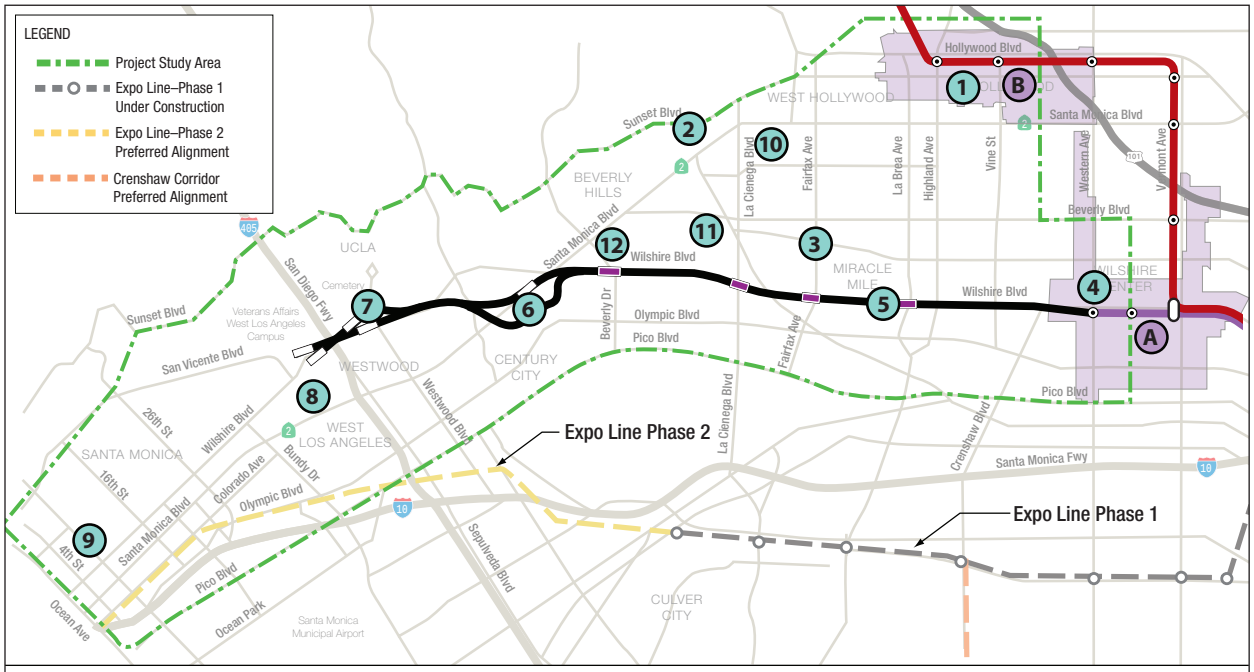


Figure S-19. Activity Centers in the Study Area

Travel Markets

The primary travel markets in the Study Area are the east/west trips occurring within or traveling to and from the Westside. As shown in Figure S-20, on an average weekday, about 301,000 home-based work peak trips enter the Study Area from outside origins, while about 123,000 trips leave the Study Area for outside destinations (i.e., more than twice as many work trips enter the Study Area as leave). There are 102,000 daily home-based work peak trips starting and ending within the Study Area, suggesting that approximately one in four Study Area jobs is filled by local (Study Area) residents. The remaining 75 percent of the jobs were filled by individuals who live outside the Study Area. Projections suggest that the ratio of home-based work peak trips entering or leaving the Study Area daily will remain about the same through 2035.

Transit

All bus service in the Study Area is currently provided in mixed-flow lanes, which subjects buses to the same high levels of congestion experienced by automobiles. The Wilshire Corridor (Line 20/720) is the most used bus corridor in Southern California with nearly 60,000 daily boardings, surpassing the ridership of most light rail transit (LRT) routes.

Since 1990, Metro has invested heavily in a regional fixed-guideway transit system that consists of

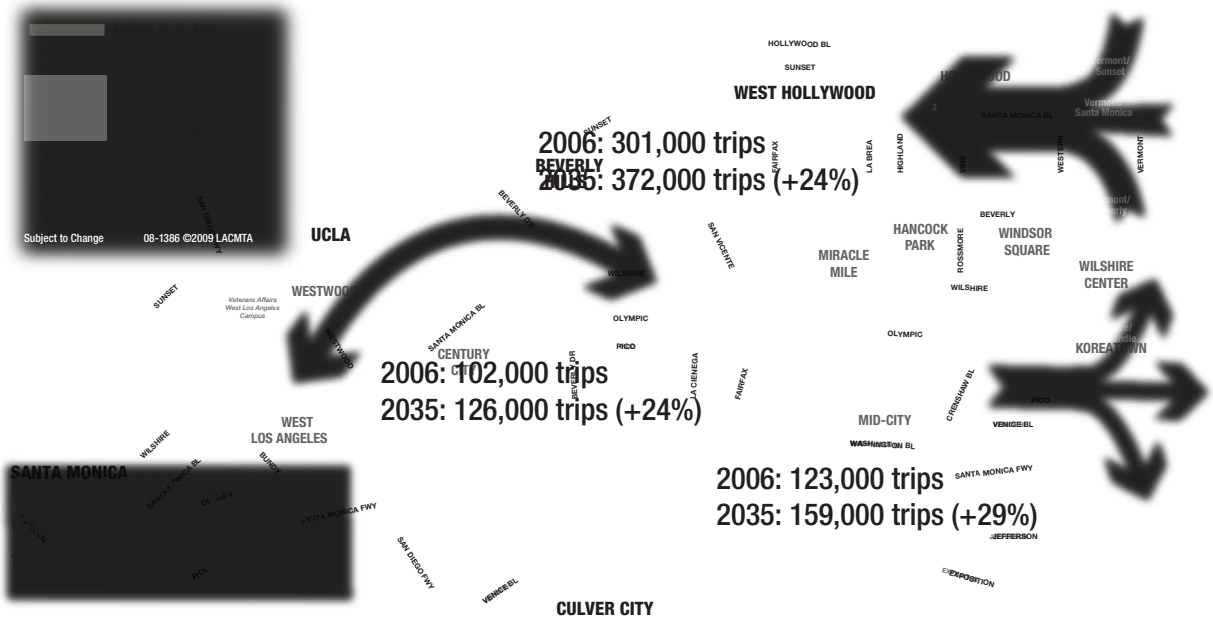


Figure S-20. Home-Based Work Peak Person Trip Comparison: 2006 to 2035

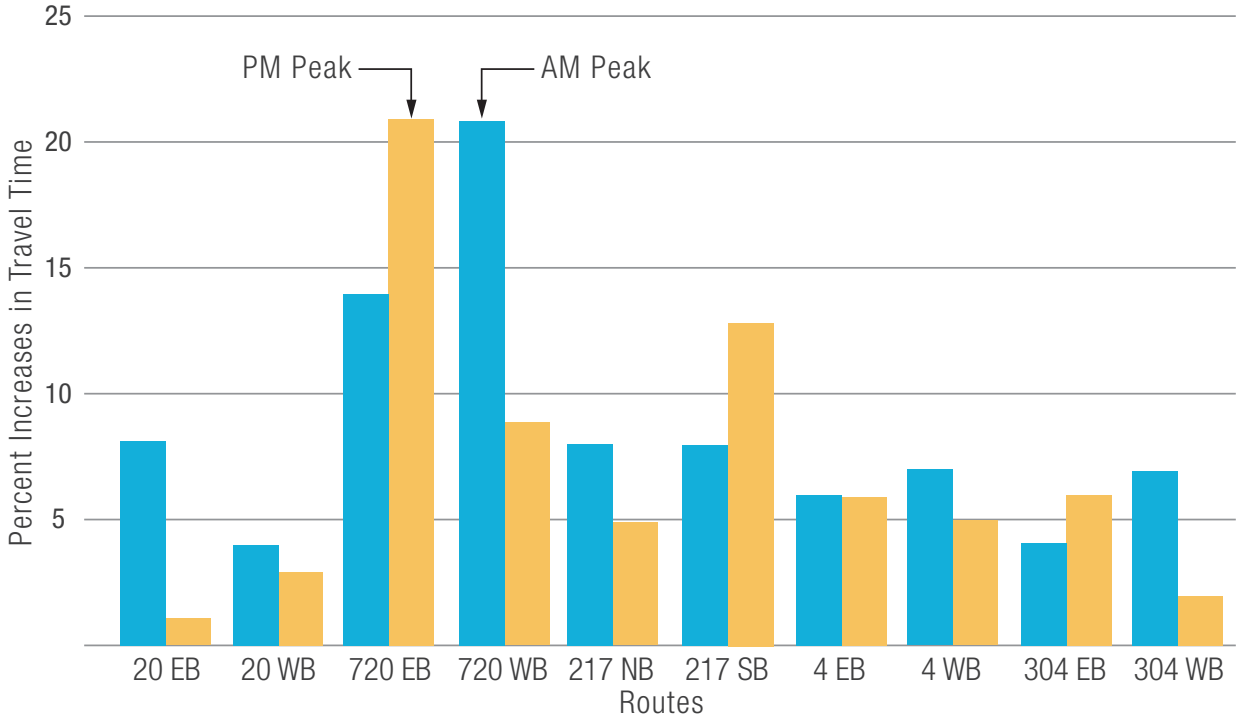
HRT, LRT, bus rapid transit (BRT), and commuter rail. This system currently includes more than 76 miles of Metro Rail service (HRT and LRT) and 14 miles of BRT service. In addition, the Southern California Regional Rail Authority (Metrolink) has opened more than 500 miles of Metrolink commuter rail lines that serve five counties. The existing fixed-guideway transit service in the region is complemented by the transit corridors currently under study or construction. The Westside Subway Extension will directly connect the west side of the county to all elements of the existing Metro system.

Congestion and Mobility

Between 2006 and 2035, substantial increases are projected in vehicle miles traveled (VMT) and vehicle hours traveled (VHT). Daily VMT within the Study Area will increase by approximately 26 percent, from 4 million in 2006 to more than 5 million in 2035. During the same period, regional VMT are projected to increase from 304.2 million to 504.7 million, or more than 65 percent. VHT in the Study Area are projected to increase from about 165,000 to 247,000, or almost 50 percent. Regional VHT are projected to increase from 9.5 million to 29.2 million, or about 207 percent between 2006 and 2035.

The Study Area contains some of the most congested arterial streets in the County. Key east/west arterials, such as Wilshire, Santa Monica, Sunset, Hollywood, Olympic, and Pico Boulevards, operate at congested conditions throughout the day. North/south arterials west of Western Avenue include Crenshaw Boulevard, La Brea Avenue, La Cienega Boulevard, Beverly Drive, Westwood Boulevard, Sepulveda Boulevard, Bundy Drive, and Lincoln Boulevard.

Arterials in the Study Area provide access to employment centers as well as local and regional travel. They also are used as alternatives to the Interstate 10 (I-10) and Interstate 405 (I-405) freeways during heavy congestion, accidents, breakdowns, lane closures, and other random events. As a result, the Study Area's roadway capacity is insufficient to handle the traffic volumes, thus



Source: Metro, Note: 304 now operates as 704

Figure S-21. Degradation in Transit Travel Times due to Road Congestion—Metro Bus Routes in Study Area, 2003 to 2006

reducing travel-time reliability for motorists and transit riders.

Bus speeds are slow and getting slower.

The current average speeds of the Metro Rapid buses traveling through the Study Area ranges between 10 and 15 miles per hour (mph) along Wilshire Boulevard and between 11 and 14 mph along Santa Monica Boulevard. The average speeds of both local buses and the Metro Rapid buses traveling through the Study Area are expected to decrease further as traffic congestion increases on roadways. As a result, transit travel times will get longer, as illustrated in Figure S-21.

The Study Area has substantial traffic congestion, high transit ridership and load factors, and closely spaced bus stops. Combined, these factors result in declining bus operating speeds and reliability, making transit less competitive with the private automobile. With high passenger loads and congested roads, desirable headways (frequency of service) are difficult to maintain and result in overcrowded buses. As the road and transit systems become more congested, the Study Area becomes a less desirable place for people to live and work and less attractive for planned growth and development.

Regional Objectives

In 2008, the SCAG Regional Council adopted the *Regional Transportation Plan* (RTP) (SCAG 2008a) to establish the goals, objectives, and policies for the transportation system and to establish an implementation plan for transportation investments. The RTP includes regional performance indicators and objectives against which specific transportation investments can be measured. The Study Area is designated as one of the most

Table S-2. Southern California Association of Governments Performance Indicators

Performance Indicator	Measurement	2003 Base Year	2035 Baseline	2035 Objective
Mobility	Average daily speed	30.5 mph	26.8 mph	29.3 mph
	Average daily delay per capita	20.0 minutes	30.7 minutes	25.8 minutes
Accessibility	Percent of PM work trips within 45 minutes of residence	77% of all auto trips 43% of all transit trips	77% of all auto trips 42% of all transit trips	79% of all auto trips 45% of all transit trips
Reliability	Percent variation in travel time—weekday 5 p.m. to 6 p.m.	28% (2005)	N/A	25%
Safety	Daily accident rate per million persons	28.9 (estimated from graph)	30.2 (estimated from graph)	30.1 (estimated from graph)

Source: SCAG, Regional Transportation Plan, 2008 Project Purpose (SCAG 2008a)

congested areas in the five-county region based on the four key performance indicators of mobility, accessibility, reliability, and safety. These performance indicators and their 2003 base year results, 2035 baseline projections, and 2035 objectives are shown in Table S-2. Significant improvement will be needed in these categories to meet the 2035 regional objectives.

Alternatives Considered

The definition of the LPA began with the initial screening of alternatives in AA in 2007 and evaluation continued through the Draft EIS/EIR, ultimately resulting in the selection of the LPA in October 2010 by the Metro Board of Directors. Figure S-22 summarizes the progression of alternatives from the AA to the alternatives in the Draft EIS/EIR to the LPA in this Final EIS/EIR.

Development of Draft EIS/EIR Alternatives

Four technologies were presented and analyzed in the AA Study—HRT, LRT, BRT, and monorail. HRT was identified as the preferred technology for further study because it has the capacity to meet the anticipated ridership demand and limits the number of transfers. In addition to technologies, variations of alignments along Wilshire Boulevard and Santa Monica Boulevard were analyzed. At the conclusion of the AA Study, two alternatives were recommended for further consideration in the Draft EIS/EIR: (1) Extend the Metro Purple Line Subway via Wilshire Boulevard to Santa Monica, and (2) Extend the Metro Purple Line Subway via Wilshire Boulevard to Santa Monica plus extend a subway from the Metro Red Line Subway Hollywood/Highland Station via Santa Monica Boulevard to connect with the Wilshire line at the Wilshire/La Cienega Station.

At the initiation of the Draft EIS/EIR phase, Metro presented these two alternatives to the public. A series of NEPA/CEQA scoping meetings was held to solicit public input on the alternatives as well as different alignment and station options in the Beverly Hills to Westwood area and along the West Hollywood branch alignment. Based on public input received, Metro developed five Build Alternatives based on the two AA Study alternatives, with different lengths to meet the fiscal constraints and funding timelines identified in Metro's LRTP adopted in October 2009. Metro also considered

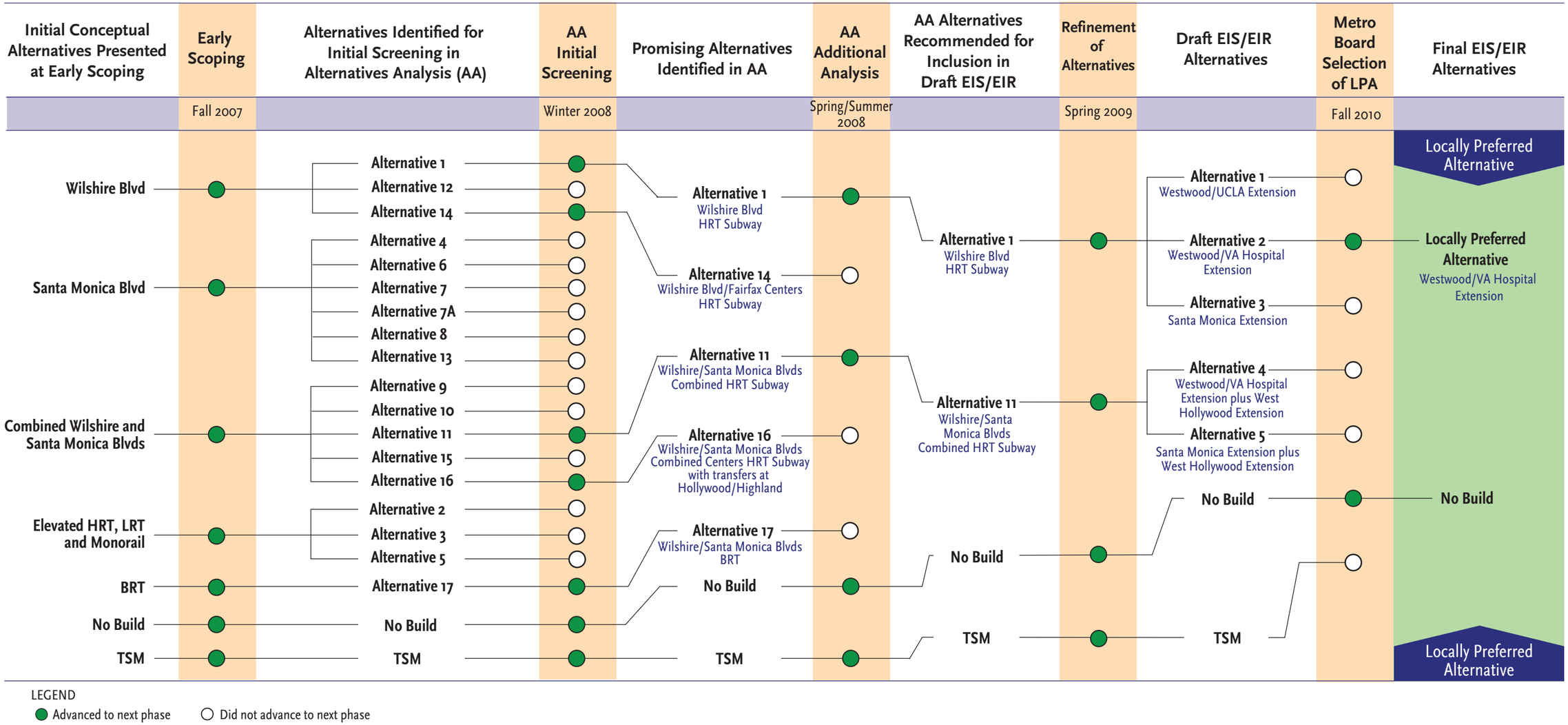


Figure S-22. Alternatives Considered (AA through Final EIS/EIR)

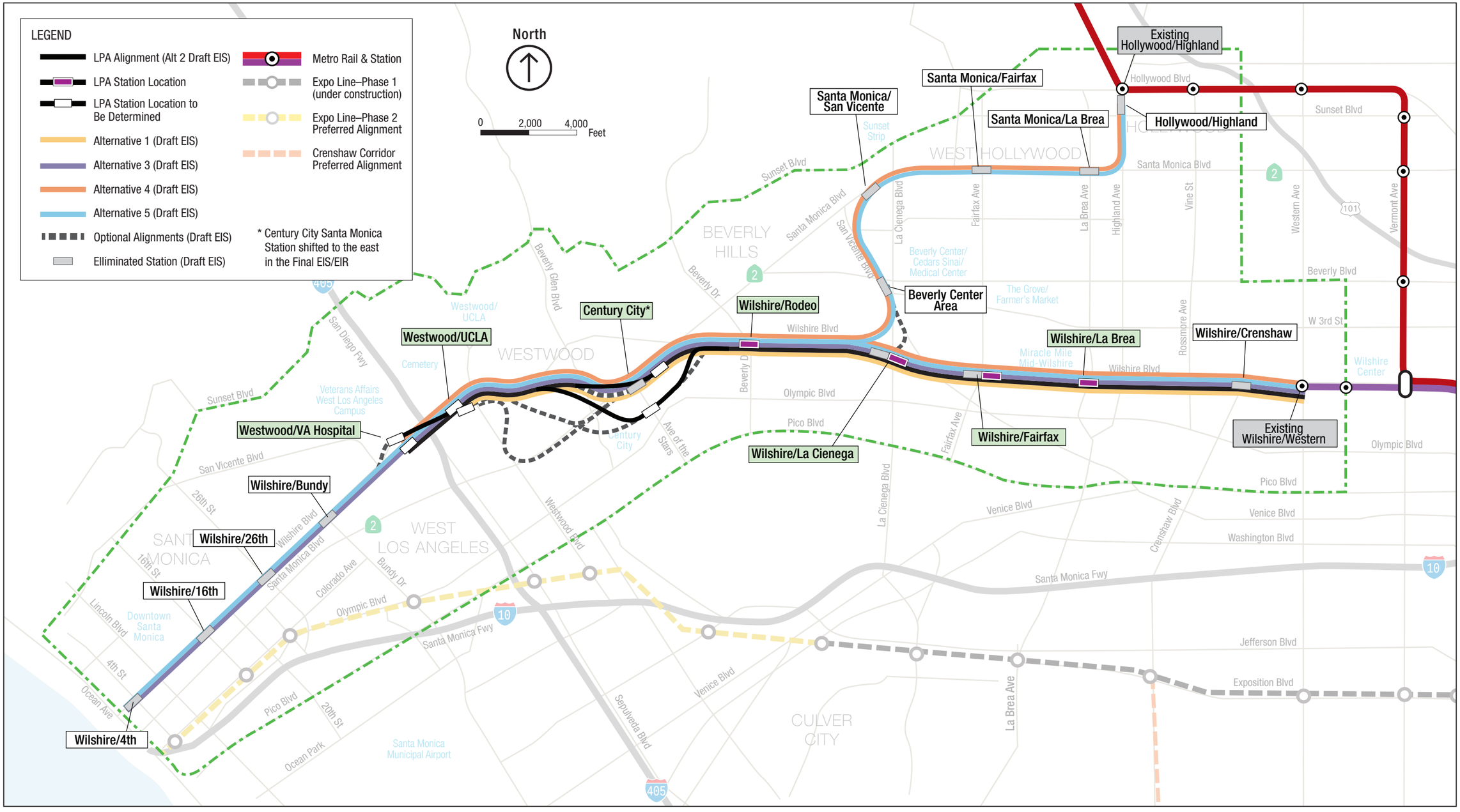


Figure S-23. All Build Alternatives

refinements to alignments and station locations, which are detailed in Section 2.3 of this Final EIS/EIR and the *Westside Subway Extension Alternatives Screening and Refinement Following Environment Scoping Report* (Metro 2010y).

The five Draft EIS/EIR Build Alternatives are illustrated in Figure S-23. Alternatives 1, 2, and 3 extend the Metro Purple Line subway from Wilshire/Western down Wilshire Boulevard to a station at either Westwood/UCLA (8.6 miles, seven stations), Westwood/VA Hospital (8.96 miles, eight stations), or Wilshire/4th Street (12.38 miles, 12 stations), respectively. Alternatives 4 and 5 add a West Hollywood branch to Alternative 2 (total of 14.06 miles, 12 stations) and Alternative 3 (total of 17.49 miles, 16 stations), respectively.

The five Draft EIS/EIR Build Alternatives include six station and alignment options that are described more fully in Section 2.4.4 of this Final EIS/EIR. They are as follows:

- **Option 1**—Eliminate the Wilshire/Crenshaw Station
- **Option 2**—Locate the Wilshire/Fairfax Station farther east
- **Option 3**—Locate the Wilshire/La Cienega Station farther west and design it as a transfer station from the West Hollywood branch to the Wilshire branch
- **Option 4**—Locate the Century City Station on Constellation Boulevard. Consider alternative alignment routes between Wilshire/Rodeo and Century City (Santa Monica Boulevard, Constellation North, or Constellation South) and Century City and Westwood/UCLA Stations (East, Central, or West)
- **Option 5**—Locate the Westwood/UCLA Station On-Street under the center of Wilshire Boulevard
- **Option 6**—Locate the Westwood/VA Hospital Station on the north side of Wilshire Boulevard

Evaluation of Alternatives in the Draft EIS/EIR

Chapter 7 of the Draft EIS/EIR documented the comparative evaluation of alternatives and station options as a means of providing the basis for selecting an LPA. The evaluation was based on the goals, objectives, and measures developed in the AA Study, which include mobility improvements, transit-supportive land uses, cost-effectiveness, project feasibility, equity, environmental considerations, and public acceptance.

Table S-3 shows some of the mobility and cost factors used to evaluate the alternatives. Many of the criteria evaluated are linked to the project length, with longer alternatives resulting in greater mobility benefits and public support, but also costing more and resulting in additional environmental impacts.

All Build Alternatives are more effective than the TSM Alternative in enhancing mobility, serving development opportunities, and addressing other aspects of the Purpose and Need. Alternatives 3, 4, and 5 are more effective in improving mobility than Alternatives 1 and 2. All of the Build Alternatives would reduce VMT, pollutant emissions, and energy consumption, with the longer Build Alternatives having the greatest environmental benefit as well as the largest environmental impacts.

Alternatives 1, 2, and 3 have similar cost-effectiveness indices and are all more cost-effective than Alternatives 4 and 5, with Alternative 2 being the most cost-effective.

Based on cost-effectiveness, Alternatives 1 and 2 were identified as being the most competitive for

Table S-3. Evaluation Results for TSM and Build Alternatives in Draft EIS/EIR

Alternative	New Transit Trips (per day in 2035)	Vehicle Miles Traveled (Study Area)	Reduction in Vehicle Miles Traveled Compared to No Build (Study Area)	Total Capital Cost (in million 2009 dollars)	Cost per Hour of Transit-User Benefits Compared to TSM Alternative (FTA Cost Effectiveness Index, or CEI)
No Build	Base	5,056,227	Base	Base	N/A
TSM	2,115	5,055,329	898	$42	Base
1	24,142	5,032,417	28,982	$4,036	$35.98
2	27,615	5,032,719	31,899	$4,358	$33.58
3	35,235	5,021,729	37,768	$6,116	$36.31
4	31,224	5,023,750	34,786	$6,985	$49.50
5	40,123	5,014,584	41,643	$8,747	$47.55

New Starts funds. These are also the only Build Alternatives that could be built with available Measure R and other identified funds. Alternatives 3, 4, and 5 were not financially feasible without a new source of revenue.

The results of this evaluation indicate that Alternative 2 is the Build Alternative that best increases transit ridership and provides benefits at reasonable costs within available financial resources.

Agency and Public Comments on Draft EIS/EIR

Section 8.8 of this Final EIS/EIR provides an overview of the comments on the Draft EIS/EIR received from the public and agencies during the official public comment period that extended from September 3, 2010 through October 18, 2010. Almost 800 comment submissions were received, which were divided into nearly 2,000 unique comments. The most common recurring themes or topics are summarized in Table S-4. Copies of all comments received, and responses to comments, are included in Appendix H of this Final EIS/EIR.

An overwhelming majority of the comments supported the Westside Subway Extension as a means of reducing Westside traffic congestion and providing an alternative mode of transportation. Many individuals wanted to see the Project built as quickly as possible and as far west as possible.

A significant volume of comments were received on the location of the Century City Station. Those who favored the Century City Santa Monica location were primarily concerned with the safety and risks of tunneling under residences and schools in Southwest Beverly Hills that would be necessary if the station were located at Century City Constellation. Those in favor of the Century City Constellation Station stated that the location better served the office and residential core of Century City.

Many commenters expressed concern about safety-related issues in regard to tunneling. These comments discussed the safety of tunneling under residences and schools; noise and vibration impacts; and concern about seismic issues, abandoned oil wells, methane gas, settlement and subsidence, liquefaction, and other geotechnical concerns.

Table S-4. Common Comment Topics on the Draft EIS/EIR

Topics	General Comments	
Length of the Project's Locally Preferred Alternative (LPA)	• Extend Project as far west as possible • Extend west of I-405 • Include Santa Monica and West Hollywood alignments	• Maintain options for future West Hollywood or Santa Monica alignments if funding becomes available
Century City Station Locations	• In support of Santa Monica Boulevard, opposed to Constellation • In support of Constellation Boulevard, opposed to Santa Monica • Constellation Boulevard location most central for employees and residents of Century City	• Decision-making process for the Century City Station location and preference for "original" Century City Station location along Santa Monica Boulevard
Alignment between the Wilshire/Rodeo, Century City, and Westwood/UCLA Stations	• Wilshire/Rodeo to Century City alignment options • Century City to Westwood/UCLA alignment options	• Potential impacts of tunneling under residences and schools, including Beverly Hills High School and the Good Shepherd School
Geotechnical Concerns	• Safety of tunneling related to various geotechnical issues under residences and schools • Santa Monica Fault • Abandoned oil wells • Methane gas	• Ground settlement/subsidence • Liquefaction • Seismic differences between Century City Station locations
Westwood/VA Hospital Station Location	• Station accessibility	• Preference for Wilshire/Federal or Wilshire/Barrington as terminus
Other Optional Station Locations	Wilshire/Crenshaw Station: • Both in favor and opposed to the construction of a Wilshire/Crenshaw Station • Provide a connection to the Crenshaw/LAX light rail line Wilshire/Fairfax Station: • Preference for the East Station location to provide better access to Museum Row	Wilshire/La Cienega Station: • Preference for both the East and West Station locations • Support to maintain potential for future West Hollywood connection Westwood/UCLA Station: • Preference for both the On-Street and Off-Street Station locations • Connections to the UCLA campus
Project Schedule	• Build Project as soon as possible	• 30/10 Initiative funding
Station Connectivity	• Connectivity to other Metro rail projects • Crenshaw/LAX connection • San Fernando Valley (Sepulveda)/I-405 connection • Expo connection	• Bus, pedestrian, and bicycle connectivity • Station design • Parking • Passenger drop-off and pick-up
Transportation Issues	• Traffic congestion	• Ridership projections
Alternative Mode/TSM Preference	• Preference for expanded bus service instead of rail	• Concerns funding will be shifted away from bus service
Noise and Vibration during Operations	• Concern about noise and vibration during operations, particularly potential impact to residences in the area and students at Beverly Hills High School	
Impact on Property Values	• Concern about potential impact on property values	
Construction Impacts	• Traffic congestion • Noise and vibration	• Staging areas • Haul routes

Many of these comments are interrelated as most relate to the safety and impacts of tunneling.

Metro Board of Directors' Decision on Draft EIS/EIR and Initiation of Final EIS/EIR

Subsequent to completion of the Draft EIS/EIR, the Metro Board of Directors reviewed and considered the findings of the document. After careful deliberation of the benefits and impacts of all the alternatives analyzed in the Draft EIS/EIR, and review of the public comments received on the Draft EIS/EIR, the Metro Board of Directors approved the Draft EIS/EIR and selected Alternative 2 as the LPA on October 28, 2010.

All of the five Build Alternatives studied would provide significant countywide benefits as the Project would serve as a primary connector between residential communities throughout the county where people live and the very dense regional job centers on the Westside (Westwood, Century City, and Beverly Hills). However, only Alternatives 1 and 2 are affordable within the adopted LRTP. Between these two alternatives, Alternative 2 provides significantly higher ridership and somewhat improved cost-effectiveness over Alternative 1. Extending the line by one additional station to the Westwood/VA Hospital Station will serve this major regional center and provide an important access point to the regional transit system located west of the I-405 Freeway.

The Metro Board of Directors also made several decisions related to the station options and alignments, as described in Section 2.5. The station and alignment option decisions are as follows:

- **Option 1**—Eliminate the Wilshire/Crenshaw Station
- **Option 2**—Include the Wilshire/Fairfax East Station and eliminate the Wilshire/Fairfax West Station
- **Option 3**—Include the Wilshire/La Cienega East Station without a West Hollywood connection structure and eliminate the Wilshire/La Cienega West Station
- **Option 4**—Continue to study both station locations at Century City. Include the Santa Monica Boulevard and Constellation North alignments between Wilshire/Rodeo and Century City and eliminate the Constellation South alignment. Include the East alignment between Century City and Westwood/UCLA and eliminate the Central and West alignments
- **Option 5**—Continue to study both station locations at Westwood/UCLA
- **Option 6**—Continue to study both station locations at Westwood/VA Hospital

The LPA as selected by the Metro Board of Directors is the subject of this Final EIS/EIR and is described on page S-2 of this Executive Summary and in Section 2.6 of this Final EIS/EIR.

Transportation Analysis, Consequences, and Mitigation during Construction and Operation

Chapter 3 of this Final EIS/EIR consists of a discussion of both the operational and construction transportation impacts of the LPA, which includes an analysis of impacts to public transit, streets and highways, parking, and bicycle and pedestrian networks. Refer to Table S-5 and Table S-6 for a complete list of identified transportation impacts, proposed mitigation measures, and impacts remaining after mitigation.

> The LPA will halve the amount of time it takes to reach Westwood from Downtown Los Angeles.

Table S-5. Environmental Impacts and Impacts Remaining after Mitigation

Environmental Criteria	Operational Impacts				Construction Impacts[1]			
	Concurrent Construction Scenario	Phased Construction Scenario			Concurrent Construction Scenario	Phased Construction Scenario		
		Phase 1	Phase 2	Phase 3		Phase 1	Phase 2	Phase 3
Public Transit	○	○	○	○	●	●	●	●
Streets and Highways	●[2]	○	●[2]	○	●	●	●	●
Parking	◗	◗	◗	◗	●	●	●	●
Bicycle and Pedestrian Network	◗	◗	◗	◗	●	●	●	●
Land Use	○	○	○	○	◗	◗	◗	◗
Socioeconomic Characteristics	○	○	○	○	◗	◗	◗	◗
Visual Quality	○	○	○	○	◗	◗	◗	◗
Air Quality	○	○	○	○	●	●	●	●
Climate Change	○	○	○	○	○	○	○	○
Noise and Vibration	◗	◗	○	○	●	●	●	●
Energy	○	○	○	○	○	○	○	○
Geological Hazards	●[3]	◗	●[3]	◗	◗	◗	◗	◗
Hazardous Waste and Materials	○	○	○	○	◗	◗	◗	◗
Ecosystems/Biological Resources	○	○	○	○	◗	◗	◗	◗
Water Resources	○	○	○	○	◗	◗	◗	◗
Safety and Security	○	○	○	○	○	○	○	○
Parklands and Community Services and Facilities	○	○	○	○	◗	◗	◗	◗
Historic, Archaeological, and Paleontological Resources	●	○	●	○	●	◗	●	◗
Growth-Inducting Impacts	○	○	○	○	○	○	○	○
Cumulative Impacts	◗	◗	◗	◗	●	●	●	●
Section 4(f) Resources	●	○	●	○	●	○	●	○

● Adverse Effect/Significant Impact Remaining After Mitigation
◗ Adverse Effect/Significant Impact Prior to Mitigation, reduced to less-than-significant levels with mitigation
○ No Adverse Effects/No Significant Impacts
[1]All construction impacts are temporary with the exception of impacts to historic resources
[2]Adverse Effect/Significant Impact anticipated ONLY if Wilshire/Rodeo Station entrance located at Bank of America
[3]Adverse Effects/Significant Impact anticipated ONLY if Century City Station located at Santa Monica Blvd. If the Century City Station is located at Constellation Blvd., impacts would be reduced to less-than-significant levels with mitigation.

The LPA will provide transit benefits by providing additional transit capacity, shorter travel times, improved reliability, and better connectivity, resulting in an improved travel experience for all transit riders in the Study Area. Public transit ridership in Los Angeles is expected to increase by 27,200 to 30,100 riders per day compared to the No Build Alternative with a total of 46,000 to 49,300 passengers per day boarding at the new Purple Line stations.

If the LPA is constructed under the Phased Construction Scenario, the transit benefits that will be provided by the LPA will be realized later than under the Concurrent Construction Scenario due to an extended construction timeline. For example, since Phase 1 will terminate at the Wilshire/La Cienega Station, transit riders traveling to destinations west of this station will not experience the same benefits as they would under the full LPA to the Westwood/VA Hospital Station. Since the Wilshire/La Cienega and Century City Stations will serve as interim terminus stations during Phase 1 and Phase 2, respectively, each station is expected to have higher boardings while serving as the interim terminus stations than under the full LPA to Westwood/VA Hospital Station.

As a result of the improved transit network and increased transit ridership, the LPA will reduce regional VMT on the highway system, with attendant reductions in roadway congestion, pollutant emissions, and fossil fuel consumption. However, the decrease in VMT is relatively small compared to the total VMT in the Study Area and the region. If the LPA is constructed under the Phased Construction Scenario, the reduction in VMT will occur later than under the Concurrent Construction Scenario since it will take longer for the full transit benefits of the LPA to be realized.

At the local level, the LPA is expected to improve level-of-service at numerous intersections throughout the Study Area. However, the LPA with the Bank of America entrance at the Wilshire/Rodeo Station would result in a significant and unavoidable impact at the intersection of Wilshire Boulevard and Beverly Drive under existing or future conditions. However, the recommended location for the Wilshire/Rodeo Station entrance is at the current site of the Ace Gallery, which would avoid any long-term traffic impacts associated with the entrance on Beverly Drive. If the LPA is constructed under the Phased Construction Scenario, the traffic impact at Wilshire Boulevard and Beverly Drive would occur during Phase 2 if the entrance for the Wilshire/Rodeo Station is constructed at the Bank of America.

The LPA will not result in permanent parking loss at most stations. However, permanent off-street parking loss is anticipated at the Wilshire/Rodeo Station (with the Bank of American or Union Bank Building entrances), Century City Santa Monica Station, and Westwood/UCLA On-Street and Off-Street Stations. Metro will coordinate with affected property owners to best mitigate parking losses.

The LPA also is anticipated to result in some neighborhood spillover parking impacts where on-street parking is not currently restricted. With implementation of the proposed mitigation measures, including residential permit parking districts and consideration of shared parking programs, spillover parking will not remain an adverse impact.

The design of stations will accommodate access by transit and non-motorized modes. Stations and adjacent station area development are anticipated to enhance pedestrian and bicycle circulation patterns and connectivity to maximize ridership. Mitigation measures to ensure a safe pedestrian and bicycle

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued on next page)

Description of Identified Impacts[1, 2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
▶ PUBLIC TRANSIT				
Public Transit—Transit Travel Times				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits	No mitigation measures will be required since impacts of the subway extension will provide transit benefits.	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits
The LPA will reduce transit travel times to the Westside from various locations around Los Angeles County. Estimated transit travel times from the Wilshire/Western Purple Line Station to the Westwood/UCLA Station, for example, will be approximately 14 minutes under the LPA as compared to 46 minutes under the No Build Alternative. Given the proximity to the Westwood/UCLA Station, comparable transit travel-time savings will occur for trips to the Westwood/VA Hospital Station. See Figures 3-4 to 3-10, Transit Travel Times from Various Locations, in Chapter 3, Transportation.				
Phased Construction Scenario				
Phase 1	As compared to the No Build Alternative, Phase 1 will have reduced transit travel times to the Westside from various locations around Los Angeles County. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, these transit travel-time savings to points west of this station will not be as significant as under the full LPA to the Westwood/VA Hospital Station.			
Phase 2	As compared to the No Build Alternative, Phase 2 will have reduced transit travel times to the Westside from various locations around Los Angeles County. However, since Phase 2 will terminate at the Century City Station, transit travel-time savings to points west of this station will not be as significant as under the full LPA to the Westwood/VA Hospital Station. For example, transit travel time for trips between Wilshire/Western and Century City under the LPA will be approximately 20 minutes less than under the No Build Alternative.			
Phase 3	Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, will provide the same transit travel times to the Westside from various locations around Los Angeles County as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above and Figures 3-4 to 3-10, Transit Travel Times from Various Locations, in Chapter 3, Transportation. For example, transit travel time for trips between Wilshire/Western and Westwood/UCLA under the LPA will be approximately 30 minutes less than under the No Build Alternative. Given the proximity to the Westwood/UCLA Station, comparable transit travel-time savings will occur for trips to the Westwood/VA Hospital Station.			
Public Transit—Transit Speed and Reliability				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits	No mitigation measures will be required since impacts of the subway extension will provide transit benefits.	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits
The number of passenger miles in exclusive fixed guideway operations will be substantially greater under the LPA than the No Build Alternative. The share of passenger miles in exclusive fixed guideway service in the Study Area under the LPA will be approximately 40 percent compared to about 5 percent under the No Build Alternative. Due to the greater extent of exclusive fixed guideway and congestion-free service, transit reliability and transit speeds in the Study Area will improve. See Figure 3-11, Transit Operating Speeds, and Figure 3-12, Extent of Passenger Miles in Exclusive Guideway Service, in Chapter 3, Transportation.				
Phased Construction Scenario				
Phase 1	Phase 1 will increase the number of passenger miles in exclusive fixed guideway operations compared to the No Build Alternative. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, the extent of the exclusive fixed guideway will be less than the full LPA to the Westwood/VA Hospital Station. While the Phase 1 exclusive fixed guideway will result in improved transit reliability and transit speeds as compared to the No Build Alternative, points west of this station will not experience the same improved transit reliability and transit speeds as under the full LPA to the Westwood/VA Hospital Station due to a shorter exclusive fixed guideway.			

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Phase 2	Phase 2 will increase the number of passenger miles in exclusive fixed guideway operations compared to the No Build Alternative. However, since Phase 2 will terminate at the Century City Station, the extent of the exclusive fixed guideway will be less than the full LPA to the Westwood/VA Hospital Station. While the Phase 2 exclusive fixed guideway will result in improved transit reliability and transit speeds as compared to the No Build Alternative, points west of this station will not experience the same improved transit reliability and transit speeds as under the full LPA to the Westwood/VA Hospital Station due to a shorter exclusive fixed guideway.	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits	No mitigation measures will be required since impacts of the subway extension will provide transit benefits.	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits
Phase 3	Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, will provide the same increase in the number of passenger miles operating in exclusive fixed guideway as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above and Figure 3-11, Transit Operating Speeds, and Figure 3-12, Extent of Passenger Miles in Exclusive Guideway Service, in Chapter 3, Transportation.			
Public Transit—Transit Ridership				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits	No mitigation measures will be required since impacts of the subway extension will provide transit benefits.	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits
Due to the improved transit travel times and reliability, the LPA will increase transit ridership on the Metro rail system. Under the LPA, total boardings at new Purple Line stations west of the existing Wilshire/Western Station are estimated to range from approximately 46,000 to 49,300 passengers per day and, by 2035, approximately 27,200 to 30,100 net additional daily riders will be attracted to public transportation in Los Angeles. The Century City Constellation Station is expected to result in higher ridership than the Century City Santa Monica Station due to a higher concentration of employment surrounding the Century City Constellation Station. See Table 3-5, LPA Daily Station Boardings, and Table 3-6, Daily Mode of Access Percentages, in Chapter 3, Transportation.				
Phased Construction Scenario				
Phase 1	Phase 1 will increase transit ridership on the Metro rail system and on the bus and rail system in Los Angeles County. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, the total boardings at new Purple Line stations west of the existing Wilshire/Western Station are estimated to be lower than the full LPA to the Westwood/VA Hospital Station—19,900 passengers per day. The boardings at the Wilshire/La Cienega Station, the terminus of Phase 1, will be higher than under the full LPA, which extends farther west. See Table 3-5, LPA Daily Station Boardings, and Table 3-6, Daily Mode of Access Percentages, in Chapter 3, Transportation. By 2035, total daily transit demand in Los Angeles County will increase by approximately 13,100 riders under Phase 1.			
Phase 2	Phase 2 will increase transit ridership on the Metro rail system and on the bus and rail system in Los Angeles County. However, since Phase 2 will terminate at the Century City Station, the total boardings at new Purple Line stations west of the existing Wilshire/Western Station are estimated to be lower than the full LPA to the Westwood/VA Hospital Station—30,000 to 31,700 passengers per day. The boardings at the Century City Station, the terminus of Phase 2, will be higher than under the full LPA, which extends farther west. The Century City Constellation Station is expected to result in higher ridership than the Century City Santa Monica Station due to a higher concentration of employment surrounding the Century City Constellation Station. See Table 3-5, LPA Daily Station Boardings, and Table 3-6, Daily Mode of Access Percentages, in Chapter 3, Transportation. By 2035, total daily transit demand in Los Angeles County will increase by between 18,700 and 23,300 riders under Phase 2. The lower end of the demand reflects a Century City Santa Monica Station option, and the higher end reflects a Century City Constellation Station option.			
Phase 3	Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, transit ridership is estimated to be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above and Table 3-5, LPA Daily Station Boardings, and Table 3-6, Daily Mode of Access Percentages, in Chapter 3, Transportation.			

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Public Transit—Impacts on Local Bus Service				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits	No mitigation measures will be required since impacts of the subway extension will provide transit benefits.	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits
The LPA will increase rail passenger demand, shifting some bus riders to rail service and decreasing overall bus ridership. The total bus ridership in 2035 ranges from 265,000 to 271,000 boardings per day under the LPA, compared to 282,300 boardings per day under the No Build Alternative. The Century City Constellation Station option will result in a greater reduction in bus ridership due to higher projected rail ridership compared to the Century City Santa Monica Station option. See Figure 3-13, Daily Bus Ridership in Westside, 2035, in Chapter 3, Transportation.				
Phased Construction Scenario		NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits	No mitigation measures will be required since impacts of the subway extension will provide transit benefits.	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits
Phase 1	Phase 1 will increase rail passenger demand, shifting former bus riders to rail service and decreasing overall bus ridership. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, fewer riders will shift from bus to rail compared to the LPA under the Concurrent Construction Scenario. For riders destined to locations west of Wilshire/La Cienega, transfers to buses will still be necessary. This will result in higher bus ridership under Phase 1 as compared to the Concurrent Construction Scenario. Thus, ridership on Westside bus routes will be higher under Phase 1 as compared to the full LPA; however, the ridership under Phase 1 will still be lower than under the No Build Alternative. See Figure 3-13, Daily Bus Ridership in Westside, 2035, in Chapter 3, Transportation.			
Phase 2	Phase 2 will increase rail passenger demand, shifting former bus riders to rail service and decreasing overall bus ridership. However, since Phase 2 will terminate at the Century City Station, fewer riders will shift from bus to rail compared to the LPA under the Concurrent Construction Scenario. For riders destined to locations west of Century City, transfers to buses will still be necessary. This will result in higher bus ridership under Phase 2 as compared to the Concurrent Construction Scenario. However, as compared to Phase 1, the number of bus riders will decrease with Phase 2 since trains will serve locations farther west of Wilshire/La Cienega. Thus, ridership on Westside bus routes will be higher under Phase 2 as compared to the full LPA; however, the ridership under Phase 2 will still be lower than under the No Build Alternative. See Figure 3-13, Daily Bus Ridership in Westside, 2035, in Chapter 3 of this Final EIS/EIR.			
Phase 3	Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, reductions in bus ridership are estimated to be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above and Figure 3-13, Daily Bus Ridership in Westside, 2035, in Chapter 3, Transportation.			
Public Transit—Expandability				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits	No mitigation measures will be required since impacts of the subway extension will provide transit benefits.	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits
Expandability of the LPA will involve added cars and frequency of train service. In addition, HRT service could be extended farther west in the study corridor in the future.				
Phased Construction Scenario				
Phase 1	The expandability of subway service under Phase 1 of the LPA will involve added train cars and increased frequencies using exclusive fixed guideway operations. This expandability will apply to service operating to the Wilshire/La Cienega Station and will be less extensive as compared to the full LPA.			
Phase 2	The expandability of subway service under Phase 2 of the LPA will involve added train cars and increased frequencies using exclusive fixed guideway operations. This expandability will apply to service operating to the Century City Station and will be less extensive as compared to the full LPA.			
Phase 3	The expandability of subway service under Phase 3 of the LPA will involve added train cars and increased frequencies using exclusive fixed guideway operations.			

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]	Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Public Transit—Passenger Comfort and Convenience			
Concurrent Construction Scenario	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits	No mitigation measures will be required since impacts of the subway extension will provide transit benefits.	NEPA: No Adverse Impacts, Transit Benefits CEQA: No Significant Impacts, Transit Benefits
The LPA will provide frequent and reliable subway service. This will occur regardless of the traffic conditions on streets in the Study Area due to the exclusive fixed guideway. The LPA will lead to a major reduction in the number of passenger transfers since the LPA will provide a one-seat ride from Downtown Los Angeles and the Wilshire Center areas to Westside destinations.			
Phased Construction Scenario			
Phase 1 — Phase 1 will provide frequent and reliable subway service to the Wilshire/La Cienega Station. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, improvements to passenger comfort and convenience for passengers traveling west of this station will be less than the full LPA to the Westwood/VA Hospital Station. Phase 1 will reduce the number of passenger transfers since the LPA will provide a one-seat ride from Downtown Los Angeles and the Wilshire Center areas to the Wilshire/La Cienega Station. However, Purple Line passengers will still need to transfer to buses to reach destinations west of the Wilshire/La Cienega Station.			
Phase 2 — Phase 2 will provide frequent and reliable subway service to the Century City Station. However, since Phase 2 will terminate at the Century City Station, improvements to passenger comfort and convenience for passengers traveling west of this station will be less than the full LPA to the Westwood/VA Hospital Station. Phase 2 will reduce the number of passenger transfers since the LPA will provide a one-seat ride from Downtown Los Angeles and the Wilshire Center areas to the Century City Station. However, Purple Line passengers will still need to transfer to buses to reach destinations west of the Century City Station.			
Phase 3 — Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, improvements to passenger comfort and convenience will be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above.			
▶ STREETS AND HIGHWAYS			
Streets and Highways—Regional and Study Area Transportation Performance			
Concurrent Construction Scenario	NEPA: No Adverse Impacts, Transportation Benefits CEQA: No Significant Impacts, Transportation Benefits	No mitigation measures will be required since the subway extension will provide regional and Study Area transportation benefits.	NEPA: No Adverse Impacts, Transportation Benefits CEQA: No Significant Impacts, Transportation Benefits
The LPA will have a beneficial effect on the regional transportation network by reducing VMT, VHT, and peak-hour trips in comparison to both future year and existing conditions. The Century City Constellation Station option will result in a greater reduction of VMT, VHT, and peak-period trips than the Century City Santa Monica Station. For example, there will be approximately 581,000 less regional VMTs in 2035 under the LPA (Century City Constellation Option) as compared to the No Build Alternative. See Table 3-9, Performance Measures for Existing Conditions and Alternatives, in Chapter 3, Transportation.			
Phased Construction Scenario			
Phase 1 — Phase 1 will have a beneficial effect on the regional transportation network by reducing VMT, VHT, and peak-period trips in comparison to both future year and existing conditions. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, reductions to VMT, VHT, and peak-hour trips will be less than the reductions resulting from the full LPA to the Westwood/VA Hospital Station. For example, there will be approximately 214,000 less regional VMTs in 2035 under the LPA as compared to the No Build Alternative. See Table 3-9, Performance Measures for Existing Conditions and Alternatives, in Chapter 3, Transportation.			
Phase 2 — Phase 2 will have a beneficial effect on the regional transportation network by reducing VMT, VHT, and peak-period trips in comparison to both future year and existing conditions. However, since Phase 2 will terminate at the Century City Station, reductions to VMT, VHT, and peak-hour trips will be less than the reductions resulting from the full LPA to the Westwood/VA Hospital Station. For example, there will be 394,000 less regional VMTs in 2035 under the LPA (Century City Constellation Option) as compared to the No Build Alternative. See Table 3-9, Performance Measures for Existing Conditions and Alternatives, in Chapter 3, Transportation.			

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Phase 3	Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, reductions in VMT, VHT, and peak-period trips will be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above and Table 3-9, Performance Measures for Existing Conditions and Alternatives, in Chapter 3, Transportation.	NEPA: No Adverse Impacts, Transportation Benefits CEQA: No Significant Impacts, Transportation Benefits	No mitigation measures will be required since the subway extension will provide regional and Study Area transportation benefits.	NEPA: No Adverse Impacts, Transportation Benefits CEQA: No Significant Impacts, Transportation Benefits
Streets and Highways—Reduction in Peak-Period Auto Trips				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Transportation Benefits CEQA: No Significant Impacts, Transportation Benefits	No mitigation measures will be required since the subway extension will reduce the number of auto trips during peak periods.	NEPA: No Adverse Impacts, Transportation Benefits CEQA: No Significant Impacts, Transportation Benefits
The LPA is expected to reduce the number of auto trips occurring during peak periods by 12,000 trips. The Century City Constellation Station will result in a higher reduction in peak-period auto trips than the Century City Santa Monica Station. See Figure 3-15, Reduction in Auto Trips under LPA during Seven-hour Peak Period, in Chapter 3, Transportation.				
Phased Construction Scenario				
Phase 1	Phase 1 is expected to reduce the number of auto trips occurring during peak periods by 6,000 trips. See Figure 3-15, Reduction in Auto Trips under LPA during Seven-hour Peak Period, in Chapter 3, Transportation.			
Phase 2	Phase 2 is expected to reduce the number of auto trips occurring during peak periods by approximately 8,000 trips. The Century City Constellation Station will result in a higher reduction in peak-period auto trips than the Century City Santa Monica Station. See Figure 3-15, Reduction in Auto Trips under LPA during Seven-hour Peak Period, in Chapter 3, Transportation.			
Phase 3	Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, reductions in peak-period auto trips will be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above and Figure 3-15, Reduction in Auto Trips under LPA during Seven-hour Peak Period, in Chapter 3, Transportation.			
Streets and Highways—Transit Mode Share Changes				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Transportation Benefits CEQA: No Significant Impacts, Transportation Benefits	No mitigation measures will be required since the subway extension will increase the transit mode share.	NEPA: No Adverse Impacts, Transportation Benefits CEQA: No Significant Impacts, Transportation Benefits
Due to improved transit times, speed, and reliability, the LPA will increase transit mode shares during peak periods, which represents a beneficial effect since a higher transit mode share indicates less traffic on the regional road network. For example, under the LPA, travel between Pasadena and Century City will have a 22 percent transit mode share as compared to 18 percent under the No Build Alternative.				
Phased Construction Scenario				
Phase 1	Phase 1 will increase transit mode shares, which represents a beneficial effect since a higher transit mode share indicates less traffic on the regional road network. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, increases in transit mode shares will be lower than the increases experienced with the full LPA to the Westwood/VA Hospital Station.			
Phase 2	Phase 2 will increase transit mode shares, which represents a beneficial effect since a higher transit mode share indicates less traffic on the regional road network. However, since Phase 2 will terminate at the Century City Station, increases in transit mode shares will be lower than the increases experienced with the full LPA to the Westwood/VA Hospital Station.			
Phase 3	Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, increases in transit mode share will be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above.			

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]	Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Streets and Highways—Intersection Analysis			
Concurrent Construction Scenario The LPA will improve level-of-service at several Study Area intersections. In the future (year 2035), the LPA is expected to improve level-of-service at 12 locations in the AM peak hour and at 8 locations in the PM peak hour. Under existing conditions with the LPA, the LPA is expected to improve level-of-service at 9 locations in the AM peak hour and 13 locations in the PM peak hour. See Table 3-11, Number of Locations with Intersection Level-of-service Improvement-with LPA, in Chapter 3, Transportation. In general, the intersection level-of-service results indicate that the LPA will not adversely impact any analyzed Study Area intersections compared to existing and future No Build Alternative conditions. The exception is the Bank of America entrance at the Wilshire/Rodeo Station, which would result in a significant impact at the intersection of Wilshire Boulevard and Beverly Drive under future conditions.	NEPA: No Adverse Impacts with the exception of the Bank of America station entrance at the Wilshire/Rodeo Station CEQA: No Significant Impacts with the exception of the Bank of America station entrance at the Wilshire/Rodeo Station	No mitigation measures will be required for all stations with the exception of the Bank of America entrance at the Wilshire/Rodeo Station. The traffic impact resulting from the Bank of America station entrance at the Wilshire/Rodeo Station cannot be mitigated.	NEPA: No Adverse Impacts with the exception of the Bank of America station entrance at the Wilshire/Rodeo Station, which will result in an adverse impact. CEQA: No Significant Impacts with the exception of the Bank of America station entrance at the Wilshire/Rodeo Station, which will result in a significant unavoidable impact.
Phased Construction Scenario	NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation measures will be required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 1: Phase 1 will improve level-of-service at 6 locations in the AM peak hour and at 6 locations in the PM peak hour compared to future No Build Alternative conditions. Phase 1 will not adversely impact any analyzed Study Area intersections compared to future No Build Alternative conditions. See Table 3-11, Number of Locations with Intersection Level-of-service Improvement-with LPA, in Chapter 3, Transportation.			
Phase 2: Phase 2 will improve level-of-service at 10 locations in the AM peak hour and at 7 locations in the PM peak hour compared to future No Build Alternative conditions. See Table 3-11, Number of Locations with Intersection Level-of-service Improvement-with LPA, in Chapter 3, Transportation. In general, the intersection level-of-service results indicate that Phase 2 will not adversely impact any analyzed Study Area intersections compared to existing and future No Build Alternative conditions. The exception is the Bank of America entrance at the Wilshire/Rodeo Station, which would result in a significant impact at the intersection of Wilshire Boulevard and Beverly Drive under future conditions.	NEPA: No Adverse Impacts with the exception of the Bank of America station entrance at the Wilshire/Rodeo Station CEQA: No Significant Impacts with the exception of the Bank of America station entrance at the Wilshire/Rodeo Station	No mitigation measures will be required for all stations with the exception of the Bank of America entrance at the Wilshire/Rodeo Station. The traffic impact resulting from the Bank of America station entrance at the Wilshire/Rodeo Station cannot be mitigated.	NEPA: No Adverse Impacts with the exception of the Bank of America station entrance at the Wilshire/Rodeo Station, which will result in an adverse impact. CEQA: No Significant Impacts with the exception of the Bank of America station entrance at the Wilshire/Rodeo Station, which will result in a significant unavoidable impact.
Phase 3: Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, level-of-service improvements and impacts will be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above and Table 3-11, Number of Locations with Intersection Level-of-service Improvement with LPA, in Chapter 3, Transportation. The significant impact at the intersection of Wilshire Bouelvard and Beverly Drive with the Wilshire/Rodeo Bank of America entrance would occur as part of Phase 2, as described above.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation measures will be required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Streets and Highways—Traffic Due to Parking Spillover			
Concurrent Construction Scenario With parking mitigation measures T-2 through T-4 in place as described in the parking section below, LPA-related peak-hour traffic entering neighborhoods will be nominal and no impacts are expected to occur.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	T-2—Parking Monitoring and Community Outreach T-3—Residential Permit Parking Districts T-4—Consideration of Shared Parking Program	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phased Construction Scenario			
Phase 1: With parking mitigation measures T-2 through T-4 in place as described in the parking section below, LPA-related peak-hour traffic entering neighborhoods will be nominal and no impacts are expected to occur.			

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Phase 2	With parking mitigation measures T-2 through T-4 in place as described in the parking section below, LPA-related peak-hour traffic entering neighborhoods will be nominal and no impacts are expected to occur.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	T-2—Parking Monitoring and Community Outreach T-3—Residential Permit Parking Districts T-4—Consideration of Shared Parking Program	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 3	With parking mitigation measures T-2 through T-4 in place as described in the parking section below, LPA-related peak-hour traffic entering neighborhoods will be nominal and no impacts are expected to occur.			
▶ PARKING				
Parking—Parking Loss				
Concurrent Construction Scenario		NEPA: Adverse Impacts CEQA: N/A	T-1—Coordination with Property Owners Metro will coordinate with the appropriate property owners and other relevant parties regarding permanent parking losses. All property owners will be compensated under the Uniform Relocation Assistance and Real Property Acquisition Act as described in mitigation measure CN-1 and will receive compensation for easements as described in mitigation measure CN-3.	NEPA: No Adverse Impacts CEQA: N/A
The following station locations will result in impacts to parking: Wilshire/Rodeo Station—Loss of off-street parking associated with the entrance options at the Bank of America and Union Bank Buildings. The entrance option at the Bank of America Building also would result in the removal of three metered on-street parking spaces and one on-street loading space from the west side of Beverly Drive and up to 13 on-street spaces from the east side of Beverly Drive. Century City Santa Monica Station—Loss of parking in the nearby underground garage at the southwest corner of Santa Monica Boulevard and Century Park East. Westwood/UCLA On- and Off-Street Stations—Loss of off-street parking at UCLA Lot 36. All other station entrance options would not have an adverse impact to parking.				
Phased Construction Scenario		NEPA: No Adverse Impacts CEQA: N/A	No mitigation measures will be required.	
Phase 1	Phase 1 will not result in permanent parking loss at any stations.			
Phase 2	The following Phase 2 station locations will result in impacts to parking: Wilshire/Rodeo Station—Loss of off-street parking associated with the entrance options at the Bank of America and Union Bank Buildings. The entrance option at the Bank of America Building also would result in the removal of three metered on-street parking spaces and one on-street loading space from the west side of Beverly Drive and up to 13 on-street spaces from the east side of Beverly Drive. Century City Santa Monica Station—Loss of parking in the nearby underground garage at the southwest corner of Santa Monica Boulevard and Century Park East. All other station entrance options would not have an adverse impact to parking.	NEPA: Adverse Impacts CEQA: N/A	T-1—Coordination with Property Owners Metro will coordinate with the appropriate property owners and other relevant parties regarding permanent parking losses. All property owners will be compensated under the Uniform Relocation Assistance and Real Property Acquisition Act as described in mitigation measure CN-1 and will receive compensation for easements as described in mitigation measure CN-3.	
Phase 3	The following Phase 3 station location will result in impacts to parking: Westwood/UCLA On- and Off-Street Stations—Loss of off-street parking at UCLA Lot 36. All other station entrance options would not have an adverse impact to parking.			
Parking—Neighborhood Spillover Parking				
Concurrent Construction Scenario		NEPA: Adverse Impacts CEQA: N/A	T-2—Parking Monitoring and Community Outreach T-3—Residential Permit Parking Districts T-4—Consideration of Shared Parking Program	NEPA: No Adverse Impacts CEQA: N/A
The LPA will result in neighborhood spillover parking impacts at the Wilshire/La Brea, Wilshire/Fairfax, Wilshire/La Cienega, Westwood/UCLA (On-Street and Off-Street), and Westwood/VA Hospital (South and North) Stations. This will result in adverse impacts at all identified stations if not mitigated. See Table 3-17, Parking Spillover Impact Summary, in Chapter 3, Transportation.				

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Phased Construction Scenario		NEPA: Adverse Impacts CEQA: N/A	T-2—Parking Monitoring and Community Outreach T-3—Residential Permit Parking Districts T-4—Consideration of Shared Parking Program	NEPA: No Adverse Impacts CEQA: N/A
Phase 1	Phase 1 will result in neighborhood spillover parking impacts at the Wilshire/La Brea, Wilshire/Fairfax, and Wilshire/La Cienega Stations. This will result in adverse impacts at all identified stations if not mitigated. Although the daily boardings at the Wilshire/La Cienega Station are higher under Phase 1 than under the full LPA, no new unidentified parking spillover impacts will occur under Phase 1 as compared to the LPA under the Concurrent Construction Scenario. See Table 3-17, Parking Spillover Impact Summary, in Chapter 3, Transportation.			
Phase 2	Phase 2 will not result in neighborhood spillover parking impacts because on-street parking in the vicinity of the Wilshire/Rodeo and Century City (Santa Monica and Constellation) Stations is restricted. See Table 3-17, Parking Spillover Impact Summary, in Chapter 3, Transportation.	NEPA: No Adverse Impacts CEQA: N/A	No mitigation measures will be required.	NEPA: No Adverse Impacts CEQA: N/A
Phase 3	Phase 3 will result in neighborhood spillover parking impacts at the Westwood/UCLA (On-Street and Off-Street) and Westwood/VA Hospital (South and North) Stations. This will result in adverse impacts at all identified stations if not mitigated. See Table 3-17, Parking Spillover Impact Summary, in Chapter 3, Transportation.	NEPA: Adverse Impacts CEQA: N/A	T-2—Parking Monitoring and Community Outreach T-3—Residential Permit Parking Districts T-4—Consideration of Shared Parking Program	
▶ PEDESTRIAN, BICYCLE, AND BUS NETWORKS				
Pedestrian, Bicycle, and Bus Networks—Increased Hazards Related to Pedestrian, Bicycle, and Bus Networks				
Concurrent Construction Scenario		NEPA: Adverse Impacts CEQA: Significant Impacts	T-5—Install Crossing Deterrents Wilshire/Fairfax Station—South entrance option T-6—Install High-Visibility Crosswalk/Crossing Deterrents Wilshire/Rodeo Station—Union Bank entrance option T-7—Install High-Visibility Crosswalk Wilshire/Rodeo Station—Ace Gallery entrance option T-8—Install High-Visibility Crosswalk Westwood/VA Hospital—South entrance option Westwood/VA Hospital—North entrance option	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
The following five LPA Station entrance options are expected to result in increased hazards due to a design feature or incompatible uses: Wilshire/Fairfax Station—South entrance option Wilshire/Rodeo Station—Union Bank entrance option Wilshire/Rodeo Station—Ace Gallery entrance option Westwood/VA Hospital—South entrance option Westwood/VA Hospital—North entrance option All other station entrance options would not have an adverse impact. See Table 3-18, Effects to the Pedestrian, Bicycle, and Bus Networks, in Chapter 3, Transportation.				
Phased Construction Scenario			T-5—Install Crossing Deterrents Wilshire/Fairfax Station—South entrance option	
Phase 1	The south entrance option for the Wilshire/Fairfax Station will result in increased hazards due to a design feature or incompatible uses. All other Phase 1 station entrance options would not have an adverse impact. See Table 3-18, Effects to the Pedestrian, Bicycle, and Bus Networks, in Chapter 3, Transportation.			
Phase 2	The Union Bank and Ace Gallery entrance options for the Wilshire/Rodeo Station will result in increased hazards due to a design feature or incompatible uses. All other Phase 2 station entrance options would not have an adverse impact. See Table 3-18, Effects to the Pedestrian, Bicycle, and Bus Networks, in Chapter 3, Transportation.		T-6—Install High-Visibility Crosswalk/Crossing Deterrents Wilshire/Rodeo Station—Union Bank entrance option T-7—Install High-Visibility Crosswalk Wilshire/Rodeo Station—Ace Gallery entrance option	
Phase 3	The north and south entrance options for the Westwood/VA Hospital Station will result in increased hazards due to a design feature or incompatible uses. All other Phase 3 station entrance options would not have an adverse impact. See Table 3-18,Effects to the Pedestrian, Bicycle, and Bus Networks, in Chapter 3, Transportation.		T-8—Install High-Visibility Crosswalk Westwood/VA Hospital—South entrance option Westwood/VA Hospital—North entrance option	

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Pedestrian, Bicycle, and Bus Networks—Conflict with Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities				
Concurrent Construction Scenario		NEPA: Adverse Impacts CEQA: Significant Impacts	T-9—Provide consistency with General Plan Designation Sidewalk Width Adjacent to Metro-Controlled Parcels T-10—Provide consistency with General Plan Designation Sidewalk Width Coordination with Jurisdictions T-11—Provide High-Visibility Crosswalk Treatments T-12—Meet Federal, State, and Local Standards for Crossing T-13—Meet Metro Rail Design Criteria Minimums for Bicycle Parking T-14—Study Bicycle Parking Demand and Footprint Configuration T-15—Determine Alternative Sites for Bicycle Parking T-16—Study Bus-Rail Interface	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
All seven LPA stations are expected to conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. See Table 3-18, Effects to the Pedestrian, Bicycle, and Bus Networks, in Chapter 3, Transportation.				
Phased Construction Scenario				
Phase 1	The Wilshire/La Brea, Wilshire/Fairfax, and Wilshire/La Cienega Stations are expected to conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. See Table 3-18, Effects to the Pedestrian, Bicycle, and Bus Networks, in Chapter 3, Transportation.			
Phase 2	The Wilshire/Rodeo Station and Century City Station (Constellation and Santa Monica) are expected to conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. See Table 3-18, Effects to the Pedestrian, Bicycle, and Bus Networks, in Chapter 3, Transportation.			
Phase 3	The Westwood/UCLA Station (On-Street and Off-Street) and Westwood/VA Hospital Station (North and South) are expected to conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. See Table 3-18, Effects to the Pedestrian, Bicycle, and Bus Networks, in Chapter 3, Transportation.			
▶CONSTRUCTION-RELATED TRANSPORTATION IMPACTS				
Construction-related Transportation Impacts—Traffic and Circulation				
Truck Haul Routes				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	TCON-2—Designated Haul Routes	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts
Truck traffic volume will increase during construction of the LPA along anticipated haul routes. Roadways proposed as haul routes and estimated daily haul truck trips are shown in Table 3-20, Haul Routes for Construction Activities, and Table 3-21, Estimated Daily Haul Truck Trips, respectively, in Chapter 3, Transportation. Truck volumes will range from 25 daily trips for the emergency exit shaft at the Westwood/VA Hospital Station and the Wilshire/Crenshaw Station construction staging area to between 100 and 140 trips for the tunnel boring machine launch activity at the Westwood/VA Hospital Station. Increased truck traffic volume could cause visual, noise, and vibration impacts along haul routes. These impacts would be felt by residential land uses in particular. Section 3.8.1, Traffic and Circulation Construction-Related Environmental Impacts/Environmental Consequences, identifies potential streets that may be used for haul routes where clusters of residential units are located.				
Phased Construction Scenario				
Phase 1	Truck traffic volume will increase during construction of Phase 1 along anticipated haul routes. Roadways proposed as haul routes and estimated daily haul truck trips are shown in Table 3-20, Haul Routes for Construction Activities, and Table 3-21, Estimated Daily Haul Truck Trips, respectively, in Chapter 3, Transportation. Truck volumes will range from 25 daily trips for the Wilshire/Crenshaw Station construction staging site to between 80 and 120 trips for the tunnel boring machine activity and station construction at the Wilshire/La Brea Station. Increased truck traffic volume could cause visual, noise, and vibration impacts along Phase 1 haul routes. These impacts would be felt by residential land uses in particular. Section 3.8.1, Traffic and Circulation Construction-Related Environmental Impacts/Environmental Consequences, identifies potential streets along Phase 1 that may be used for haul routes where clusters of residential units are located.				

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Phase 2	Truck traffic volume will increase during construction of Phase 2 along anticipated haul routes. Roadways proposed as haul routes and estimated daily haul truck trips are shown in Table 3-20, Haul Routes for Construction Activities, and Table 3-21, Estimated Daily Haul Truck Trips, respectively, in Chapter 3, Transportation. Truck volumes will range between 40 and 60 daily trips for the Wilshire/Rodeo Station construction and between 90 and 130 trips for station construction and tunnel boring machine activity at Century City. Increased truck traffic volume could cause visual, noise, and vibration impacts along Phase 2 haul routes. These impacts would be felt by residential land uses in particular. Section 3.8.1, Traffic and Circulation Construction-Related Environmental Impacts/Environmental Consequences, identifies potential streets along Phase 2 that may be used for haul routes where clusters of residential units are located.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	TCON-2—Designated Haul Routes	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts
Phase 3	Truck traffic volume will increase during construction of Phase 3 along anticipated haul routes. Roadways proposed as haul routes and estimated daily haul truck trips are shown in Table 3-20, Haul Routes for Construction Activities, and Table 3-21, Estimated Daily Haul Truck Trips, respectively, in Chapter 3, Transportation. Truck volumes will range from 25 trips for the emergency exit shaft at the Westwood/VA Hospital Station to between 100 and 140 trips for station construction and tunnel boring machine activity at the Westwood/VA Hospital Station. Increased truck traffic volume could cause visual, noise, and vibration impacts along Phase 3 haul routes. These impacts would be felt by residential land uses in particular. Section 3.8.1, Traffic and Circulation Construction-Related Environmental Impacts/Environmental Consequences, identifies potential streets along Phase 3 that may be used for haul routes where clusters of residential units are located.			
Traffic Handling				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	TCON-1—Traffic Control Plans TCON-3—Emergency Vehicle Access TCON-4—Transportation Management Plan TCON-5—Coordination with Planned Roadway Improvements	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts
Traffic impacts associated with LPA construction include reduced roadway traffic lanes and temporary street closures that could result in major traffic disruptions and bottlenecks. Additionally, commercial driveways may be subject to reduced access around construction sites. Emergency vehicle access (e.g., police, fire and rescue, and ambulance) in and around construction work sites may be affected by lane closures or temporary street closures.				
Phased Construction Scenario				
Phase 1	Traffic impacts associated with Phase 1 construction include reduced roadway traffic lanes and temporary street closures that could result in major traffic disruptions and bottlenecks. Additionally, commercial driveways may be subject to reduced access around construction sites. Emergency vehicle access (e.g., police, fire and rescue, and ambulance) in and around Phase 1 construction work sites may be affected by lane closures or temporary street closures.			
Phase 2	Traffic impacts associated with Phase 2 construction include reduced roadway traffic lanes and temporary street closures that could result in major traffic disruptions and bottlenecks. Additionally, commercial driveways may be subject to reduced access around construction sites. Emergency vehicle access (e.g., police, fire and rescue, and ambulance) in and around Phase 2 construction work sites may be affected by lane closures or temporary street closures.			
Phase 3	Traffic impacts associated with Phase 3 construction include reduced roadway traffic lanes and temporary street closures that could result in major traffic disruptions and bottlenecks. Additionally, commercial driveways may be subject to reduced access around construction sites. Emergency vehicle access (e.g., police, fire and rescue, and ambulance) in and around Phase 3 construction work sites may be affected by lane closures or temporary street closures.			

Table S-6. Transportation Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Construction-related Transportation Impacts—Public Transit				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	TCON-6—Temporary Bus Stops and Route Diversions	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts
Bus service will be impacted by temporary street closures and will require the temporary rerouting of bus lines and bus stop locations. This will result in additional transit travel time for bus riders.				
Phased Construction Scenario				
Phase 1	Bus service will be impacted by temporary street closures during Phase 1 construction and will require the temporary rerouting of bus lines and bus stop locations. This will result in additional transit travel time for bus riders.			
Phase 2	Bus service will be impacted by temporary street closures during Phase 2 construction and will require the temporary rerouting of bus lines and bus stop locations. This will result in additional transit travel time for bus riders.			
Phase 3	Bus service will be impacted by temporary street closures during Phase 3 construction and will require the temporary rerouting of bus lines and bus stop locations. This will result in additional transit travel time for bus riders.			
Construction-related Transportation Impacts—Parking				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	TCON-7—Parking Management TCON-8—Parking Monitoring and Community Outreach TCON-9—Construction Worker Parking	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts
During construction, existing on-street parking and loading zones will be temporarily removed where traffic lanes are closed or eliminated temporarily. In addition, a number of off-street parking spaces will be removed during construction of the Wilshire/La Cienega, Wilshire/Rodeo, Century City Santa Monica, Westwood/UCLA (On-Street and Off-Street), and Westwood/VA Hospital (North and South) Stations.				
Phased Construction Scenario				
Phase 1	During Phase 1 construction, existing on-street parking, and loading zones will be temporarily removed where traffic lanes are closed or eliminated temporarily. In addition, a number of off-street parking spaces will be removed during construction of the Wilshire/La Cienega Station.			
Phase 2	During Phase 2 construction, existing on-street parking, and loading zones will be temporarily removed where traffic lanes are closed or eliminated temporarily. In addition, a number of off-street parking spaces will be removed during construction of the Wilshire/Rodeo and Century City Santa Monica Stations.			
Phase 3	During Phase 3 construction, existing on-street parking, and loading zones will be temporarily removed where traffic lanes are closed or eliminated temporarily. In addition, a number of off-street parking spaces will be removed during construction of the Westwood/UCLA (On-Street and Off-Street) and Westwood/VA Hospital (North and South) Stations.			

Table S-6. Transcription Environmental Impacts, Mitigation Measures, and Impacts Remaining after Mitigation (continued from previous page)

Description of Identified Impacts[1, 2]	Impact Before Mitigation	Mitigation[3]	Impact Remaining after Mitigation[2]
Construction-related Transportation Impacts—Pedestrian and Bicycle Access			
Concurrent Construction Scenario	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	TCON-10—Pedestrian Routes and Access TCON-11—Bicycle Paths and Access	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts
During construction, pedestrian and bicycle access in and around construction work sites will be impacted as a result of street and sidewalk closures and disruptions to bike routes.			
Phased Construction Scenario			
Phase 1 — During Phase 1 construction, pedestrian and bicycle access in and around construction work sites will be impacted as a result of street and sidewalk closures and disruptions to bike routes.			
Phase 2 — During Phase 2 construction, pedestrian and bicycle access in and around construction work sites will be impacted as a result of street and sidewalk closures and disruptions to bike routes.			
Phase 3 — During Phase 3 construction, pedestrian and bicycle access in and around construction work sites will be impacted as a result of street and sidewalk closures and disruptions to bike routes.			

[1]The only major difference between the Concurrent Construction Scenario and the Phased Construction Scenario is the timing of potential transportation impacts and benefits. Under the Phased Construction Scenario, the potential for transportation impacts and benefits along Phase 2 and Phase 3 would occur later than under the Concurrent Construction Scenario due to an extended construction timeline. The timing for potential transportation impacts and benefits along Phase 1 of the LPA would occur earlier than under the Concurrent Construction Scenario since Phase 1 would open for operation in 2020.
[2]Unless otherwise noted, the LPA includes all station, alignment, and station entrance options.
[3]Refer to Sections 3.4. 3.5, 3.6, 3.7, and 3.8 and Appendix I, Mitigation Monitoring and Reporting Plan, for the full description of all proposed mitigation measures.

environment include crossing deterrents and high-visibility crosswalks, among other measures.

Construction of the LPA will temporarily affect traffic, transit, parking, and non-motorized travel within the Study Area. Truck traffic volumes will increase during construction along haul routes, which could cause increased visual, noise, and vibration impacts for those along the haul routes. To minimize these impacts, designated haul routes along arterial streets will be established in coordination with State and local jurisdictions.

Traffic impacts include reduced roadway traffic lanes and temporary street closures. Traffic impacts will be minimized by the implementation of construction traffic mitigation measures, including the development of traffic control plans and transportation management plans, among others. Temporary street closures also will affect bus service, requiring the temporary rerouting of bus lines and bus stop locations. In addition to temporary street closures, construction will require temporary sidewalk closures, which will impact pedestrian and bicycle networks. Proposed mitigation measures will minimize inconveniences to pedestrians and bicyclists during construction.

During construction, existing on-street parking and loading zones will be temporarily removed where traffic lanes are temporarily closed or eliminated in addition to the off-street parking spaces removed over the short-term. Impacts associated with the removal of temporary parking will be minimized by mitigation measures, including parking management, parking monitoring, and community outreach, among other measures.

With implementation of mitigation measures, construction-related adverse effects on transportation in the Study Area will be reduced for adjacent commercial areas and residential neighborhoods. However, at major intersections, traffic-related impacts, such as split phases of signals and loss of turn lanes, will remain temporary adverse effects. Although the construction impacts identified for traffic circulation, parking, transit, and other modes (pedestrians and bicycles) will be temporary, impacts and/or residual impacts will remain adverse and unavoidable during construction.

Environmental Analysis, Consequences, and Mitigation during Operation

Chapter 4 of this Final EIS/EIR evaluates the existing conditions and environmental effects of the No Build Alternative and the LPA, and recommends mitigation measures to minimize both operational and construction impacts. Chapter 5 of this Final EIS/EIR, the Section 4(f) Evaluation, describes whether and how the Locally Preferred Alternative (LPA) will use Section 4(f) resources and where there is a direct use a description of avoidance alternatives and measures to minimize harm.

Refer to Table S-5 and Table S-7 for a summary of identified operational environmental impacts, mitigation measures, and impacts remaining after mitigation. Since the LPA is a subway and almost entirely underground, any environmental impacts are expected to occur at stations, where entrances are built on the surface. With implementation of proposed mitigation measures, operation of the LPA will have only one remaining adverse effect under NEPA and a significant effect under CEQA: the demolition of one historic structure—the Ace Gallery at the Wilshire/Rodeo Station. This is also a direct use of a Section 4(f) resource. All other anticipated environmental impacts resulting from operation will be mitigated by the proposed measures.

As discussed in the transportation summary, the LPA is expected to decrease regional VMT, which

will reduce energy consumption and lower emissions of some air pollutants, resulting in beneficial air quality and climate change effects.

The locations of the acquisitions are illustrated and listed in Appendix C, Acquisitions.

The construction of the LPA will require 35 to 57 full acquisitions (four multi-family residences and one mixed-use building containing residences), 3 to 10 permanent easements, 6 to 12 temporary construction easements, and 93 to 137 permanent underground easements (see Section 4.2.2 of this Final EIS/EIR). The actual number will depend on which station option and entrance location are selected at each station. Businesses employing 231 to 279 employees will be displaced (see Section 4.2.3 of this Final EIS/EIR). Some businesses may relocate to other parts of the City, and job losses from displacement will be offset by new construction and operations jobs. Each residence and business displaced as a result of the LPA will be given advance written notice and will be informed of their eligibility for relocation assistance and payments under the Federal Uniform Relocation Assistance and Real Property Acquisition Act and the California Relocation Act. The LPA may require underground easements and construction easements that are partially on or adjacent to Federal facilities. Metro is committed to following risk assessment processes performed by Federal agencies of their sites. Therefore, the acquisition of these properties will not result in adverse impacts.

The LPA will be located within a densely developed urban area and will not extend into undeveloped areas that may induce changes in such areas. Potential indirect growth-inducing effects may result from opportunities the LPA provides for micro-scale growth, including economic growth.

With mitigation, noise and vibration levels during operation will not exceed FTA criteria at any location along the LPA alignment.

Three locations along the LPA are predicted to exceed FTA ground-borne noise criteria due to train operations along tangent track or through crossovers if mitigation measures are not implemented. Mitigation measures incorporated into the design of the LPA include rail fasteners and low impact crossovers, which will reduce ground-borne noise during operation to below FTA criteria.

The LPA is located in a seismically active region. In addition to ground shaking hazards, at least one segment of the active Santa Monica Fault and the West Beverly Hills Lineament, an extension of the Newport-Inglewood Fault zone, cross the LPA in the Century City vicinity (Figure S-24). Subway stations, because they are structures for human occupancy, should not be built on active fault zones due to regulatory codes and the practical difficulty of designing such structures to withstand potential ground rupture and associated deformations. Because surface fault rupturing is generally confined to a relative narrow zone of tens to several hundred feet wide, avoidance is a practical means of avoiding surface fault rupture hazards for stations. However, for linear facilities such as the tunnels, avoidance is not possible. It is possible for tunnels to cross faults in a perpendicular orientation to limit the area of potential damage if the fault ruptures. Depending on the predicted fault off-set and area over which the movement is distributed, distortion can safely be accommodated by the tunnel structure.

The two station locations in Century City differ in terms of their proximity to the fault zones. The area along Santa Monica Boulevard, between about Moreno Drive and Century Park West Avenue is

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued on next page)

Description of Identified Impacts[1]	Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
▶ LAND USE			
Concurrent Construction Scenario No significant land use impacts will result from the LPA. The LPA will not conflict with applicable land use plans and policies.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phased Construction Scenario			
Phase 1: No significant land use impacts will result from Phase 1. Phase 1 will not conflict with applicable land use plans and policies.			
Phase 2: No significant land use impacts will result from Phase 2. Phase 2 will not conflict with applicable land use plans and policies.			
Phase 3: No significant land use impacts will result from Phase 3. Phase 3 will not conflict with applicable land use plans and policies.			
▶ SOCIOECONOMIC CHARACTERISTICS			
Concurrent Construction Scenario No significant impacts will result from the LPA. The LPA will result in 35 to 57 full acquisitions, 3 to 10 permanent easements, 6 to 12 temporary construction easements, and 93 to 137 permanent underground easements. Of the acquisitions, four residential properties and one mixed-use building with two residences will be acquired. Although the residents will be displaced and relocated, due to the size and scope of the LPA, this impact is not considered substantial. In addition, the residents will be compensated under the Uniform Relocation Assistance and Real Property Acquisition Act as further described in CN-1. It is anticipated that where relocation is required, it will result in the relocation of most jobs that will be displaced.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	CN-1—Relocation Assistance and Compensation CN-2—Propose Joint-use Agreements CN-3—Compensation for Easements	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phased Construction Scenario			
Phase 1: No significant impacts will result from Phase 1. Phase 1 will result in 30 to 32 full acquisitions, 1 to 2 permanent easements, 1 temporary construction easement, and 1 permanent underground easement. Of the acquisitions, four residential properties and one mixed-use building with two residences will be acquired. Although the residents will be displaced and relocated as part of Phase 1, this impact is not considered substantial. In addition, the residents will be compensated under the Uniform Relocation Assistance and Real Property Acquisition Act as further described in CN-1. It is anticipated that where relocation is required, it will result in the relocation of most jobs that will be displaced.			
Phase 2: No significant impacts will result from Phase 2. Phase 2 will result in 5 to 25 full acquisitions, 1 to 4 permanent easements, 0 to 4 temporary construction easements, and 6 to 32 permanent underground easements. It is anticipated that where relocation is required, it will result in the relocation of most jobs that will be displaced.			
Phase 3: No significant impacts will result from Phase 3. Phase 3 will result in no full acquisitions, 1 to 4 permanent easements, 5 to 7 temporary construction easements, and 86 to 104 permanent underground easements.			
▶ ENVIRONMENTAL JUSTICE			
Concurrent Construction Scenario No disproportionately high and adverse impact to minorities and low-income communities will occur during construction or operation of the Project. Construction impacts will affect all neighborhoods in construction staging areas, regardless of demographic or socioeconomic character.	NEPA: No Disproportionately High and Adverse Impact CEQA: No Disproportionately High and Adverse Impact	No additional mitigation measures required.	NEPA: No Disproportionately High and Adverse Impact CEQA: No Disproportionately High and Adverse Impact

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]		Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Phased Construction Scenario		NEPA: No Disproportionately High and Adverse Impact CEQA: No Disproportionately High and Adverse Impact	No additional mitigation measures required.	NEPA: No Disproportionately High and Adverse Impact CEQA: No Disproportionately High and Adverse Impact
Phase 1	No disproportionately high and adverse impact to minorities and low-income communities will occur during construction or operation of the Project. Construction impacts will affect all neighborhoods in construction staging areas, regardless of demographic or socioeconomic character.			
Phase 2	No disproportionately high and adverse impact to minorities and low-income communities will occur during construction or operation of the Project. Construction impacts will affect all neighborhoods in construction staging areas, regardless of demographic or socioeconomic character.			
Phase 3	No disproportionately high and adverse impact to minorities and low-income communities will occur during construction or operation of the Project. Construction impacts will affect all neighborhoods in construction staging areas, regardless of demographic or socioeconomic character.			
▶VISUAL AND AESTHETICS				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	While there are no significant impacts, the mitigation measures, as listed below, are incorporated into the LPA and will ensure that impacts related to conflicts between scale and visual character, building removal and right-of-way acquisition, removal of mature vegetation, location of ancillary facilities, and introduction of new sources of light and glare are avoided or minimized. VIS-1—Minimize Visual Clutter VIS-2—Replacement for Tree Removal VIS-3—Source Shielding in Exterior Lighting VIS-4—Integrate Station Designs with Area Redevelopment Plans	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Effects are related to the visibility of station components and tunnel ventilation structures. Combining landscaping and design elements in the LPA and the mitigation measures will ensure that there are no significant impacts.				
Phased Construction Scenario				
Phase 1	Effects are related to the visibility of station components for the three Phase 1 stations (Wilshire/La Brea, Wilshire/Fairfax, and Wilshire/La Cienega) as well expansion of the Division 20 Storage Yard and Maintenance Facility. An emergency generator also will be constructed along Phase 1 near the Wilshire/La Brea Station. Combining landscaping and design elements in Phase 1 and the mitigation measures will ensure that there are no significant impacts.			
Phase 2	Effects are related to the visibility of station components for the two Phase 2 stations (Wilshire/Rodeo and Century City). Combining landscaping and design elements in Phase 2 and the mitigation measures will ensure that there are no significant impacts.			
Phase 3	Effects are related to the visibility of station components for the two Phase 3 stations (Westwood/UCLA and Westwood/VA Hospital). An emergency generator also will be constructed along Phase 3 near the Westwood/VA Hospital Station. Combining landscaping and design elements in Phase 3 and the mitigation measures will ensure that there are no significant impacts.			
▶AIR QUALITY				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Air Quality Benefits CEQA: No Significant Impacts, Air Quality Benefits	No mitigation required since operation of LPA will provide air quality benefits.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
The LPA will not exceed the National Ambient Air Quality Standards, the California Ambient Air Quality Standards, or the South Coast Air Quality Management District significance thresholds during operation of the LPA. The LPA is predicted to result in lower emissions of some criteria pollutants due to reductions in VMT.				
Phased Construction Scenario				
Phase 1	Phase 1 will not exceed the National Ambient Air Quality Standards, the California Ambient Air Quality Standards, or the South Coast Air Quality Management District significance thresholds during operation of Phase 1 of the LPA. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, reductions to VMT will be less than the reductions resulting from the full LPA, and, therefore, the corresponding decrease in emissions of criteria pollutants and resulting air quality benefits will be less than the emissions reductions and benefits associated with the full LPA to the Westwood/VA Hospital Station.			

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]		Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Phase 2	Phase 2 will not exceed the National Ambient Air Quality Standards, the California Ambient Air Quality Standards, or the South Coast Air Quality Management District significance thresholds during operation of Phase 2 of the LPA. However, since Phase 2 will terminate at the Century City Station, reductions to VMT will be less than the reductions resulting from the full LPA, and, therefore, the corresponding decrease in emissions of criteria pollutants and resulting air quality benefits will be less than the emissions reductions and benefits associated with the full LPA to the Westwood/VA Hospital Station.	NEPA: No Adverse Impacts, Air Quality Benefits CEQA: No Significant Impacts, Air Quality Benefits	No mitigation required since operation of LPA will provide air quality benefits.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 3	Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, reductions in VMT and the corresponding decrease in criteria emissions will be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above.			
▶CLIMATE CHANGE				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Climate Change Benefits CEQA: No Significant Impacts, Climate Change Benefits	The following measures will be implemented to further ensure beneficial impacts: CC-1—Implement Pedestrian and Transit-Oriented Development at Stations CC-2—Energy Conservation CC-3—Promote Transit Ridership CC-4—Green Power	NEPA: No Adverse Impacts CEQA: No Significant Impacts
The LPA is predicted to reduce roadway VMT and, therefore, the greenhouse gases associated with roadway VMT, as compared to the No Build Alternative.				
Phased Construction Scenario				
Phase 1	Phase 1 is predicted to reduce roadway VMT and, therefore, the greenhouse gases associated with roadway VMT, as compared to the No Build Alternative. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, reductions to VMT will be less than the reductions resulting from the full LPA and, therefore, the corresponding decrease in greenhouse gas emissions will be less than the emissions reductions associated with the full LPA to the Westwood/VA Hospital Station.			
Phase 2	Phase 2 is predicted to reduce roadway VMT and, therefore, the greenhouse gases associated with roadway VMT, as compared to the No Build Alternative. However, since Phase 1 will terminate at the Century City Station, reductions to VMT will be less than the reductions resulting from the full LPA and, therefore, the corresponding decrease in greenhouse gas emissions will be less than the emissions reductions associated with the full LPA to the Westwood/VA Hospital Station.			
Phase 3	Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, reductions in VMT and the corresponding decrease in greenhouse emissions will be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above.			
▶NOISE AND VIBRATION				
Concurrent Construction Scenario		NEPA: Adverse Impacts CEQA: Significant Impacts	To mitigate the potential for ground-borne noise impacts to theatre and residential uses above the subway tunnel due to train operation along tangent track and crossover track, the following mitigation measures will be included in the Final Design of the LPA: VIB-1—Use of High Compliance Direct Fixation Resilient Rail Fasteners VIB-2—Use of a Low Impact Crossover	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Components of the LPA with the potential to generate noise that will be audible at the surface are the station ventilation system fans and the emergency ventilation system fans, which are subject to periodic testing, and will adhere to Metro design levels and not exceed FTA Noise Impact Criteria. Noise from rail operations, including the interaction of wheels on tracks, motive power, signaling and warning systems, and the traction power substations, will occur well below ground. Ground-borne vibration during operations is not predicted to exceed FTA criteria at any of the vibration-sensitive receivers. The three locations along the LPA where exceedance of the FTA ground-borne noise criteria will occur due to train operations along tangent track or through crossovers, if mitigation measures are not implemented, are the Wilshire Ebell Theatre, apartments on Wilshire Boulevard and South Orange Drive, and the Saban Theatre.				

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]		Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Phased Construction Scenario		NEPA: Adverse Impacts CEQA: Significant Impacts	To mitigate the potential for ground-borne noise impacts to theatre and residential uses above the subway tunnel due to train operation along tangent track and crossover track, the following mitigation measures will be included in the Final Design of the LPA: VIB-1—Use of High Compliance Direct Fixation Resilient Rail Fasteners VIB-2—Use of a Low Impact Crossover	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phase 1	Components of Phase 1 with the potential to generate noise that will be audible at the surface are the station ventilation system fans and the emergency ventilation system fans, which are subject to periodic testing, and will adhere to Metro design levels and not exceed FTA Noise Impact Criteria. Noise from rail operations, including the interaction of wheels on tracks, motive power, signaling and warning systems, and the traction power substations, will occur well below ground. Ground-borne vibration during operations is not predicted to exceed FTA criteria at any of the vibration-sensitive receivers along Phase 1. The three locations along Phase 1 where exceedance of the FTA ground-borne noise criteria will occur due to train operations along tangent track or through crossovers, if mitigation measures are not implemented, are the Wilshire Ebell Theatre, apartments on Wilshire Boulevard and South Orange Drive, and the Saban Theatre.			
Phase 2	Components of Phase 2 with the potential to generate noise that will be audible at the surface are the station ventilation system fans and the emergency ventilation system fans, which are subject to periodic testing, and will adhere to Metro design levels and not exceed FTA Noise Impact Criteria. Noise from rail operations, including the interaction of wheels on tracks, motive power, signaling and warning systems, and the traction power substations, will occur well below ground. Ground-borne vibration and ground-borne noise during operations is not predicted to exceed FTA criteria at any of the vibration-sensitive receivers along Phase 2. Therefore, operation of Phase 2 will not result in adverse noise or vibration impacts.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 3	Components of Phase 3 with the potential to generate noise that will be audible at the surface are the station ventilation system fans and the emergency ventilation system fans, which are subject to periodic testing, and will adhere to Metro design levels and not exceed FTA Noise Impact Criteria. Noise from rail operations, including the interaction of wheels on tracks, motive power, signaling and warning systems, and the traction power substations, will occur well below ground. Ground-borne vibration and ground-borne noise during operations is not predicted to exceed FTA criteria at any of the vibration-sensitive receivers along Phase 3. Therefore, operation of Phase 3 will not result in adverse noise or vibration impacts.			
▶ **ENERGY**				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
No significant impacts. LPA conditions decrease systemwide VMT, which results in less energy consumption as compared to the existing and future No Build conditions.				
Phased Construction Scenario				
Phase 1	No significant impacts. Phase 1 conditions decrease systemwide VMT, which results in less energy consumption as compared to the existing and future No Build conditions. However, since Phase 1 will terminate at the Wilshire/La Cienega Station, reductions to VMT will be less than the reductions resulting from the full LPA and, therefore, the corresponding decrease in energy consumption will be less significant than the energy savings anticipated under the full LPA to the Westwood/VA Hospital Station.			
Phase 2	No significant impacts. Phase 2 conditions decrease systemwide VMT, which results in less energy consumption as compared to the existing conditions. However, since Phase 2 will terminate at the Century City Station, reductions to VMT will be less than the reductions resulting from the full LPA and, therefore, the corresponding decrease in energy consumption will be less significant than the energy savings anticipated under the full LPA to the Westwood/VA Hospital Station.			
Phase 3	No significant impacts. Phase 3 will complete the LPA in its entirety to the Westwood/VA Hospital Station and, therefore, reductions in VMT and the corresponding decrease in energy consumption will be the same as the LPA under the Concurrent Construction Scenario. See Concurrent Construction Scenario description above.			

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]	Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
▶ **GEOLOGIC HAZARDS**			
Geologic Hazards—Seismic Ground Shaking			
Concurrent Construction Scenario The LPA, as with most sites in Southern California, is susceptible to strong ground shaking generated during earthquakes by nearby faults. Construction and design will be performed in accordance with the latest Federal and State seismic and environmental requirements, as well as State and local building codes. By compliance with these regulations and requirements, potential seismic ground shaking impacts will be minimized.	NEPA: Minimal Impacts CEQA: Impacts reduced to less than significant with engineered design and adherence to Metro's operating procedures	GEO-1—Seismic Ground Shaking GEO-3—Operational Procedures during an Earthquake GEO 7—Tunnel Advisory Panel Design Review	NEPA: Minimal Impacts CEQA: Impacts reduced to less than significant with engineered design and adherence to Metro's operating procedures
Phased Construction Scenario			
Phase 1: Phase 1 of the LPA and expansion of the Division 20 Storage Yard and Maintenance Facility are susceptible to strong ground shaking generated during earthquakes on nearby faults. Construction and design will be performed in accordance with the latest Federal and State seismic and environmental requirements, as well as State and local building codes. By compliance with these regulations and requirements, potential seismic ground shaking impacts will be minimized.			
Phase 2: Phase 2 is susceptible to strong ground shaking generated during earthquakes on nearby faults. Construction and design will be performed in accordance with the latest Federal and State seismic and environmental requirements, as well as State and local building codes. By compliance with these regulations and requirements, potential seismic ground shaking impacts will be minimized.			
Phase 3: Phase 3 is susceptible to strong ground shaking generated during earthquakes on nearby faults. Construction and design will be performed in accordance with the latest Federal and State seismic and environmental requirements, as well as State and local building codes. By compliance with these regulations and requirements, potential seismic ground shaking impacts will be minimized.			
Geologic Hazards—Fault Rupture: Tunnel Crossing			
Concurrent Construction Scenario At least one segment of the Santa Monica Fault and the West Beverly Hills Lineament, a northern extension of the Newport-Inglewood Fault, crosses the LPA tunnel in the vicinity of Century City. In the design for the tunnels in this area, the specific Maximum Design Earthquake and Operating Design Earthquake fault displacements will be calculated using a probabilistic approach during the detailed Final Design, together with further exploration to refine the fault zone locations specific to the selected tunnel alignment. With this design, hazard from surface fault rupture will be minimized.	NEPA: Minimal Impacts CEQA: Impacts reduced to less than significant with engineered design	GEO-2—Fault Crossing Tunnel, Fault Rupture, Tunnel Crossing GEO 7—Tunnel Advisory Panel Design Review	NEPA: Minimal Impacts CEQA: Impacts reduced to less than significant with engineered design
Phased Construction Scenario			
Phase 1: No known active fault zones cross the Phase 1 alignment or the Division 20 Storage Yard and Maintenance Facility.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 2: At least one segment of the Santa Monica Fault and the West Beverly Hills Lineament, a northern extension of the Newport-Inglewood Fault, crosses the LPA tunnel in the vicinity of Century City. In the design for the tunnels in this area, the specific Maximum Design Earthquake and Operating Design Earthquake fault displacements will be calculated using a probabilistic approach during the detailed Final Design, together with further exploration to refine the fault zone locations specific to the selected tunnel alignment. With this design, hazard from surface fault rupture will be minimized.		GEO-2—Fault Crossing Tunnel, Fault Rupture, Tunnel Crossing GEO 7—Tunnel Advisory Panel Design Review	NEPA: Minimal Impacts CEQA: Impacts reduced to less than significant with engineered design
Phase 3: At least one segment of the Santa Monica Fault crosses the LPA tunnel in the vicinity of Century City. In the design for the tunnels in this area, the specific Maximum Design Earthquake and Operating Design Earthquake fault displacements will be calculated using a probabilistic approach during the detailed Final Design, together with further exploration to refine the fault zone locations specific to the selected tunnel alignment. With this design, hazard from surface fault rupture will be minimized.			

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]	Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Geologic Hazards—Fault Rupture: Station Location			
Concurrent Construction Scenario The West Beverly Hills Lineament, a northern extension of the Newport-Inglewood Fault, crosses the LPA in the vicinity of Moreno Drive in the Century City area. If the Century City Station is located along Santa Monica Boulevard, the West Beverly Hills Lineament will cross the station box. Surface fault rupture poses a substantial hazard for this station location that cannot be mitigated with the available techniques and measures. However, if the Century City Station is located along Constellation Boulevard, no known faults will cross the station box.	NEPA: Major impact (if Century City Station located at Santa Monica) CEQA: Significant Impact (if Century City Station located at Santa Monica)	No feasible mitigation. Surface fault rupture poses a substantial hazard for the Century City Station at the Santa Monica location that cannot be mitigated.	NEPA: Major impact (if Century City Station located at Santa Monica) CEQA: Significant Impact (if Century City Station located at Santa Monica)
Phased Construction Scenario			
Phase 1: No known active fault zones cross the Phase 1 stations or the Division 20 Storage Yard and Maintenance Facility.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 2: The West Beverly Hills Lineament, a northern extension of the Newport-Inglewood Fault, crosses Phase 2 in the vicinity of Moreno Drive in the Century City area. If the Century City Station is located along Santa Monica Boulevard, the West Beverly Hills Lineament will cross the station box. If the Century City Station is located along Constellation Boulevard, no known faults will cross the station box	NEPA: Major impact (if Century City Station located at Santa Monica) CEQA: Significant Impact (if Century City Station located at Santa Monica)	No feasible mitigation. Surface fault rupture poses a substantial hazard for the Century City Station at the Santa Monica location that cannot be mitigated.	NEPA: Major impact (if Century City Station located at Santa Monica) CEQA: Significant Unavoidable Impact (if Century City Station located at Santa Monica)
Phase 3: No known active fault zones cross the Phase 3 stations.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Geologic Hazards—Liquefaction and Seismic Settlement			
Concurrent Construction Scenario Due to the presence of shallow groundwater and young surficial alluvial deposits, there may be potential liquefaction adjacent to the upper portions of some station walls at the Wilshire/La Cienega, Westwood/UCLA, and Westwood/VA Hospital Stations. Lateral spreading is not anticipated in the vicinity of the LPA. Based on the magnitude of evaluated liquefaction, either structural design or ground improvement techniques or deep foundations to minimize these hazards will be selected.	NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design	GEO 4—Liquefaction and Seismic Settlement GEO 7—Tunnel Advisory Panel Design Review	NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design
Phased Construction Scenario			
Phase 1: Due to the presence of shallow groundwater and young surficial alluvial deposits, there may be potential liquefaction adjacent to the upper portions of the Wilshire/La Cienega Station. Lateral spreading is not anticipated in the vicinity of Phase 1. Based on the magnitude of evaluated liquefaction, either structural design or ground improvement techniques or deep foundations to minimize these hazards will be selected.	NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design		NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design
Phase 2: None of the stations along Phase 2 were identified as prone to liquefaction. Lateral spreading is not anticipated in the vicinity of the Phase 2. However, either structural design or ground improvement techniques or deep foundations to minimize these liquefaction hazards will be implemented if liquefaction risks are identified.	NEPA: No Adverse Impacts CEQA: No Significant Impacts		NEPA: No Adverse Impacts CEQA: No Significant Impact
Phase 3: Due to the presence of shallow groundwater and young surficial alluvial deposits, there may be potential liquefaction adjacent to the upper portions of some station walls at the Westwood/UCLA and Westwood/VA Hospital Stations. Lateral spreading is not anticipated in the vicinity of the Phase 3. Based on the magnitude of evaluated liquefaction, either structural design or ground improvement techniques or deep foundations to minimize these hazards will be selected.	NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design		NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design
Geologic Hazards—Hazardous Subsurface Gas			
Concurrent Construction Scenario Hazardous subsurface gases (methane and hydrogen sulfide) pose a hazard during construction and operation of the LPA and are particularly high in the vicinity of Wilshire Boulevard and Fairfax Avenue, near the La Brea Tar Pits. Tunnels and stations will be designed to provide a redundant protection system against gas intrusion hazard.	NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design and adherence to Metro's operating procedures	GEO 5—Hazardous Subsurface Gas Operations GEO 6—Hazardous Subsurface Gas Structural Design GEO 7—Tunnel Advisory Panel Design Review	NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design and adherence to Metro's operating procedures

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]		Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Phased Construction Scenario		NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design and adherence to Metro's operating procedures	GEO 5—Hazardous Subsurface Gas Operations GEO 6—Hazardous Subsurface Gas Structural Design GEO 7—Tunnel Advisory Panel Design Review	NEPA: Minimal impact CEQA: Impacts reduced to less than significant with engineered design and adherence to Metro's operating procedures
Phase 1	Hazardous subsurface gases (methane and hydrogen sulfide) pose a hazard during construction and operation of Phase 1 and are particularly high in the vicinity of Wilshire Boulevard and Fairfax Avenue, near the La Brea Tar Pits. Tunnels and stations will be designed to provide a redundant protection system against gas intrusion hazard.			
Phase 2	Hazardous subsurface gases (methane and hydrogen sulfide) pose a hazard during construction and operation of Phase 2. Tunnels and stations will be designed to provide a redundant protection system against gas intrusion hazard.			
Phase 3	Hazardous subsurface gases (methane and hydrogen sulfide) pose a hazard during construction and operation of Phase 3. Tunnels and stations will be designed to provide a redundant protection system against gas intrusion hazard.			
▶ **HAZARDOUS WASTES AND MATERIALS**				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	In addition to the mitigation measures outlined for geologic hazards, measures to further ensure that any impacts are avoided or minimized for the LPA include the following: HAZ-1—Disposal of Groundwater HAZ-2—Emergency Response Procedures	NEPA: No Adverse Impacts CEQA: No Significant Impacts
No significant impacts. The potential exists for hazardous materials/waste spills to occur; however, it is assumed that the storage and disposal of hazardous materials/waste will be conducted in accordance with all Federal and State regulatory requirements that are intended to prevent or manage hazards and that if a spill does occur, it will be remediated accordingly. No long-term hazardous materials impacts are anticipated.				
Phased Construction Scenario				
Phase 1	No significant impacts. The potential exists for hazardous materials/waste spills to occur during operation of Phase 1; however, it is assumed that the storage and disposal of hazardous materials/waste will be conducted in accordance with all Federal and State regulatory requirements that are intended to prevent or manage hazards and that if a spill does occur, it will be remediated accordingly. No long-term hazardous materials impacts are anticipated.			
Phase 2	No significant impacts. The potential exists for hazardous materials/waste spills to occur during operation of Phase 2; however, it is assumed that the storage and disposal of hazardous materials/waste will be conducted in accordance with all Federal and State regulatory requirements that are intended to prevent or manage hazards and that if a spill does occur, it will be remediated accordingly. No long-term hazardous materials impacts are anticipated.			
Phase 3	No significant impacts. The potential exists for hazardous materials/waste spills to occur during operation of Phase 3; however, it is assumed that the storage and disposal of hazardous materials/waste will be conducted in accordance with all Federal and State regulatory requirements that are intended to prevent or manage hazards and that if a spill does occur, it will be remediated accordingly. No long-term hazardous materials impacts are anticipated.			
▶ **ECOSYSTEMS/BIOLOGICAL RESOURCES**				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Some removal or pruning of California sycamore trees may occur at the Wilshire/La Brea Station area. Removal and replacement of these trees, if necessary, will be conducted in compliance with applicable regulations and tree protection ordinances of the City of Los Angeles; therefore, no significant impacts will result from the LPA.				
Phased Construction Scenario				
Phase 1	During Phase 1 any removal or pruning of California sycamore trees at the Wilshire/La Brea Station area will be in compliance with applicable regulations and tree protection ordinances of the City of Los Angeles; therefore, no significant impacts will result from operation of Phase 1.			

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]		Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Phase 2	No significant impacts will result from operation of Phase 2 of the LPA.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 3	No significant impacts will result from operation of Phase 3 of the LPA.			
▶WATER RESOURCES				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	In addition to the standard Best Management Practices and other measures required for compliance with Federal, State, and local requirements, the following measures will be implemented to further ensure that there will be no adverse water quality or hydrology impacts: WQ1—Drainage Control Plan WQ2—Runoff Treatment: using the most appropriate Best Management Practices as listed below: • BMP1: Infiltration basins/trenches • BMP2: Porous pavement • BMP3: Vegetated filter planters	NEPA: No Adverse Impacts CEQA: No Significant Impacts
No significant impacts will result from the LPA. Operation of the LPA will comply with Title III and Title IV of the Clean Water Act and National Pollutant Discharge Elimination System standards.				
Phased Construction Scenario				
Phase 1	No significant impacts will result from Phase 1 of the LPA. Operation of Phase 1 will comply with Title III and Title IV of the Clean Water Act and National Pollutant Discharge Elimination System standards.			
Phase 2	No significant impacts will result from Phase 2 of the LPA. Operation of Phase 2 will comply with Title III and Title IV of the Clean Water Act and National Pollutant Discharge Elimination System standards.			
Phase 3	No significant impacts will result from Phase 3 of the LPA. Operation of Phase 3 will comply with Title III and Title IV of the Clean Water Act and National Pollutant Discharge Elimination System standards.			
▶SAFETY AND SECURITY				
Concurrent Construction Scenario		NEPA: Adverse Impacts CEQA: Significant Impacts	Metro will implement the following measures to further ensure there are no adverse impacts in regard to safety and security: SS-1—Passenger Safety I SS-2—Passenger Safety II SS-3—Construction Safety SS-4—Fire Protection and Safety SS-5—Methane and Hydrogen Sulfide Gas Leak Protection SS-6—Security Preventing Criminal Activity SS-7—Security Preventing Terrorist Attacks SS-8—Emergency Response	NEPA: No Adverse Impacts CEQA: No Significant Impacts
The LPA will not have a significant effect on safety and security with the incorporation of the measures described in the impacts and mitigation sections.				
Phased Construction Scenario				
Phase 1	Phase 1 will not have a significant effect on safety and security with the incorporation of the measures described in the impacts and mitigation sections.			
Phase 2	Phase 2 will not have a significant effect on safety and security with the incorporation of the measures described in the impacts and mitigation sections.			
Phase 3	Phase 3 will not have a significant effect on safety and security with the incorporation of the measures described in the impacts and mitigation sections.			
▶PARKLANDS AND COMMUNITY FACILITIES				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	The following measure will incorporated into the LPA to ensure impacts related to displacements and acquisitions are avoided or further minimized: CN-1—Relocation Assistance and Compensation	NEPA: No Adverse Impacts CEQA: No Significant Impacts
No significant impacts will result from the LPA. The LPA will not require the acquisition of parklands. Improved access to transit could result in beneficial impacts for the community, particularly for the transit-dependent. Enhanced transit access will reduce travel time and increase local and regional connectivity to community facilities and parks. The acquisition of property along the LPA alignment will include the Architecture and Design Museum property for the construction of the Wilshire/Fairfax Station, displacing the museum, a non-profit private institution. The Marinello School of Beauty will be displaced as part of the LPA if the Wilshire/Fairfax Station entrance option at Johnie's Coffee Shop is selected. Students attending this specific location of the school could be accommodated at other nearby Marinello School of Beauty locations.				

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]	Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Phased Construction Scenario **Phase 1** No significant impacts will result from Phase 1 of the LPA. Phase 1 will not require the acquisition of parklands. Improved access to transit could result in beneficial impacts for the community, particularly for the transit-dependent. Enhanced transit access will reduce travel time and increase local and regional connectivity to community facilities and parks. The acquisition of property along the Phase 1 alignment will include the Architecture and Design Museum property for the construction of the Wilshire/Fairfax Station, displacing the museum, a non-profit private institution. The Marinello School of Beauty will be displaced as part of Phase 1 if the Wilshire/Fairfax Station entrance option at Johnie's is selected. Students attending this specific location of the school could be accommodated at other nearby Marinello School of Beauty locations.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	The following measure will incorporated into the LPA to ensure impacts related to displacements and acquisitions are avoided or further minimized: CN-1—Relocation Assistance and Compensation	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 2 No significant impacts will result from Phase 2 of the LPA. Phase 2 will not require the acquisition of parklands. Improved access to transit could result in beneficial impacts for the community, particularly for the transit-dependent. Enhanced transit access will reduce travel time and increase local and regional connectivity to community facilities and parks.		No mitigation required.	
Phase 3 No significant impacts will result from Phase 3 of the LPA. Phase 3 will not require the acquisition of parklands. Improved access to transit could result in beneficial impacts for the community, particularly for the transit-dependent. Enhanced transit access will reduce travel time and increase local and regional connectivity to community facilities and parks.			
▶ HISTORIC, ARCHAEOLOGICAL, AND PALEONTOLOGICAL RESOURCES			
Historic, Archaeological, and Paleontological Resources—Historic Resources Operations			
Concurrent Construction Scenario One of the 41 historic properties within the LPA APE has a Determination of Adverse Effect—Ace Gallery, which would be demolished for construction staging. Forty of the historic properties (including two historic districts) have a determination of No Adverse Effect. Subsurface easements will be required for up to nine historic properties depending on the options selected. Groundborne noise and vibration from construction activity will not adversely affect historic resources. Four historic properties, including the VA Center Historic District, will be altered by either construction staging activities, station entrance options, or tree removal; these properties also have a determination of No Adverse Effect.	NEPA: Adverse Impacts CEQA: Significant Impacts	Included in the Memorandum of Agreement (Appendix D—Memorandum of Agreement and Section 106 Correspondence): For the properties that have a determination of No Adverse Effect, implementation of mitigation measure HR-1—Treatment to Avoid Adverse Effects, will further ensure avoidance of adverse effects to historic properties. For the Adverse Effect on the Ace Gallery HR-2—Treatment to Resolve Adverse Effect-HABS/HAER Documentation and Public Website Development. For properties within APE if construction would start beyond 2019, mitigation measure HR-3.	NEPA: Adverse Impacts CEQA: Significant Impacts
Phased Construction Scenario **Phase 1** Of the 41 historic properties identified within the APE, 15 are located along the Phase 1 alignment with an additional 3 located at the Division 20 Storage Yard and Maintenance Facility. Phase 1 of the LPA will have No Adverse Effect on all 18 of these identified properties. None of the 18 properties will require subsurface easements. One historic property in Phase 1 will be altered by a station entrance option and has a determination of No Adverse Effect.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	Included in the Memorandum of Agreement (Appendix D—Memorandum of Agreement and Section 106 Correspondence): For the properties that have a determination of No Adverse Effect, implementation of mitigation measure HR-1—Treatment to Avoid Adverse Effects, will further ensure avoidance of adverse effects to historic properties. For properties within APE if construction would start beyond 2019, mitigation measure HR-3.	NEPA: No Adverse Impacts CEQA: No Significant Impacts

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

	Description of Identified Impacts[1]	Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Phase 2	Of the 41 historic properties identified within the APE, 11 are located along the Phase 2 alignment. Of the 11 identified historic properties, Phase 2 will have an adverse effect on one property—the Ace Gallery. Subsurface easements will be required for up to 3 historic properties depending on the options selected. Ground-borne noise and vibration from construction activity will not adversely affect historic resources. Two historic properties in Phase 2 will be altered by station entrance options, and they also have a determination of No Adverse Effect.	NEPA: Adverse Impacts CEQA: Significant Impacts	Included in the Memorandum of Agreement (Appendix D—Memorandum of Agreement and Section 106 Correspondence): For the properties that have a determination of No Adverse Effect, implementation of mitigation measure HR-1—Treatment to Avoid Adverse Effects, will further ensure avoidance of adverse effects to historic properties. For the Adverse Effect on the Ace Gallery HR-2—Treatment to Resolve Adverse Effect-HABS/HAER Documentation and Public Website Development For properties within APE if construction would start beyond 2019, mitigation measure HR-3.	NEPA: Adverse Impacts CEQA: Significant Impacts
Phase 3	Of the 41 historic properties identified within the APE, 12 are located along the Phase 3 alignment. Phase 3 of the LPA will result in No Adverse Effect on all 12 of these identified historic resources. Subsurface easements will be required for up to 6 historic properties depending on the options selected. Ground-borne noise and vibration from construction activity will not adversely affect historic resources. One historic property in Phase 3, the VA Center Historic District, will be altered by construction staging activities and tree removal; this property has a determination of No Adverse Effect.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	Included in the Memorandum of Agreement (Appendix D—Memorandum of Agreement and Section 106 Correspondence): For the properties that have a determination of No Adverse Effect, implementation of mitigation measure HR-1—Treatment to Avoid Adverse Effects, will further ensure avoidance of adverse effects to historic properties. For properties within APE if construction would start beyond 2019, mitigation measure HR-3.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Historic, Archeological, and Paleontological Resources—Historic Resources Construction				
	Concurrent Construction Scenario The construction of the LPA will result in an adverse effect on one historic property at the Wilshire/Rodeo Station (the Ace Gallery at 9430 Wilshire Boulevard), which will be demolished. Subsurface easements for the LPA are anticipated under up to nine historic properties. Ground-borne noise and vibration from construction activity will not adversely affect these historic resources. In addition, construction will occur in the vicinity of the contributing landscape elements of the VA Medical Center Historic District.	NEPA: Adverse Impacts CEQA: Significant Impacts	HR-4—Geotechnical Pre-Construction Survey and Historic Landscape Protection. Implementation of mitigation measure (HR-2) will reduce impacts to the Ace Gallery.	NEPA: Adverse Impacts CEQA: Significant Impacts
	Phased Construction Scenario	NEPA: No Adverse Impacts CEQA: No Significant Impacts	HR-4—Geotechnical Pre-Construction Survey and Historic Landscape Protection.	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phase 1	The construction of Phase 1 will not result in any adverse effects on historic properties.			
Phase 2	The construction of Phase 2 will result in an adverse effect on one historic property at the Wilshire/Rodeo Station (the Ace Gallery at 9430 Wilshire Boulevard), which will be demolished. Subsurface easements for Phase 2 are anticipated under up to three historic properties. Ground-borne noise and vibration from construction activity will not adversely affect these historic resources.	NEPA: Adverse Impacts CEQA: Significant Impacts	HR-4—Geotechnical Pre-Construction Survey and Historic Landscape Protection. Implementation, of mitigation measure (HR-2) will reduce impacts to the Ace Gallery	NEPA: Adverse Impacts CEQA: Significant Impacts
Phase 3	The construction of Phase 3 will result in subsurface easements for up to six historic properties. Ground-borne noise and vibration from construction activity will not adversely affect these historic resources. In addition, construction will occur in the vicinity of the contributing landscape elements of the VA Medical Center Historic District.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	HR-4—Geotechnical Pre-Construction Survey and Historic Landscape Protection.	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]	Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Historic, Archaeological, and Paleontological Resources—Archaeological Resources Operations			
Concurrent Construction Scenario No archaeological resources have been identified within the APE for the LPA stations, alignment, or laydown areas. One CEQA: No Significant Impacts historic-period archaeological site, CA-LAN-2610, has been identified in the APE at the Division 20 Storage Yard and Maintenance Facility. The LPA will avoid this archaeological site and there will be no effect.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	Implementation of mitigation measure AR-1 will ensure no adverse construction impacts to undocumented archaeological resources, including human remains.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phased Construction Scenario			
Phase 1: No archaeological resources have been identified within the APE for the Phase 1 stations, alignment, or laydown areas. One historic-period archaeological site, CA-LAN-2610, has been identified in the APE at the Division 20 Storage Yard and Maintenance Facility. The LPA will avoid this archaeological site and there will be no effect.			
Phase 2: No archaeological resources have been identified within the APE for the Phase 2 stations, alignment, or laydown areas. The LPA may affect undocumented cultural resources, including intact archaeological deposits.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	Implementation of mitigation measure AR-1 will ensure no adverse construction impacts to undocumented archaeological resources, including human remains.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 3: No archaeological resources have been identified within the APE for the Phase 3 stations, alignment, or laydown areas. The LPA may affect undocumented cultural resources, including intact archaeological deposits.			
Historic, Archeological, And Paleontological Resources—Archeological Resources Construction			
Concurrent Construction Scenario The construction of the LPA, including construction of the Division 20 Storage Yard and Maintenance Facility, could adversely affect cultural resources pertaining to intact archaeological deposits. Given the historic period nature of the built environment, which often did not disturb more than a few feet of topsoil, there is the likelihood for construction to encounter subsurface prehistoric and/or historic archaeological deposits.	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts	AR-1—Unanticipated Discoveries and consultation with Native American Individuals, Tribes and Organizations and Treatment of Cultural Remains and Artifacts.	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phased Construction Scenario			
Phase 1: The construction of Phase 1 could adversely affect cultural resources pertaining to intact archaeological deposits. Given the historic period nature of the built environment, which often did not disturb more than a few feet of topsoil, there is the likelihood for encountering subsurface prehistoric and/or historic archaeological deposits during construction.			
Phase 2: The construction of Phase 2 could adversely affect cultural resources pertaining to intact archaeological deposits. Given the historic period nature of the built environment, which often did not disturb more than a few feet of topsoil, there is the likelihood for encountering subsurface prehistoric and/or historic archaeological deposits during construction.			
Phase 3: The construction of Phase 3 could adversely affect cultural resources pertaining to intact archaeological deposits. Given the historic period nature of the built environment, which often did not disturb more than a few feet of topsoil, there is the likelihood for encountering subsurface prehistoric and/or historic archaeological deposits during construction.			
Historic, Archaeological, and Paleontological Resources—Paleontological Resources Operations[3]			
Concurrent Construction Scenario The LPA may encounter fossil localities at all stations, but fossil localities are most likely to be encountered at the Wilshire/La Brea and Wilshire/Fairfax Stations in Phase 1.	NEPA: Adverse Impacts CEQA: Significant Impacts	PA-1—Memorandum of Understanding During construction, implementation of construction mitigation measures PA-2 through PA-7 would further reduce impacts to undocumented paleontological resources.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phased Construction Scenario			
Phase 1: Phase 1 may encounter fossil localities at all stations, but fossil localities are most likely to be encountered at the Wilshire/La Brea and Wilshire/Fairfax Stations in Phase 1.			

Table S-7. Environmental Impacts and Mitigation Measures—Operations (continued from previous page)

Description of Identified Impacts[1]		Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Phase 2	Phase 2 may encounter fossil localities at all stations.	NEPA: Adverse Impacts CEQA: Significant Impacts	PA-1—Memorandum of Understanding During construction, implementation of construction mitigation measures PA-2 through PA-7 would further reduce impacts to undocumented paleontological resources.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phase 3	Phase 3 may encounter fossil localities at all stations.	NEPA: No Adverse Impacts CEQA: No Significant Impacts		
Historic, Archeological, and Paleontological Resources—Paleontological Resources Construction[3]				
Concurrent Construction Scenario		NEPA: Adverse Impacts CEQA: Significant Impacts	PA-2—Early Fossil Recovery PA-3—Retain the Services of a Qualified Principal Paleontologist PA-4—Development of a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) PA-5—Required Activities for Recovered Fossils in the PRMMP PA-6—Preparation of a Report on Paleontological Resources Recovered PA-7—Curation of Identified and Prepared Fossils	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Construction of the LPA is expected to encounter paleontological resources in asphaltic matrix in and around Hancock Park (Rancho La Brea Tar Pits) in an area extending from the existing Wilshire/Western Station to the Wilshire/Fairfax Station. Fossils from non-asphaltic deposits may be recovered along the remainder of the LPA alignment based on known paleontological resources along La Cienega Boulevard, Wilshire Boulevard near Beverly Drive, near Century City, and at Wilshire Boulevard and Thayer Avenue. The areas surrounding the Wilshire/Fairfax and Wilshire/La Brea Stations are known to have tar deposits and/or tar sands and possibly paleontological features that may have to be removed under special conditions. Preliminary preparation and excavation in advance of construction could minimize construction delays, if feasible.				
Phased Construction Scenario				
Phase 1	Along Phase 1, areas surrounding the Wilshire/Fairfax and Wilshire/La Brea Stations are known to have tar deposits and/or tar sands and possibly paleontological features that may have to be removed under special conditions. Preliminary preparation and excavation in advance of construction could minimize construction delays, if feasible. Fossils from non-asphaltic deposits may be recovered in other areas along the Phase 1 alignment based on known paleontological resources along La Cienega Boulevard.			
Phase 2	Fossils from non-asphaltic deposits may be recovered in areas along the Phase 2 alignment based on known paleontological resources along Wilshire Boulevard near Beverly Drive and near Century City.			
Phase 3	Fossils from non-asphaltic deposits may be recovered in areas along the Phase 3 alignment based on known paleontological resources at Wilshire Boulevard and Thayer Avenue.			
▶GROWTH INDUCING				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
No significant impacts for the LPA.				
Phased Construction Scenario				
Phase 1	No significant impacts for the LPA.			
Phase 2	No significant impacts for the LPA.			
Phase 3	No significant impacts for the LPA.			

Table S-7. Environmental Impacts and Mitigation Measures (continued from previous page)

Description of Identified Impacts[1]	Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
▶**CUMULATIVE IMPACTS**			
Concurrent Construction Scenario The LPA's parking impact will be cumulatively considerable when considered together with the increased parking demand that could result from a higher population density in LPA station areas, as well as stations of other transit projects and improvements. The LPA will have a beneficial impact on air quality; therefore, there will not be a cumulatively considerable adverse impact on greenhouse gas emissions. When considering the combined effect of reduced roadway VMT and increased power usage for the rail system, the LPA shows no measurable change in greenhouse gas emissions. The LPA will have a beneficial impact on climate change; therefore, there will not be a cumulatively considerable adverse impact on greenhouse gas emissions. The LPA will not make a cumulative considerable contribution to cumulative operational noise and vibration impacts. The LPA is not anticipated to indirectly facilitate development either inconsistent with applicable local land use and community plans or beyond that already anticipated in the regional plans and SCAG regional projections.	NEPA: Adverse Impacts CEQA: Significant Impacts	The following mitigation measures will help reduce the magnitude of parking impacts: T-1—Coordinate with Property Owners T-2—Parking Monitoring and Community Outreach T-3—Residential Permit Parking Districts T-4—Consideration of Shared Parking Program	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phased Construction Scenario **Phase 1** Phase 1's parking impact will be cumulatively considerable when considered together with the increased parking demand that could result from a higher population density in Phase 1 station areas, as well as stations of other transit projects and improvements. Phase 1 will have a beneficial impact on air quality; therefore, there will not be a cumulatively considerable adverse impact on greenhouse gas emissions. When considering the combined effect of reduced roadway VMT and increased power usage for the rail system, Phase 1 shows no measurable change in greenhouse gas emissions. Phase 1 will have a beneficial impact on climate change; therefore, there will not be a cumulatively considerable adverse impact on greenhouse gas emissions. Phase 1 will not make a cumulative considerable contribution to cumulative operational noise and vibration impacts. Phase 1 is not anticipated to indirectly facilitate development either inconsistent with applicable local land use and community plans or beyond that already anticipated in the regional plans and SCAG regional projections.			
Phase 2 Phase 2's parking impact will be cumulatively considerable when considered together with the increased parking demand that could result from a higher population density in Phase 2 station areas, as well as stations of other transit projects and improvements. Phase 2 will have a beneficial impact on air quality; therefore, there will not be a cumulatively considerable adverse impact on greenhouse gas emissions. When considering the combined effect of reduced roadway VMT and increased power usage for the rail system, Phase 2 shows no measurable change in greenhouse gas emissions. Phase 2 will have a beneficial impact on climate change; therefore, there will not be a cumulatively considerable adverse impact on greenhouse gas emissions. Phase 2 will not make a cumulative considerable contribution to cumulative operational noise and vibration impacts. Phase 2 is not anticipated to indirectly facilitate development either inconsistent with applicable local land use and community plans or beyond that already anticipated in the regional plans and SCAG regional projections.	NEPA: Adverse Impacts CEQA: Significant Impacts	The following mitigation measures will help reduce the magnitude of parking impacts: T-1—Coordinate with Property Owners T-2—Parking Monitoring and Community Outreach T-3—Residential Permit Parking Districts T-4—Consideration of Shared Parking Program	NEPA: No Adverse Impacts CEQA: No Significant Impacts

Table S-7. Environmental Impacts and Mitigation Measures (continued from previous page)

Description of Identified Impacts[1]		Impact Before Mitigation	Mitigation[2]	Impact Remaining After Mitigation
Phase 3	Phase 3's parking impact will be cumulatively considerable when considered together with the increased parking demand that could result from a higher population density in Phase 3 station areas, as well as stations of other transit projects and improvements. Phase 3 will have a beneficial impact on air quality; therefore, there will not be a cumulatively considerable adverse impact on greenhouse gas emissions. When considering the combined effect of reduced roadway VMT and increased power usage for the rail system, Phase 3 shows no measurable change in greenhouse gas emissions. Phase 3 will have a beneficial impact on climate change; therefore, there will not be a cumulatively considerable adverse impact on greenhouse gas emissions. Phase 3 will not make a cumulative considerable contribution to cumulative operational noise and vibration impacts. Phase 3 is not anticipated to indirectly facilitate development either inconsistent with applicable local land use and community plans or beyond that already anticipated in the regional plans and SCAG regional projections.	NEPA: Adverse Impacts CEQA: Significant Impacts	The following mitigation measures will help reduce the magnitude of parking impacts: T-1—Coordinate with Property Owners T-2—Parking Monitoring and Community Outreach T-3—Residential Permit Parking Districts T-4—Consideration of Shared Parking Program	NEPA: No Adverse Impacts CEQA: No Significant Impacts

▶SECTION 4(f)

		Direct Use	De Minimis
Concurrent Construction Scenario	Of the 39 historic properties and two historic districts identified within the APE, four historic properties would be *de minimis* use. Only one of the 41 total properties would have a direct use, the Ace Gallery. The remaining 36 properties would not have any use. The LPA will not have a direct use of Section 4(f) parks or recreational facilities.	• Ace Gallery	• May Company Wilshire/LACMA West • Union Bank Building • Linde (Westwood) Medical Plaza • Veterans Affairs Medical Center Historic District
Phased Construction Scenario			• May Company Wilshire/LACMA West
Phase 1	Of the 39 historic properties and two historic districts identified within the APE, 15 are located along the Phase 1 alignment with an additional 3 located in the Division 20 yard (18 total). Of these 18 properties, one historic property would be *de minimis* use. None of the 18 properties would have a direct use. The Phase 1 alignment will not have a direct use of Section 4(f) parks or recreational facilities.		
Phase 2	Of the 39 historic properties and two historic districts identified within the APE, 11 are located along the Phase 2 alignment. Of these 11 properties, one historic property would be de minimis use. Only one of the 18 properties would have a direct use, the Ace Gallery. The Phase 2 alignment will not have a direct use of Section 4(f) parks or recreational facilities.	• Ace Gallery	• Union Bank Building
Phase 3	Of the 39 historic properties and two historic districts identified within the APE, 12 are located along the Phase 3 alignment. Of these 12 properties, two historic properties would be de minimis use. None of the 12 properties would have a direct use. The Phase 3 alignment will not have a direct use of Section 4(f) parks or recreational facilities.		• Linde (Westwood) Medical Plaza • Veterans Affairs Medical Center Historic District

[1]Unless otherwise noted, the LPA includes all station, alignment, and station entrance options.

[2]Refer to Chapter 4, Alternatives Considered, for the full description of all proposed mitigation measures.

[3]Paleontological Resources are not part of Section 106 Consultation.

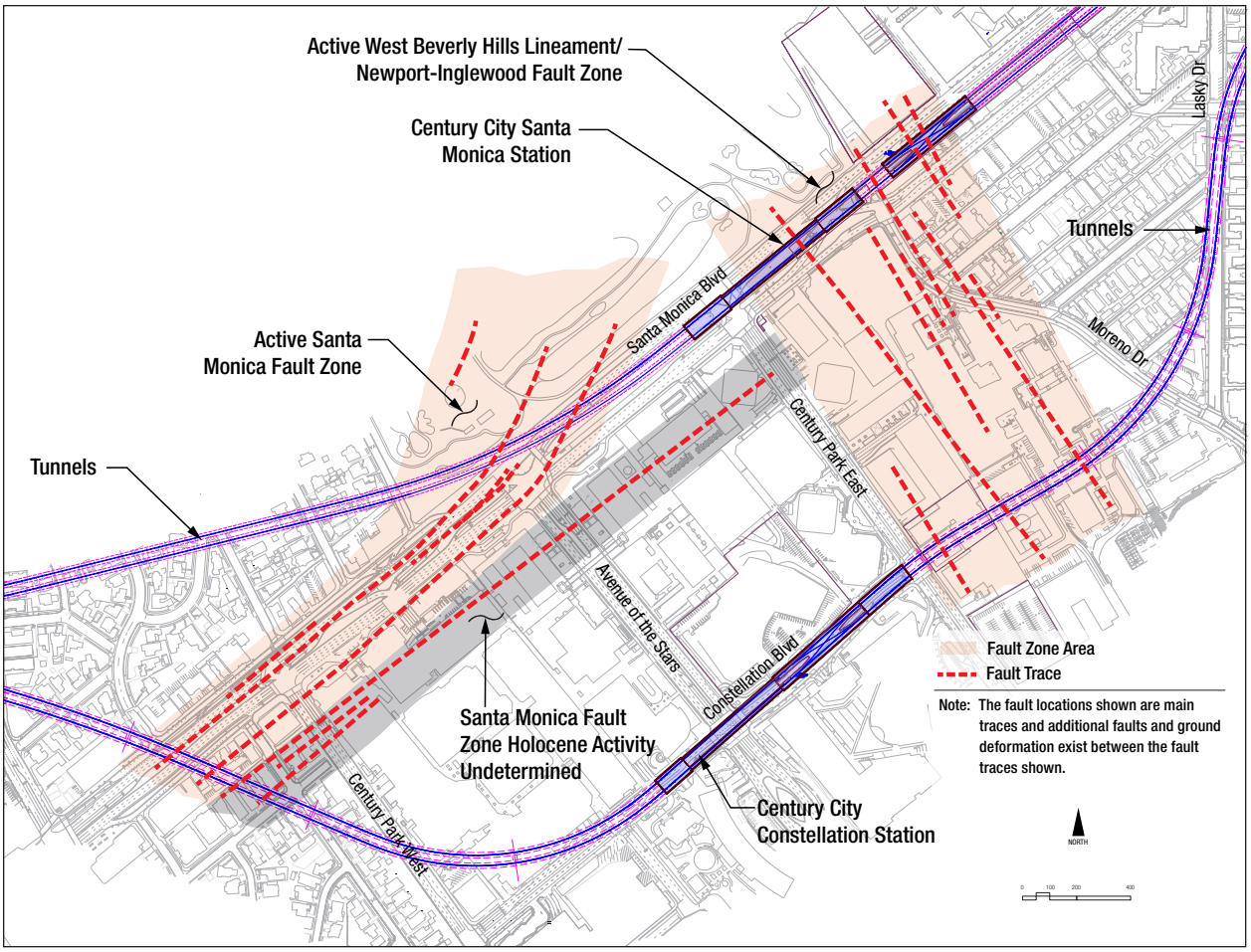


Figure S-24. Fault Zones in Century City Area

crossed by multiple faults, and the Century City Santa Monica Station is within an extension of the Newport-Inglewood Fault zone. The Century City Constellation Station is in an area showing no evidence of faulting. Tunnels approaching either station location would necessarily cross both faults. However, the Constellation alignment crosses the Santa Monica Fault zone at more of a right angle, which is more desirable for safe design because a shorter length of tunnel would be affected. Therefore, it is recommended to locate the Century City Station along Constellation Boulevard to avoid locating the station box within the active Newport-Inglewood Fault zone.

The LPA will pass through or near several active or abandoned oil fields. Soils overlying these oil fields are known to commonly contain naturally occurring methane and/or hydrogen sulfide gases, which may be encountered near some of the stations. While there is a potential impact, these gases will be managed in accordance with regulatory requirements. Tunnels and stations will be designed to provide a redundant protection system against gas intrusion hazard, and gas monitoring and detection systems with alarms and ventilation equipment will be installed. Implementation of a well-designed system safety and fire/life safety program will result in no adverse operational safety impacts.

Only one of the 41 historic properties within the LPA Area of Potential Effects (APE) has a Determination of Adverse Effect—the Ace Gallery at

Figure S-25. Simulated Wilshire/Rodeo Station entrance at the current site of Ace Gallery

the Wilshire/Rodeo Station (Figure S-25). To avoid and minimize adverse effects to historic properties that may be affected as part of the LPA, specific mitigation measures are incorporated into the Section 106 Memorandum of Agreement, which is included in Appendix D, Memorandum of Agreement and Historic Properties List.

The LPA may encounter fossils at all stations, particularly at the Wilshire/Fairfax and Wilshire/La Brea Stations, which are located near the La Brea Tar Pits. Metro has a Memorandum of Understanding with the George C. Page Museum of La Brea Discoveries regarding treatment of paleontological resources from asphaltic deposits. Implementation of this mitigation measure, as well as several construction mitigation measures,will substantially reduce impacts to paleontological resources.

Under the Phased Construction Scenario, the potential for environmental impacts in all categories are the same as under the Concurrent Construction Scenario. The only difference between the two scenarios is the timing of when the environmental impacts would occur. Under the Phased Construction Scenario, potential operational impacts along Phase 2 and Phase 3 will occur later than under the Concurrent Construction Scenario due to an extended construction timeline. The timing for potential operational impacts along Phase 1 of the LPA will occur earlier than under the Concurrent Construction Scenario since Phase 1 will open for operation in 2020. Table S-7 summarizes anticipated impacts and proposed mitigation measures under both the Concurrent Construction Scenario and the Phased Construction Scenario.

Construction Impacts and Mitigation

The LPA could either be constructed as a single phase under the Concurrent Construction Scenario, opening in its entirety to the Westwood/VA Hospital Station in 2022, or as three sequential phases under the Phased Construction Scenario with the entire LPA operational to the Westwood/VA Hospital Station in 2036. The three construction segments would be the same in either construction scenario—Wilshire/Western to Wilshire/La Cienega, Wilshire/La Cienega to Century City, and Century City to Westwood/VA Hospital. Under the Concurrent Construction Scenario, these segments will be constructed and opened for operation concurrently; under the

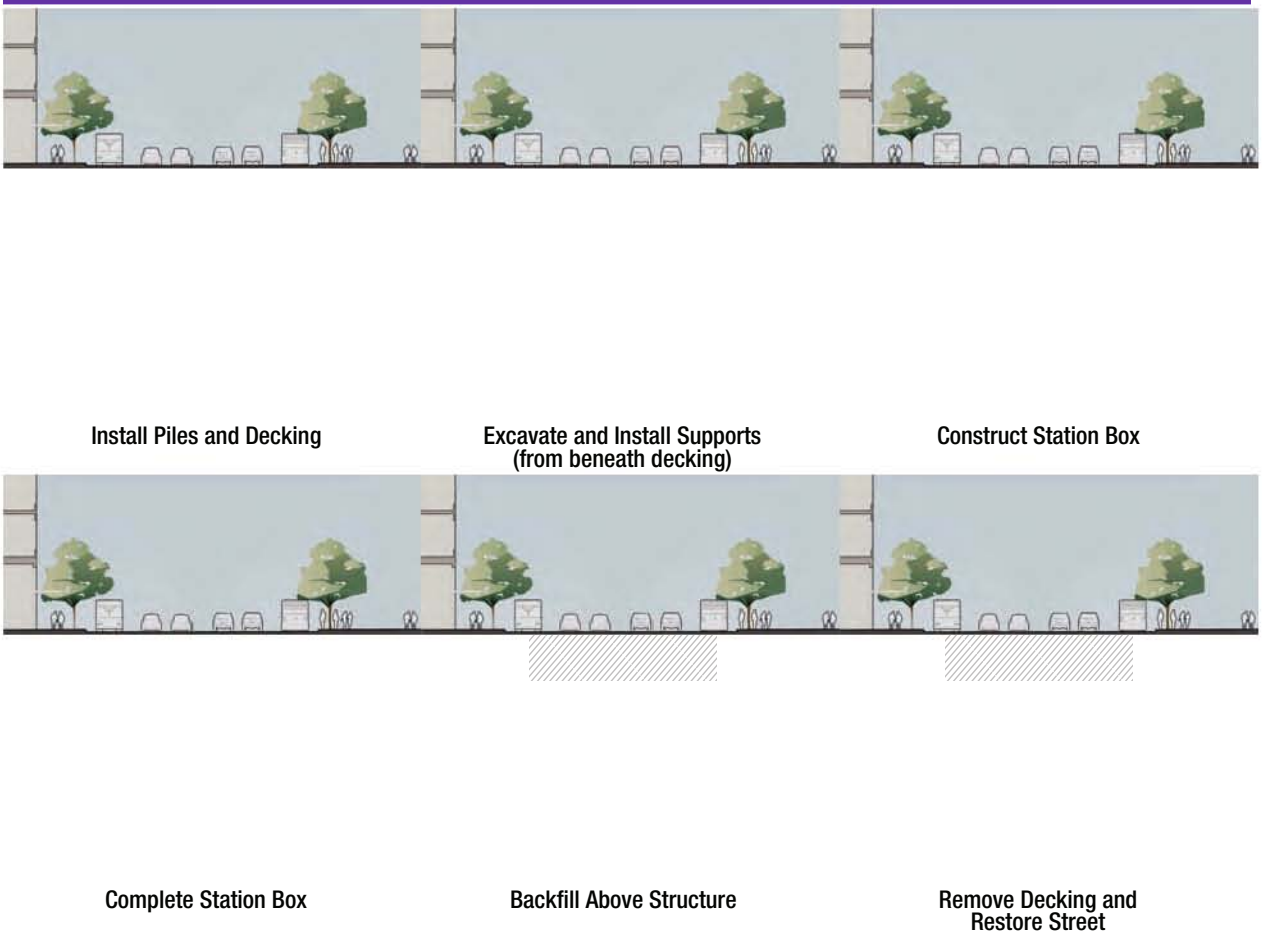


Figure S-26. Station Excavation

Phased Construction Scenario, they will be built and opened sequentially.

Station Construction Methods

Cut-and-cover construction is planned for all stations (Figure S-26). With the exception of the Westwood/VA Station, stations will be constructed within the street right-of-way. Some station entrance points and construction staging areas will be outside the street right-of-way and will require removal of buildings. Underground station construction will take approximately 72 to 84 months from start of excavation to backfilling over the station and street restoration. The typical on-street station construction process involves the following:

- Relocating utilities as necessary to maintain service
- Drilling "soldier piles" on station box perimeter at edge of roadway
- Removing the top 6 to 12 feet of soil below existing roadway
- Installing decking across the roadway
- Installing shoring and excavating area beneath the deck to the depth of the station
- Constructing station box in excavated area
- Installing station elements and architectural features
- Backfilling over station box, removing decking, repaving streets, and re-opening streets to traffic

Tunnel Construction Methods

Tunneling is expected to be performed with pressurized-face tunnel boring machines (TBMs) (Figure S-27). A TBM is a large machine that

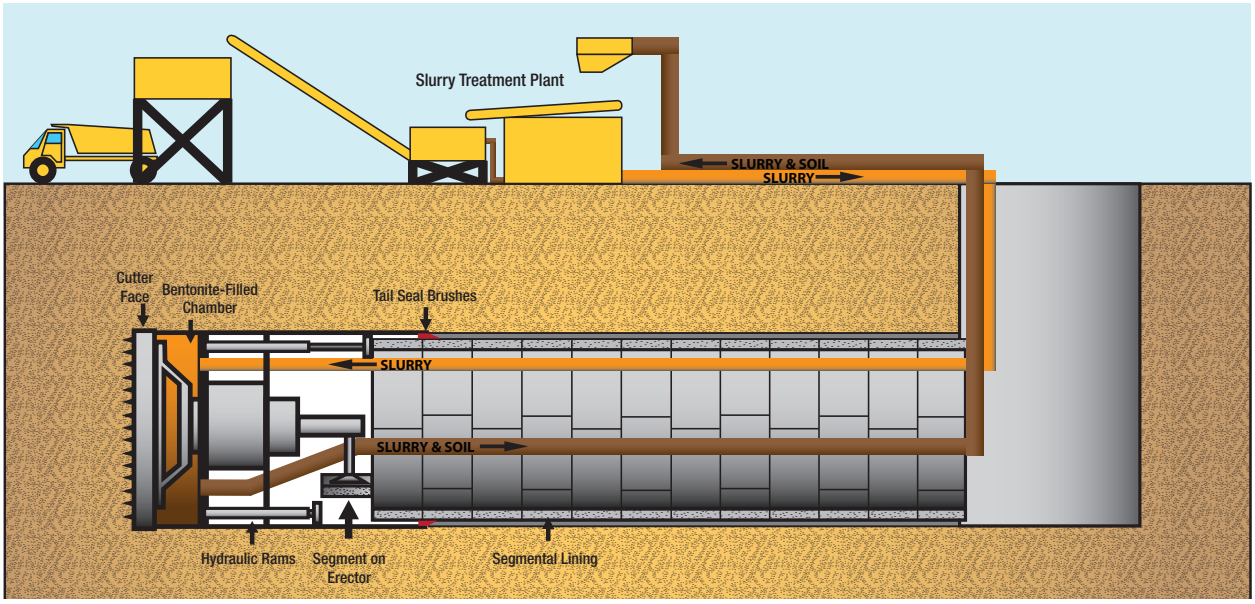


Figure S-27. Tunneling in Gassy Areas with Pressurized-Face TBM

bores a circular tunnel by excavating rock and soil and installing precast concrete segments to support the ground around the tunnel opening. Pressurized-face TBMs allow for better control of ground settlement and the ingress of groundwater and gas into the tunnel. The actual TBMs used will be custom designed for a particular tunnel segment and will reflect varying, site-specific requirements, including geological conditions. For tunnel reaches where hydrocarbons or gases are expected, a slurry-face TBM likely will be required while either a slurry-face or earth-pressure-balance TBM will be used where hydrocarbons or gases are not expected.

The Project will consist of two circular tunnels, approximately 20 to 21 feet in diameter, bored side-by-side and separated by a pillar of ground between. Tunnel excavation generally will range from 8 to 12 months for the typical 1-mile length between stations, but will vary based on conditions. The typical steps for tunneling are as follows:

- Prepare site and excavate shaft or stations where TBMs are lowered into ground
- Lower TBMs using cranes
- Assemble TBMs and tailing equipment
- Excavate two parallel tunnels (22 feet diameter)
- Install pre-cast concrete tunnel lining with gasket seals
- Install rails, electrical, and other systems

Boring can proceed on each tunnel simultaneously; machines can excavate about 40 to 50 feet per day.

Construction Impacts and Mitigation

Construction-related impacts will occur during preparation of, and demolition on, construction staging sites; during construction around station areas and in areas related to system components (e.g., traction power substations and the maintenance and storage facility); and during post-construction from activities related to rehabilitation of streets and construction staging sites. Effects could include dust, noise, and traffic disruption, congestion, and diversion, as well as limited or temporary loss of access to businesses. Construction impacts will be temporary and will be limited in area as construction proceeds along the length of the LPA alignment.

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued on next page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[3]	Impact Remaining After Mitigation
▶ **LAND USE**				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	TCON-1—Traffic Control Plans TCON-10—Pedestrian Routes and Access TCON-11—Bicycle Paths and Access	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
During construction, access to land uses will be periodically affected due to temporary street and sidewalk closures in the vicinity of the temporary cut-and-cover excavation areas around stations. Pedestrian and vehicle mobility between communities and neighborhoods along the LPA will be reduced during construction due to these closures and traffic detours; however, these impacts will end with the completion of construction. The mitigation measures identified will ensure that traffic and pedestrian circulation and access will be maintained throughout construction. The construction of the LPA will not directly conflict with the identified land use plans, policies, and regulations. The acquisition of property for the LPA will require the demolition of any existing structures on the properties to accommodate planned construction activities. Since approximately 25 percent of these properties are currently vacant/parking, the use of these properties for construction activities will not substantially alter land uses in the station area vicinity.				
Phased Construction Scenario				
Phase 1	During construction of Phase 1, access to land uses will be periodically affected due to temporary street and sidewalk closures in the vicinity of the temporary cut-and-cover excavation areas around stations. Pedestrian and vehicle mobility between communities and neighborhoods along Phase 1 will be reduced during construction due to these closures and traffic detours; however, these impacts will end with the completion of construction. The mitigation measures identified will ensure that traffic and pedestrian circulation and access will be maintained throughout construction. The construction of Phase 1 will not directly conflict with the identified land use plans, policies, and regulations. The acquisition of property for Phase 1 will require the demolition of any existing structures on the properties to accommodate planned construction activities. Since approximately 35 percent of these properties are currently vacant/parking, the use of these properties for construction activities will not substantially alter land uses in the Phase 1 station area vicinity.			
Phase 2	During construction of Phase 2, access to land uses will be periodically affected due to temporary street and sidewalk closures in the vicinity of the temporary cut-and-cover excavation areas around stations. Pedestrian and vehicle mobility between communities and neighborhoods along Phase 2 will be reduced during construction due to these closures and traffic detours; however, these impacts will end with the completion of construction. The mitigation measures identified will ensure that traffic and pedestrian circulation and access will be maintained throughout construction. The construction of Phase 2 will not directly conflict with the identified land use plans, policies, and regulations. The acquisition of property for Phase 2 will require the demolition of any existing structures on the properties to accommodate planned construction activities. Since approximately 25 percent of these properties are currently vacant/parking, the use of these properties for construction activities will not substantially alter land uses in the Phase 2 station area vicinity.			
Phase 3	During construction of Phase 3, access to land uses will be periodically affected due to temporary street and sidewalk closures in the vicinity of the temporary cut-and-cover excavation areas around stations. Pedestrian and vehicle mobility between communities and neighborhoods along Phase 3 will be reduced during construction due to these closures and traffic detours; however, these impacts will end with the completion of construction. The mitigation measures identified will ensure that traffic and pedestrian circulation and access will be maintained throughout construction. The construction of Phase 3 will not directly conflict with the identified land use plans, policies, and regulations.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]	Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
▶SOCIOECONOMIC CHARACTERISTICS			
Concurrent Construction Scenario Construction of the LPA could affect neighborhoods for limited durations due to street and sidewalk closures and traffic detours, especially in areas of station construction. Construction and traffic detours will temporarily reduce access to businesses and communities. In addition, noise and emissions from haul trucks and construction equipment could disrupt community activities.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-1—Signage TCON-1—Traffic Control Plans TCON-2—Designated Haul Routes TCON-3—Emergency Vehicle Access TCON-4—Transportation Management Plan TCON-7—Parking Management TCON-8—Parking Monitoring and Community Outreach TCON-10—Pedestrian Routes and Access TCON-11—Bicycle Paths and Access	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phased Construction Scenario			
Phase 1: Construction of Phase 1 could affect neighborhoods for limited durations due to street and sidewalk closures and traffic detours, especially in areas of station construction. Construction and traffic detours will temporarily reduce access to businesses and communities. In addition, noise and emissions from haul trucks and construction equipment could disrupt community activities.			
Phase 2: Construction of Phase 2 could affect neighborhoods for limited durations due to street and sidewalk closures and traffic detours, especially in areas of station construction. Construction and traffic detours will temporarily reduce access to businesses and communities. In addition, noise and emissions from haul trucks and construction equipment could disrupt community activities.			
Phase 3: Construction of Phase 3 could affect neighborhoods for limited durations due to street and sidewalk closures and traffic detours, especially in areas of station construction. Construction and traffic detours will temporarily reduce access to businesses and communities. In addition, noise and emissions from haul trucks and construction equipment could disrupt community activities			
▶VISUAL AND AESTHETICS			
Concurrent Construction Scenario The introduction of heavy construction equipment, stockpiled construction-related materials, erosion devices, excavated materials, and the removal of trees in these primarily commercial and residential areas will conflict with the existing visual character and will change visual quality. Additionally, the raised decking at the Wilshire/Fairfax and Wilshire/La Brea Stations (approximately 2 feet above grade) will temporarily increase the visual impacts to adjacent properties at these stations. The lighting of the construction staging areas at night will create a new light source. If not mitigated, this will be a temporary adverse effect.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-2—Timely Removal of Erosion-Control Devices CON-3—Location of Construction Materials CON-4—Construction Lighting CON-5—Screening of Construction Staging Areas	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phased Construction Scenario			
Phase 1: The introduction of heavy construction equipment, stockpiled construction-related materials, erosion devices, excavated materials, and the removal of trees in these primarily commercial and residential areas of Phase 1 will conflict with the existing visual character and will change visual quality. Additionally, the raised decking at the Wilshire/Fairfax and Wilshire/La Brea Stations (approximately 2 feet above grade) will temporarily increase the visual impacts to adjacent properties at these stations. The lighting of the Phase 1 construction staging areas at night will create a new light source. If not mitigated, this will be a temporary adverse effect.			
Phase 2: The introduction of heavy construction equipment, stockpiled construction-related materials, erosion devices, excavated materials, and the removal of trees in these primarily commercial and residential areas of Phase 2 will conflict with the existing visual character and will change visual quality. The lighting of the Phase 2 construction staging areas at night will create a new light source. If not mitigated, this will be a temporary adverse effect.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
Phase 3	The introduction of heavy construction equipment, stockpiled construction-related materials, erosion devices, excavated materials, and the removal of trees in these primarily commercial and residential areas of Phase 3 will conflict with the existing visual character and will change visual quality. The lighting of the Phase 3 construction staging areas at night will create a new light source. If not mitigated, this will be a temporary adverse effect.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-2—Timely Removal of Erosion-Control Devices CON-3—Location of Construction Materials CON-4—Construction Lighting CON-5—Screening of Construction Staging Areas	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
▶AIR QUALITY				
Air Quality—Emissions				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-6—Meet Mine Safety (MSHA) Standards CON-7—Meet SCAQMD Standards CON-8—Monitoring and Recording of Air Quality at Worksites CON-9—No Idling of Heavy Equipment CON-10—Maintenance of Construction Equipment CON-11—Prohibit Tampering of Equipment CON-12—Use of Best Available Emissions Control Technologies CON-13—Placement of Construction Equipment	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts
SCAQMD thresholds will be exceeded for all pollutants when the total project emissions over the duration of the construction period are accounted for. This is due to the accelerated schedule that has been developed to minimize the disturbances that construction can bring to the residents and businesses within the Study Area. In addition, nitrous oxides (NOx) thresholds will be exceeded for all construction elements. NOx levels will be elevated due partially to the proposed use of diesel locomotives to extract soil during the tunnel-boring process.				
Phased Construction Scenario				
Phase 1	SCAQMD thresholds will be exceeded for all pollutants, except for CO in Phase 1, when the total emissions over the duration of the construction period are accounted for. This is due to the magnitude of the project and the schedule that has been developed to minimize the disturbances that construction can bring to the residents and businesses within the LPA area. In addition, NOx thresholds will be exceeded. NOx levels will be elevated due partially to the proposed use of diesel locomotives to extract soil during the tunnel-boring process.			
Phase 2	SCAQMD thresholds will be exceeded for all pollutants in Phase 2 when the total emissions over the duration of the construction period are accounted for. This is due to the magnitude of the project and the schedule that has been developed to minimize the disturbances that construction can bring to the residents and businesses within the LPA area. In addition, NOx thresholds will be exceeded. NOx levels will be elevated due partially to the proposed use of diesel locomotives to extract soil during the tunnel-boring process.			
Phase 3	SCAQMD thresholds will be exceeded for all pollutants in Phase 3 when the total emissions over the duration of the construction period are accounted for. This is due to the magnitude of the project and the schedule that has been developed to minimize the disturbances that construction can bring to the residents and businesses within the LPA area. In addition, NOx thresholds will be exceeded. NOx levels will be elevated due partially to the proposed use of diesel locomotives to extract soil during the tunnel-boring process.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
Air Quality—Particulate Matter				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-14—Measures to Reduce the Predicted PM10 Levels CON-15—Reduce Street Debris CON-16—Dust Control During Transport CON-17—Fugitive Dust Control CON-18—Street Watering CON-19—Spillage Prevention for Non-Earthmoving Equipment CON-20—Spillage Prevention for Earthmoving Equipment CON-21—Additional Controls to Reduce Emissions	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
The South Coast Air Quality Management District (SCAQMD) thresholds for PM10 for the LPA will be exceeded if not mitigated at locations with tunnel boring machine (tunnel boring machine) entry and exit sites due to dirt handling. Demolition, grading, stockpiling, and hauling soil will contribute to particulate matter emissions.				
Phased Construction Scenario				
Phase 1	The SCAQMD thresholds for PM10 for Phase 1 will be exceeded if not mitigated at locations with tunnel boring machine entry and exit sites due to dirt handling. Demolition, grading, stockpiling, and hauling soil will contribute to particulate matter emissions. Dust could be generated by the slurry treatment plant when the bentonite is mixed; however, the treatment plant includes a "bag house" to collect dust during the mixing process. Bag houses typically filter at least 99 percent of fine particulate matter. As a result, the slurry treatment plant will generate minimal dust emissions.			
Phase 2	The SCAQMD thresholds for PM10 for Phase 2 will be exceeded if not mitigated at locations with tunnel boring machine entry and exit sites due to dirt handling. Demolition, grading, stockpiling, and hauling soil will contribute to particulate matter emissions. Dust could be generated by the slurry treatment plant when the bentonite is mixed; however, the treatment plant includes a "bag house" to collect dust during the mixing process. Bag houses typically filter at least 99 percent of fine particulate matter. As a result, the slurry treatment plant will generate minimal dust emissions.			
Phase 3	The SCAQMD thresholds for PM10 for Phase 3 will be exceeded if not mitigated at locations with tunnel boring machine entry and exit sites due to dirt handling. Demolition, grading, stockpiling, and hauling soil will contribute to particulate matter emissions. Dust could be generated by the slurry treatment plant when the bentonite is mixed; however, the treatment plant includes a "bag house" to collect dust during the mixing process. Bag houses typically filter at least 99 percent of fine particulate matter. As a result, the slurry treatment plant will generate minimal dust emissions.			
Air Quality—Gas				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-8—Monitoring and Recording of Air Quality at Worksites CON-51—Techniques to Lower the Risk of Exposure to Hydrogen Sulfide CON-52—Measures to Reduce Gas Inflows	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Since the Wilshire/Fairfax Station and Wilshire/La Brea Station are located in known ground that contains hydrocarbon deposits, disturbance of the ground will generate varying degrees of toxic or dangerous gases. As such, it is essential that tunnel workers be sufficiently protected. Detection and monitoring equipment will be required.				
Phased Construction Scenario				
Phase 1	In Phase 1, since the Wilshire/Fairfax Station and Wilshire/La Brea Station are located in known ground that contains hydrocarbon deposits, disturbance of the ground will generate varying degrees of toxic or dangerous gases. As such, it is essential that tunnel workers be sufficiently protected. Detection and monitoring equipment will be required.			
Phase 2	There are no known hydrocarbon deposits along Phase 2. With implementation of the construction methods and mitigation measures described, there will be no air quality impacts related to naturally occurring gases during construction of Phase 2.			
Phase 3	There are no known hydrocarbon deposits along Phase 3. With implementation of the construction methods and mitigation measures described, there will be no air quality impacts related to naturally occurring gases during construction of Phase 3.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
Air Quality—Odor				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-8—Monitoring and Recording of Air Quality at Worksites CON-51—Techniques to Lower the Risk of Exposure to Hydrogen Sulfide CON-52—Measures to Reduce Gas Inflows	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
There is known hydrogen sulfide gas located in the vicinity of the Wilshire/La Brea, Wilshire/Fairfax, and Wilshire/La Cienega Stations. Hydrogen sulfide odors also could be released from groundwater containing hydrogen sulfide. As a result, aside from odors from vehicle exhaust, the LPA could result in odors from hydrogen sulfide.				
Phased Construction Scenario				
Phase 1	In Phase 1, there is known hydrogen sulfide gas located in the vicinity of the Wilshire/La Brea, Wilshire/Fairfax, and Wilshire/La Cienega Stations. Hydrogen sulfide odors also could be released from groundwater containing hydrogen sulfide. As a result, aside from odors from vehicle exhaust, Phase 1 could result in odors from hydrogen sulfide.			
Phase 2	Hydrogen sulfide odors could be released from groundwater containing hydrogen sulfide. As a result, aside from odors from vehicle exhaust, Phase 2 could result in odors from hydrogen sulfide.			
Phase 3	Hydrogen sulfide odors could be released from groundwater containing hydrogen sulfide. As a result, aside from odors from vehicle exhaust, Phase 3 could result in odors from hydrogen sulfide.			
▶CLIMATE CHANGE				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	CON-6—Meet Mine Safety (MSHA) Standards CON-7—Meet SCAQMD Standards CON-8—Monitoring and Recording of Air Quality at Worksites CON-9—No Idling of Heavy Equipment CON-10—Maintenance of Construction Equipment CON-11—Prohibit Tampering of Equipment CON-12—Use of Best Available Emissions Control Technologies CON-13—Placement of Construction Equipment	NEPA: No Adverse Impacts CEQA: No Significant Impacts
It is estimated that construction of the LPA will generate approximately 164 metric tons of CO_2e per day, which is approximately 180,000 metric tons of CO_2e over the full 10-year construction duration. This estimate includes the CO_2e generated due to the use of construction equipment, worker trips, delivery trips, and hauling of material. Compared to existing regional CO_2e emissions, construction of the LPA will increase daily CO_2e emissions by less than 0.1 percent, which is not considered a significant impact.				
Phased Construction Scenario				
Phase 1	The construction of Phase 1 will generate approximately 102 metric tons of CO_2e per day, which is approximately 65,000 metric tons of CO_2e over the construction duration of Phase 1, which is not considered a significant impact.			
Phase 2	The construction of Phase 2 will generate approximately 102 metric tons of CO_2e per day, which is approximately 49,000 metric tons of CO_2e over the construction duration of Phase 2, which is not considered a significant impact.			
Phase 3	The construction of Phase 3 will generate approximately 102 metric tons of CO_2e per day, which is approximately 66,000 metric tons of CO_2e over the construction duration of Phase 3, which is not considered a significant impact.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]	Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
▶ NOISE AND VIBRATION			
Noise and Vibration—Noise			
Concurrent Construction Scenario The greatest noise impacts will occur near stations, tunnel access portals, and construction laydown areas where construction activities at the surface are concentrated. The slurry plant, if used, will be located at the Wilshire/La Brea, Century City, and Westwood/VA Hospital Stations. With the exception of these areas, all other construction will occur completely below-grade.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-22—Hire or Retain the Services of an Acoustical Engineer CON-23—Prepare a Noise Control Plan CON-24—Comply with the Provisions of the Nighttime Noise Variance CON-25—Noise Monitoring CON-26—Use of Specific Construction Equipment at Night CON-27—Noise Barrier Walls for Nighttime Construction CON-28—Comply with Local Noise Ordinances CON-29—Signage CON-30—Use of Noise Control Devices CON-31—Use of Fixed Noise-Producing Equipment for Compliance CON-32—Use of Mobile or Fixed Noise-Producing Equipment CON-33—Use of Electrically Powered Equipment CON-34—Use of Temporary Noise Barriers and Sound-Control Curtains CON-35—Distance from Noise-Sensitive Receivers CON-36—Limited Use of Horns, Whistles, Alarms, and Bells CON-37—Requirements on Project Equipment CON-38—Limited Audibility of Project Related Public Addresses or Music CON-39—Use of Haul Routes with the Least Overall Noise Impact CON-40—Designated Parking Areas for Construction-Related Traffic CON-41—Enclosures for Fixed Equipment TCON-2—Designated Haul Routes	NEPA: Temporary Adverse Impact CEQA: Temporary Significant Impacts
Phased Construction Scenario			
Phase 1: The greatest noise impacts will occur near stations, tunnel access portals, and construction laydown areas where construction activities at the surface are concentrated. During the construction of Phase 1, these noise impacts will be concentrated in the vicinity of the Wilshire/La Brea, Wilshire/Fairfax, and Wilshire/La Cienega Stations, as well as the Wilshire/Western and Wilshire/Crenshaw construction staging areas. Tunneling plants and materials, including a slurry separation system, if used, will be located at these tunnel access shaft sites. The slurry plant, if used, will be located at the Wilshire/La Brea Station. With the exception of these areas, all other construction will occur completely below-grade.			
Phase 2: The greatest noise impacts will occur near stations, tunnel access portals, and construction laydown areas where construction activities at the surface are concentrated. During construction of Phase 2, the noise impacts will be concentrated in the vicinity of the Wilshire/Rodeo and Century City Stations. The slurry plant, if used, will be located at the Century City Station. With the exception of these areas, all other construction will occur completely below-grade.			
Phase 3: The greatest noise impacts will occur near stations, tunnel access portals, and construction laydown areas where construction activities at the surface are concentrated. During construction of Phase 3, noise impacts will be concentrated in the vicinity of the Westwood/UCLA and Westwood/VA Hospital Stations as well as the GSA crossover. The slurry plant, if used, will be located at the Westwood/VA Hospital Station. With the exception of these areas, all other construction will occur completely below-grade.			
Noise and Vibration—Vibration			
Concurrent Construction Scenario During construction of the LPA, impact pile driving at the station boxes will result in adverse vibration impacts. Perceptible vibration levels could be experienced within 200 feet of pile driving operations. Additionally, equipment used for underground construction, such as the tunnel boring machine and mine trains, could generate vibration levels that could result in audible ground-borne noise levels in buildings at the surface, depending on the depth of the tunnel and soil conditions. Operation of the mine trains could contribute to underground construction vibration since they will operate continuously during the excavation, mining, and finishing of the tunnel. tunnel boring machines would be below the surface of a structure for no more than a day or two.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-42—Phasing of Ground Impacting Operations CON-43—Alternatives to Impact Pile Driving CON-44—Alternative Demolition Methods CON-45— Restriction on Use of Vibratory Rollers and Packers CON-46—Metro Ground-Born Noise and Ground-Born Vibration limits	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
Phased Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-42—Phasing of Ground Impacting Operations CON-43—Alternatives to Impact Pile Driving CON-44—Alternative Demolition Methods CON-45— Restriction on Use of Vibratory Rollers and Packers CON-46—Metro Ground-Born Noise and Ground-Born Vibration limits	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phase 1	During construction of Phase 1, impact pile driving at the station boxes will result in adverse vibration impacts. Perceptible vibration levels could be experienced within 200 feet of pile driving operations. Additionally, equipment used for underground construction, such as the tunnel boring machine and mine trains, could generate vibration levels that could result in audible ground-borne noise levels in buildings at the surface, depending on the depth of the tunnel and soil conditions. Operation of the mine trains could contribute to underground construction vibration since they will operate continuously during the excavation, mining, and finishing of the tunnel. tunnel boring machines would be below the surface of a structure for no more than a day or two.			
Phase 2	During construction of Phase 2, impact pile driving at the station boxes will result in adverse vibration impacts. Perceptible vibration levels could be experienced within 200 feet of pile driving operations. Additionally, equipment used for underground construction, such as the tunnel boring machine and mine trains, could generate vibration levels that could result in audible ground-borne noise levels in buildings at the surface, depending on the depth of the tunnel and soil conditions. Operation of the mine trains could contribute to underground construction vibration since they will operate continuously during the excavation, mining, and finishing of the tunnel. tunnel boring machines would be below the surface of a structure for no more than a day or two.			
Phase 3	During construction of Phase 3, impact pile driving at the station boxes will result in adverse vibration impacts. Perceptible vibration levels could be experienced within 200 feet of pile driving operations. Additionally, equipment used for underground construction, such as the tunnel boring machine and mine trains, could generate vibration levels that could result in audible ground-borne noise levels in buildings at the surface, depending on the depth of the tunnel and soil conditions. Operation of the mine trains could contribute to underground construction vibration since they will operate continuously during the excavation, mining, and finishing of the tunnel. tunnel boring machines would be below the surface of a structure for no more than a day or two.			
▶ENERGY				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Energy consumption during construction of the LPA will be 2,309 billion British thermal units (BTUs) and 5.1 billion BTUs for the Division 20 Storage Yard and Maintenance Facility. Construction of the LPA will not lead to a wasteful, inefficient, or unnecessary usage.				
Phased Construction Scenario				
Phase 1	Energy consumption during construction of Phase I will be 913 billion BTUs and 5.1 billion BTUs for the Division 20 Storage Yard and Maintenance Facility. Construction of Phase 1 will not lead to a wasteful, inefficient, or unnecessary usage.			
Phase 2	Energy consumption during construction of Phase 2 will be 671 billion BTUs. Construction of Phase 2 will not lead to a wasteful, inefficient, or unnecessary usage.			
Phase 3	Energy consumption during construction of Phase 3 will be 671 billion BTUs. Construction of Phase 3 will not lead to a wasteful, inefficient, or unnecessary usage.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]	Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
▶GEOLOGIC HAZARDS			
Geologic Hazards—Seismic and Liquefaction			
Concurrent Construction Scenario Construction within the LPA Study Area will be susceptible to surface fault rupture and seismic ground shaking. Construction will be performed in accordance with Metro Design Criteria that includes national standards and codes to protect workers and work under construction considering seismic conditions. Designs to minimize risk of liquefaction-related damage to the excavation support system include increasing the depth of solider piles to reach non-liquefiable zones or ground improvement to densify the soil prior to installation of the excavation support system; therefore, liquefaction is not a significant impact during construction.	NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
Phased Construction Scenario			
Phase 1: Construction of Phase 1 will be susceptible to seismic ground shaking. Construction will be performed in accordance with Metro Design Criteria that includes national standards and codes to protect workers and work under construction considering seismic conditions. Designs to minimize risk of liquefaction-related damage to the excavation support system include increasing the depth of solider piles to reach non-liquefiable zones or ground improvement to densify the soil prior to installation of the excavation support system; therefore, liquefaction is not a significant impact during construction.			
Phase 2: Construction of Phase 2 will be susceptible to surface fault rupture and seismic ground shaking. Construction will be performed in accordance with Metro Design Criteria that includes national standards and codes to protect workers and work under construction considering seismic conditions. Designs to minimize risk of liquefaction-related damage to the excavation support system include increasing the depth of solider piles to reach non-liquefiable zones or ground improvement to densify the soil prior to installation of the excavation support system; therefore, liquefaction is not a significant impact during construction.			
Phase 3: Construction of Phase 3 will be susceptible to surface fault rupture and seismic ground shaking. Construction will be performed in accordance with Metro Design Criteria that includes national standards and codes to protect workers and work under construction considering seismic conditions. Designs to minimize risk of liquefaction-related damage to the excavation support system include increasing the depth of solider piles to reach non-liquefiable zones or ground improvement to densify the soil prior to installation of the excavation support system; therefore, liquefaction is not a significant impact during construction.			
Geologic Hazards—Subsidence and Settlement due to Tunneling			
Concurrent Construction Scenario For the LPA, there are no known subsidence problems related to petroleum or groundwater extraction. Tunneling and construction dewatering-induced subsidence poses a potentially adverse effect. Dewatering of the excavations made during construction could result in potentially damaging subsidence adjacent to the construction area. However, much of the soil along the LPA corridor has previously undergone numerous cycles of groundwater fluctuation. Soils have previously experienced settlements associated with lowering of groundwater. As a result, soils are not expected to have significant additional settlement.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-47—Use of Pressurized-face TBMs for Tunnel Construction CON-48—Preconstruction Survey, Instrumentation, and Monitoring CON-49—Additional Geotechnical Exploration CON-50—Additional Methods to Reduce Settlement	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
Phased Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-47—Use of Pressurized-face TBMs for Tunnel Construction CON-48—Preconstruction Survey, Instrumentation, and Monitoring CON-49—Additional Geotechnical Exploration CON-50—Additional Methods to Reduce Settlement	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phase 1	For Phase 1, there are no known subsidence problems related to petroleum or groundwater extraction. Tunneling and construction dewatering-induced subsidence poses a potentially adverse effect. Dewatering of the excavations made during construction could result in potentially damaging subsidence adjacent to the construction area. However, much of the soil along the Phase 1 corridor has previously undergone numerous cycles of groundwater fluctuation. Soils have previously experienced settlements associated with lowering of groundwater. As a result, soils are not expected to have significant additional settlement.			
Phase 2	For Phase 2, there are no known subsidence problems related to petroleum or groundwater extraction. Tunneling and construction dewatering-induced subsidence poses a potentially adverse effect. Dewatering of the excavations made during construction could result in potentially damaging subsidence adjacent to the construction area. However, much of the soil along the Phase 2 corridor has previously undergone numerous cycles of groundwater fluctuation. Soils have previously experienced settlements associated with lowering of groundwater. As a result, soils are not expected to have significant additional settlement.			
Phase 3	For Phase 3, there are no known subsidence problems related to petroleum or groundwater extraction. Tunneling and construction dewatering-induced subsidence poses a potentially adverse effect. Dewatering of the excavations made during construction could result in potentially damaging subsidence adjacent to the construction area. However, much of the soil along the Phase 3 corridor has previously undergone numerous cycles of groundwater fluctuation. Soils have previously experienced settlements associated with lowering of groundwater. As a result, soils are not expected to have significant additional settlement.			
Geologic Hazards—Hazardous Subsurface Gas				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-51—Techniques to Lower the Risk of Exposure to Hydrogen Sulfide CON-52—Measures to Reduce Gas Inflows CON-53—Further Research on Oil Well Locations CON-54—Worker Safety for Gassy Tunnels	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Methane and hydrogen sulfide are present in high concentrations along a 1.1-mile stretch of Wilshire Boulevard from about Burnside Avenue on the east to about La Jolla Avenue on the west. However, the entire LPA alignment passes through an area characterized by oil and gas fields and lies within the City's Methane Zone. Therefore, the possibility of encountering gaseous subsurface conditions can be expected for any portion of the alignment, and hazardous subsurface gases pose a significant hazard for construction of the LPA.				
Phased Construction Scenario				
Phase 1	Methane and hydrogen sulfide are present in high concentrations along Phase 1 of the LPA along Wilshire Boulevard from about Burnside Avenue to about La Jolla Avenue. Therefore, the possibility of encountering gaseous subsurface conditions can be expected, and hazardous subsurface gases pose a significant hazard for construction of Phase 1 the LPA.			
Phase 2	Phase 2 of the LPA passes through an area characterized by oil and gas fields and lies within the City's Methane Zone. Therefore, the possibility of encountering gaseous subsurface conditions can be expected, and hazardous subsurface gases pose a significant hazard for construction of Phase 2 of the LPA.			
Phase 3	Phase 3 of the LPA passes through an area characterized by oil and gas fields and lies within the City's Methane Zone. Therefore, the possibility of encountering gaseous subsurface conditions can be expected, and hazardous subsurface gases pose a significant hazard for construction of Phase 3 of the LPA.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]	Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
▶ HAZARDOUS WASTES AND MATERIALS			
Concurrent Construction Scenario The LPA is close to areas where underground storage tanks, volatile organic compounds, and oil exploration sites occur. The subway tunnel is expected to be under the lowest point of contaminated soils. Contaminated groundwater may be encountered during construction. Any contaminated groundwater will be treated in accordance with applicable permits prior to discharge or disposal. Preparation of construction staging areas will require demolition of structures. In locations where buildings may be demolished or modified, asbestos and/or lead may be present and will be handled by licensed contractors in accordance with applicable regulations.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-55—Site Assessments CON-56—Soil Reuse CON-57—Sampling During Construction CON-58—Soil Testing CON-59—Personal Protection CON-60—Contaminated Groundwater CON-61—Health and Safety Plan CON-62—Storage of Contaminated Materials CON-63—Monitoring the Environment CON-64—Equipment Repair and Maintenance CON-65—Removal of Chemical Residue	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phased Construction Scenario			
Phase 1: Eight hazardous waste generators are located along the Phase 1 alignment, and one additional location is located in the vicinity of the Division 20 Storage Yard and Maintenance Facility. The subway tunnel is expected to be under the lowest point of contaminated soils. Contaminated groundwater may be encountered during Phase 1 construction. Any contaminated groundwater will be treated in accordance with applicable permits prior to discharge or disposal. Preparation of Phase 1 construction staging areas will require demolition of structures. In locations where buildings may be demolished or modified, asbestos and/or lead may be present and will be handled by licensed contractors in accordance with applicable regulations.			
Phase 2: One hazardous waste generator is located along the Phase 2 alignment. The subway tunnel is expected to be under the lowest point of contaminated soils. Contaminated groundwater may be encountered during Phase 2 construction. Any contaminated groundwater will be treated in accordance with applicable permits prior to discharge or disposal. Preparation of Phase 2 construction staging areas will require demolition of structures. In locations where buildings may be demolished or modified, asbestos and/or lead may be present and will be handled by licensed contractors in accordance with applicable regulations.			
Phase 3: One hazardous waste generator is located along the Phase 3 alignment. The subway tunnel is expected to be under the lowest point of contaminated soils. Contaminated groundwater may be encountered during Phase 3 construction. Any contaminated groundwater will be treated in accordance with applicable permits prior to discharge or disposal. Preparation of Phase 3 construction staging areas will require demolition of structures. In locations where buildings may be demolished or modified, asbestos and/or lead may be present and will be handled by licensed contractors in accordance with applicable regulations.			
▶ ECOSYSTEMS/BIOLOGICAL RESOURCES			
Concurrent Construction Scenario Construction of the LPA may require the removal or disturbance (including trimming) of mature trees located at the construction sites. An adverse effect could occur if an active migratory bird nest located in any of these trees is disturbed during construction. Because the majority of the Study Area provides only low quality habitat for migratory birds, indirect impacts are not expected to be substantial, as only a small number of migratory birds will be displaced, if any.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-66—Biological Surveys CON-67—Compliance with City Regulations CON-68—Tree Pruning CON-69—Avoidance of Migratory Bird Nesting Season	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phased Construction Scenario			
Phase 1: Construction of Phase 1 may require the removal or disturbance (including trimming) of mature trees located at the construction sites. An adverse effect could occur if an active migratory bird nest located in any of these trees is disturbed during construction. Because the majority of the Study Area provides only low quality habitat for migratory birds, indirect impacts are not expected to be substantial, as only a small number of migratory birds will be displaced, if any.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
Phase 2	Construction of Phase 2 may require the removal or disturbance (including trimming) of mature trees located at the construction sites. An adverse effect could occur if an active migratory bird nest located in any of these trees is disturbed during construction. Because the majority of the Study Area provides only low quality habitat for migratory birds, indirect impacts are not expected to be substantial, as only a small number of migratory birds will be displaced, if any.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-66—Biological Surveys CON-67—Compliance with City Regulations CON-68—Tree Pruning CON-69—Avoidance of Migratory Bird Nesting Season	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phase 3	Construction of Phase 3 may require the removal or disturbance (including trimming) of mature trees located at the construction sites. An adverse effect could occur if an active migratory bird nest located in any of these trees is disturbed during construction. Because the majority of the Study Area provides only low quality habitat for migratory birds, indirect impacts are not expected to be substantial, as only a small number of migratory birds will be displaced, if any.			
▶ HYDROLOGY AND WATER RESOURCES				
Hydrology and Water Resources—Water Supply				
Concurrent Construction Scenario		NEPA: No Adverse Impacts CEQA: No Significant Impacts	No mitigation required.	NEPA: No Adverse Impacts CEQA: No Significant Impacts
With the use of the recycled water, the tunnel boring machine and related equipment will not affect the municipal water supply, even accounting for evaporation. It is anticipated that construction water use will be approved during design and that the Los Angeles Department of Water and Power has the capacity to supply the water. Therefore, the LPA construction will not adversely affect the municipal water supply.				
Phased Construction Scenario				
Phase 1	With the use of the recycled water, the tunnel boring machine and related equipment will not affect the municipal water supply, even accounting for evaporation. It is anticipated that construction water use will be approved during design and that the Los Angeles Department of Water and Power has the capacity to supply the water. Therefore, Phase 1 construction will not adversely affect the municipal water supply.			
Phase 2	With the use of the recycled water, the tunnel boring machine and related equipment will not affect the municipal water supply, even accounting for evaporation. It is anticipated that construction water use will be approved during design and that the Los Angeles Department of Water and Power has the capacity to supply the water. Therefore, Phase 2 construction will not adversely affect the municipal water supply.			
Phase 3	With the use of the recycled water, the tunnel boring machine and related equipment will not affect the municipal water supply, even accounting for evaporation. It is anticipated that construction water use will be approved during design and that the Los Angeles Department of Water and Power has the capacity to supply the water. Therefore, Phase 3 construction will not adversely affect the municipal water supply.			
Hydrology and Water Resources—Groundwater				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	In addition to the measures identified for geologic hazards and hazardous wastes and materials, the following measures are recommended to avoid and minimize impacts to water resources and water quality as they relate to groundwater: CON-70—Methods to Control Contaminated Groundwater CON-71—Plan if Contaminated Groundwater is Encountered	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Constructing the LPA will involve tunneling that will likely occur at or below groundwater levels. Since dewatering is anticipated, a dewatering permit from the Los Angeles Regional Water Quality Control Board (LARWQCB) is required. Uncontaminated groundwater collected during dewatering will be treated and pumped back into groundwater basins, pumped to the sewer or storm drain system, or used for dust control. If contaminated groundwater is encountered, it will be managed in compliance with applicable permits and regulations. The LARWQCB will have to grant permission to pump groundwater back into the groundwater basins or discharge it into the storm drain system.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
Phased Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	In addition to the measures identified for geologic hazards and hazardous wastes and materials, the following measures are recommended to avoid and minimize impacts to water resources and water quality as they relate to groundwater: CON-70—Methods to Control Contaminated Groundwater CON-71—Plan if Contaminated Groundwater is Encountered	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phase 1	Constructing Phase 1 will involve tunneling that will likely occur at or below groundwater levels. Since dewatering is anticipated, a LARWQCB dewatering permit is required. Uncontaminated groundwater collected during dewatering will be treated and pumped back into groundwater basins, pumped to the sewer or storm drain system, or used for dust control. If contaminated groundwater is encountered, it will be managed in compliance with applicable permits and regulations. The LARWQCB will have to grant permission to pump groundwater back into the groundwater basins or discharge it into the storm drain system.			
Phase 2	Constructing Phase 2 will involve tunneling that will likely occur at or below groundwater levels. Since dewatering is anticipated, a LARWQCB dewatering permit is required. Uncontaminated groundwater collected during dewatering will be treated and pumped back into groundwater basins, pumped to the sewer or storm drain system, or used for dust control. If contaminated groundwater is encountered, it will be managed in compliance with applicable permits and regulations. The LARWQCB will have to grant permission to pump groundwater back into the groundwater basins or discharge it into the storm drain system.			
Phase 3	Constructing Phase 3 will involve tunneling that will likely occur at or below groundwater levels. Since dewatering is anticipated, a LARWQCB dewatering permit is required. Uncontaminated groundwater collected during dewatering will be treated and pumped back into groundwater basins, pumped to the sewer or storm drain system, or used for dust control. If contaminated groundwater is encountered, it will be managed in compliance with applicable permits and regulations. The LARWQCB will have to grant permission to pump groundwater back into the groundwater basins or discharge it into the storm drain system.			
Hydrology and Water Resources—Drainage				
Concurrent Construction Scenario		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	In addition to the measures identified for geologic hazards and hazardous wastes and materials, the following measures are recommended to avoid and minimize impacts to water resources and water quality as they relate to drainage: CON-72—Erosion and Sediment Control Plan CON-73—Landscape and Construction Debris CON-74—Use of Non-Toxic Herbicides or Fertilizers CON-75—Use of Temporary Detention basins CON-76—Water Quality Monitoring CON-77—Use of Stormwater Runoff BMPs CON-78—Measures to Reduce the Tracking of Sediment and Debris CON-79—Cleaning of Equipment CON-80—Construction Site Water Collection CON-81—Soil and Building Material Storage	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
The construction of seven stations will affect existing drainage structures. The affected drainage structures will be resized or relocated to maintain drainage requirements and prevent flooding or ponding.				
Phased Construction Scenario				
Phase 1	The construction of three stations during Phase 1 will affect existing drainage structures. The affected drainage structures will be resized or relocated to maintain drainage requirements and prevent flooding or ponding.			
Phase 2	The construction of two stations during Phase 2 will affect existing drainage structures. The affected drainage structures will be resized or relocated to maintain drainage requirements and prevent flooding or ponding.			
Phase 3	The construction of two stations during Phase 3 will affect existing drainage structures. The affected drainage structures will be resized or relocated to maintain drainage requirements and prevent flooding or ponding.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]	Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
Hydrology and Water Resources—Water Quality			
Concurrent Construction Scenario The LPA does not cross any surface water and is not near surface water. Construction will be conducted in accordance with applicable regulatory requirements and permits. No adverse effects to surface-water hydrology are anticipated. Disposal will be in compliance with applicable municipal National Pollution Discharge Elimination System permits and waste discharge requirements. As a result, the handling and disposal of wastewater will not result in adverse impacts to water quality. Trenching and tunneling could expose contaminated groundwater and create preferential pathways for the underground spread of contaminated groundwater. Using impermeable material for underground structures will reduce contaminant migration.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	In addition to the measures identified for geologic hazards and hazardous wastes and materials, the following measures are recommended to avoid and minimize impacts to water quality: CON-72—Erosion and Sediment Control Plan CON-73—Landscape and Construction Debris CON-74—Use of Non-Toxic Herbicides or Fertilizers CON-75—Use of Temporary Detention basins CON-76—Water Quality Monitoring CON-77—Use of Stormwater Runoff BMPs CON-78—Measures to Reduce the Tracking of Sediment and Debris CON-79—Cleaning of Equipment CON-80—Construction Site Water Collection CON-81—Soil and Building Material Storage	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phased Construction Scenario			
Phase 1: Phase 1 does not cross any surface water and are not near surface water. Construction will be conducted in accordance with applicable regulatory requirements and permits. No adverse effects to surface-water hydrology are anticipated. Disposal of water used during construction activities associated with Phase 1 will be in compliance with applicable municipal National Pollution Discharge Elimination System permits and waste discharge requirements. As a result, the handling and disposal of wastewater will not result in adverse impacts to water quality. Trenching and tunneling could expose contaminated groundwater and create preferential pathways for the underground spread of contaminated groundwater. Using impermeable material for underground structures will reduce contaminant migration during the construction of Phase 1.			
Phase 2: Phase 2 does not cross any surface water and are not near surface water. Construction will be conducted in accordance with applicable regulatory requirements and permits. No adverse effects to surface-water hydrology are anticipated. Disposal of water used during construction activities associated with Phase 2 will be in compliance with applicable municipal National Pollution Discharge Elimination System permits and waste discharge requirements. As a result, the handling and disposal of wastewater will not result in adverse impacts to water quality. Trenching and tunneling could expose contaminated groundwater and create preferential pathways for the underground spread of contaminated groundwater. Using impermeable material for underground structures will reduce contaminant migration during the construction of Phase 2.			
Phase 3: Phase 3 does not cross any surface water and are not near surface water. Construction will be conducted in accordance with applicable regulatory requirements and permits. No adverse effects to surface-water hydrology are anticipated. Disposal of water used during construction activities associated with Phase 3 will be in compliance with applicable municipal National Pollution Discharge Elimination System permits and waste discharge requirements. As a result, the handling and disposal of wastewater will not result in adverse impacts to water quality. Trenching and tunneling could expose contaminated groundwater and create preferential pathways for the underground spread of contaminated groundwater. Using impermeable material for underground structures will reduce contaminant migration during the construction of Phase 3.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
▶ **PARKLANDS AND COMMUNITY FACILITIES**				
Concurrent Construction Scenario Construction of the LPA could affect parklands and community facilities for limited durations due to street and sidewalk closures and traffic detours, especially in areas of station construction. Construction and traffic detours will temporarily reduce access to businesses and communities. In addition, noise and emissions from haul trucks and construction equipment could disrupt community activities. Access to parks, recreation centers, and museums will be maintained during construction. Police and fire emergency response routes to businesses and residences could be disrupted within the vicinity of construction areas. However, to minimize disruptions, the Beverly Hills Police Department (BHPD) and the Los Angeles Police Department (LAPD) will be informed of all lane closures and detours prior to construction so that emergency routes can be adjusted accordingly.		NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	In addition to the measures for communities and neighborhoods, the following measures will avoid and minimize impacts to parks and community facilities: CON-82—Communication with Schools CON-83—Work with Transportation, Police, Public Works, and Community Service Departments CON-84—Instructional Rail Safety Program for Schools CON-85—Informational Program to Enhance Safety CON-86—Traffic Control CON-87—Designation of Safe Emergency Vehicle Routes	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phased Construction Scenario				
Phase 1	Construction of Phase 1 could affect parklands and community facilities for limited durations due to street and sidewalk closures and traffic detours, especially in areas of station construction. Construction and traffic detours will temporarily reduce access to businesses and communities. In addition, noise and emissions from haul trucks and construction equipment could disrupt community activities. Access to parks, recreation centers, and museums will be maintained during construction. Police and fire emergency response routes to businesses and residences in Phase 1 could be disrupted within the vicinity of construction areas. However, to minimize disruptions, the BHPD and the LAPD will be informed of all lane closures and detours prior to construction so that emergency routes can be adjusted accordingly.			
Phase 2	Construction of Phase 2 could affect parklands and community facilities for limited durations due to street and sidewalk closures and traffic detours, especially in areas of station construction. Construction and traffic detours will temporarily reduce access to businesses and communities. In addition, noise and emissions from haul trucks and construction equipment could disrupt community activities. Access to parks, recreation centers, and museums will be maintained during construction. Police and fire emergency response routes to businesses and residences in Phase 2 could be disrupted within the vicinity of construction areas. However, to minimize disruptions, the BHPD and the LAPD will be informed of all lane closures and detours prior to construction so that emergency routes can be adjusted accordingly.			
Phase 3	Construction of Phase 3 could affect parklands and community facilities for limited durations due to street and sidewalk closures and traffic detours, especially in areas of station construction. Construction and traffic detours will temporarily reduce access to businesses and communities. In addition, noise and emissions from haul trucks and construction equipment could disrupt community activities. Access to parks, recreation centers, and museums will be maintained during construction. Police and fire emergency response routes to businesses and residences in Phase 3 could be disrupted within the vicinity of construction areas. However, to minimize disruptions, the BHPD and the LAPD will be informed of all lane closures and detours prior to construction so that emergency routes can be adjusted accordingly.			

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]	Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
▶ ECONOMIC AND FISCAL			
Economic and Fiscal—Construction-related Economic Losses			
Concurrent Construction Scenario Construction of the LPA will have temporary impacts on businesses, particularly those near or adjacent to construction sites. Construction impacts will include: traffic disruption; increased noise, vibration, and dust; modified vehicular and pedestrian traffic patterns; and utility disruptions. Sidewalks could be temporarily obstructed for station and tunnel construction, thereby reducing business access. However, at least one access point will be maintained at all times. The selection of some station entrances will result in a temporary loss of parking during construction. Business impacts could also include reduced visibility of commercial signs and business locations. These construction impacts could result in adverse economic impacts to businesses.	NEPA: Temporary Adverse Impacts CEQA: Temporary Significant Impacts	CON-88—Minimize Disruption of Access to Businesses CON-1—Signage TCON-1—Traffic Control Plans TCON-4—Transportation Management Plan TCON-7—Parking Management TCON-8—Parking Monitoring and Community Outreach TCON-10—Pedestrian Routes and Access TCON-11—Bicycle Paths and Access	NEPA: No Adverse Impacts CEQA: Less than Significant Impacts
Phased Construction Scenario			
Phase 1: Construction of Phase 1 will have temporary impacts on businesses, particularly those near or adjacent to construction sites. Construction impacts will include: traffic disruption; increased noise, vibration, and dust; modified vehicular and pedestrian traffic patterns; and utility disruptions. Sidewalks could be temporarily obstructed for station and tunnel construction, thereby reducing business access. However, at least one access point will be maintained at all times. The selection of some station entrances will result in a temporary loss of parking during construction. Business impacts could also include reduced visibility of commercial signs and business locations. These construction impacts could result in adverse economic impacts to businesses.			
Phase 2: Construction of Phase 2 will have temporary impacts on businesses, particularly those near or adjacent to construction sites. Construction impacts will include: traffic disruption; increased noise, vibration, and dust; modified vehicular and pedestrian traffic patterns; and utility disruptions. Sidewalks could be temporarily obstructed for station and tunnel construction, thereby reducing business access. However, at least one access point will be maintained at all times. The selection of some station entrances will result in a temporary loss of parking during construction. Business impacts could also include reduced visibility of commercial signs and business locations. These construction impacts could result in adverse economic impacts to businesses.			
Phase 3: Construction of Phase 3 will have temporary impacts on businesses, particularly those near or adjacent to construction sites. Construction impacts will include: traffic disruption; increased noise, vibration, and dust; modified vehicular and pedestrian traffic patterns; and utility disruptions. Sidewalks could be temporarily obstructed for station and tunnel construction, thereby reducing business access. However, at least one access point will be maintained at all times. The selection of some station entrances will result in a temporary loss of parking during construction. Business impacts could also include reduced visibility of commercial signs and business locations. These construction impacts could result in adverse economic impacts to businesses.			
Economic and Fiscal—Construction-related Employment			
Concurrent Construction Scenario The LPA will result in beneficial direct and indirect employment impacts. New direct jobs (jobs and services purchased to build the LPA) could be approximately 35,699, and indirect employment (secondary demand for goods and services) could be approximately 27,567 for the LPA. Construction-related employment is directly proportional to the magnitude of capital expenditures, with higher cost construction alternatives generating more construction-related employment.	NEPA: No Adverse Impacts, Construction-related Employment Benefits CEQA: No Significant Impacts, Construction-related Employment Benefits	No mitigation required.	NEPA: No Adverse Impacts, Construction-related Employment Benefits CEQA: No Significant Impacts, Construction-related Employment Benefits

Table S-8. Environmental Impacts and Mitigation Measures—Construction (continued from previous page)

Description of Identified Impacts[2]		Impact Before Mitigation	Mitigation[1]	Impact Remaining After Mitigation
Phased Construction Scenario		NEPA: No Adverse Impacts, Construction-related Employment Benefits CEQA: No Significant Impacts, Construction-related Employment Benefits	No mitigation required.	NEPA: No Adverse Impacts, Construction-related Employment Benefits CEQA: No Significant Impacts, Construction-related Employment Benefits
Phase 1	The construction of Phase 1 will result in beneficial direct and indirect employment impacts.			
Phase 2	The construction of Phase 2 will result in beneficial direct and indirect employment impacts.			
Phase 3	The construction of Phase 3 will result in beneficial direct and indirect employment impacts.			
Economic and Fiscal—Construction Spending on the Regional Economy				
Concurrent Construction Scenario		NEPA: No Adverse Impacts, Construction-related Employment Benefits CEQA: No Significant Impacts, Construction-related Employment Benefits	No mitigation required.	NEPA: No Adverse Impacts, Construction-related Employment Benefits CEQA: No Significant Impacts, Construction-related Employment Benefits
The jobs created as a result of construction spending on the LPA will result in both direct and indirect economic impacts on the Los Angeles region. The overall output generated for the LPA as a result of construction spending is estimated to be $4,749 million direct output and $5,369 million indirect/induced output, for a total of $10,118 million in 2010 dollars. Approximately 47% of the projected output is directly related to construction of the LPA, while the remaining is expected to result from indirect and induced spending.				
Phased Construction Scenario				
Phase 1	The jobs created as a result of construction spending on Phase 1 will result in both direct and indirect economic impacts on the Los Angeles region. However, since Phase 1 terminates at Wilshire/La Cienega, construction spending will be lower than the full LPA and, therefore, the economic benefits resulting from construction will be a portion of the full LPA to the Westwood/VA Hospital Station.			
Phase 2	The jobs created as a result of construction spending on Phase 2 will result in both direct and indirect economic impacts on the Los Angeles region. However, since Phase 2 terminates at Century City, construction spending will be lower than the full LPA and, therefore, the economic benefits resulting from construction will be a portion of the full LPA to the Westwood/VA Hospital Station.			
Phase 3	The jobs created as a result of construction spending on Phase 3 will result in both direct and indirect economic impacts on the Los Angeles region. The construction spending as part of Phase 3 will be lower than the full LPA and, therefore, the economic benefits resulting from construction will be a portion of the full LPA to the Westwood/VA Hospital Station.			

[1]Refer to Section 4.15 of this Final EIS/EIR for the full description of all proposed mitigation measures.
[2]Unless otherwise noted, the LPA includes all station, alignment, and station entrance options.

Refer to Table S-5 and Table S-8 for a list of environmental impacts anticipated during construction, mitigation measures, and impacts remaining after mitigation. Section 4.15 of this Final EIS/EIR provides a detailed discussion of all anticipated impacts and mitigation measures. Transportation-related construction impacts and mitigation measures are summarized above on page S-26. Impacts related to air quality, noise, and historic resources will remain adverse and unavoidable during the construction period, even with implementation of mitigation measures. However, all construction impacts will be temporary in duration.

Under the Concurrent Construction Scenario and the Phased Construction Scenario, overall construction impacts resulting from construction of the LPA will be very similar because the necessary construction activities will generally be the same. The major difference between the two scenarios is the timing of construction activities and, therefore, the duration of the construction impacts. Under the Phased Construction Scenario, construction activities will be spaced over a longer period of time—from 2013 to 2036, which will result in a longer overall duration for any construction impact. Under the Concurrent Construction Scenario, all construction activities will occur between 2013 and 2022. For some resource areas, such as air quality, the phased construction approach will reduce the intensity of impacts at a given point in time as construction activities will not occur concurrently. However, most resource areas discussed will not see a substantial difference in overall impacts during construction of the LPA, whether or not it is constructed in phases.

Cost and Financial Plan

The basis of the financial analysis, including the capital and operating and maintenance (O&M) cost estimates, is the *Westside Subway Extension Accelerated Financial Plan* (Metro 2011ae) (Concurrent Construction Schedule) and the *Westside Subway Extension Alternative Financial Plan* (Metro 2011af) (Phased Construction Schedule).

Depending on the station and alignment location where options are still under consideration, the capital costs estimate for the LPA ranges from $4,323 million to $4,468 million (in 2011 dollars), an overall spread of $145 million (Table S-9).

America Fast Forward 30/10 Initiative

The concept of the America Fast Forward 30/10 Initiative is to use long-term revenue from the Measure R sales tax as collateral for long-term bonds and a Federal loan that will allow Metro to build 12 key mass transit projects, including the Westside Project, in 10 years rather than 30. Metro has estimated that accelerating the construction of these 12 key Metro projects will result in cost savings.

Table S-10 compares project costs in 2011 dollars and YOE dollars with the Concurrent Construction Scenario and the Phased Construction Scenario. With finance charges and capital cost escalation, the LPA capital cost in Year of Expenditure dollars is $5,662 million under the Concurrent Construction Scenario and $6,290 million under the Phased Construction Scenario. The differences in costs of the two funding plans are described more fully in Chapter 6 of this Final EIS/EIR; however, the differences described above illustrate that the LPA under the Concurrent Construction Scenario can be delivered at lower overall costs than the LPA under the Phased Construction Scenario, primarily because of lower costs for escalation and financing.

The funding sources that have been identified in the *Westside Subway Extension Accelerated Financial Plan* (Metro 2011ae) and the *Westside Subway Extension Alternative Financial Plan* (Metro 2011af) include Federal Section 5309 New Starts funds,

Table S-9. Comparison of Station and Alignment Option Combinations

Station Combination			Configuration Number	Transit Run Times			Permanent Underground Easements				Capital Cost ($ 2011 millions)
				Length (miles)	Total Run Time (eastbound)	Total Run Time (westbound)	Residential Properties[1]	Schools, Religious, and Other Community Facilities	Other Non-residential Properties	Total Properties	
Century City Santa Monica	Westwood/ UCLA On-Street	Westwood/VA Hospital South	1	8.57	14:19	14:26	78	0	17	95	$4,348 - $4,435
		Westwood/VA Hospital North	2	8.73	14:21	14:28	78	0	14	92	$4,382 - $4,468
	Westwood/ UCLA Off-Street	Westwood/VA Hospital South	3	8.60	14:45	14:52	82	1	25	108	$4,323 - $4,410
		Westwood/VA Hospital North	4	8.74	14:50	14:58	82	1	21	104	$4,357 - $4,444
Century City Constellation	Westwood/ UCLA On-Street	Westwood/VA Hospital South	5	8.80	14:44	14:49	86	1	38	125	$4,368 - $4,409
		Westwood/VA Hospital North	6	8.95	14:45	14:52	86	1	34	121	$4,402 - $4,442
	Westwood/ UCLA Off-Street	Westwood/VA Hospital South	7	8.83	15:11	15:16	90	2	46	138	$4,344 - $4,384
		Westwood/VA Hospital North	8	8.97	15:17	15:21	90	2	42	134	$4,377 - $4,417

Source: Westside Subway Extension Accelerated Financial Plan (Metro 2011ae); Westside Subway Extension Alternative Financial Plan (Metro 2011af); Westside Subway Extension Acquisitions and Displacement Supplemental Technical Report (Metro 2011c)

[1]Condominium units in the same building counted as a single property.

Recommended station and alignment locations

Local Measure R sales tax funds, reimbursements to Metro from the State for Letters of No Prejudice agreements, and local agency funds. Under the Concurrent Construction Scenario, it is estimated that Measure R funds will fund approximately 53 percent of capital costs and New Starts Funds will cover approximately 42 percent of capital costs, with the remainder funded by local and State transit funds. Under the Phased Construction Scenario, it is estimated that Measure R will fund approximately 46 percent of capital costs and New Starts and other Federal funds will cover approximately 50 percent of capital costs, with the remainder funded by local and State transit funds.

The incremental O&M costs for the LPA are estimated to be $180 million in YOE dollars for the Concurrent Construction Scenario and $51 million for the

Table S-10. Comparison of Project Costs under Concurrent Construction Scenario versus Phased Construction Scenario

	Capital Cost ($2011 millions)[1]	Capital Cost ($YOE millions)
Concurrent Construction Scenario		
Single Phase (2022)	$4,407	$5,662
Phased Construction Scenario		
Phase 1 (2020)	N/A	$2,606
Phase 2 (2026)	N/A	$1,584
Phase 3 (2036)	N/A	$2,100
Total	$4,367	$6,290

[1]Base-year cost estimates ($2011 millions) do not include capital cost escalation or financing costs.

Phased Construction Scenario in 2035 (only Phase 1 and Phase 2 operational). Metro will use a combination of local, State, and Federal funding sources to operate and maintain the system. In addition to these funding sources, Metro relies on fare revenues to fund about one-third of its operating costs.

Comparative Benefits and Costs

Chapter 7 of this Final EIS/EIR evaluates the LPA, the station location options at Century City, Westwood/UCLA, and Westwood/VA Hospital, and the potential station entrance locations. The evaluation criteria are the same as those used in the Draft EIS/EIR to compare the five Build Alternatives. They include mobility improvements, transit-supportive land use policies, cost-effectiveness, project feasibility, equity, environmental considerations, and public acceptance.

The technical evaluation and input received from interested stakeholders provide the basis for a recommendation, which appears at the end of this section. The Metro Board of Directors will decide on the final station and entrance locations following the circulation and public availability of this Final EIS/EIR.

Evaluation of No Build Alternative and Locally Preferred Alternative

This section compares the LPA to Westwood/VA Hospital with the No Build Alternative, summarizing the LPA's benefits, costs, and impacts. Table S-11 summarizes some of the mobility and cost factors used to evaluate the alternatives.

Mobility Improvements

With the LPA, transit will operate on its own exclusive guideway and will not be affected by roadway conditions. A substantial reduction in transit travel times and improved service reliability are expected compared to the No Build Alternative. Figure S-28 compares the transit travel times from various locations around Los Angeles County to the Westwood/UCLA Station for the No Build Alternative and the LPA. These reduced transit travel

Table S-11. Evaluation Results for LPA Compared to No Build Alternative

Evaluation Criteria	LPA
New Transit Trips (per day in 2035)	27,200 to 30,100
Reduction in Vehicle Miles Traveled Compared to No Build (2035 Study Area)	318,000 to 581,000
Total Capital Cost (in million YOE dollars)*	$5,662
Cost per Hour of Transit-User Benefits Compared to TSM Alternative (FTA Cost Effectiveness Index, or CEI)	$31.77

Source: Westside Subway Extension Technical Report Summarizing the Results of the Forecasted Alternatives (Metro 2011an); Westside Subway Extension Accelerated Financial Plan (Metro 2011ae); Westside Subway Extension Alternative Financial Plan (Metro 2011af)
* Capital Costs under the Concurrent Construction Scenario

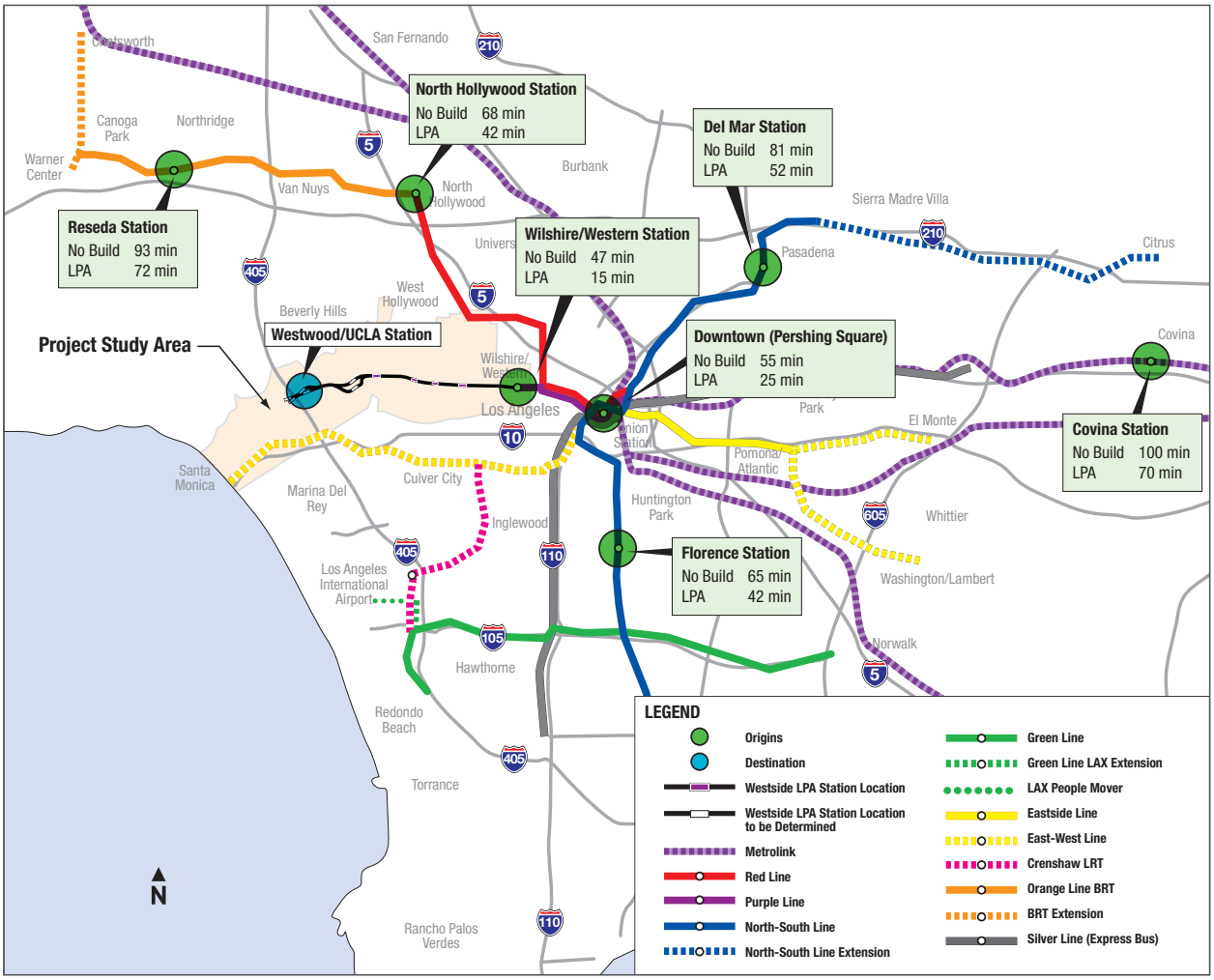


Figure S-28. Transit Travel Times to Westwood/UCLA Station

times for the LPA directly reflect expected major increases in transit operating speeds as compared to the No Build Alternative. During peak periods, rail operating speeds are faster than speeds for a comparable automobile trip.

With improved transit speeds and reliability, the LPA will attract more travelers to transit. Section 3.4.2 of this Final EIS/EIR explains that the LPA is expected to attract 27,000 to 30,000 new transit trips per day in 2035. These are trips that would have been made by another mode. Another 20,000 riders are expected to switch from bus to rail each day to take advantage of the subway's greater speed and reliability. In total, transit riders using the LPA will receive more than 38,000 hours of user benefits per day in 2035.

The LPA also will significantly reduce the number of transfers as riders from the Study Area will be able to access Metrolink and Amtrak with just one transfer at Union Station. For transit riders who stand, subway service will provide increased comfort and safety compared to frequent stop-and-go travel that occurs on buses operating in mixed traffic or uneven road surfaces. Because station platforms will be at the same level as subway vehicles, they will accommodate quick and easy boardings for all passengers.

Transit-Supportive Land Use Policies and Conditions

The extent to which the LPA meets land use goals can be measured by the number of high-density, mixed-use activity centers within one-half mile of the alignment and by the number of high opportunity areas for redevelopment within one-half mile of the alignment. The LPA will provide subway service to seven of the activity centers in the Study Area and one high opportunity area.

Transit-supportive land use is also a critical aspect of the FTA's rating of projects that are seeking discretionary New Starts funds. Forty percent of the project justification rating is a function of transit-oriented land use. The FTA has given the LPA a medium-high rating on this criterion.

Cost-effectiveness

Cost-effectiveness analysis compares a project's transportation benefits, measured in terms of user benefit hours, with its capital and O&M costs. FTA currently assigns a low cost-effectiveness rating to projects with a Cost-Effectiveness Index (CEI) exceeding $31.50 per hour of user benefit. With a CEI of $31.77, the LPA received a low rating in FTA's *Annual Report on Funding Recommendations, Fiscal Year 2012,* submitted to Congress in February 2011. Under current rules, FTA will only recommend New Starts funding if the LPA performs very well under other project justification criteria, such as transit-supportive land use and economic development, as the LPA does.

Cost-Effectiveness Index

The cost-effectiveness measure used in this evaluation is used by FTA in its rating of projects seeking New Starts funds. It is derived by annualizing the LPA's capital cost, adding the annual operating and maintenance costs, and dividing the sum by the alternative's annual transit system user benefits. User benefits refer primarily to travel-time savings.

Project Feasibility

The financial feasibility of the LPA depends on how well the LPA competes for New Starts funding and whether the local share of project funding is affordable under Measure R. Considering both land use and cost-effectiveness, the FTA has given the LPA a medium rating for project justification, making it eligible for a New Starts funding recommendation. The local funds needed to build the LPA are guaranteed by Measure R, indicating that the LPA is financially feasible, and FTA has assigned a medium rating to Metro's financial plan.

Equity

More than one-sixth of residents within one-half mile of the alignment are low income, and nearly half are minority. The LPA will provide better mobility to a large number of low-income and minority people. Furthermore, short-term construction impacts will not disproportionately affect low-income and minority residents.

Environmental Considerations

The LPA will require the acquisition of properties to construct station entrances and provide for construction staging, as well as the acquisition of easements where the alignment or station boxes are beneath private property. Businesses employing 231 to 279 employees will be displaced (the actual number will depend on which entrance location is selected at each station). Some businesses may relocate to other parts of the City, and job losses from displacement (if any) will be offset by construction and operations jobs. The LPA will reduce VMT on the highway system, with attendant reductions in roadway congestion, pollutant emissions, and fossil fuel consumption. The decrease is small in relation to total VMT in the Study Area.

The LPA will result in temporary impacts during construction. As discussed in Sections 3.8 and 4.15 of this Final EIS/EIR, temporary construction

impacts will include traffic and access disruptions near station sites, construction noise and emissions (NO_x and PM_{10}), temporary removal of parking, visual effects, and haul trucks removing material excavated from the tunnel and station boxes. Metro will mitigate these temporary construction impacts, as identified in Table S-6 and Table S-8.

Evaluation of Station and Alignment Options

This section focuses on the western portion of the LPA where decisions remain to be made on the location of the three westernmost stations—Century City, Westwood/UCLA, and Westwood/VA Hospital—and the alignment between them. It addresses those objectives and measures considered to be most relevant to decisions on each of the remaining station and alignment options. Table S-9 compares the station location combinations as they relate to transit run times, subsurface easements, and capital costs.

Century City Station Options

Two station locations at Century City are considered in this Final EIS/EIR: Century City Constellation and Century City Santa Monica. Key differences are noted in Table S-12. The recommendation is to locate the Century City Station along Constellation Boulevard as this location would provide better pedestrian access to the jobs and residences in Century City and would avoid the Newport-Inglewood Fault zone.

Mobility Improvements

If the Century City Station is located on Constellation Boulevard, the ridership model predicts more than 3,000 additional daily boardings at Century City and at the seven new Purple Line stations west of Wilshire/Western. Despite the longer alignment and slight increase in travel time, a station on Constellation Boulevard would be more centrally located within Century City, making it more convenient for potential transit riders. As noted in Table S-12, a Constellation Boulevard Station would be within one-quarter mile of more than 20,000 jobs and within 600 feet of more than 10,000 jobs, twice the number of jobs within those distances from the Santa Monica Boulevard Station site.

Capital Cost

As shown in Table S-9, the cost of the combinations with the Century City Station at Constellation Boulevard would not be significantly different than the combinations with the Century City Station at Santa Monica Boulevard.

Environmental Considerations

The two station location options differ in terms of their proximity to the Santa Monica and Newport-Inglewood Fault zones. As described in Section 4.8 of this Final EIS/EIR, Santa Monica Boulevard between about Moreno Drive and Century Park West Avenue is crossed by multiple faults. A station on Santa Monica Boulevard at Century City Park East would lie within an extension of the Newport-Inglewood Fault zone. Subway stations, because they are structures for human occupancy, should not be built on active fault/deformation zones due to the regulatory code and the difficulty designing such structures to withstand potential ground rupture and associated deformations. The Constellation Station site is in an area showing no evidence of faulting. Tunnels approaching either station location would necessarily cross both faults. However, the alignment associated with a Constellation Station would cross the fault zone at more of a right angle, which is more desirable for safe design.

The two Century City Station location options also differ in terms of the number of property acquisitions. The Century City Santa Monica Station could require more property for station construction sites than the Century City Con-

Table S-12. Comparison of Station Location Options at Century City

Relevant Goals, Objectives, and Criteria	Century City Constellation Station	Century City Santa Monica Station
Mobility Improvements		
Number of existing residents within one-quarter mile	210	180
Number of existing jobs within one-quarter mile	20,170	10,310
Number of existing jobs within 600 feet	10,260	4,820
Daily boardings at in 2035	8,566	5,492
Total daily boardings at Westside Subway Extension Stations in 2035	49,340	45,989
Environmental Considerations		
Acquisitions and easements (varies depending on construction laydown locations)	Between 1 and 4 full takes; 5 temporary construction easements	Between 2 and 21 full takes; 2 temporary construction easements; 2 permanent easements
Permanent underground easements	122 to 137	93 to 108
Cultural resources adversely affected	None	None
Geotechnical conditions	Station box us located outside zones of active faulting	Station box within an extension of the Newport-Inglewood Fault Zone—an active fault zone
Traffic impacts during construction	Lower	Higher
Noise and vibration	Within FTA Criteria	Within FTA Criteria

Source: Westside Subway Extension Century City Station Location Report (Metro 2012e)

stellation Station depending on the location of construction staging.

The two Century City Station options have generated significant public discussion regarding subsurface easements beneath residences in Beverly Hills and Westwood, and Beverly Hills High School. The Santa Monica Boulevard option at Century City would require fewer residential and non-residential subsurface easements than the Constellation Boulevard option. The noise and vibration analysis summarized in Section 4.6 of this Final EIS/EIR concludes that ground-borne noise impacts will not exceed FTA criteria with mitigation for all station and alignment locations under consideration.

Both options would require temporary roadway lane closures during construction. With existing conditions, Constellation Boulevard carries one-fifth the traffic volume of Santa Monica Boulevard and operates at a better level-of-service. Therefore, traffic impacts during construction would be less with the Constellation Boulevard Station option.

Westwood/UCLA Station Options

Two station location options are under consideration for the Westwood/UCLA Station: Westwood/UCLA On-Street and Westwood/UCLA Off-Street.

Table S-13. Comparison of Station Location Options at Westwood/UCLA

Relevant Goals, Objectives, and Criteria	Westwood/UCLA On-Street Station	Westwood/UCLA Off-Street Station
Mobility Improvements		
Number of residents within one-quarter mile of entrance	1,280	1,260
Number of jobs within one-quarter mile of entrance	10,310	10,360
Pedestrian access	Entrances on both north and south sides of Wilshire Boulevard and closer to Westwood Boulevard/Westwood Village	Entrances on the north side of Wilshire Boulevard and to the west of Westwood Boulevard/Westwood Village
Environmental Considerations		
Acquisitions and easements	2 to 3 permanent easements; 1 temporary construction easement	1 permanent easement; 1 temporary construction easement
Permanent underground easements	93 to 124	106 to 137
Cultural resources adversely affected	Station entrance retrofitted into the historic Linde Medical Plaza, but would have no adverse effect	None
Traffic impacts during construction	More impacts because decking is required above station construction in Wilshire Boulevard	Lower impacts because most construction is off street

Source: Westside Subway Extension Westwood/UCLA Station and Westwood/VA Hospital Station Locations Report. (Metro 2011t)

Table S-13 highlights the similarities and differences between these station location options. The recommendation is to locate the Westwood/UCLA Station On-Street as this location would accommodate entrances on the north and south sides of Wilshire Boulevard at the Westwood Boulevard intersection, providing better pedestrian access to Westwood Village and connections along Westwood Boulevard.

Mobility Improvements

The Westwood/UCLA Off-Street Station option would require a deeper station and tunnels in order to clear the underside of foundations for a future hotel on Gayley Avenue. The Off-Street Station would be approximately 40 feet deeper than the On-Street Station. Deeper tunnel and stations are riskier to construct and require more time for transit riders to travel between the platform and the entrance. At the margin, this may affect transit travel times and ridership.

The number of residents and jobs within one-quarter mile of the entrances for both station locations is almost identical. However, the Westwood/UCLA On-Street Station would include an entrance at the Westwood Boulevard intersection, providing better access to bus connections along Westwood Boulevard and would be slightly closer to major office buildings and Westwood Village. Furthermore, one of the station entrance options for the Westwood/UCLA On-Street Station is a split entrance between the north and south sides of Wilshire Boulevard. This entrance configuration would provide

access to both sides of Wilshire Boulevard, which has four traffic lanes in each direction with double left-turn lanes at this location—a significant barrier to easy pedestrian flow across the street.

Capital Cost

As shown in Table S-9, the combinations that include a Westwood/UCLA On-Street Station would cost more than the combinations with a Westwood/UCLA Off-Street Station.

Environmental Considerations

The Westwood/UCLA On-Street Station option is expected to have more impacts on traffic during construction. Three lanes would be provided in each direction on Wilshire Boulevard between Veteran Avenue and Glendon Avenue, resulting in a 25 percent reduction in roadway capacity in each direction for approximately six weeks. In addition, it is expected that Wilshire Boulevard would be closed to traffic between Veteran Avenue and Westwood Boulevard during 12 to 16 weekends to install decking and again for decking removal. Even with the planned mitigation, traffic impacts would be significant during some phases of construction.

The Westwood/UCLA On-Street Station option would require approximately 13 fewer residential and non-residential permanent underground easements than the Off-Street Station option, regardless of the location of the Westwood/VA Hospital and Century City Stations.

Westwood/VA Hospital Station Options

Two station location options are under consideration for the Westwood/VA Hospital Station: Westwood/VA Hospital North and Westwood/VA Hospital South. Table S-14 highlights the similarities and differences between the station location options at Westwood/VA Hospital. The recommendation is to locate the Westwood/VA Hospital Station on the south side of Wilshire Boulevard as this location would provide better pedestrian access to the VA Medical Center and would more easily accommodate a future westward extension of the subway.

Mobility Improvements

While both options are within one-quarter mile of the VA Hospital, the Westwood/VA Hospital South Station site is 500 feet from the hospital and on the same side of Wilshire Boulevard, but the Westwood/VA Hospital North Station site is 1,200 feet away and on the other side of Wilshire Boulevard. Thus, the South Option offers better pedestrian access to the VA Hospital for employees, patients, and visitors. The South Option's vertical alignment also would be shallower than the North Option's alignment, reducing the time it takes transit users to reach the platform from the entrance.

The North Option could be problematic in the event of a future extension to Santa Monica due to the tight radius curve that would be required to extend west. A north alignment west of San Vicente Boulevard also would have to pass below a significant number of residential and commercial properties, requiring the acquisition of subsurface rights, which would not be necessary with the South Option.

Capital Cost

As shown in Table S-9, those combinations with a Westwood/VA North Station would cost more than those combinations with a Westwood/VA Hospital South Station.

Environmental Considerations

Construction of the South Option would result in more impacts to traffic circulation during construction, including temporary ramp closures at the I-405 interchange as described in Section 3.8 of this Final EIS/EIR. Mitigation measures will be put in place to manage traffic during these

Table S-14. Comparison of Station Location Options at Westwood/VA Hospital Station

Relevant Goals, Objectives, and Criteria	Westwood/VA Hospital North Station	Westwood/VA Hospital South Station
Mobility Improvements		
Number of residents within one-quarter mile of entrance	None	25
Number of jobs within one-quarter mile of entrance	3,500	3,500
Future extensions of the line	Because of the curvature of Wilshire Boulevard as it passes through the VA property, any future extension of the subway to the west would be forced to run beneath many properties west of San Vicente Boulevard and north of Wilshire Boulevard. This would preclude a station at Barrington and require a deeper, more costly future alignment.	No design challenges
Pedestrian access distance to the VA Hospital	1,200 feet and on opposite side of Wilshire Boulevard	500 feet and on same side of Wilshire Boulevard
Environmental Considerations		
Number of cultural resources adversely affected	Los Angeles VA Medical Center Historic District (including historic landscape) will be protected from project impacts. No adverse effect.	Los Angeles VA Medical Center Historic District (including historic landscape). Ficus trees near the theater and the palm garden will be removed during construction and then replaced in their original spaces. No adverse effect.
Traffic impacts during construction	No impact on I-405 on- and off-ramps. Full closures of Wilshire Boulevard on- and off-ramps to Bonsall Avenue	Partial and full closures of I-405 on- and off-ramps required. Full closures of Bonsall Avenue required. Full and partial closures of Wilshire Boulevard on- and off-ramps to Bonsall Avenue

Source: Westside Subway Extension Westwood/UCLA Station and Westwood/VA Hospital Station Locations Report (Metro 2011t)

closures. The North Option at Westwood/VA Hospital would require slightly fewer subsurface easements from non-residential properties than the South Option.

Evaluation of Station Entrances and Refinements to Stations

Several stations have one or more entrance location options. The choice of station entrance locations helps to establish the convenience of the station to potential riders. Other considerations in selecting the best location for an entrance include right-of-way availability, construction complexities, impact issues, and community input provided by a Station Area Advisory Group composed of stakeholders in each station area (see Chapter 8 of this Final EIS/EIR). Table S-15 lists the entrance location options and highlights their significant differences. Further details on how the options were identified and on Metro's evaluation of the options are provided in Chapter 7 of this Final EIS/EIR and in the *Westside Subway Extension Station Entrance Location Report and Recommendations* (Metro 2011u).

Recommendations for Refinements to the Locally Preferred Alternative

Considering all of the various factors discussed above, as well as input received from the community, recommendations for station location

Table S-15. Comparison of Station Entrance Options (continued on next page)

Station and Entrance Options		Recommended Station Entrance
Wilshire/La Brea Station		
Northwest corner of Wilshire Boulevard and La Brea Avenue		●
Right-of-Way	Primarily on Metro-owned property (Metro Customer Service Center).	
Construction Complexities/ Construction Impacts	Construction staging will occur on this site. Location of entrance would not create any further impacts beyond those that are required for construction staging.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Direct north-south bus transfer connections. Joint-development opportunities. Stronger visual and commercial linkages to West Hollywood activity centers on North La Brea Avenue.	
Southwest corner of Wilshire Boulevard and La Brea Avenue		○
Right-of-Way	Within construction laydown and staging site to be acquired by Metro.	
Construction Complexities/ Construction Impacts	Construction staging will occur on this site. Location of entrance would not create any further impacts beyond those that are required for construction staging.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Adjacent to major bus connections. Joint-development opportunities.	

● Recommended ○ Not Recommended

Table S-15. Comparison of Station Entrance Options (continued from previous page)

Station and Entrance Options		Recommended Station Entrance
Wilshire/Fairfax Station		
Northwest corner of Wilshire Boulevard and Fairfax Avenue (Johnie's Coffee Shop)		●
Right-of-Way	On private property (Johnie's Coffee Shop and Marinello Beauty School).	
Construction Complexities/ Construction Impacts	Marinello Beauty School would be demolished and the business would require relocation. No impact on Johnie's Coffee Shop, but parking at Johnie's Coffee Shop would require replacement. Requires realignment of alley serving the 99-Cents Only Store.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Provides direct north-south bus connections and close to intersection of Wilshire Boulevard and Fairfax Avenue.	
Northeast corner of Wilshire Boulevard and Fairfax Avenue (LACMA)		○
Right-of-Way	Requires an easement within existing LACMA building. This easement may not be available due to the planned use of the building for the Academy of Motion Pictures Arts and Sciences Film Museum.	
Construction Complexities/ Construction Impacts	Requires modifications to ground floor and basement of historic building; greater costs and schedule risk due to uncertainties of constructing within existing building. Construction of entrance would require temporary lane closures on westbound Wilshire Boulevard and northbound Fairfax Avenue.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Provides direct north-south bus connections and close to intersection of Wilshire Boulevard and Fairfax Avenue.	
South side of Wilshire Boulevard between Ogden Drive and Orange Grove Avenue		○
Right-of-Way	Within construction laydown and staging site to be acquired by Metro.	
Construction Complexities/ Construction Impacts	Entrance lies beneath the northbound lanes of Orange Grove Avenue. Construction would require decking or extended lane closures.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	The site provides good access to LACMA and the other museums and cultural facilities located east of Fairfax Avenue. The site is less convenient than the Johnie's site and LACMA West site for transit riders seeking to make rail-to-bus transfers to points farther west and to points north and south on Fairfax Avenue. This would be offset, however, by the high number of transit users who would be traveling to LACMA and other cultural institutions east of Fairfax Avenue.	

●Recommended ○Not Recommended

Table S-15. Comparison of Station Entrance Options (continued from previous page)

Station and Entrance Options		Recommended Station Entrance
Wilshire/La Cienega Station		
Northeast corner of Wilshire Boulevard and La Cienega Boulevard		●
Right-of-Way	Within construction laydown and staging site to be acquired by Metro.	
Construction Complexities/ Construction Impacts	Construction staging will occur on this site. Location of entrance would not create any further impacts beyond those that are required for construction staging.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Direct connection to north-south bus connections and to Restaurant Row. Joint-development opportunities.	
Wilshire/Rodeo Station		
Southwest corner of Wilshire Boulevard and Reeves Drive (Ace Gallery)		●
Right-of-Way	Within construction laydown and staging area to be acquired by Metro	
Construction Complexities/ Construction Impacts	Ace Gallery site to be used for construction laydown and staging. Its use as station entrance site would have no additional impact.	
Long-term Impacts	Permanent loss of historic property/resource.	
Urban Design Considerations	Joint-development opportunities. Located farthest east from activity centers and attractions at and around Rodeo Drive.	
Northwest corner of Wilshire Boulevard and Beverly Drive (Bank of America)		○
Right-of-Way	Within existing sidewalk that includes both public right-of-way and private property.	
Construction Complexities/ Construction Impacts	Difficult due to lack of laydown next to work area. Structural modifications to existing underground parking structure required. Traffic and parking impacts. Businesses fronting Beverly Drive would be next to construction site.	
Long-term Impacts	Requires widening existing sidewalk and eliminating right-turn lane on Beverly Drive, which would result in long-term traffic impacts. Permanent loss of 40 parking spaces.	
Urban Design Considerations	No joint-development opportunities. Located on north side of Wilshire Boulevard, which has majority of businesses and activity in area. Adjacent to major office buildings and Montage Hotel.	

●Recommended ○Not Recommended

Table S-15. Comparison of Station Entrance Options (continued from previous page)

Station and Entrance Options		Recommended Station Entrance
Southeast corner of Wilshire Boulevard and El Camino Drive (Union Bank)		○
Right-of-Way	Within Union Bank parking structure and existing one-story building. One-story building would be used for the at-grade entrance.	
Construction Complexities/ Construction Impacts	Parking garage deck slabs would require partial demolition and reconstruction. Lane closures on El Camino Drive may impact entrances to Beverly Wilshire Hotel. Underground parking structure would be temporarily closed to reconstruct ramps.	
Long-term Impacts	Existing business would need to be moved out of ground-floor office to be used as entrance. A reduction in capacity of the underground parking garage would impact businesses in the building that remain. Permanent loss of 30 parking spaces.	
Urban Design Considerations	No joint-development opportunities. Close to activity centers and attractions at and around Rodeo Drive, but on south side of Wilshire Boulevard.	
Century City Santa Monica Boulevard Station		
Southwest corner of Santa Monica Boulevard and Century Park East		○ (station location not recommended)
Right-of-Way	Requires an easement on private property.	
Construction Complexities/ Construction Impacts	Partially within underground garage. Impacts to underground parking for existing structures. Temporary street closures during construction.	
Long-term Impacts	Possible reduction of parking capacity in underground structure.	
Urban Design Considerations	Close to Westfield Mall and bus connections along Santa Monica Boulevard but poorer pedestrian connections to employment center of Century City than the Constellation Boulevard location.	
Century City Constellation Boulevard Station		
Northeast corner of Constellation Boulevard and Avenue of the Stars		●
Right-of-Way	Within currently vacant site that is planned for construction laydown and staging site.	
Construction Complexities/ Construction Impacts	Site to be used for construction laydown and staging. Its use as station entrance site would have no additional impact.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Close to Avenue of the Stars' main pedestrian circulation.	

●Recommended ○Not Recommended

Table S-15. Comparison of Station Entrance Options (continued from previous page)

Station and Entrance Options		Recommended Station Entrance
Southwest corner of Constellation Boulevard and Avenue of the Stars		○
Right-of-Way	Within Century Plaza Hotel property.	
Construction Complexities/ Construction Impacts	Partially within underground garage. Would necessitate additional decked area in Constellation Boulevard and Avenue of the Stars, causing temporary traffic impact.	
Long-term Impacts	Possible reduction of parking capacity in Century Plaza Hotel parking garage.	
Urban Design Considerations	Close to Avenue of the Stars' main pedestrian circulation. This site could be reconsidered if northeast corner is not available due to redevelopment of that site prior to construction of the subway.	
Westwood/UCLA Off-Street Station		
Lot 36 (UCLA Parking Lot)		○ (Off-Street station location not recommended, but station entrance location recommended for On-Street station location, see below)
Right-of-Way	Within planned construction laydown and staging area.	
Construction Complexities/ Construction Impacts	Requires mining below existing storm drain. Site to be used for construction laydown and staging. Its use as station entrance site would have no additional impact.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Direct connection to UCLA shuttle bus on Lot 36. Site could be developed around subway entrances by UCLA.	
Northeast corner of Wilshire Boulevard and Veteran Avenue		○ (station location not recommended)
Right-of-Way	Within planned construction laydown and staging area.	
Construction Complexities/ Construction Impacts	Site to be used for construction laydown and staging. Its use as station entrance site would have no additional impact.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Direct connection to UCLA shuttle bus on Lot 36. Joint-development opportunity. West of north-south connections along Westwood Boulevard and Westwood Village.	

●Recommended ○Not Recommended

Table S-15. Comparison of Station Entrance Options (continued from previous page)

Station and Entrance Options		Recommended Station Entrance
Westwood/UCLA On-Street Station		
Lot 36 (UCLA Parking Lot)		●
Right-of-Way	Within planned construction laydown and staging area.	
Construction Complexities/ Construction Impacts	Requires mining below existing storm drain. Site to be used for construction laydown and staging. Its use as station entrance site would have no additional impact.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Direct connection to UCLA shuttle bus on Lot 36. Site could be developed around subway entrances by UCLA.	
Northwest corner of Wilshire Boulevard and Westwood Boulevard		● (half entrance)
Right-of-Way	Within historically significant building (Linde Medical Plaza), although entrance will not result in an adverse effect.	
Construction Complexities/ Construction Impacts	Requires piling within basement with low headroom. Building foundations require underpinning and may have to be partially demolished. Access to street-level businesses in Linde Medical Plaza would be through work site. Disruptions to businesses in the Linde Medical Plaza basement to point where businesses may be unable to operate during construction. Extended lane closures would be required on both Wilshire and Westwood Boulevards during construction. Pedestrian detours around construction zone would be required for some periods of construction.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Provides direct north-south bus connections and direct connections to Westwood Village along Westwood Boulevard.	
Southwest corner of Wilshire Boulevard and Westwood Boulevard		● (half entrance)
Right-of-Way	Between public right-of-way and building set back.	
Construction Complexities/ Construction Impacts	Requires decking of the eastbound lanes of Wilshire Boulevard and modifications to stairs, planters, driveway, and underground garage vent structure. Extended lane closure on south side of Wilshire Boulevard for construction.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Direct north-south bus connections along Westwood Boulevard. Direct pedestrian connections to south side of Wilshire Boulevard.	

●Recommended ○Not Recommended

Table S-15. Comparison of Station Entrance Options (continued from previous page)

Station and Entrance Options		Recommended Station Entrance
Westwood/VA Hospital South Station		
South side of Wilshire Boulevard, to the east of Bonsall Avenue		●
Right-of-Way	Requires an easement on VA property.	
Construction Complexities/ Construction Impacts	Construction of subway station would require temporary closure of surface streets. Temporary detours would be required at the following locations: • I-405 on- and off-ramps • Bonsall Avenue • Access roads from Wilshire Boulevard to Bonsall Avenue Loss of parking during construction would be mitigated by prior construction of a parking garage for use by VA Hospital.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Maintains existing bus circulation patterns along Wilshire Boulevard and enhances existing pedestrian connections to buses. Provides better pedestrian access to VA Hospital.	
Westwood/VA Hospital North Station		
North side of Wilshire Boulevard, to the west of Bonsall Avenue		○ (station location not recommended)
Right-of-Way	Requires an easement on VA property.	
Construction Complexities/ Construction Impacts	Construction of subway station would require temporary closure of surface streets. Temporary detours would be required at the following locations: • Bonsall Avenue • Access roads from Wilshire Boulevard to Bonsall Avenue No impact to I-405 on- and off-ramps.	
Long-term Impacts	None beyond those that would occur during construction.	
Urban Design Considerations	Opposite side of Wilshire Boulevard from VA Hospital. Maintains existing bus circulation patterns along Wilshire Boulevard and enhances existing pedestrian connections to buses.	

●Recommended ○Not Recommended

Table S-16. Recommended Station and Entrance Locations

Station	Recommended Station Location	Recommended Entrance Location
Wilshire/La Brea	Wilshire Boulevard and La Brea Avenue	Northwest corner of Wilshire Boulevard and La Brea Avenue
Wilshire/Fairfax	Wilshire Boulevard and Fairfax Avenue	Northwest corner of Wilshire Boulevard and Fairfax Avenue (west of Johnie's Coffee Shop)
Wilshire/La Cienega	Wilshire Boulevard and La Cienega Boulevard	Northeast corner of Wilshire and La Cienega Boulevards
Wilshire/Rodeo	Wilshire Boulevard and Beverly Drive	Southwest corner of Wilshire Boulevard and Reeves Drive (Ace Gallery)
Century City	Constellation—Constellation Boulevard and Avenue of the Stars	Northeast corner of Constellation Boulevard and Avenue of the Stars
Westwood/UCLA	On-Street—Wilshire Boulevard and Westwood Boulevard	North and south of Wilshire Boulevard, with one entrance between Gayley Avenue and Veteran Avenue (Lot 36), a second "half entrance" at the northwest corner of Wilshire and Westwood Boulevards, and another "half entrance" at the southwest corner of Wilshire and Westwood Boulevards
Westwood/ VA Hospital	South—Wilshire Boulevard and Bonsall Avenue	Southeast corner of Wilshire Boulevard and Bonsall Avenue

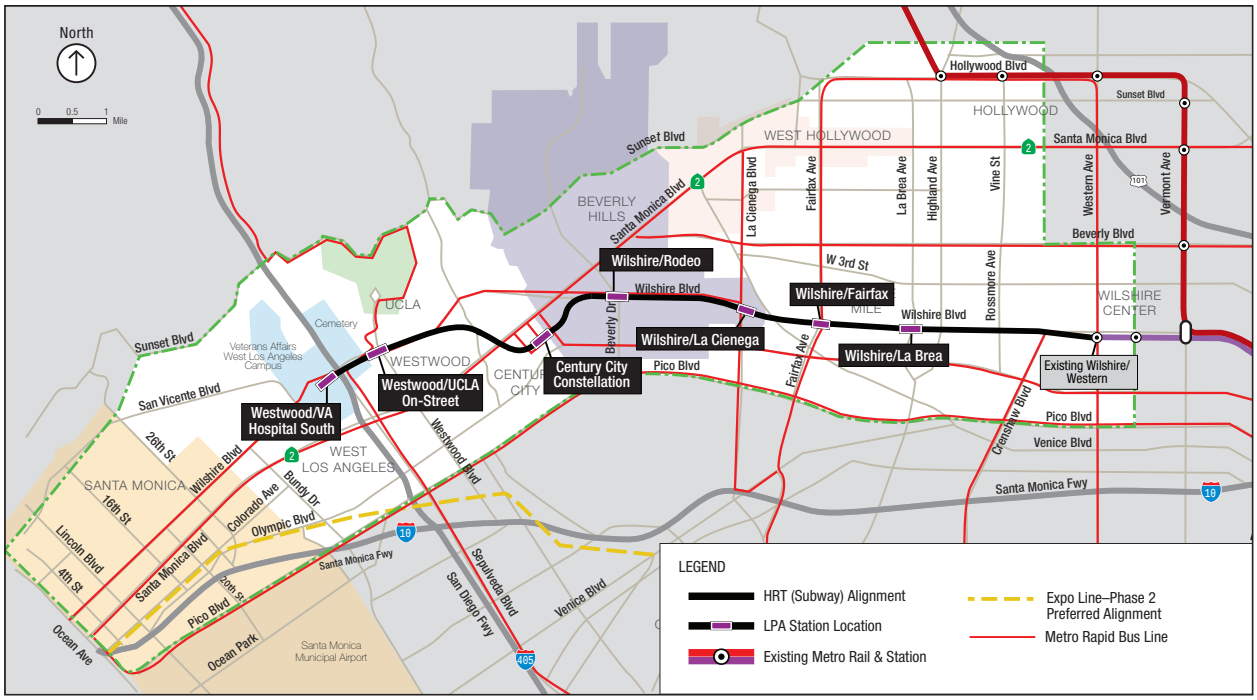


Figure S-29. Recommended Station and Alignment Locations

and entrance locations are presented in Table S-16 and illustrated in Figure S-29. The recommendation is to locate the Century City Station along Constellation Boulevard as this location would provide better pedestrian access to the jobs and residences in Century City and would avoid the Newport-Inglewood Fault zone. For the Westwood/UCLA Station, the recommendation is to locate the station On-Street because this location would accommodate an entrance on the north and south sides of Wilshire Boulevard at the Westwood Boulevard intersection, providing better pedestrian access to Westwood Village and connections along Westwood Boulevard. Finally, for the Westwood/VA Hospital Station, the recommendation is the south side of Wilshire Boulevard as this location would provide better pedestrian access to the VA Medical Center and would more easily accommodate a future westward extension of the subway. Final decisions will be made by the Metro Board of Directors following the public availability period of this Final EIS/EIR.

In general, the Project benefits of improved mobility and beneficial environmental effects could be delivered up to 15 years sooner under the Concurrent Construction Scenario than if the Project is delivered under the Phased Construction Scenario. For these reasons, the Concurrent Construction Scenario is recommended for implementation should funding be identified by the time that action is taken to approve the Project.

Public and Agency Outreach and Comments on Draft EIS/EIR

Metro used a wide ranging public outreach program for the LPA, employing a comprehensive set of strategies to actively engage stakeholders. From the beginning of the AA phase through the release of this Final EIS/EIR, the program continually expanded and adapted to improve opportunities for input and participation. Chapter 8 of this Final EIS/EIR presents the public participation process and activities for public and agency review and comment from the AA early scoping period (October 1 to November 7, 2007) through the release of this Final EIS/EIR.

The AA phase incorporated a public participation process that included scoping meetings, community update meetings, key stakeholder meetings, and briefings of elected officials, as well as development and dissemination of informational materials, a project website, a project information line, social networking, and media relations.

The Draft and Final EIS/EIR phases of the Project built upon and enhanced the public engagement efforts developed during the AA phase, re-engaging existing stakeholders while identifying and involving potential new stakeholders. The intent of the public involvement process during this phase was to work cooperatively with the community toward the development of an LPA that meets the Purpose and Need of the Project.