

CHAPTER 1—PURPOSE AND NEED

The Federal Transit Administration (FTA) and the Los Angeles County Metropolitan Transportation Authority (Metro) propose the Westside Subway Extension Project (Project), which is an approximately 9-mile extension of the existing Metro Purple Line from its current terminus at the Wilshire/Western Station west to a Westwood/VA Hospital Station that will include seven new stations. The Project will improve transit travel time in order to provide more reliable transit service to the 286,200 transit riders who access the Westside of Los Angeles.

This chapter presents the Westside Subway Extension Project's Purpose and Need, provides a brief project history, describes the Study Area, its transportation characteristics, including travel patterns, transit usage, mobility and congestion, as well as the regional transportation objectives in the Study Area. The *Westside Extension Transit Corridor Mobility Problem Definition and Purpose and Need Statement* (Metro 2008b) provides detailed supporting data for this Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) chapter and is incorporated by reference.

1.1 Project Purpose and Need

Recent studies of the Study Area to be served by the proposed project revealed the need for transportation improvements, including mobility options to meet the increasing travel demand. The purpose of the Project is to improve transit travel time in order to provide more reliable transit service to the 286,200 transit riders who access the Study Area today. More specifically, the project purpose is to

- 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) performance indicators of mobility, accessibility, reliability, and safety

The need for the project is demonstrated in this chapter, through the discussions on population and employment, the high number of major activity centers, high transit usage, and severe congestion. In general, the Study Area currently has, and is projected to have, large population and employment centers scattered throughout 15 existing major activity centers in the corridor. These activity centers are served by extremely congested road networks that will deteriorate further with the projected increase in population of 51,000 (a 10.1-percent increase) and the 58,000 additional jobs in the corridor (a 12.1-percent increase) by 2035. This anticipated growth will further affect transit travel speeds and reliability, even with a dedicated lane for express bus service on Wilshire Boulevard. By 2035, buses will travel at speeds ranging from 8 to 11 miles per hour (mph), and it is projected that a transit trip from Downtown Los Angeles to Westwood would take approximately 54 minutes. The Study Area currently has high transit usage—hundreds of thousands of transit riders every day. This high level of

transit usage will increase by 29 percent between 2006 and 2035 (from 286,200 to 370,500). The improved capacity and reliability that will result from the subway's exclusive guideway, offer the best solution to improve travel times and accommodate the projected increase in transit riders and to provide an environmentally sound transit alternative. A brief history and background of the Project is provided to give the context of study of this transit need, followed by an overview of the Study Area (population, employment, activity centers), the transportation network (transit usage, congested roadways), and regional objectives set forth by SCAG to begin addressing mobility, accessibility, reliability, and safety in the transportation network.

1.2 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 (CBD), the Westside Subway Extension 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.

In the early 1990s, plans were underway to extend the Metro rail subway to the Westside. Construction was underway on the Metro Red Line from Union Station to Wilshire/Western Station and to Hollywood. Environmental clearance and a Full Funding Grant Agreement were completed to extend the subway from Wilshire/Western to Pico/San Vicente. The subway alignment was to have deviated south of Wilshire Boulevard to avoid tunneling through the Methane Gas Risk Zone, which was determined in 1985 following a naturally occurring methane gas which caused a fire at a Ross Dress for Less store in the Fairfax District. This methane gas fire resulted in an investigation by a special City of Los Angeles Task Force. Conclusions from this investigation led to a Congressional prohibition on federal funding for subway construction within this designated Methane Gas Risk Zone.

In 1998, planning for a subway in this corridor was suspended because of a lack of funding, in part due to a ballot initiative that prohibited local funds from being used for subway construction.

In October 2005, at the request of Metro and the mayor of the City of Los Angeles, the American Public Transportation Association (APTA) conducted a Peer Review to reconsider the feasibility of tunneling along the federally precluded Wilshire Boulevard segment of the Westside Corridor. This review concluded that tunnels could be safely constructed and operated along Wilshire Boulevard due to advances in new tunnel construction methods that were previously unavailable. As a result, legislation was enacted in Congress repealing the federal prohibition on subway construction within the Methane Gas Risk Zone in December 2007.

Based on the findings of the APTA Peer Review Panel and the repeal of the federal prohibition, an Alternatives Analysis (AA) Study was initiated in 2007 for all reasonable fixed-guideway alternatives, including subway alternatives. An Early Scoping Notice, a

necessary National Environmental Policy Act (NEPA) requirement, was issued by the FTA in the *Federal Register* on October 1, 2007.

In February 2009, the Metro Board of Directors approved the *Westside Extension Transit Corridor Alternatives Analysis Study* (Metro 2009c) and authorized preparation of a Draft EIS/EIR.

1.3 Description of the Westside Subway Extension Study Area

The Westside Subway Extension Project Study Area is in western Los Angeles County and encompasses approximately 38 square miles (Figure 1-1). The Study Area is oriented east-west and includes portions of five jurisdictions—the City of Los Angeles, the City of West Hollywood, the City of Beverly Hills, and the City of Santa Monica, plus portions of unincorporated Los Angeles County. The Study Area boundaries generally extend north to 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.

1.3.1 Study Area Population and Employment

Based on the 2000 U.S. Census, approximately 5 percent (504,000) of the Los Angeles County population and 10 percent (479,000) of the jobs are concentrated in the Study Area. The Study Area population and employment densities are among the highest in the metropolitan region, averaging approximately 13,100 persons per square mile and 12,500 jobs per square mile.

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

According to forecasts by SCAG, the designated metropolitan planning organization (MPO), population density in the Study Area will increase to more than 14,400 persons per square mile and approximately 14,000 jobs per square mile by 2035. This represents a 10-percent increase in population density and a 12-percent increase in employment density. In particular, the three largest activity centers are in Beverly Hills (26,000 jobs per square mile), Century City (43,000 jobs per square mile), and Westwood (42,000 jobs per square mile). There were a total of approximately 147,000 jobs in these three centers in 2006. As shown in Table 1-1, the total number of jobs in these three business centers is comparable to the number of jobs in other major U.S. cities' central business districts, such as Seattle (155,000 jobs in 2000), Denver (126,000 jobs in 2000), and Atlanta (130,000 jobs in 2000).

Based on SCAG Socioeconomic Data (SED) and Traffic Analysis Zones (TAZ), Figure 1-2 compares the Year 2000 total employment and percent of retail jobs within one-half mile of the existing Metro Red Line stations and the proposed Westside Subway Extension stations. As shown, employment within one-half mile of the Westside Subway Extension stations ranges from almost 5,200 to more than 32,200 compared to between 5,300 and more than 20,200 for the existing Metro Red Line stations north of Wilshire Boulevard.

Figure 1-3 provides aerial views of Westwood and Century City, illustrating the dense commercial development in the Westside job centers.

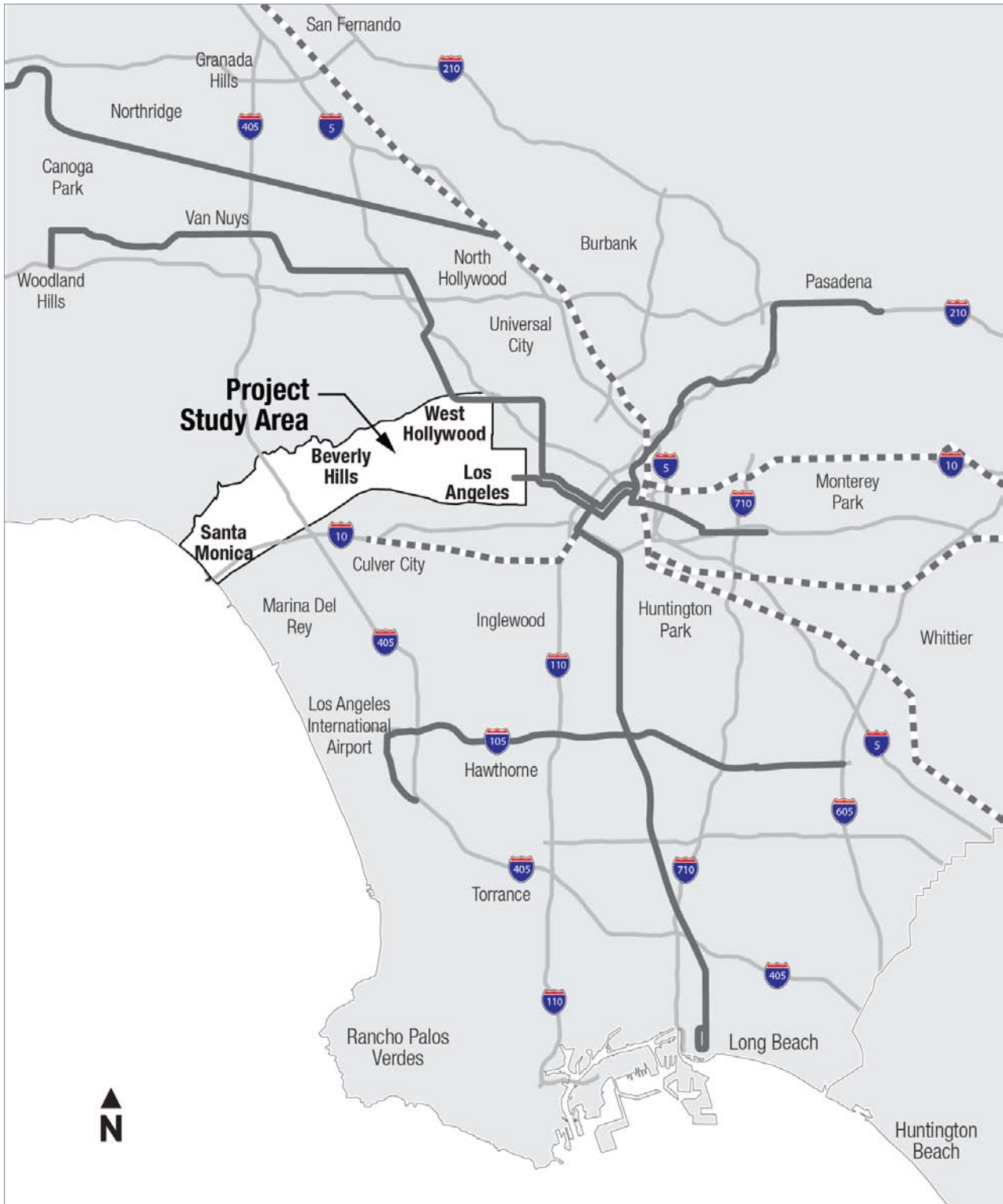


Figure 1-1. Project Study Area

Table 1-1. Total Employment and Employment Density Data of Comparable Central Business Districts

Area/District	Jobs	Area (square miles)	Density (jobs/square mile)
Westside Job Centers¹			
Beverly Hills (2006)	56,194	2.16	26,016
Century City (2006)	37,399	0.86	43,487
Westwood/UCLA (2006)	53,122	1.27	41,828
Total (2006)	146,715	4.29	34,199
Downtown Los Angeles Job Center¹			
Downtown CBD Core (2006)	126,738	1.40	90,527
Downtown Freeway Loop (2006)	254,221	5.55	45,806
Total (2006)	380,959	6.95	54,814
Comparable American City Central Business Districts²			
San Diego	61,800	1.24	49,839
Sacramento	64,800	1.26	51,429
Phoenix	26,800	0.50	53,600
Atlanta	129,800	2.17	59,800
Denver	126,000	1.53	82,353
Seattle	155,100	1.48	104,797
Boston	257,000	1.23	208,900

Sources:

¹*Southern California Association of Governments 2008 Regional Transportation Plan (SCAG 2008a)*

²*Demographia, United States Central Business Districts, based upon 2000 Census*

1.3.2 Major Activity Centers and Destinations

Los Angeles has been characterized as a collection of urban centers instead of a centralized downtown served by adjacent areas. The *Centers Concept* from the 1960s and 1970s identified urban centers of various types throughout the region that represented concentrations of economic activities and higher-density housing. The Centers Concept envisioned that these areas would be interconnected by transit infrastructure. The *General Plan of the City of Los Angeles* (LA 1974) originally adopted the Centers Concept in the 1970s and the *The Citywide General Plan Framework: An Element of the City of Los Angeles General Plan* (LA 2001d) has subsequently re-adopted the concept.

As shown in Figure 1-4, the concept specifically designated centers in Wilshire Center, Hollywood, Miracle Mile, Sunset Strip, Beverly Hills, Westwood, and Santa Monica. The intent of the plan, which would be met for these centers by this Project, is to link these centers with transit to reduce reliance on automobiles for access to these higher-density areas and to preserve lower densities in existing communities outside the designated growth areas.

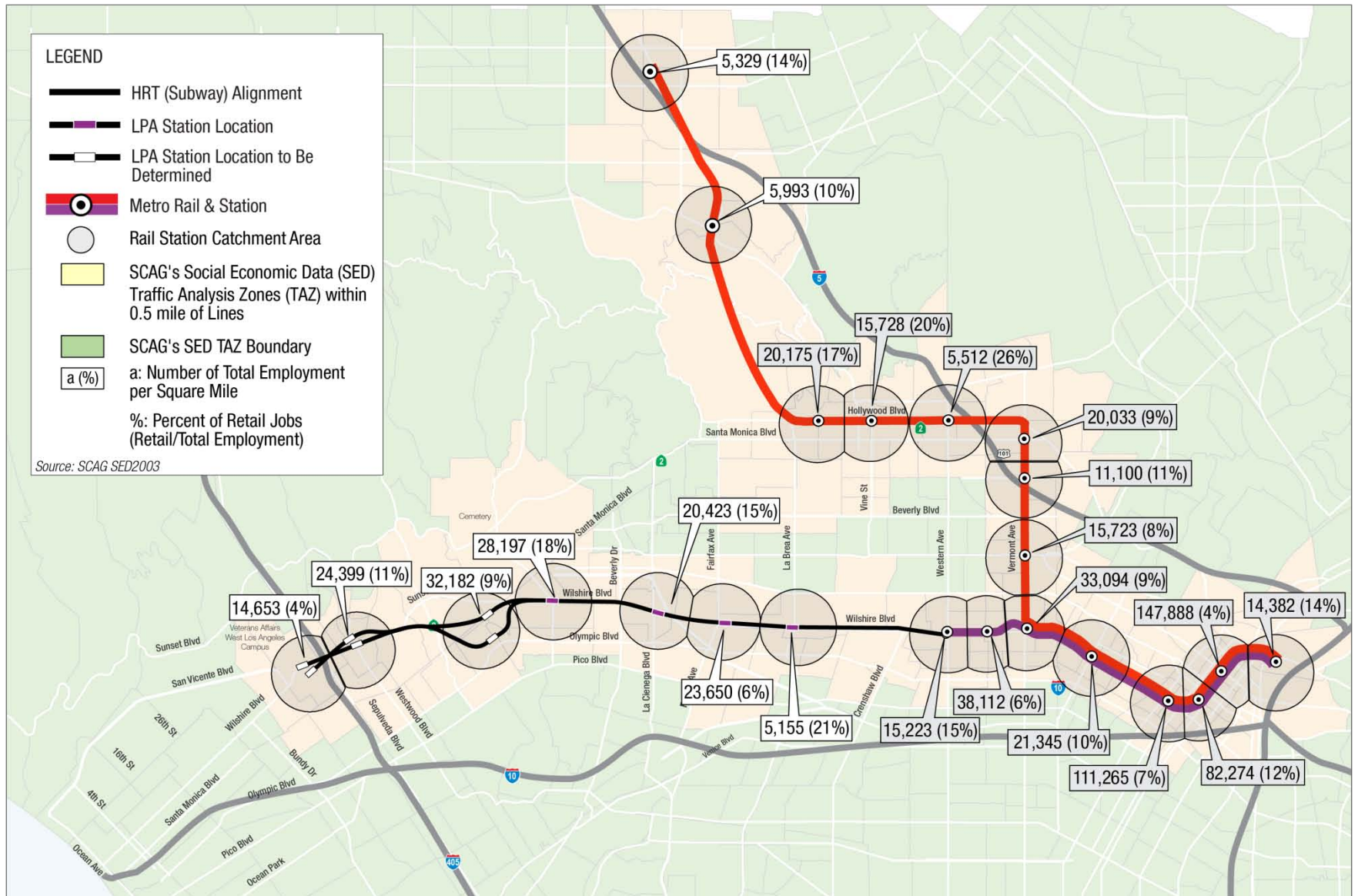


Figure 1-2. Employment and Percent of Retail Jobs within One-half Mile of Stations, 2000

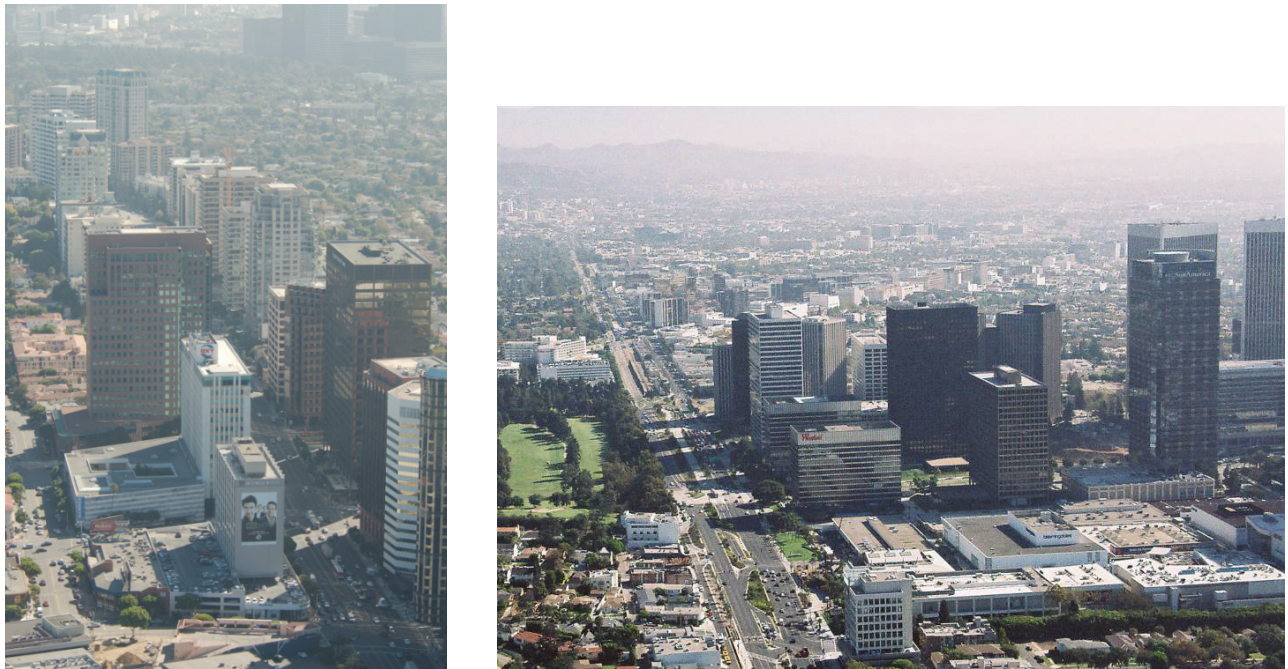


Figure 1-3. Aerial Views of Westwood (left) and Century City (right) Central Business Districts

West Hollywood, Beverly Hills, and Santa Monica have implemented general plan and zoning policies that support the development of denser development centers served by transit in the Study Area. The plans support use of transit to improve levels of service between Downtown Los Angeles, West Hollywood, Beverly Hills, and Santa Monica. Transit corridors and stations are planned for high-density and mixed-use development that function as destinations for transit users (e.g., jobs, entertainment, and culture) and contain a high number of residents who can conveniently use transit. Major activity centers in the Study Area are shown in Figure 1-5. Some of Southern California’s most well-known entertainment, educational, and cultural activity centers are in this region. Many of these centers lie within the densest portions of the Study Area, along the Wilshire and Santa Monica Boulevard Corridors. As shown in Figure 1-5, major activity centers include Downtown Santa Monica, Westwood/UCLA, Century City, Beverly Hills/Rodeo Drive, Beverly Center/Cedars Sinai Hospital, Sunset Strip, West Hollywood, the Grove/Farmer’s Market, West Los Angeles, Miracle Mile, Wilshire Center, and Hollywood.

Many other desirable destinations that draw both tourists and residents are located in the Study Area. Montana Avenue in Santa Monica, Melrose Avenue in Hollywood, Beverly Boulevard in Mid-City, and Santa Monica Boulevard in West Hollywood are just a few of the major shopping and dining destinations. Cultural institutions and tourist destinations include the Los Angeles County Museum of Art, Page Museum, Armand Hammer Museum, Peterson Automotive Museum, and the Santa Monica beaches and Pier. The Geffen Playhouse, Wiltern Theater, Mann’s Chinese Theater, and the Kodak Theater are just a few entertainment venues located in the Study Area.



Source: Adapted from the City of Los Angeles, Department of City Planning, 1974

Figure 1-4. Los Angeles Centers Concept

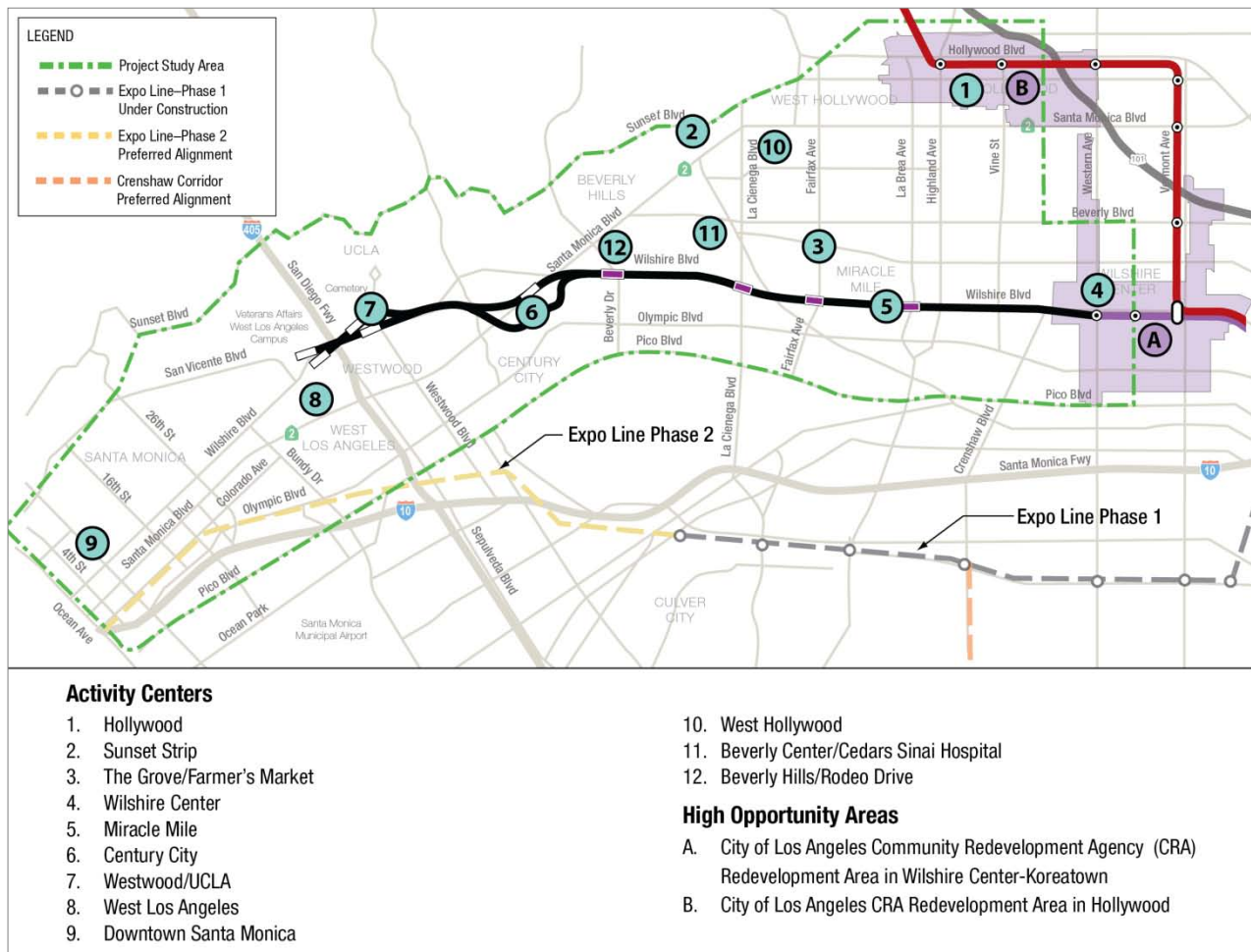


Figure 1-5. Study Area Activity Centers

1.4 Transportation Network in the Study Area

Presently, 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.

Travel Market—Potential trips affecting a corridor, subarea, or other geographic location. Trips can involve various modes.

Peak Work Trip—An origin-to-destination journey between home and work or work and home made in either the AM or PM peak period. Metro defines morning peak periods as 6 a.m. to 9 a.m. and evening peak periods as 3 p.m. to 7 p.m.

1.4.1 Travel Markets

The primary travel markets in the Study Area are the east/west “within Westside” and the east/west trips to and from Westside. As Figure 1-6 shows, on an average weekday in 2006, about 301,000 home-based work peak trips entered the Study Area from outside origins, while about 123,000 trips left the Study Area for outside destinations. More than twice as many work trips entered the Study Area as left. There were 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 living outside the Study Area. Projections suggest that the ratio of home-based work peak trips entering or leaving the Study Area on a daily basis will remain about the same through 2035.

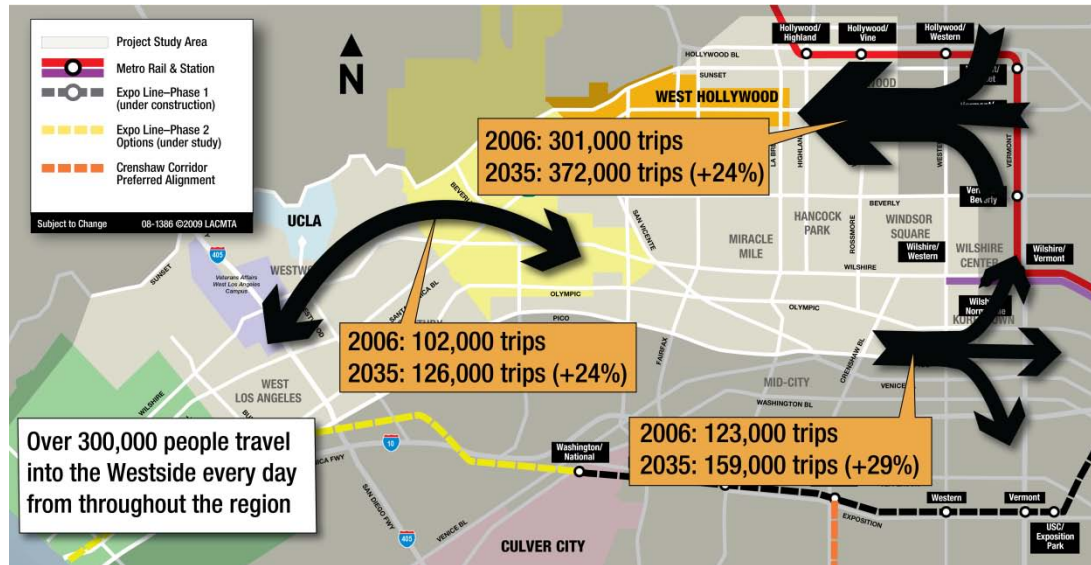


Figure 1-6. Home-based Work Peak Person Trip Comparison, 2006 to 2035

Table 1-2. Daily Study Area Transit Trips, 2006 and 2035

	2006	2035
Total Transit Trips	1,335,020	1,713,151
Transit trips produced by the Study Area	108,361	150,489
Transit trips attracted to the Study Area	177,884	220,032
Transit trips starting and ending within the Study Area	54,344	74,570
Percent of production trips staying in the Study Area	50.2%	49.6%
Percent of attraction trips from the Study Area	30.6%	33.9%
Percent of trips starting and ending within the Study Area	38.0%	40.3%
Transit Share of Person Trips		
Regional trips	2%	2%
Trips produced by the Study Area	5%	6%
Trips attracted to the Study Area	5%	7%

Source: 2006 and 2035 No Build Model Refinement

In 2006, the Study Area produced approximately 108,000 daily transit trips and attracted about 178,000 daily transit trips (Table 1-2). Approximately 50 percent of transit trips produced by the Study Area stayed inside the Study Area, and approximately 31 percent of the total number of transit trips that terminated in the Study Area also originated within the Study Area. This shows that most transit trips produced by the Study Area had destinations within the Study Area, but the Study Area was also the destination for many transit trips from outside the Study Area. In 2035, the Study Area is expected to produce over 150,000 transit trips and attract approximately 220,000 transit trips.

Work Trips—An origin-to-destination journey between home and work or work and home.

Transit Trips—A journey where the mode of travel is transit.

Central Hollywood is one of the top districts for producing transit trips in the Study Area. West Hollywood produces the second-most home-based work peak trips among districts in the Study Area, as well as a considerable number of transit trips. The UCLA and Westwood districts are expected to attract about 362,000 daily person trips in 2035. These districts will attract 78,000 daily home-based university trips in 2035; 12 percent of these trips will be transit trips.

1.4.2 Transit Usage

Since 1990, Los Angeles County has constructed a regional fixed-guideway transit system that consists of heavy rail transit (HRT), light rail transit (LRT), bus rapid transit (BRT), and commuter rail. This system includes more than 79 miles of Metro Rail (HRT and LRT) service, 14 miles of BRT service, and more than 500 miles of Metrolink commuter rail lines in Los Angeles and the adjacent four counties (220 miles in Los Angeles County alone) (Figure 1-7).

Metro is the principal transit provider in the Study Area, which is also served by Santa Monica's Big Blue Bus, the Los Angeles Department of Transportation's (LADOT) Downtown Area Shuttle (DASH), LADOT Commuter Express, Culver CityBus, West Hollywood CityLine/DayLine, Antelope Valley Transit, Santa Clarita Transit, and the UCLA shuttle. These transit service providers offer bus transit coverage on most major east/west and north/south arterials in the Study Area (Figure 1-8). All bus service is currently provided in mixed-flow lanes, subjecting bus transit to the same high levels of congestion experienced by automobiles. Figure 1-8 details the average number of weekday boardings for the 10 most heavily used Metro bus routes that traverse the Study Area. With nearly 60,000 daily boardings, the Wilshire Corridor route (Line 20/720) is the most heavily used bus corridor in Southern California. Bus ridership on the Wilshire Corridor surpasses the ridership of many LRT routes, including the Metro Green Line and Metro Gold Line in Los Angeles.

The highest number of boardings occurs on Metro Line 720, which provides service along Wilshire Boulevard with more than 37,000 boardings per day. Local service on Wilshire Boulevard, provided by Metro Line 20, serves an additional 18,000 riders. Other bus lines with some of the highest ridership levels in the Study Area include Metro Line 2/302 on Sunset Boulevard (23,000 boardings), Metro Line 4/704 on Santa Monica Boulevard (34,500 boardings), and Metro Line 16/316 on Third Street (29,000 boardings).

Vehicle Hours Traveled (VHT)—A transportation measure derived by multiplying the number of vehicles using a roadway segment by the travel time it takes to pass over the segment.

Vehicle Miles Traveled (VMT)—An indicator of occurring traffic calculated by multiplying the vehicle volumes using a roadway segment by the segment's length in miles.

Figure 1-9 illustrates the 2009 boardings and alightings at existing bus stops in the corridor as they relate to the Project. The Westwood/UCLA stop has almost 7,000 daily boardings and alightings. The Wilshire/Fairfax area has more than 4,000 boardings and alightings, followed by Wilshire/La Brea with more than 3,000 boardings and alightings.

1.4.3 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 is projected to increase from 304.2 million to 504.7 million, or more than 65.9 percent. Regional VHT is projected to increase from 9.5 million to 29.2 million, or about 207 percent between 2006 and 2035. Study Area VHT is projected to increase from about 165,000 to 247,000, or almost 50 percent.



Figure 1-7. Existing Metro Rail, Bus Rapid Transit, and Metrolink System Map

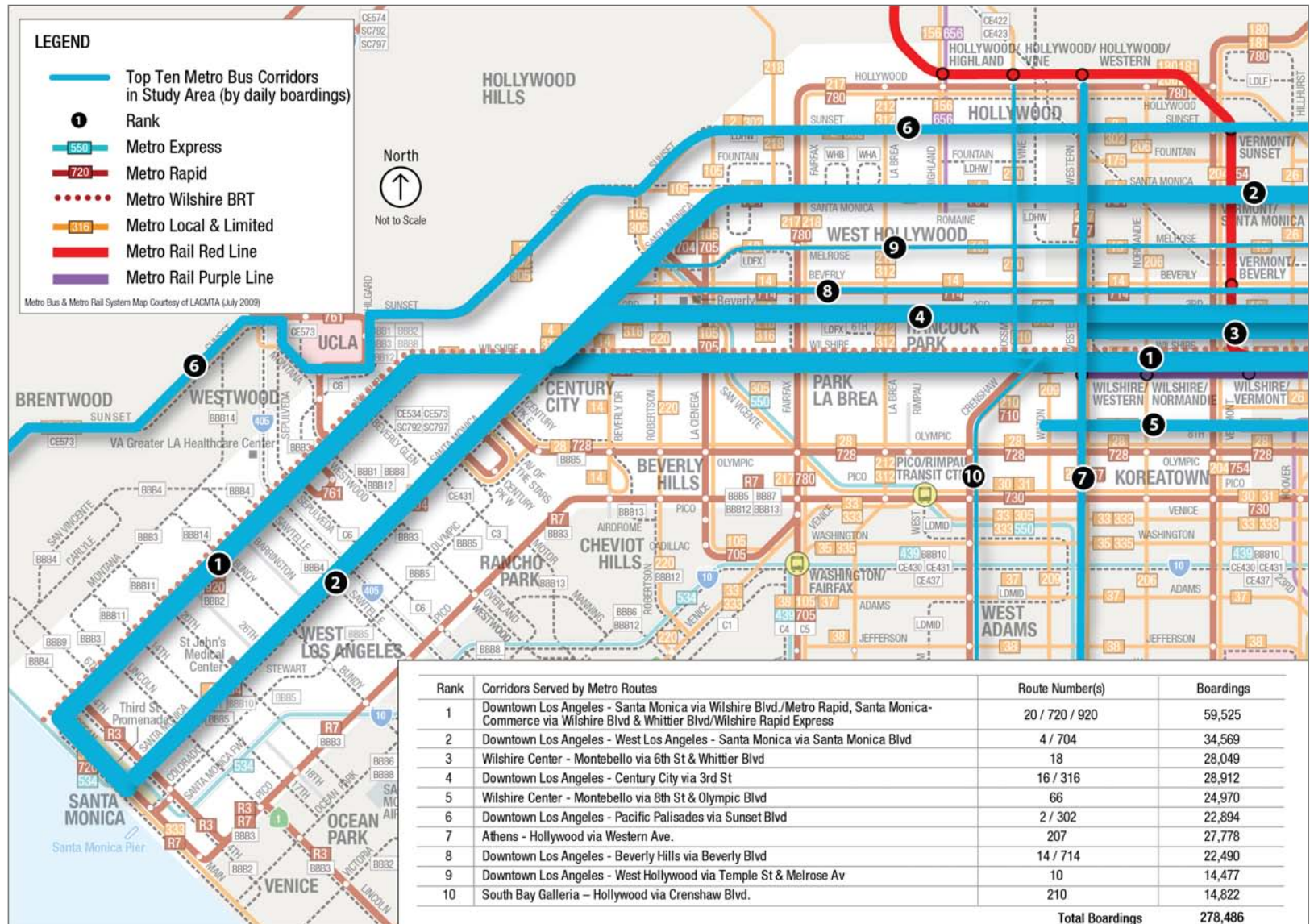


Figure 1-8. Top 10 Bus Routes within the Study Area’s Existing Transportation System

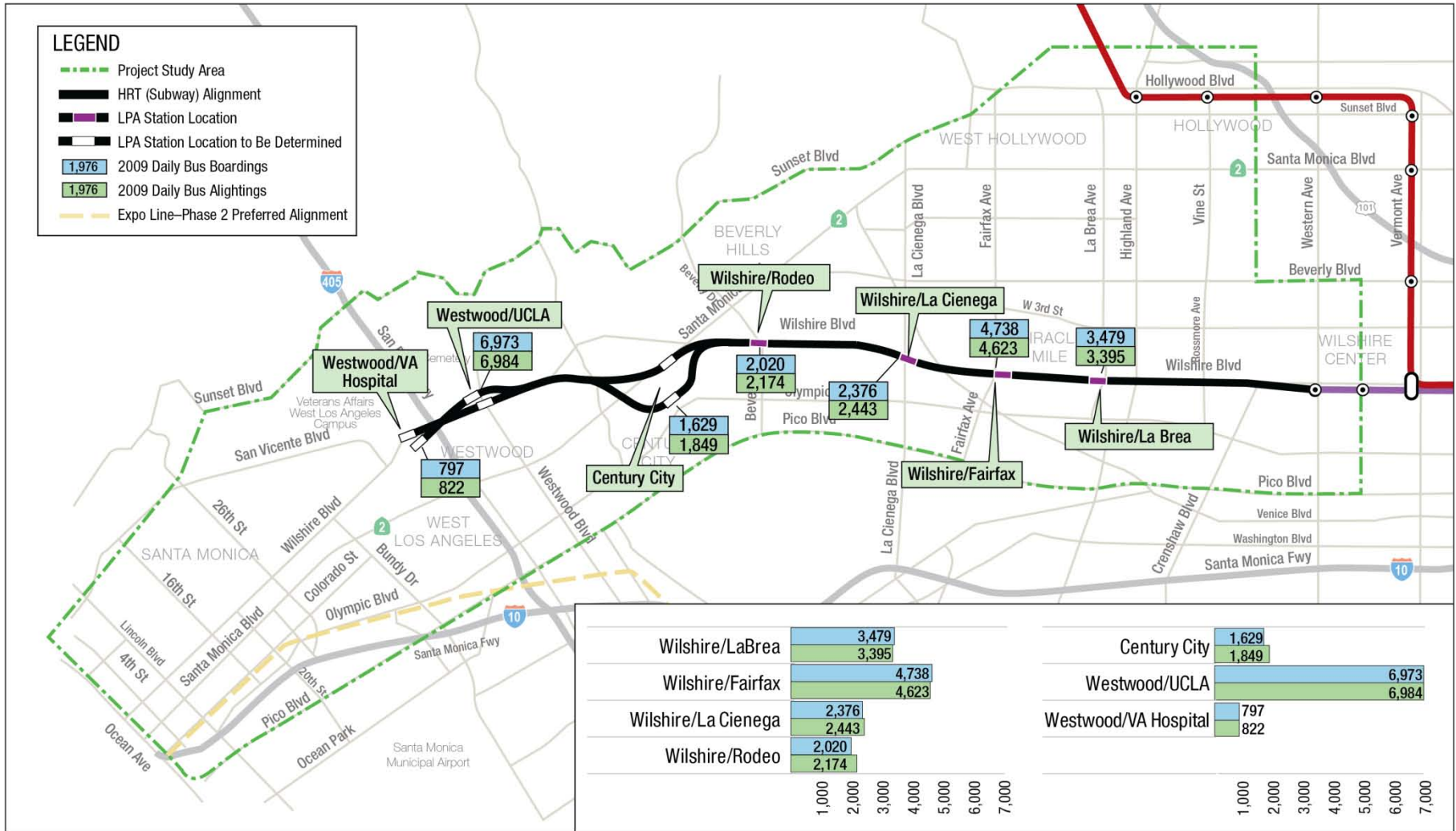


Figure 1-9. Existing Boardings and Alightings in the Study Area

The major east/west and north/south arterials in the Study Area currently operate at congested levels, and congestion is expected to occur over a longer period of the day. The high population and employment densities in the Study Area have resulted in eastbound and westbound directional travel being congested during the AM and PM peak periods. Arterials in the Study Area serve the employment centers as well as local and regional travel. They are also used as alternates to the I-10 and I-405 freeways during 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 reducing travel time reliability for motorists and transit riders. Daily traffic volumes along arterials in the Study Area vary by segment. The highest daily traffic volumes for the major east/west and north/south arterials are presented in Table 1-3.

In 2006, the Study Area contained 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, operated at congested conditions throughout the day. North/south arterials west of Western Avenue include Crenshaw Boulevard, La Brea Avenue, Fairfax Avenue, La Cienega Boulevard, Beverly Drive, Westwood Boulevard, Sepulveda Boulevard, Bundy Drive, and Lincoln Boulevard.

Between 2006 and 2035, most roadway capacity will remain the same; however, traffic volumes are expected to increase, resulting in an increase in congestion and a deterioration of operating conditions.

Currently, 112 of the 192 analyzed intersections (58 percent) in the Study Area are operating at an acceptable level-of-service (LOS) D or better in the morning and afternoon peak hours. See Figure 3-15 in Chapter 3, Transportation, for intersection locations. The remaining 80 intersections (42 percent) operate at LOS E or F (deficient LOS) during one or both analyzed peak hours. By 2035, the majority of study intersections will operate under congested conditions during peak hours. The traffic model predicts that by 2035, the majority of analyzed intersections along Wilshire and Santa Monica Boulevards will operate under deficient LOS E or F, resulting in significant delays for motorists traveling along east/west corridors in the Westside.

Bus speeds are slow and getting slower.

The current average speeds of the Metro Rapid buses traveling westbound through the Study Area range between 10 and 15 mph along Wilshire Boulevard and between 10 and 14 mph along Santa Monica Boulevard.

Table 1-4 summarizes the local and Metro Rapid bus speeds along the Wilshire, Olympic, and Santa Monica corridors. As a result of these decreasing bus speeds, transit travel times have been getting longer, as shown in Figure 1-10.

The average speeds of both local buses and the Metro Rapid buses traveling through the Study Area are anticipated to decrease further as traffic congestion increases on the roadways (Table 1-4). The one exception to this is buses running on Wilshire Boulevard. The planned Wilshire Boulevard Bus-Only Lane Project will result in 7.7 miles of non-continuous peak-period bus-only lanes being built that will expedite passenger travel times by an average of 30 percent. From the eastern end of the Study Area, the bus-only lanes would extend along Wilshire Boulevard from South Park View Street to the intersection of Wilshire Boulevard and San Vicente Boulevard. Project completion is

expected in 2013. Current plans do not extend the bus-only lanes into the Cities of Beverly Hills or Santa Monica.

Table 1-3. Traffic Volumes for Key Study Area Arterial Segments

Street Name	Count Location	Total Daily Volume
East/West Arterials		
Wilshire Boulevard	west of Veteran Avenue	111,024
Santa Monica Boulevard	east of Cotner Avenue	66,269
Sunset Boulevard	at La Cienega Boulevard	72,554
Hollywood Boulevard	at Nichols Canyon Boulevard	33,873
Olympic Boulevard	at Overland Avenue	66,877
Pico Boulevard	at Motor Avenue	55,836
North/South Arterials		
Western Avenue	at Olympic Boulevard	39,708
Crenshaw Avenue	at Pico Boulevard	33,492
La Brea Avenue	at Pico Boulevard	61,281
Fairfax Avenue	south of Beverly Boulevard	41,217
La Cienega Avenue	at Pico Boulevard	57,147
Beverly Drive	at Pico Boulevard	15,281
Westwood Boulevard	at Ohio Avenue	32,458
Sepulveda Boulevard	at Pico Boulevard	59,081
Bundy Drive	south of Pico Boulevard	53,634
Lincoln Boulevard	at Culver Boulevard	61,200

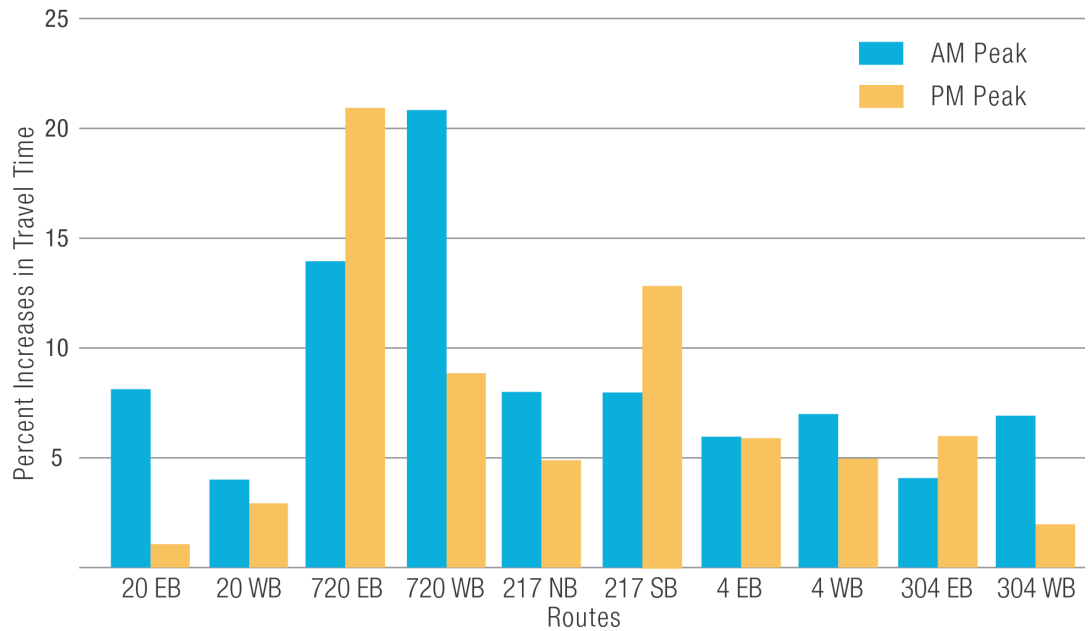
Source: Traffic counts conducted by LADOT's Traffic Survey Section, multiple dates 2005–2007

Various transit services in the Study Area use the general roadway network with the exception of the Metro Rail Red/Purple Lines in the eastern portion. The major factors influencing bus operating conditions are traffic conditions, whether buses have signal priority, and bus-stop spacing. 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.

Table 1-4. Westbound Bus Speeds along Wilshire, Olympic, and Santa Monica Boulevard Corridors under Existing Conditions

Boulevard	Local Bus		Rapid Bus	
	Existing (mph)	2035 (mph)	Existing (mph)	2035 (mph)
Wilshire (without bus-only lanes)	10.3	8.2	15.6	11.1
Olympic	12.7	7.6	17.5	9.5
Santa Monica	10.4	7.6	13.8	9.3

Source: Parsons Brinckerhoff, 2009



Source: Metro

**Figure 1-10. Percent Increases in Transit Travel Times—
Metro Bus Routes in the Study Area, 2003 to 2006**

1.5 Regional Transportation Objectives in the Study Area

In 2008, the SCAG Regional Council adopted the *2008 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 with objectives against which specific transportation investments can be measured. Four key performance indicators and their 2003 base year results, 2035 baseline projections, and 2035 objectives are shown in Table 1-5. Designated as one of the most congested areas in the five-county region, significant improvement is needed in the Study Area in these categories to meet regional objectives for mobility, accessibility, and reliability.

Table 1-5. Southern California Association of Governments Performance Indicators

Performance Indicator	Measurement	2003 Base Year	2035 Baseline	2035 Objective
Mobility	Average daily speed ¹	30.5 mph	26.8 mph	29.3 mph
	Average daily delay ² per capita ³	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 ⁴ —weekday 5 p.m. to 6 p.m.	28% (2005)	N/A	25%
Safety	Daily accident rate ⁵ per million persons	28.9 (estimated from graph)	30.2 (estimated from graph)	30.1 (estimated from graph)

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

¹Speed—experienced by travelers regardless of mode

²Delay—excess travel time resulting from the difference between a reference speed and actual speed

³Delay per capita can be used as a supplemental measure to account for population growth impacts on delay

⁴Day-to-day change in travel times experienced by travelers—variability results from accidents, weather, road closures, system problems, and other non-recurrent conditions

⁵Measured in accidents per million vehicle miles by mode for fatalities, injuries, and property