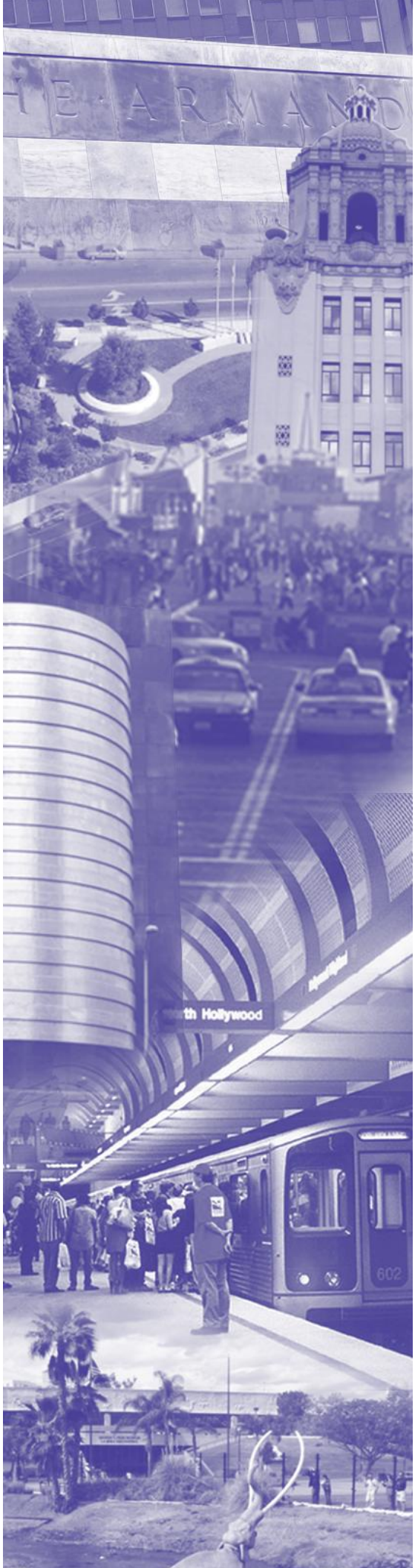

WESTSIDE SUBWAY EXTENSION

Transit Impact Assessment Report

Metro

August 2010

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Acronyms and Abbreviations

AA	Alternatives Analysis
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FY	Fiscal Year
HRT	Heavy Rail Transit
LPA	Locally Preferred Alternative
LRTP	Long Range Transportation Plan
LUCE	City of Santa Monica Land Use and Circulation Element
Metro	Los Angeles County Metropolitan Transportation Authority
MOS	Minimum Operable Segment
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
TSM	Transportation System Management
UCLA	University of California, Los Angeles

1.0 INTRODUCTION

This report describes the existing transit conditions within the Westside Subway Extension Study Area, projects future transit conditions with and without the project Build Alternatives, and assesses the potential transit impacts of the Build Alternatives and proposes measures to mitigate transit impacts to less than significant levels.

Under existing conditions, there are no fixed-guideway transit facilities on the west side of Los Angeles. However, there is a significant demand for transit, notably in the east-west direction. To analyze the compatibility of the Westside Subway Extension with the current transit system, this report looks at several indicators, including the location of bus routes, the frequency of bus service, and the magnitude of boardings at bus stops near proposed stations. The analysis of future transit conditions examines regional performance measures, subway ridership, mode of station access, and subway travel time as they apply to each minimum operable segment (MOS) and Build Alternative.

The impact analysis in this report looks at the person-level interface between the Westside Subway Extension and the existing transportation system. Feeder bus capacity, transit transfer delays, and pedestrian/bicycle safety are analyzed at each proposed station. As appropriate, measures are identified to mitigate significant and adverse project-related impacts.

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2.0 PROJECT DESCRIPTION

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

2.1 No Build Alternative

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

2.2 TSM Alternative

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

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

2.3 Build Alternatives

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

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

Furthermore, the Build Alternatives include changes to the future bus services. Metro Bus Line 920 would be eliminated and a portion of Line 20 in the City of Santa Monica would be eliminated since it would be duplicated by the Santa Monica Blue Bus Line 2. Metro Rapid Bus Line 720 would operate less frequently since its service route would be largely

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

2.3.1 Alternative 1—Westwood/UCLA Extension

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

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

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

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

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

2.3.3 Alternative 3—Santa Monica Extension

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

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

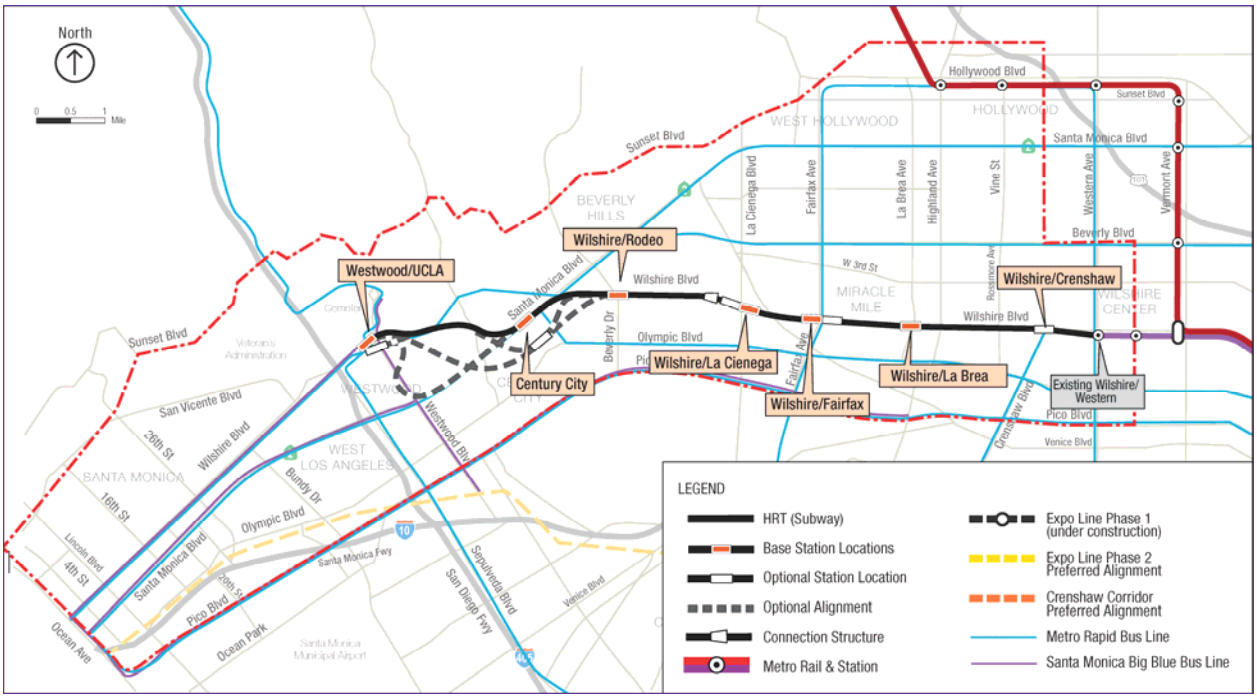


Figure 2-1. Alternative 1—Westwood/UCLA Extension

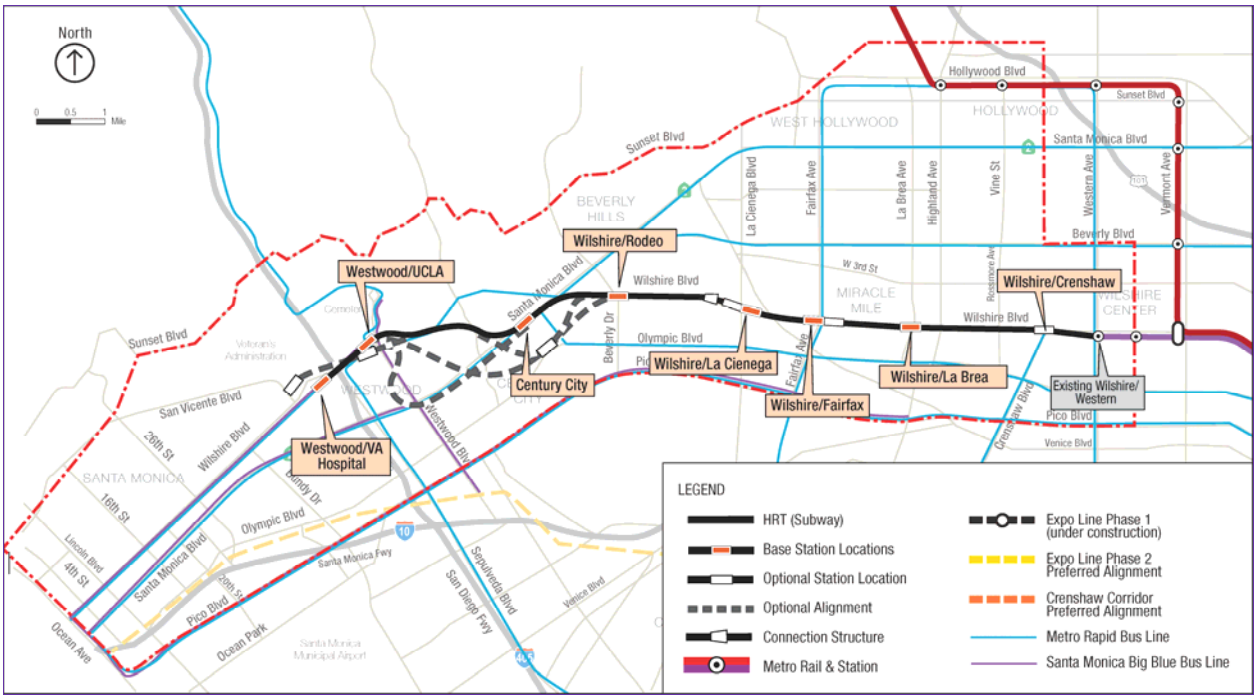


Figure 2-2. Alternative 2—Westwood/Veterans Administration (VA) Hospital Extension

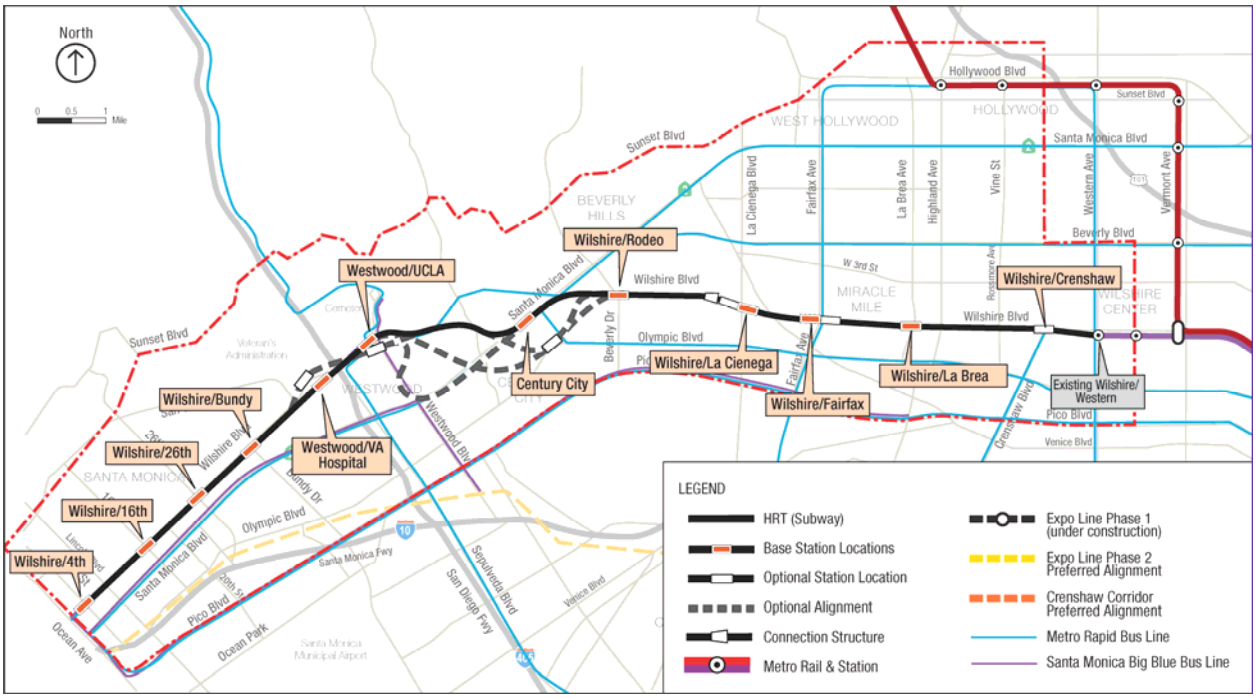


Figure 2-3. Alternative 3—Santa Monica Extension

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

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

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

2.3.5 Alternative 5—Santa Monica Extension plus West Hollywood Branch

Similar to Alternative 3, Alternative 5 extends the existing Metro Purple Line from the Wilshire/Western Station to the Wilshire/4th Station and also adds a West Hollywood Branch similar to the extension described in Alternative 4 (Figure 2-5). The alignment is 17.49 miles in length. Alternative 5 would operate the Metro Purple Line extension in each direction at 3.3-minute headways during the morning and evening peak periods and 10-minute headways during the midday, off-peak period. The West Hollywood Branch would operate in each direction at 5-minute headways during peak periods and 10-minute headways during the midday, off-peak period. The estimated one-way running time for the Metro Purple Line extension is 19 minutes 27 seconds, and the running time from the Hollywood/Highland Station to the Wilshire/4th Station is 22 minutes 36 seconds.

2.3.6 Stations and Segment Options

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

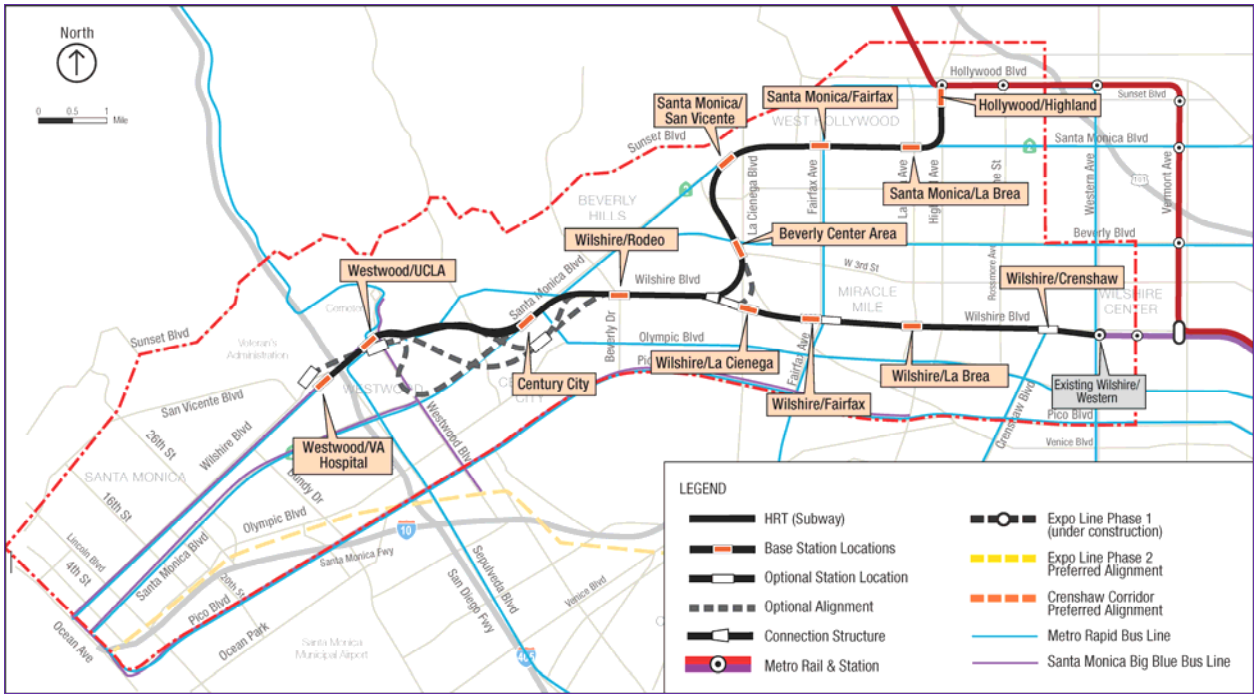


Figure 2-4. Alternative 4—Westwood/VA Hospital Extension plus West Hollywood Branch

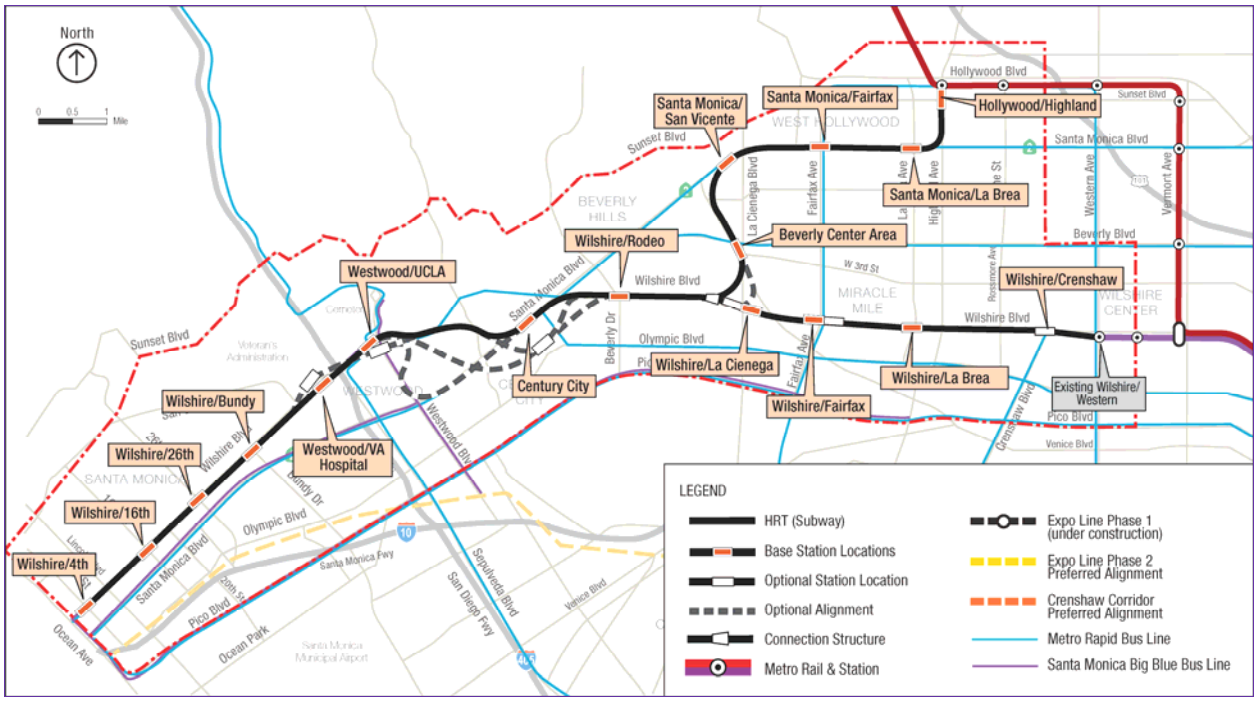


Figure 2-5. Alternative 5—Santa Monica Extension plus West Hollywood Branch

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

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

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

Table 2-1. Alternatives and Stations Considered

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

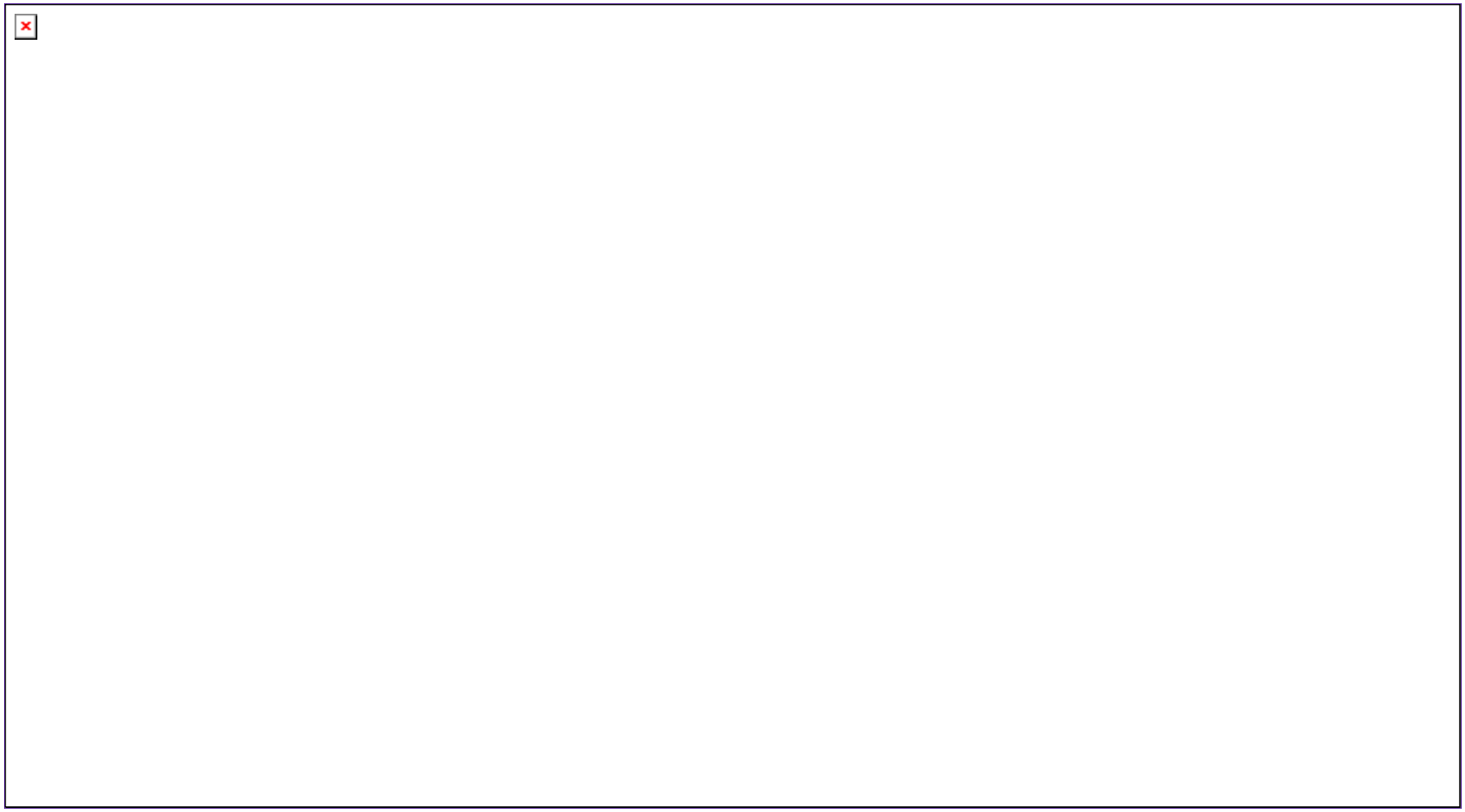


Figure 2-6. Station and Alignment Options

2.3.7 Option 1—Wilshire/Crenshaw Station Option

Base Station: Wilshire/Crenshaw Station—The base station straddles Crenshaw Boulevard, between Bronson Avenue and Lorraine Boulevard.

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

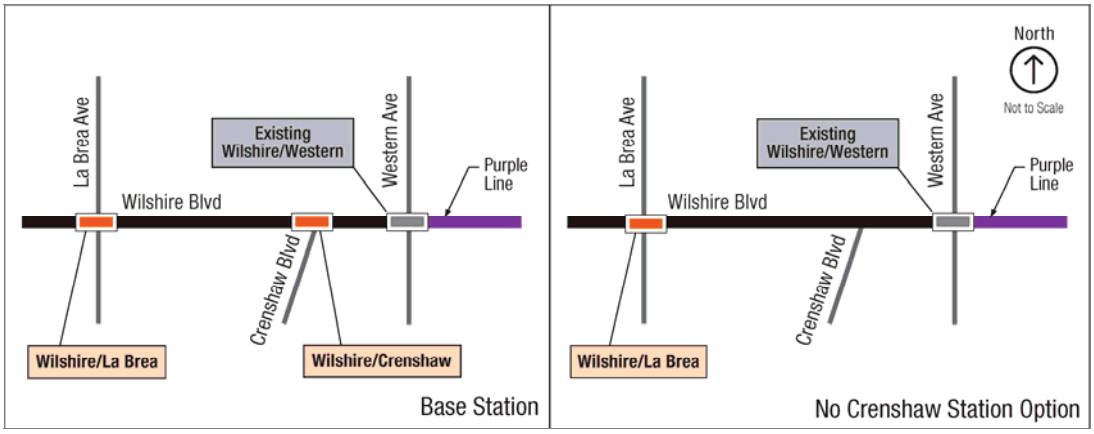


Figure 2-7. Option 1—No Wilshire/Crenshaw Station Option

2.3.8 Option 2—Wilshire/Fairfax Station East Option

Base Station: Wilshire/Fairfax Station—The base station is under the center of Wilshire Boulevard, immediately west of Fairfax Avenue.

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

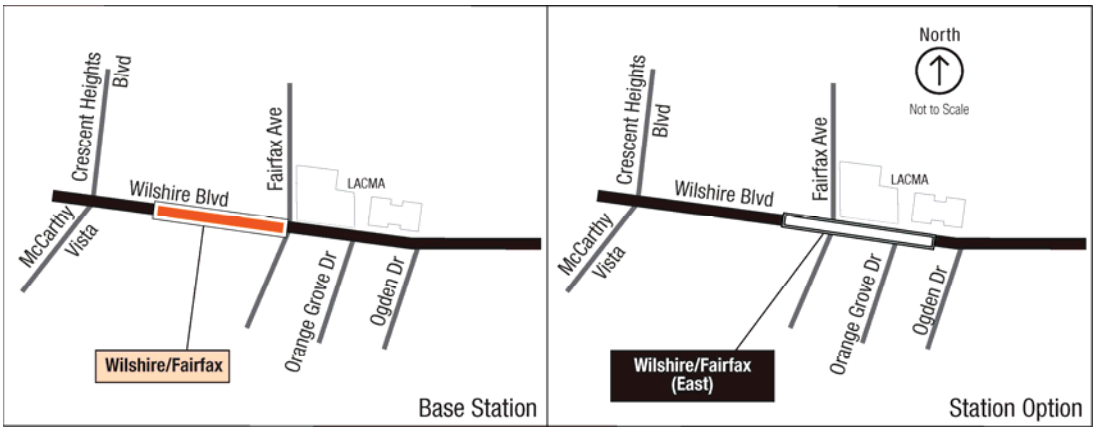


Figure 2-8. Option 2—Fairfax Station Option

2.3.9 Option 3—Wilshire/La Cienega Station Option

Base Station: Wilshire/La Cienega Station—The base station would be under the center of Wilshire Boulevard, immediately east of La Cienega Boulevard. A direct transfer between the Metro Purple Line and the potential future West Hollywood Line is not provided with this station. Instead, a connection structure is proposed west of Robertson Boulevard as a means to provide a future HRT connection to the West Hollywood Line.

Station Option: Wilshire/La Cienega Station West with Connection Structure—The station option would be located west of La Cienega Boulevard, with the station box extending from the Wilshire/Le Doux Road intersection to just west of the Wilshire/ Carson Road intersection (Figure 2-9). It also contains an alignment option that would provide an alternate HRT connection to the future West Hollywood Branch. This alignment portion of Option 3 is only applicable to Alternatives 4 and 5.

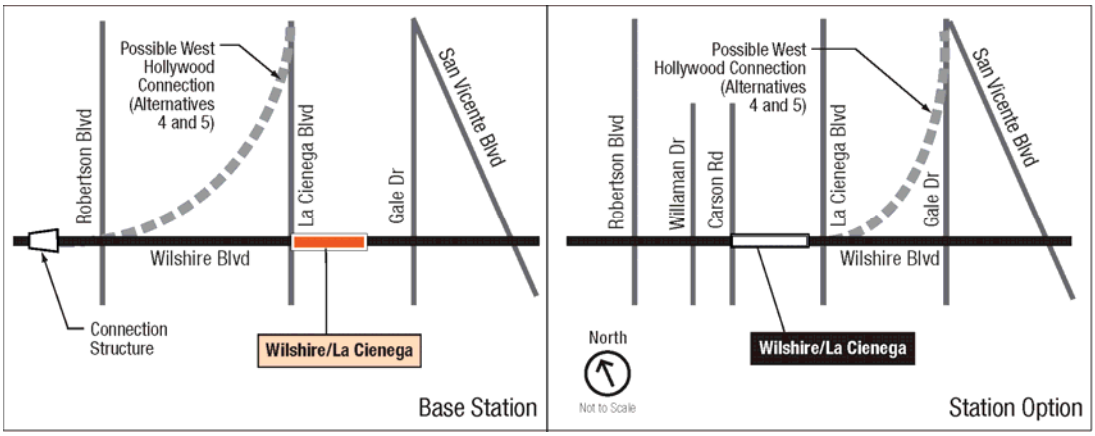


Figure 2-9. Option 3—La Cienega Station Option

2.3.10 Option 4—Century City Station and Segment Options

Century City Station and Beverly Hills to Century City Segment Options

Base Station: Century City (Santa Monica) Station—The base station would be under Santa Monica Boulevard, centered on Avenue of the Stars.

Station Option: Century City (Constellation) Station—With Option 4, the Century City Station has a location option on Constellation Boulevard (Figure 2-10), straddling Avenue of the Stars and extending westward to east of MGM Drive.

Segment Options: Three route options are proposed to connect the Wilshire/Rodeo Station to Century City (Constellation) Station: Constellation North and Constellation South. As shown in Figure 2-10, the base segment to the base Century City (Santa Monica) Station is shown in the solid black line and the segment options to Century City (Constellation) Station are shown in the dashed grey lines.

2.3.10.1 Century City to Westwood Segment Options

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

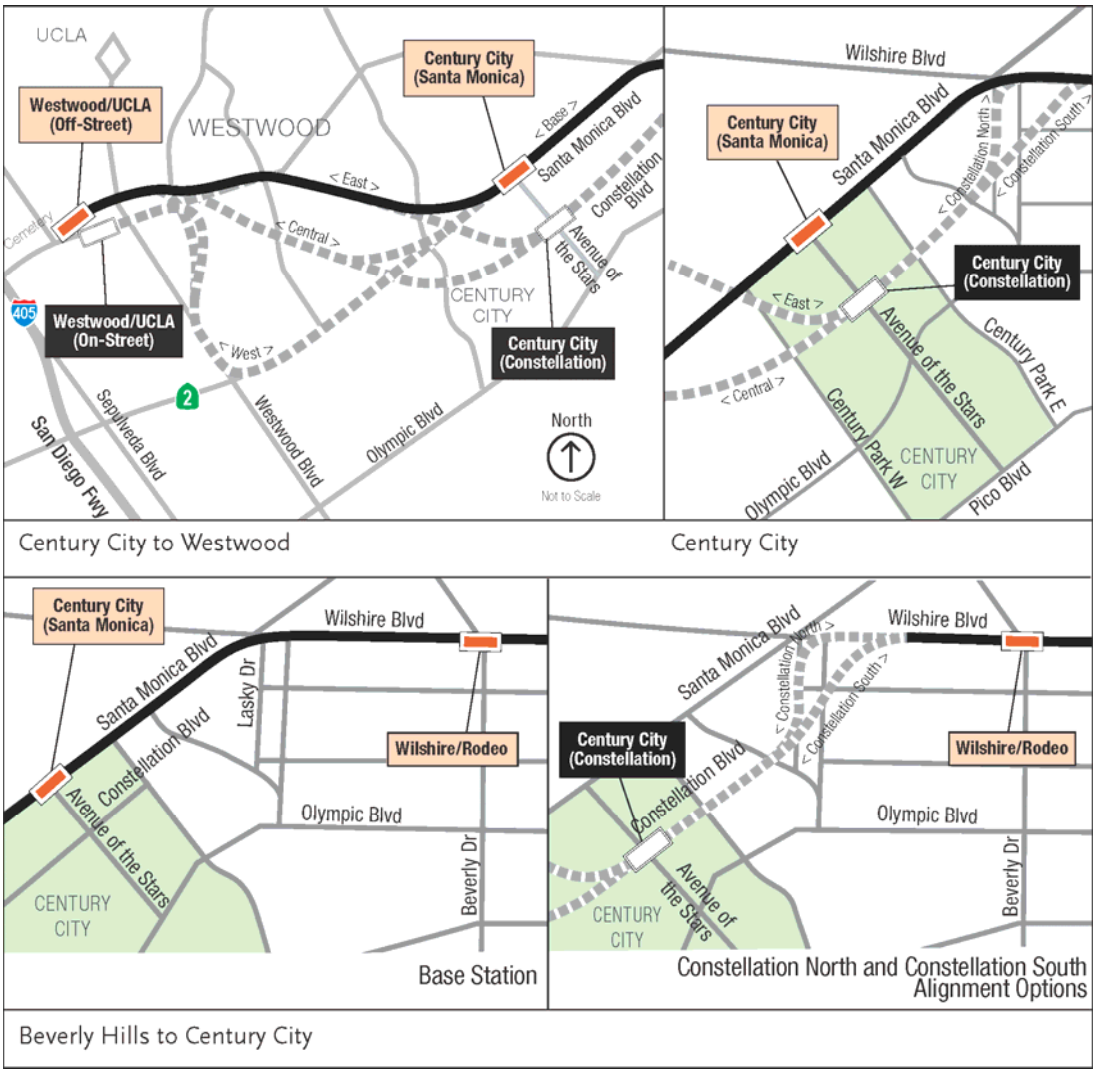


Figure 2-10. Century City Station Options

2.3.11 Option 5—Westwood/UCLA Station Options

Base Station: Westwood/UCLA Station Off-Street Station Option—The base station is located under the UCLA Lot 36 on the north side of Wilshire Boulevard between Gayley and Veteran Avenues.

Station Option: Westwood/UCLA On-Street Station Option—This station option would be located under the center of Wilshire Boulevard, immediately west of Westwood Boulevard (Figure 2-11).

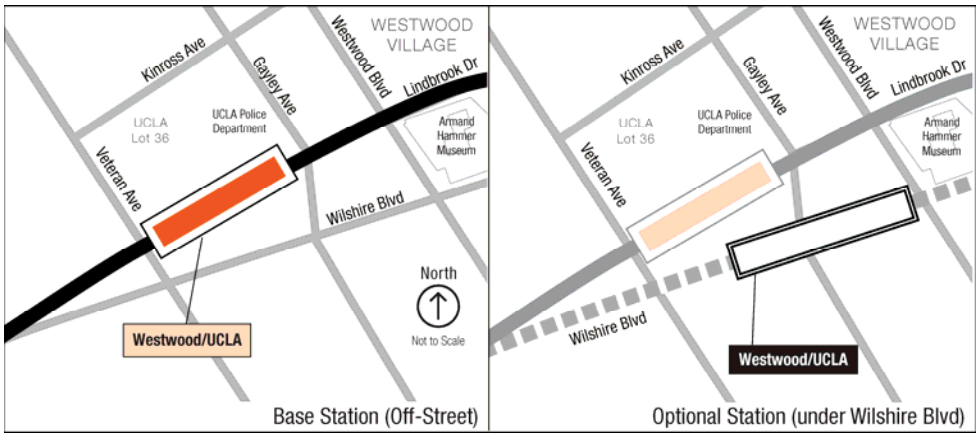


Figure 2-11. Option 5—Westwood/UCLA Station Options

2.3.12 Option 6—Westwood/VA Hospital Station Option

Base Station: Westwood/VA Hospital—The base station would be below the VA Hospital parking lot on the south side of Wilshire Boulevard in between the I-405 exit ramp and Bonsall Avenue.

Station Option: Westwood/VA Hospital North Station—This station option would locate the Westwood/VA Hospital Station on the north side of Wilshire Boulevard between Bonsall Avenue and Wadsworth Theater. (Shown in Figure 2-12)

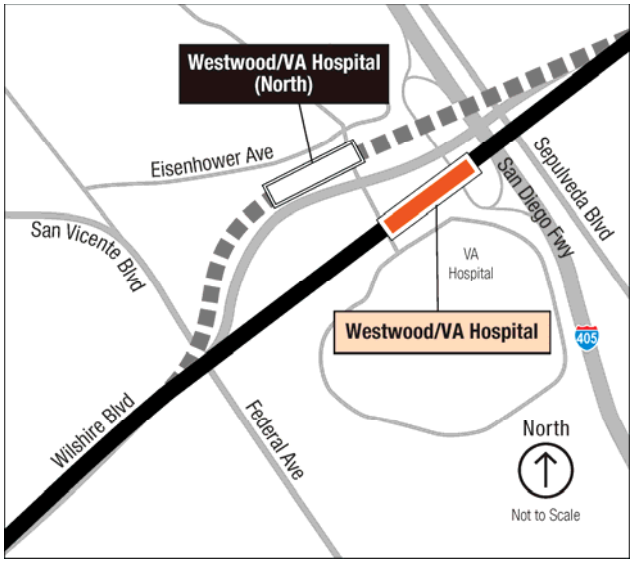


Figure 2-12. Option 6—Westwood/VA Hospital Station North

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

2.4 Base Stations

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

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

Wilshire/Rodeo Station—This station would be under the center of Wilshire Boulevard, beginning just west of South Canon Drive and extending to El Camino Drive.

Wilshire/Bundy Station—This station would be under Wilshire Boulevard, east of Bundy Drive, extending just east of Saltair Avenue.

Wilshire/26th Station—This station would be under Wilshire Boulevard, with the eastern end east of 26th Street and the western end west of 25th Street, midway between 25th Street and Chelsea Avenue.

Wilshire/16th Station—This station would be under Wilshire Boulevard with the eastern end just west of 16th Street and the western end west of 15th Street.

Wilshire/4th Station—This station would be under Wilshire Boulevard and 4th Street in Santa Monica.

Hollywood/Highland Station—This station would be located under Highland Avenue and would provide a transfer option to the existing Metro Red Line Hollywood/Highland Station under Hollywood Boulevard.

Santa Monica/La Brea Station—This station would be under Santa Monica Boulevard, just west of La Brea Avenue, and would extend westward to the center of the Santa Monica Boulevard/Formosa Avenue.

Santa Monica/Fairfax Station—This station is under Santa Monica Boulevard and would extend from just east of Fairfax Avenue to just east of Ogden Drive.

Santa Monica/San Vicente Station—This station would be under Santa Monica Boulevard and would extend from just west of Hancock Avenue on the west to just east of Westmount Drive on the east.

Beverly Center Area Station—This station would be under San Vicente Boulevard, extending from just south of Gracie Allen Drive to south of 3rd Street.

2.5 Other Components of the Build Alternatives

2.5.1 Traction Power Substations

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

2.5.2 Emergency Generators

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

2.5.3 Mid-Tunnel Vent Shaft

Each alternative would require mid-tunnel ventilation shafts. The vent shafts are emergency ventilation shafts with dampers, fans, and sound attenuators generally placed at both ends of a station box to exhaust smoke. In addition, emergency vent shafts could be used for station cooling and gas mitigation. The vent shafts are also required in tunnel segments with more than 6,000 feet between stations to meet fire/life safety requirements. There would be a connecting corridor between the two tunnels (one for each direction of train movement) to provide emergency egress and fire-fighting ingress. A vent shaft is approximately 150 square feet; with the opening of the shaft located in a sidewalk and covered with a grate about 200 square feet.

Table 2-2. Mid-Tunnel Vent Shaft Locations

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

2.5.4 Trackwork Options

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

Tail tracks—a track, or tracks, that extends beyond a terminal station (the last station on a line)

Pocket tracks—an additional track, or tracks, adjacent to the mainline tracks generally at terminal stations

Crossovers—a pair of turnouts that connect two parallel rail tracks, allowing a train on one track to cross over to the other

Double crossovers—when two sets of crossovers are installed with a diamond allowing trains to cross over to another track

Table 2-3. Special Trackwork Locations

Station	1 Westwood/ UCLA Extension	2 Westwood/ VA Hospital Extension	3 Santa Monica Extension	4 Westwood/ VA Hospital Extension Plus West Hollywood Branch	5 Santa Monica Extension Plus West Hollywood Branch
Special Trackwork Locations—Base Trackwork Alternatives					
Wilshire/Crenshaw	None	None	None	None	None
Wilshire/La Brea	Double Crossover	Double Crossover	Double Crossover	Double Crossover	Double Crossover
Wilshire/Fairfax	None *MOS 1 Only: Terminus Station with Tail tracks*	None *MOS 1 Only: Terminus Station with Tail tracks*	None *MOS 1 Only: Terminus Station with Tail tracks*	None *MOS 1 Only: Terminus Station with Tail tracks*	None *MOS 1 Only: Terminus Station with Tail tracks*
Wilshire/La Cienega	None	None	None	None	None
Station Option 3 - Wilshire/La Cienega West	Turnouts	Turnouts	Turnouts		
Wilshire/Robertson Connection Structure	Equilateral Turnouts - for future West Hollywood connection	Equilateral Turnouts - for future West Hollywood connection	Equilateral Turnouts - for future West Hollywood connection	Equilateral Turnouts	Equilateral Turnouts
Wilshire/Rodeo	None	None	None	None	None
Century City	Double Crossover *MOS2 Only: Terminus Station with Double Crossover and tail tracks*	Double Crossover *MOS2 Only: Terminus Station with Double Crossover and tail tracks*	Double Crossover *MOS2 Only: Terminus Station with Double Crossover and tail tracks*	Double Crossover *MOS2 Only: Terminus Station with Double Crossover and tail tracks*	Double Crossover *MOS2 Only: Terminus Station with Double Crossover and tail tracks*
Westwood/UCLA	End Terminal with Double Crossover and tail tracks	Double Crossover	Double Crossover	Double Crossover	Double Crossover
Westwood/VA Hospital	N/A	End Terminal with Turnouts and tail tracks	Turnouts	End Terminal with Turnouts and tail tracks	Turnouts
Wilshire/Bundy	N/A	N/A	None	N/A	None
Wilshire/26th	N/A	N/A	None	N/A	None
Wilshire/16th	N/A	N/A	None	N/A	None
Wilshire/4th	N/A	N/A	End Terminal with Double Crossover. Pocket Track with Double Crossover, Equilateral Turnouts and tail tracks	N/A	End Terminal with Double Crossover, Pocket Track with Double Crossover, Equilateral Turnouts and tail tracks
Hollywood/ Highland	N/A	N/A	N/A	Double Crossover and tail tracks	Double Crossover and tail tracks
Santa Monica/La Brea	N/A	N/A	N/A	None	None

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

2.5.5 Rail Operations Center

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

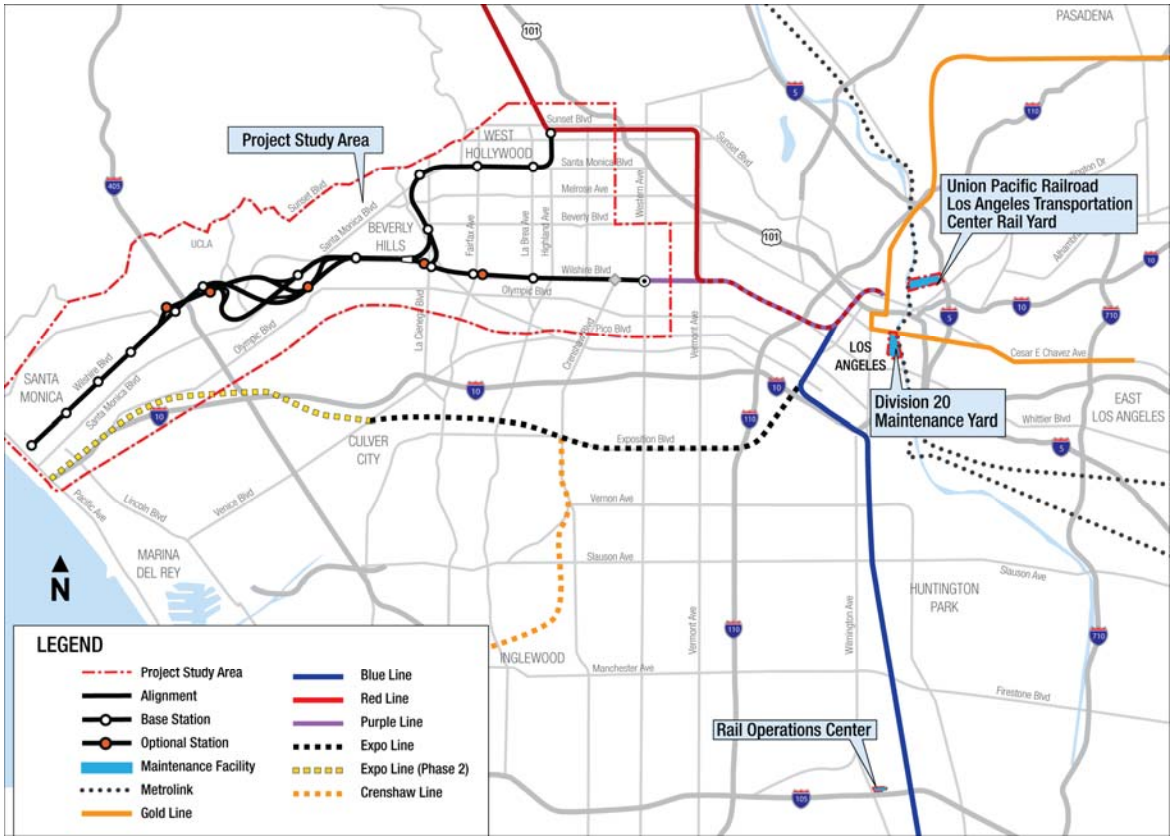


Figure 2-13. Location of the Rail Operations Center and Maintenance Yards

2.5.6 Maintenance Yards

If any of the Build Alternatives are chosen, additional storage capacity would be needed. Two options for providing this expanded capacity are as follows:

The first option requires purchasing 3.9 acres of vacant private property abutting the southern boundary of the Division 20 Maintenance and Storage Facility, which is located between the 4th and 6th Street Bridges. Additional maintenance and storage tracks would accommodate up to 102 vehicles, sufficient for Alternatives 1 and 2.

The second option is a satellite facility at the Union Pacific (UP) Los Angeles Transportation Center Rail Yard. This site would be sufficient to accommodate the vehicle fleet for all five Build Alternatives. An additional 1.3 miles of yard lead tracks from the Division 20 Maintenance and Storage Facility and a new bridge over the Los Angeles River would be constructed to reach this yard (Figure 2-15).

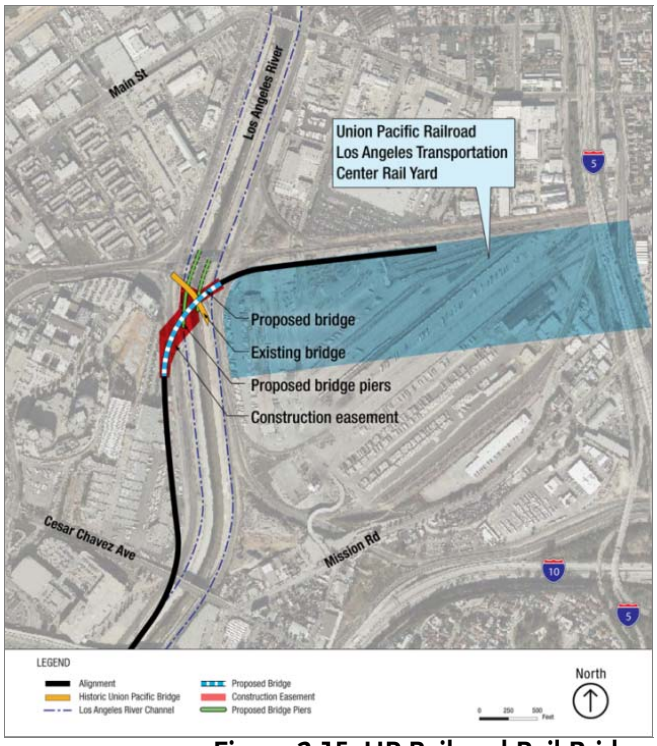


Figure 2-15. UP Railroad Rail Bridge

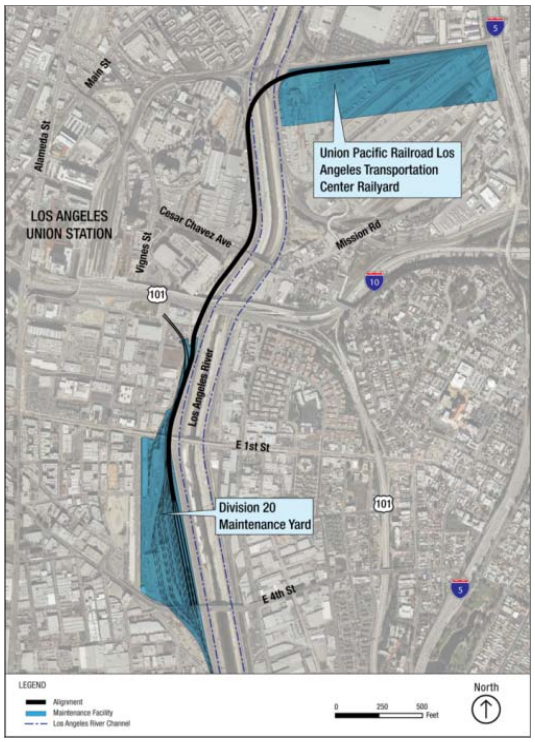


Figure 2-15. Maintenance Yard Options

2.6 Minimum Operable Segments

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

2.6.1 MOS 1—Fairfax Extension

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

2.6.2 MOS 2—Century City Extension

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

3.0 EXISTING CONDITIONS

While there are no fixed-guideway transit facilities on the west side of Los Angeles, there is a significant demand for transit service, notably in the east-west direction, as demonstrated by the high number of bus lines, the frequency of bus service, and the high levels of bus ridership. The subway stations proposed as part of the Westside Subway Extension are particularly well positioned to serve this demand. Proposed station areas are locations where a high number of existing bus lines intersect and thousands of riders access the transit system each day.

3.1 Regional Transit Network

Since 1990, a regional fixed-guideway transit system serving Los Angeles County has been constructed. This system has heavy rail transit (HRT), light rail transit (LRT), bus rapid transit (BRT), and commuter rail components and includes more than 79 miles of Metro Rail (HRT and LRT) service, 14 miles of dedicated BRT service, and more than 500 miles of Metrolink commuter rail lines. The existing and committed system is shown in Figure 3-1. This figure illustrates the absence of regional transit options on the west side of Los Angeles.

3.2 Study Area Transit Network

Metro is the principal transit provider in the Westside Extension Transit Corridor Study Area. The study area is also served by Santa Monica's Big Blue Bus, LADOT Downtown Area Shuttle (DASH), LADOT Commuter Express, Santa Clarita Transit Commuter Express Service, Culver CityBus, West Hollywood CityLine/DayLine, and Antelope Valley Transit Authority Commuter Services.

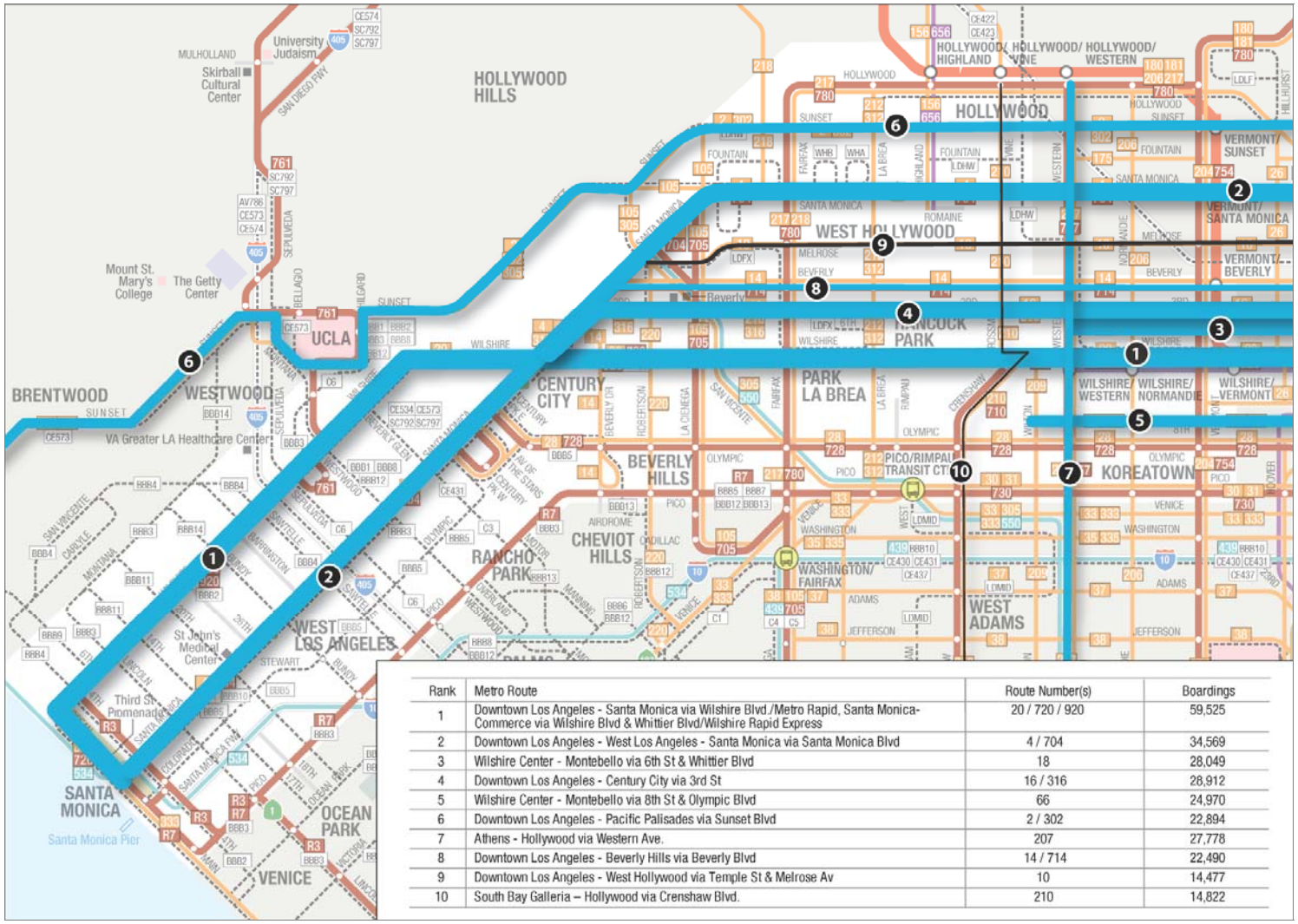
These transit service providers offer bus transit coverage on most major east-west and north-south arterials in the Study Area, as illustrated in Figure 3-2. The Study Area is well-served by bus transit, but that service must operate in mixed flow conditions which are subject to the area's significant traffic congestion. The Study Area lacks fixed-guideway transit service that offers congestion-free, predictable travel.

The 62 bus routes operating in the Study Area serve approximately 550,000 boardings or about 50 percent of total weekday bus ridership on all Metro bus lines. Of this total, ridership on seven east-west streets currently account for approximately 40 percent of total transit demand in the Study Area. Weekday ridership for service on these east-west streets is shown in Table 3-1. Bus ridership levels presented in Table 3-1 represent weekday boardings along seven major east-west streets in the Study Area. The distribution of route-specific ridership for the Study Area is shown in Table 3-2.

Table 3-2 shows average daily ridership on existing Study Area bus lines. The highest number of boardings occurs on Metro Line 720, providing service along Wilshire Boulevard with 37,613 boardings per day. Local service on Wilshire Boulevard, provided by Metro Line 20, serves an additional 18,268

Figure 3-1. Fixed-Guideway Regional Transit Network

Figure 3-2. Existing Bus and Rail Service within the Study Area with Top 10 Ridership Corridors



Rank	Metro Route	Route Number(s)	Boardings
1	Downtown Los Angeles - Santa Monica via Wilshire Blvd./Metro Rapid, Santa Monica-Commerce via Wilshire Blvd & Whittier Blvd/Wilshire Rapid Express	20 / 720 / 920	59,525
2	Downtown Los Angeles - West Los Angeles - Santa Monica via Santa Monica Blvd	4 / 704	34,569
3	Wilshire Center - Montebello via 6th St & Whittier Blvd	18	28,049
4	Downtown Los Angeles - Century City via 3rd St	16 / 316	28,912
5	Wilshire Center - Montebello via 8th St & Olympic Blvd	66	24,970
6	Downtown Los Angeles - Pacific Palisades via Sunset Blvd	2 / 302	22,894
7	Athens - Hollywood via Western Ave.	207	27,778
8	Downtown Los Angeles - Beverly Hills via Beverly Blvd	14 / 714	22,490
9	Downtown Los Angeles - West Hollywood via Temple St & Melrose Av	10	14,477
10	South Bay Galleria – Hollywood via Crenshaw Blvd.	210	14,822

Table 3-1. Major East-West Streets/Bus Lines in Study Area

Street/Bus Line	Weekday Ridership
Wilshire Boulevard/Metro 20, 720, 920, Santa Monica Big Blue Bus 2	64,200
Pico Boulevard/Metro 30 and 730, Santa Monica Big Blue Bus 7	37,929
Santa Monica Boulevard/Metro 4, Santa Monica Big Blue Bus 1	30,143
3rd Street/Metro 16	28,912
Sunset Boulevard/Metro 2	22,894
Olympic Boulevard/Metro 28 and 728, Santa Monica Big Blue Bus 5	21,562
Beverly Boulevard/Metro 14	17,272

Source: Metro 2009, Santa Monica Big Blue Bus 2007

Table 3-2. Existing Study Area Transit Service and Weekday Boardings

Provider	Line	Description	Riders
Metro	720	Metro Rapid (Santa Monica—Commerce via Wilshire Boulevard & Whittier Boulevard)	37,613
Metro	204	Athens—Hollywood via Vermont Avenue	30,396
Metro	16	Downtown Los Angeles—Century City via 3rd Street	28,912
Metro	18	Wilshire Center—Montebello via 6th Street & Whittier Boulevard	28,049
Metro	207	Athens—Hollywood via Western Avenue	27,778
Metro	754	Metro Rapid (Athens—Hollywood via Vermont Avenue.)	22,964
Metro	2	Downtown Los Angeles—Pacific Palisades via Sunset Boulevard	22,894
Metro	4	Downtown Los Angeles—West Los Angeles—Santa Monica via Santa Monica Boulevard	21,509
Metro	30	Pico/Rimpau—Dozier/Rowan—Monterey Park via Pico Boulevard & East 1st Street	18,497
Metro	20	Downtown LA—Santa Monica via Wilshire Boulevard	18,268
Metro	14	Downtown Los Angeles—Beverly Hills via Beverly Boulevard	17,272
Metro	206	Athens—Hollywood via Normandie Avenue	17,025
Metro	210	South Bay Galleria—Hollywood via Crenshaw Boulevard	14,822
Metro	10	Downtown Los Angeles—West Hollywood via Temple Street & Melrose Avenue	14,477
Metro	212	Hawthorne—Hollywood via La Brea Avenue	13,910
SM	7	Pico Boulevard	13,639
Metro	704	Metro Rapid (Downtown Los Angeles—Santa Monica via Santa Monica Boulevard)	13,060
Metro	105	West Hollywood—Vernon via La Cienega Boulevard & Vernon Avenue.	11,808
Metro	761	Metro Rapid (Pacoima—Westwood via Van Nuys Boulevard)	11,675
Metro	163	West Hills Medical Center—Sun Valley/North Hollywood Station via Sherman Way & Lankershim Boulevard	11,642
Metro	180	Pasadena—Hollywood via Colorado Boulevard. and Hollywood Boulevard	10,940
Metro	217	Vermont/Sunset—Fairfax/Washington via Fairfax Avenue & Hollywood Boulevard	10,753
Metro	780	Pasadena—West Los Angeles via Colorado Boulevard. & Hollywood Boulevard	10,612
Metro	28	Downtown Los Angeles—Century City via Olympic Boulevard	9,721
CCB	6/Rapid 6	Sepulveda Boulevard	9,301
Metro	728	Metro Rapid (Downtown LA—Century City via Olympic Boulevard)	8,687
SM	1	Santa Monica Boulevard	8,634
SM	3	Montana Ave & Lincoln Boulevard	8,488
Metro	705	Metro Rapid (West Hollywood—Vernon via La Cienega Boulevard & Vernon Avenue)	8,295
Metro	710	Metro Rapid (South Bay Galleria—Wilshire Center via Crenshaw Boulevard)	7,755

Table 3-2. Existing Study Area Transit Service and Weekday Boardings (continued)

Provider	Line	Description	Riders
SM	2	Wilshire Boulevard	4,650
SM	14	Bundy Drive & Centinela Avenue	4,094
Metro	920	Wilshire Rapid Express	3,644
SM	5	Olympic Boulevard	3,154
Metro	305	UCLA—Willowbrook via Sunset Boulevard , San Vicente Boulevard & Western Avenue	2,975
Metro	550	Metro Express (San Pedro—West Hollywood via Harbor Transitway)	2,862
Metro	534	Metro Express (Malibu—Fairfax/Washington via Pacific Coast Hwy.)	2,814
LADOT	DASH	Wilshire/Koreatown	2,586
Metro	156	Van Nuys—Hollywood Panorama City—Hollywood	2,539
CCB	3	Crosstown	2,241
SM	R3	Rapid 3	2,239
SM	10	Freeway Express	2,028
LADOT	DASH	Hollywood	1,895
SM	9	Pacific Palisades	1,335
SM	R7	Rapid 7	1,259
LADOT	DASH	Fairfax	1,106
LADOT	DASH	West Hollywood	1,087
SM	4	San Vicente Boulevard & Carlyle Avenue	1,037
Metro	209	Athens—Wilshire Center via Van Ness Avenue & Arlington Avenue	980
SM	S12	UCLA Commuter	931
LADOT	CE 573	Mission Hills/Encino	813
SM	11	Campus Connector	699
LADOT	DASH	Midtown	369
SCT	797	Century City	313
WH	A/B	West Hollywood Loop	225
LADOT	CE 534	West Los Angeles/Century City/Westwood	181
LADOT	CE 431	Westwood/Rancho Park/Palms	175
AVTA	786	West Los Angeles	66
LADOT	CE 430	Pacific Palisades/Brentwood/Westwood	63
SCT	792	Century City	32
Total			555,120

Source: Metro 2009, Santa Monica Big Blue Bus 2007, Los Angeles Department of Transportation FY08-09, Antelope Valley Transit Authority 2009, Santa Clarita Transit 2009, West Hollywood CityLine 2009

riders. Other bus lines with some of the highest levels of ridership in the Study Area include Metro Line 2 (22,894 boardings), Metro Line 4 (21,509 boardings), and Metro Line 16 (28,912 boardings). These three bus lines all run east-west in the Study Area and travel parallel routes to the proposed subway, along Sunset Boulevard, Santa Monica Boulevard, and Third Street, respectively.

Major north-south/east-west transfer points are shown in Figure 3-4. Major transfer points are defined as locations where a Metro Rapid bus line, operating on weekday peak headways of 12 minutes or less, intersects with another bus line that is also operating on weekday peak headways of 12 minutes or less. Based on this criterion, there are 29 major transfer points in the Study Area. Approximately one third of these major transfer points occur where project stations are proposed, confirming the importance of these locations in the transit network.

3.3 Station-Area Transit Service

The focus of this section is to describe existing transit routes serving each potential station area. Table 3-3 lists station-area bus routes by station location, including directional peak and off-peak headways for each bus line. Station locations provide access to an average of 6 different bus lines, with the highest number of intersecting bus lines (16) occurring at UCLA. The headways reflect a high number of Metro Local and Metro Rapid buses serving a high volume of riders throughout the day, especially during morning and afternoon peak periods. The prevalence of commuter bus service at the Century City and Westwood/UCLA stations reflects the importance of these locations as regional employment centers.

Stop-level bus boarding data for Metro, Santa Monica Big Blue Bus, and Culver CityBus lines at intersections nearest to potential station locations are shown in Figure 3-4 through Figure 3-20. These maps identify stop-level boarding data within a quarter-mile of primary subway station entrances, as measured by traversable walking paths. The magnitude of stop-level boardings demonstrates the high level of existing transit use at station locations. They also illustrate the suitability of proposed subway station entrance locations, since these are critical points of access for people who use the transit system.

Figure 3-21 aggregates stop-level boarding data for Metro buses within one-quarter mile of each station location. The top six locations are Westwood/UCLA with 7,300 boardings, Wilshire/Fairfax with 4,700 boardings, Hollywood/Highland with 4,100 boardings, Santa Monica/Fairfax with 3,600 boardings, Wilshire/La Brea with 3,500 boardings, and Beverly Center Area with 3,100 boardings. This boarding data reflects a strong demand for transit service at station locations.

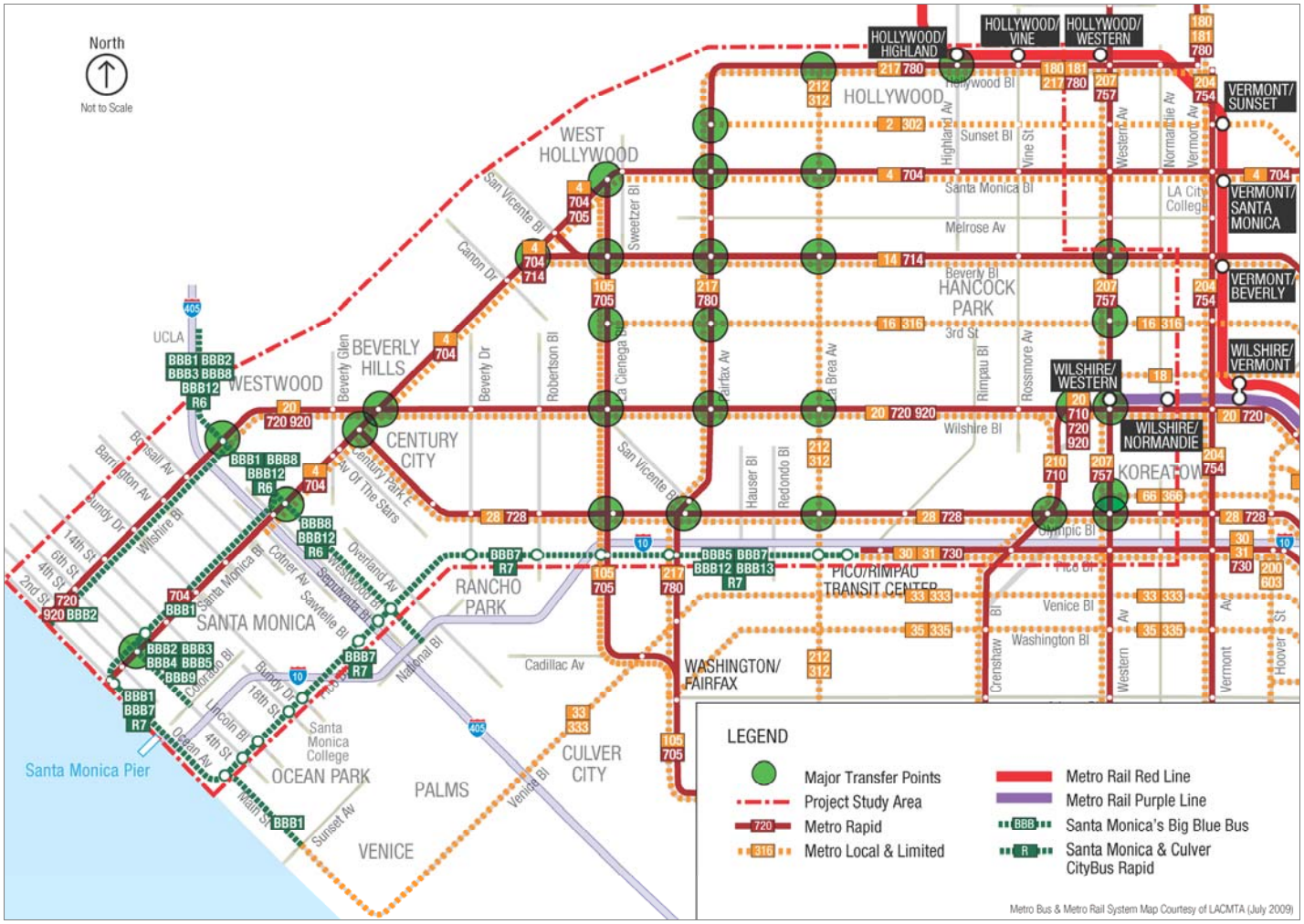
3.3.1 Peak Hour Roadway Congestion Underlies the Need for Transit Improvements

Los Angeles has the dubious distinction of being the most congested urban area in the country, according to the most recent survey of traffic congestion levels conducted by the Texas Transportation Institute.[1] The Westside Subway Extension Study Area in turn contains some of the most congested traffic conditions in Los Angeles. Typical rush hours on the Westside of Los Angeles extend from 6:30 to 10:00 a.m. and 3:00 to 7:00 p.m. For example, LADOT loop detectors have found that a typical automobile commute along Wilshire Boulevard from Santa Monica to Beverly Hills over a distance of eight miles can take upwards of 60 minutes on a typical weekday evening. Morning and evening peak hour speeds along Santa Monica Boulevard in Beverly Hills average less than 7 mph.

With the exception of small segments of the Metro Rail Red and Purple Lines (in the far eastern portion of the Study Area), mixed-flow transit operations make up most transit service in the Westside. Therefore, current traffic conditions described above are also affecting transit service in the Study Area. Although ridership on Westside bus routes is high, congestion on arterial streets and freeways affects bus travel time and reliability thereby resulting in less than optimal service conditions. With high passenger loads, congested roads make reduced bus headways (improved frequency of service) difficult to maintain and result in overcrowded buses.

1 Texas Transportation Institute. *The 2009 Urban Mobility Report*, Table 1.

Figure 3-3. Major Transfer Points in Study Area



Source: Metro

Table 3-3. Station-Area Transit Routes and Headways

Station	Bus Routes	Direction	Peak Headway (min)	Off-Peak Headway (min)
Wilshire/Crenshaw	20	EB	8.5	10
		WB	6	11
	720	EB	4-5	6-7
		WB	3-4	6-7
	210	Two-way	10-18	20-90
	710	NB	10	15
		SB	10	15
Wilshire/La Brea	20	EB	8.5	10
		WB	6	11
	720	EB	4-5	6-7
		WB	3-4	6-7
	LD914	Two-way	15	15
	212/312	Two-way	10	30
		NB	6	30
Wilshire/Fairfax	20	EB	8.5	10
		WB	6	11
	720	EB	4-5	6-7
		WB	3-4	6-7
	920	EB	36	120
		WB	6.5	40
	AV786	SB	120	N/A
	LD914	Two-way	15	15
	217	Two-way	12	20
		WB	8	15
Wilshire/La Cienega	20	EB	8.5	10
		WB	6	11
	720	EB	4-5	6-7
		WB	3-4	6-7
	AV786	SB	120	N/A
	105	Two-way	25	20
	705	SB	13	20
		NB	13	20

Table 3-1. Station-Area Transit Routes and Headways (Continued)

Station	Bus Routes	Direction	Peak Headway (min)	Off-Peak Headway (min)
Wilshire/Rodeo	20	EB	8.5	10
		WB	6	11
	720	EB	4-5	6-7
		WB	3-4	6-7
	920	EB	36	120
		WB	6.5	40
	AV786	SB	120	N/A
	14	Two-way	25	36
Century City (Santa Monica Blvd)	AV786	SB	120	N/A
	16	WB	12	24
	4	Two-way	7	14
	28	Two-way	4	7.5
	704	EB	7	15
		WB	7	15
	728	EB	5	12
		WB	4	12
	CE534	WB	45	N/A
	CE573	SB	20	N/A
		NB	90	N/A
	SC797	SB	60	N/A
	SC792	NB	30	N/A
Century City (Constellation Blvd)	728	EB	5	12
		WB	4	12
	28	Two-way	4	7.5
	CE534	WB	45	N/A
	C3	Two-way	20	20
	SC792	NB	30	N/A
	SC797	SB	60	N/A
	CE573	SB	20	N/A
		NB	90	N/A
	SM5	Two-way	30	20-60

Table 3-1. Station-Area Transit Routes and Headways (Continued)

Station	Bus Routes	Direction	Peak Headway (min)	Off-Peak Headway (min)
Westwood/UCLA	20	EB	8.5	10
		WB	6	11
	720	EB	4-5	6-7
		WB	3-4	6-7
	920	EB	36	120
		WB	6.5	40
	AV786	SB	120	N/A
	SM2	Two-way	15	20
	SM3	Two-way	15	30
	SM1	Two-way	10-30	10-30
	SM8	Two-way	15	15
	SM12	Two-way	15	15-45
	C6	Two-way	20	30
	CE573	SB	20	N/A
		NB	90	N/A
	SC792	NB	30	N/A
	SC797	SB	60	N/A
	CE431	EB	45	N/A
	CE534	WB	45	N/A
	761	NB	8	15
		SB	4	15
Westwood/VA Hospital	720	EB	6-7	11-12
		WB	5-6	11-12
	SM3	Two-way	15	30
	SM4	Two-way	30	30
	SM2	Two-way	15	20
Wilshire/Bundy	20		22.5	N/A
	720	EB	6-7	11-12
		WB	5-6	11-12
	SM2	Two-way	15	20
	SM14	Two-way	12	30
Wilshire/26th	20		22.5	N/A
	720	EB	6-7	11-12
		WB	5-6	11-12
	SM2	Two-way	15	20

Table 3-1. Station-Area Transit Routes and Headways (Continued)

Station	Bus Routes	Direction	Peak Headway (min)	Off-Peak Headway (min)
Wilshire/16th	20	EB	22.5	N/A
	720	EB	6-7	11-12
		WB	5-6	11-12
	SM2	Two-way	15	20
Wilshire/4th	720	EB	6-7	11-12
		WB	5-6	11-12
	920	EB	36	120
		WB	18	45
	SM2	Two-way	15	20
	SM4	Two-way	30	30
	SM3	Two-way	15	30
	SMR3	NB	15	N/A
		SB	15	N/A
	SM9	Two-way	30	30
Hollywood/Highland	217	Two-way	12	20
	212	Two-way	10	30
	212	SB	6	30
	156	Two-way	5	24
	LD916	Two-way	30	30
	LD917	Two-way	10	20
	780	NEB	5	15
		SWB	8	15
Santa Monica/La Brea	212/312	Two-way	10	30
		NB	6	30
	4	Two-way	7	14
	AV786	SB	120	N/A
	704	EB	7	15
		WB	7	15

Table 3-1. Station-Area Transit Routes and Headways (Continued)

Station	Bus Routes	Direction	Peak Headway (min)	Off-Peak Headway (min)
Santa Monica/Fairfax	4	Two-way	7	14
	704	EB	7	15
		WB	7	15
	AV786	SB	120	N/A
	218	Two-way	18	30
	217	Two-way	12	20
	780	EB	5	15
		WB	8	15
	WH-A/B	Two-way	40	40
	AV786	SB	120	N/A
Santa Monica/San Vicente	4	Two-way	7	14
	704	EB	7	15
		WB	7	15
	705	SB	13	20
	705	NB	13	20
	10	Two-way	12	30
	105	Two-way	25	20
	305	Two-way	30	45
	550	NB	47	45
		SB	38	45
Beverly Center Area	305	Two-way	30	45
	550	NB	47	45
		SB	38	45
	16	WB	12	24
		Two-way	6	12
	LD914	Two-way	15	15
	LD917	Two-way	10	20
	105	Two-way	25	20
	705	SB	13	20
	705	NB	13	20
	218	Two-way	18	30

Source: Metro

Note: Routes are operated by Metro unless otherwise specified as follows: LD (LADOT DASH); AV (Antelope Valley Transit Authority); SC (Santa Clarita Transit); SM (Santa Monica Big Blue Bus); CE (LADOT Commuter Express); C (Culver CityBus); WH (West Hollywood CityLine).

Figure 3-4. Wilshire/Crenshaw Station-Area Stop-Level Boardings

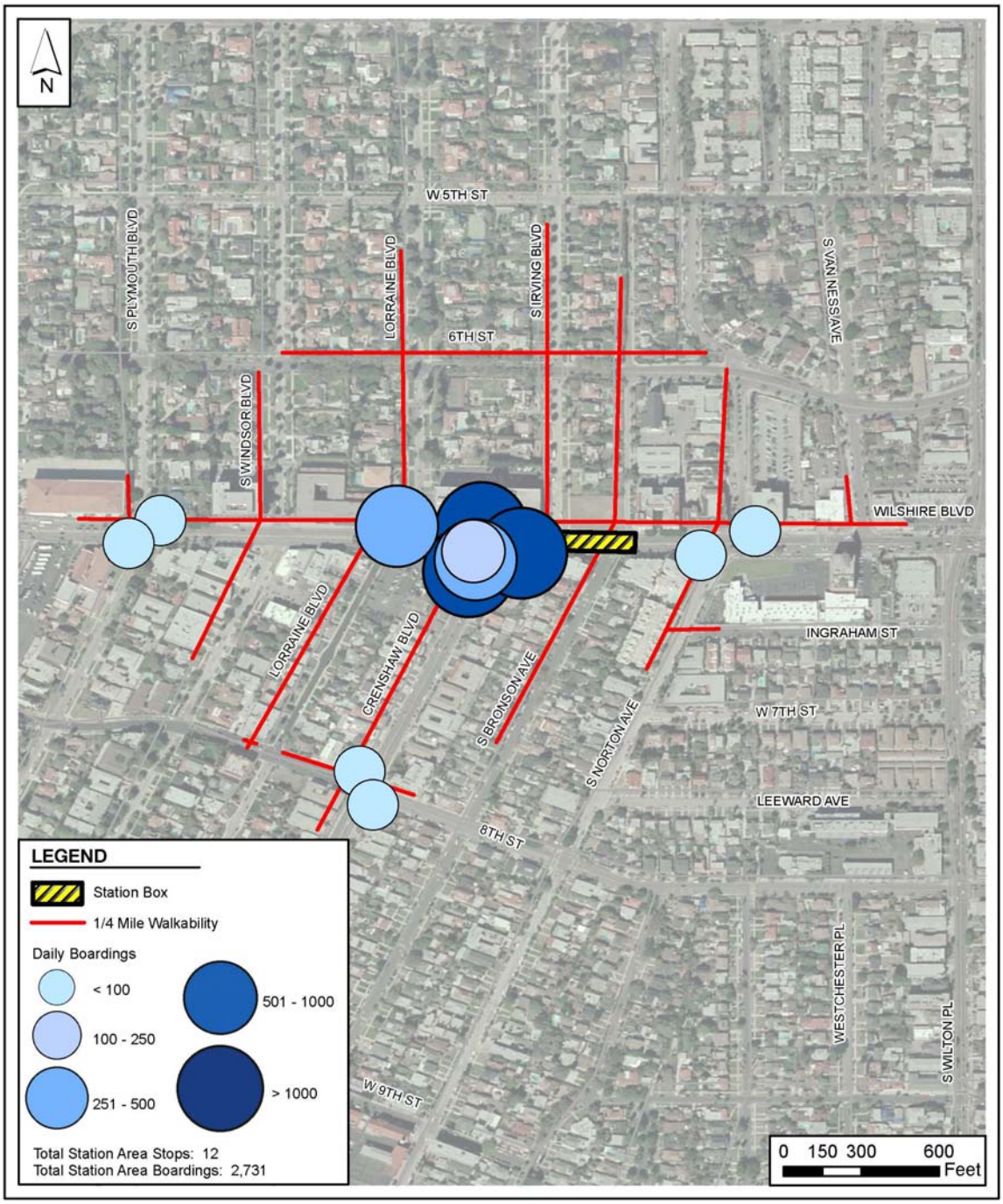


Figure 3-5. Wilshire/La Brea Station-Area Stop-Level Boardings

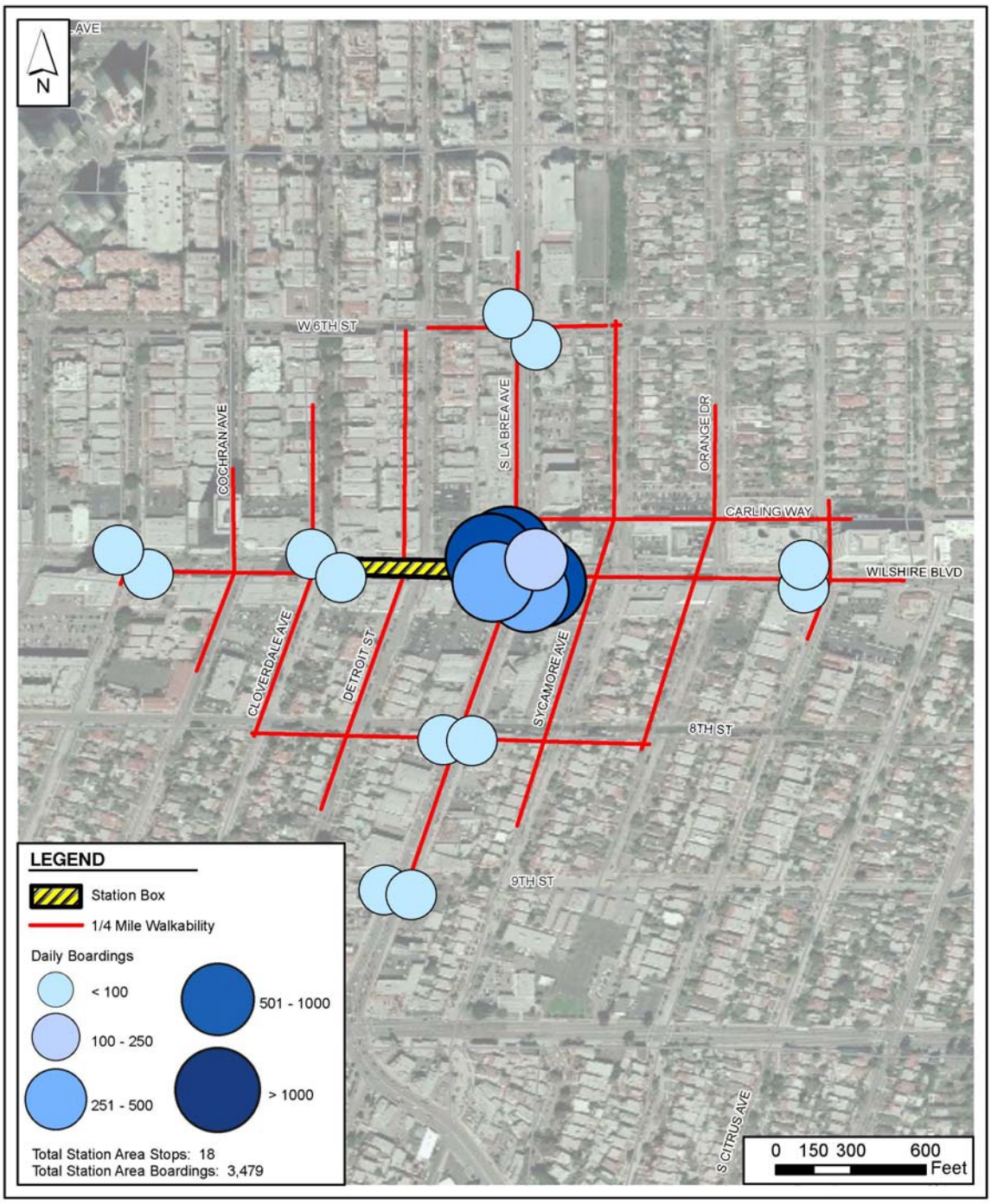


Figure 3-6. Wilshire/Fairfax Station-Area Stop-Level Boardings

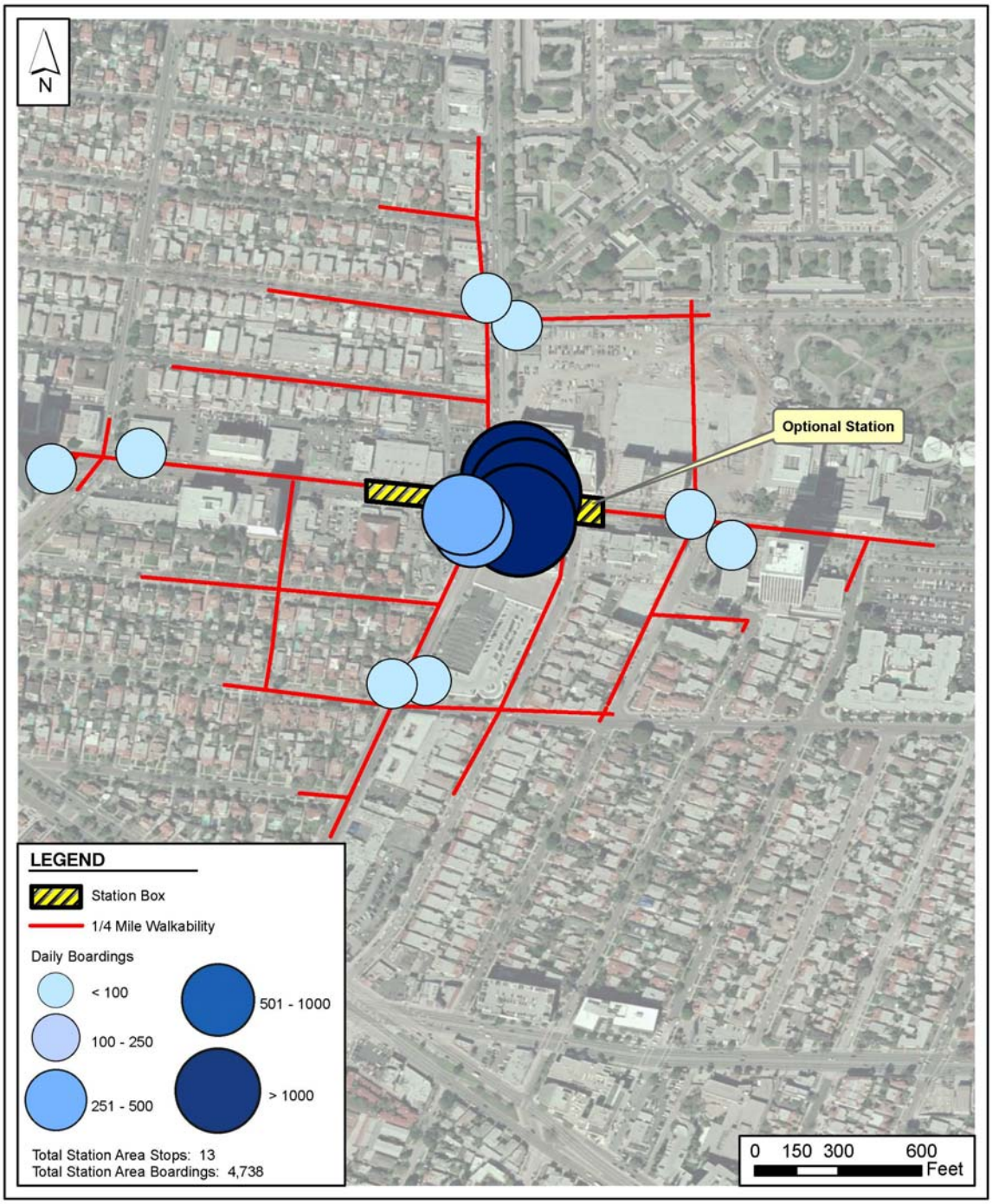


Figure 3-7. Wilshire/La Cienega Station-Area Stop-Level Boardings

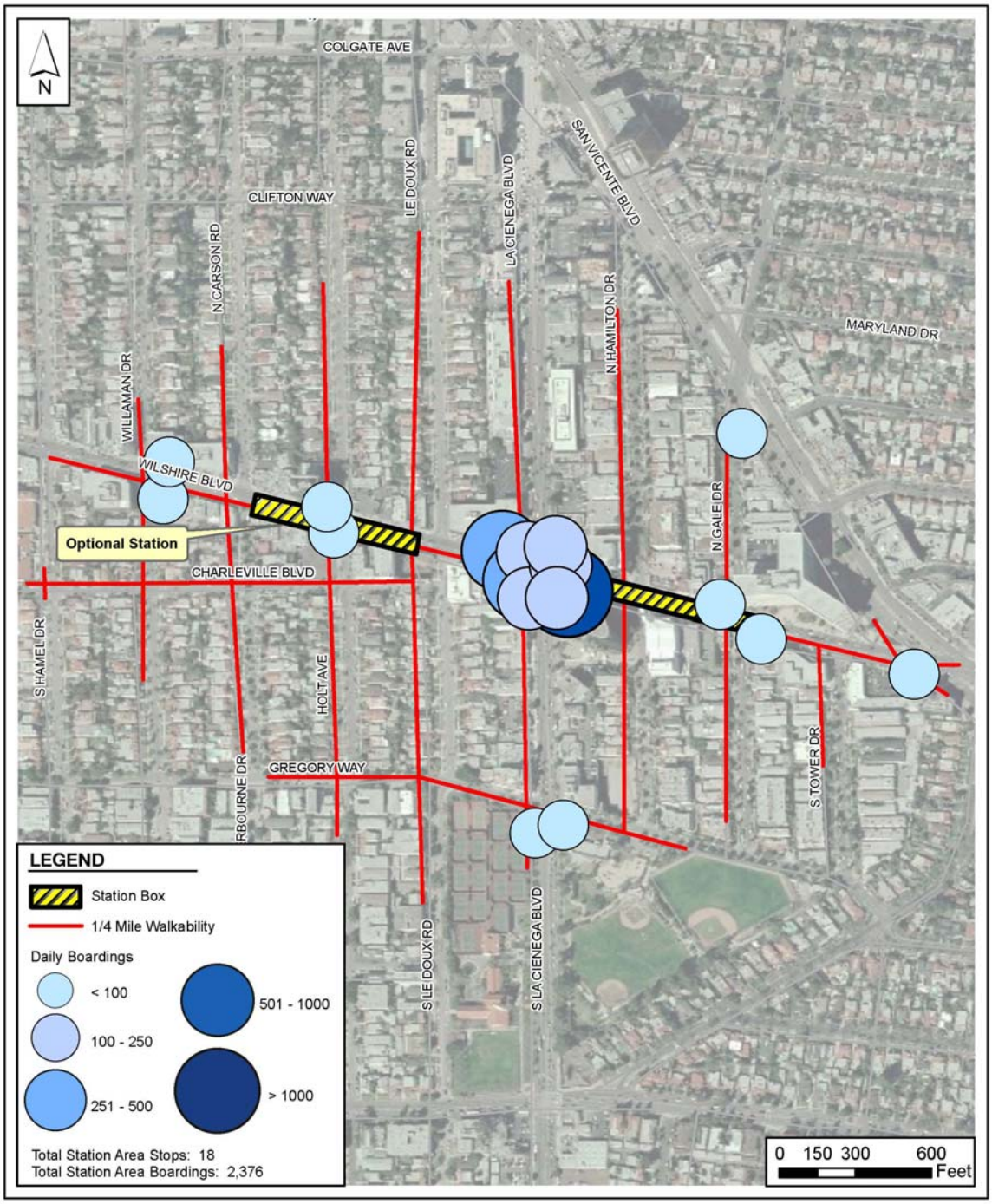


Figure 3-8. Wilshire/Rodeo Station-Area Stop-Level Boardings

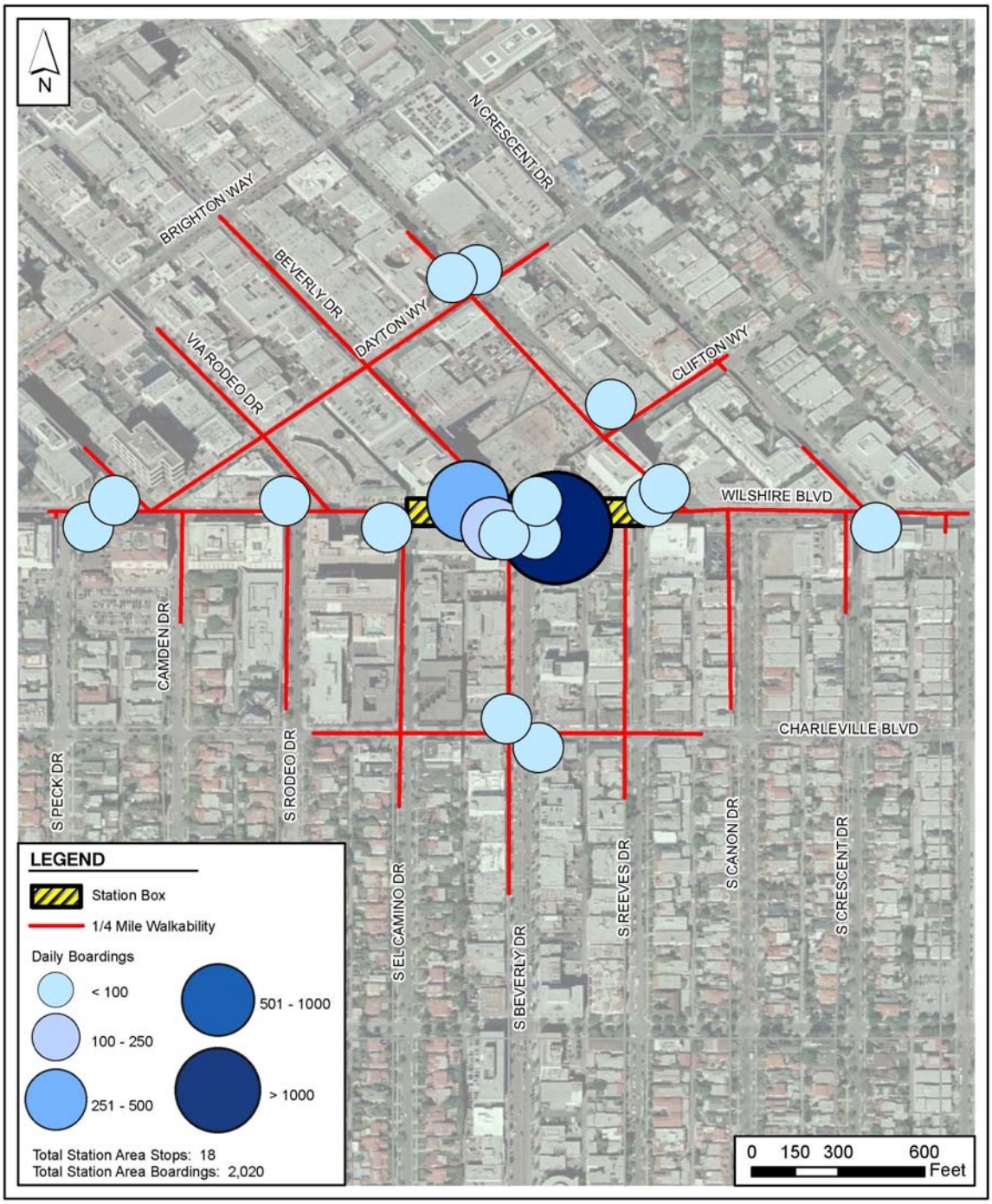


Figure 3-9. Century City Station-Area Stop-Level Boardings

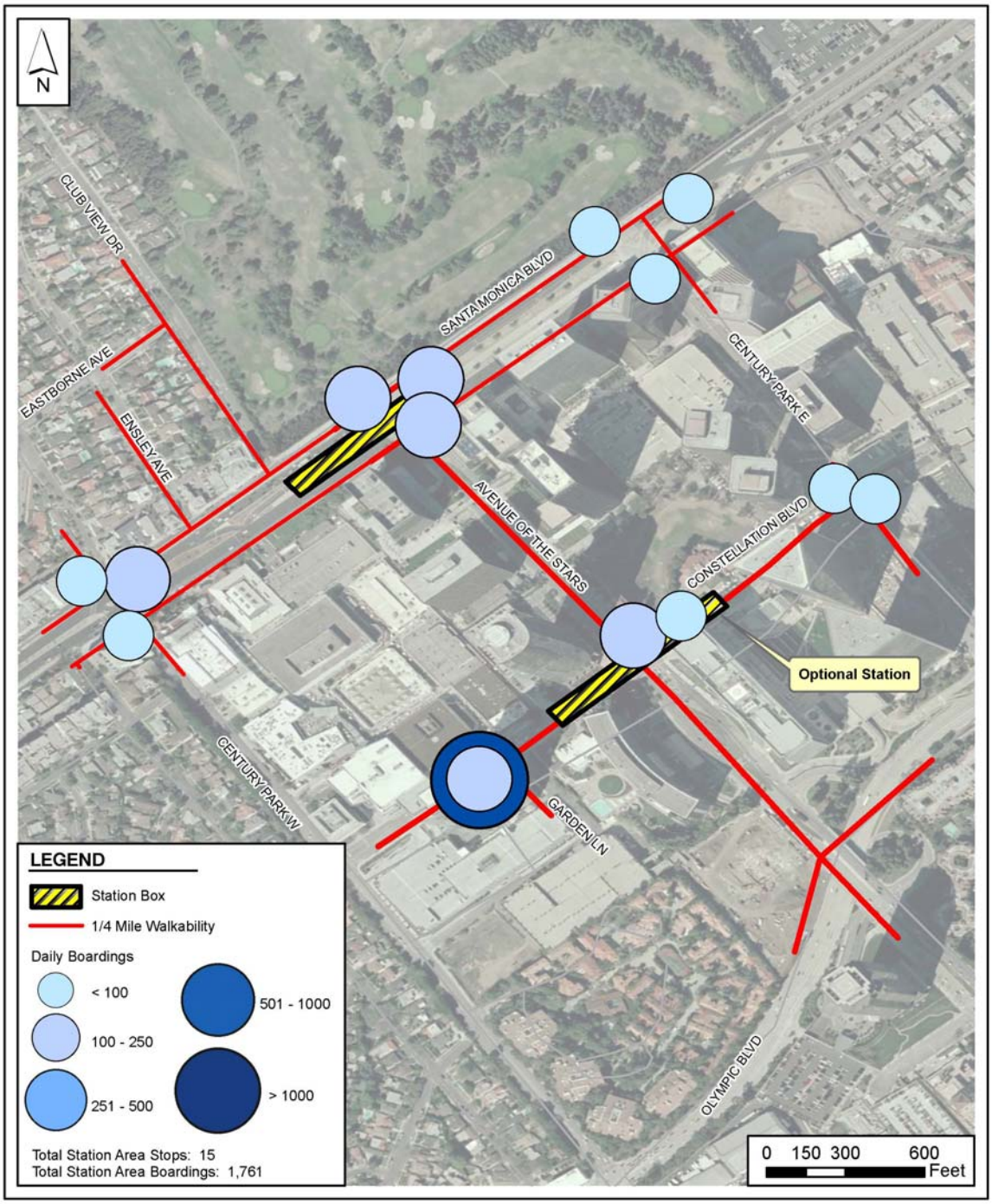


Figure 3-10. Westwood/UCLA Station-Area Stop-Level Boardings

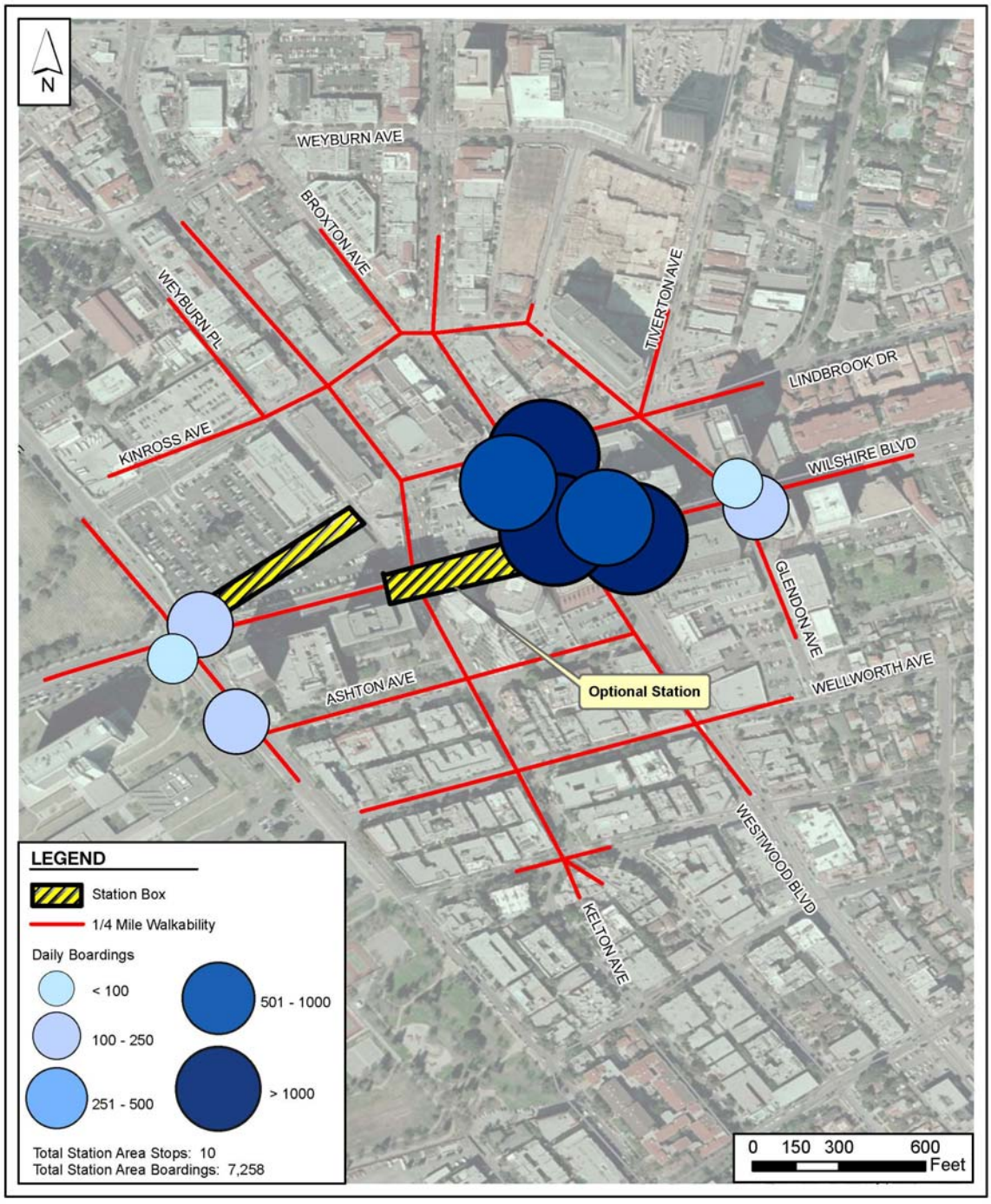


Figure 3-11. Westwood/VA Hospital Station-Area Stop-Level Boardings

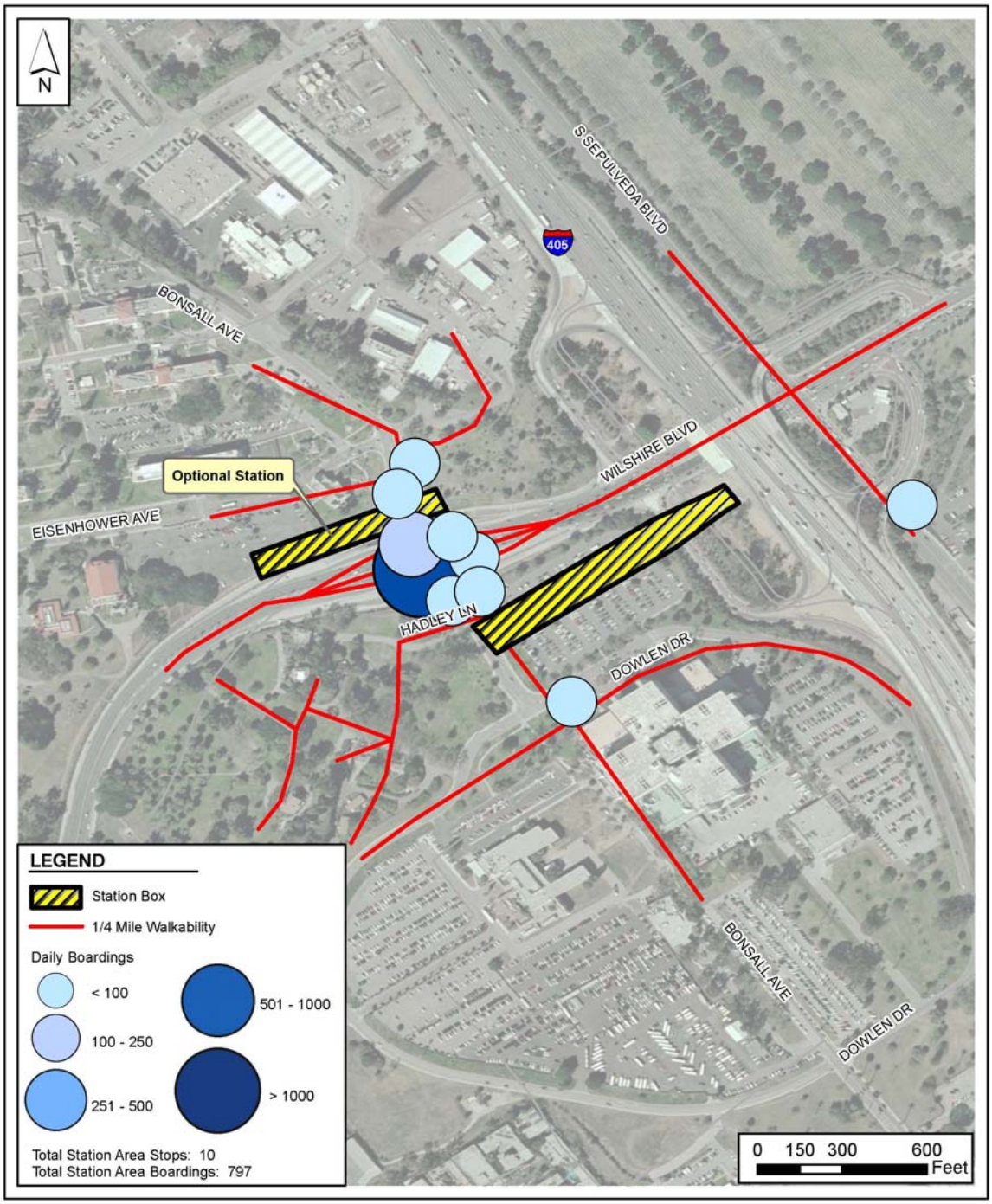


Figure 3-12. Wilshire/Bundy Station-Area Stop-Level Boardings

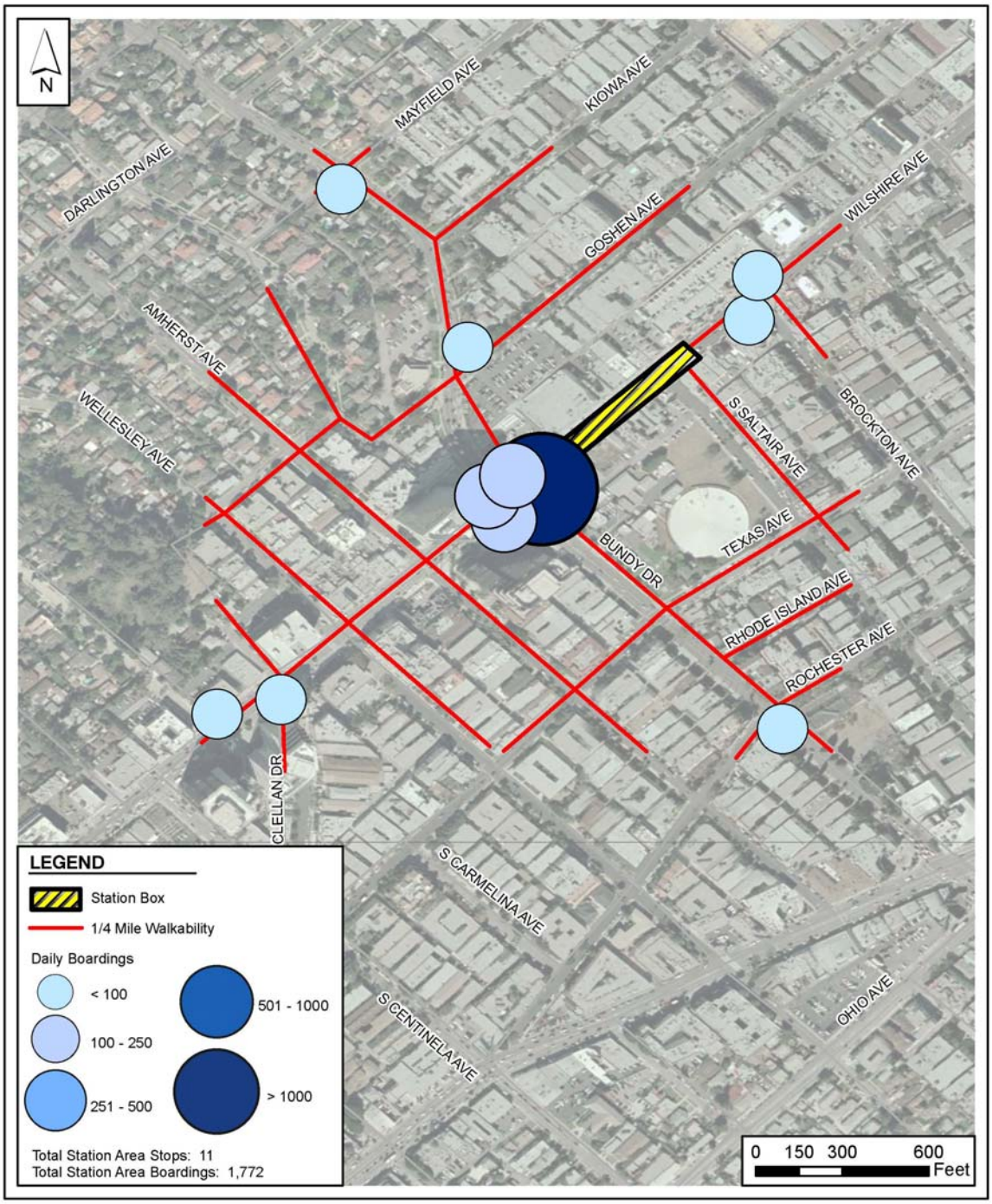


Figure 3-13. Wilshire/26th Station-Area Stop-Level Boardings

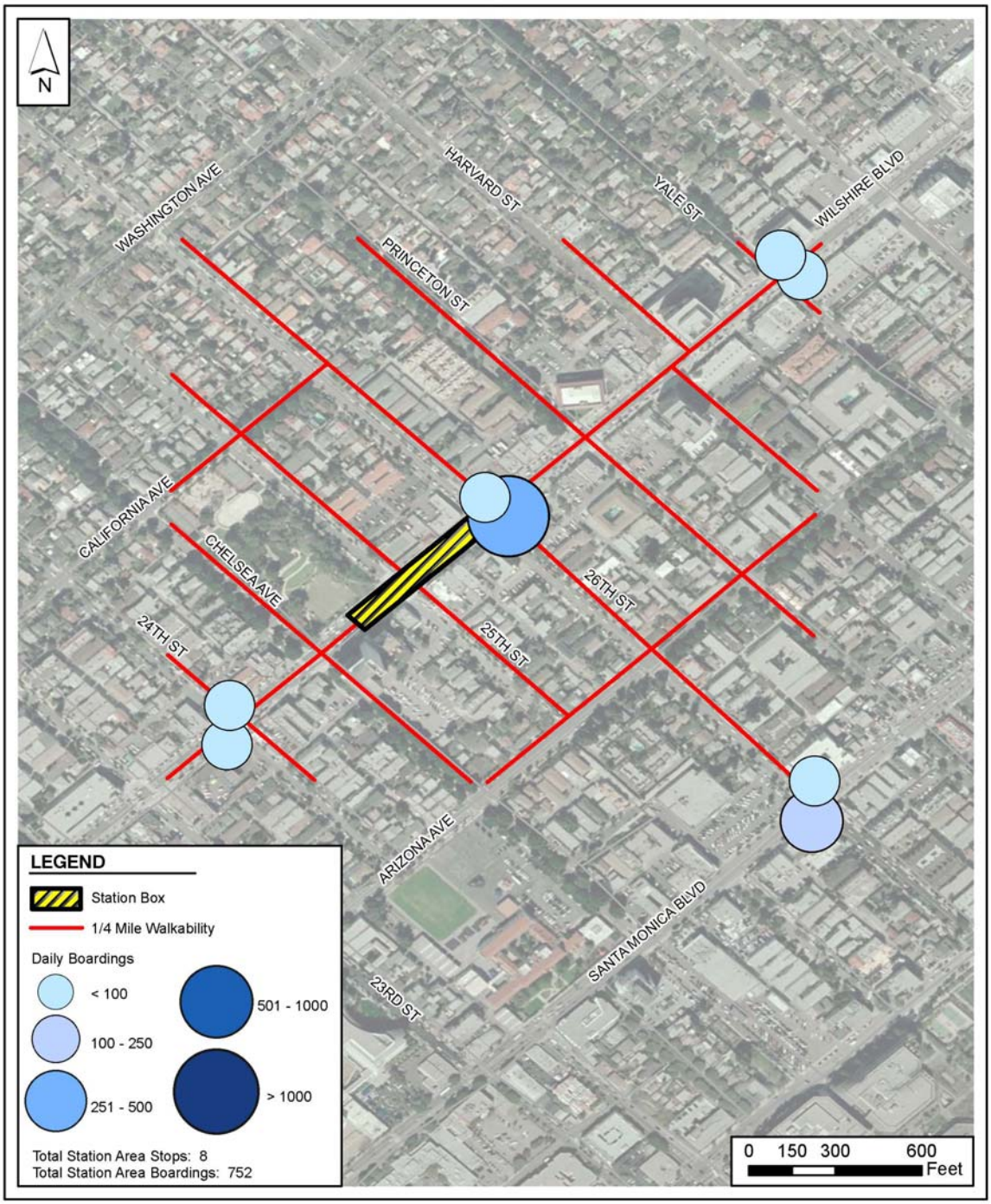


Figure 3-14. Wilshire/16th Station-Area Stop-Level Boardings

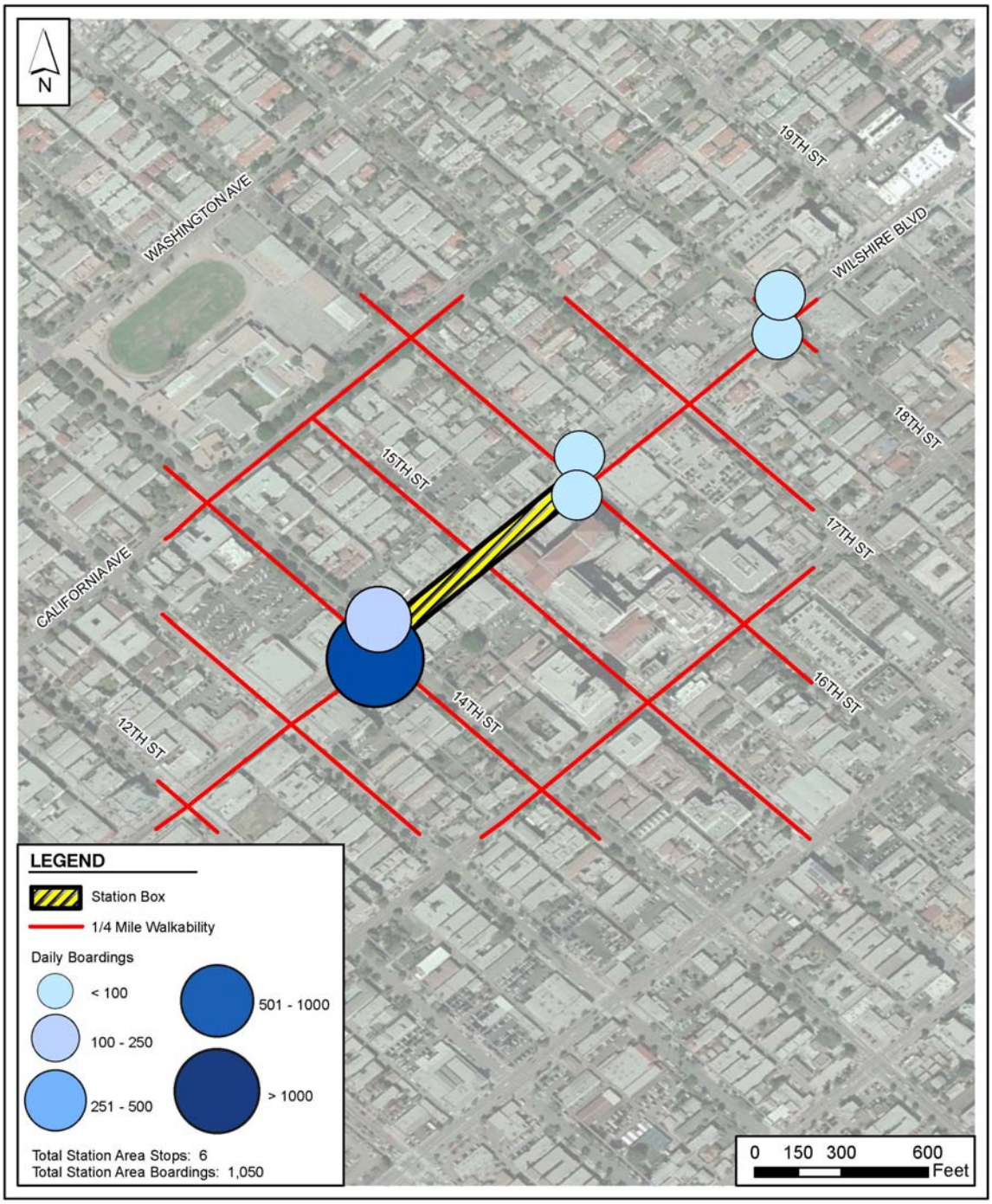


Figure 3-15. Wilshire/4th Station-Area Stop-Level Boardings

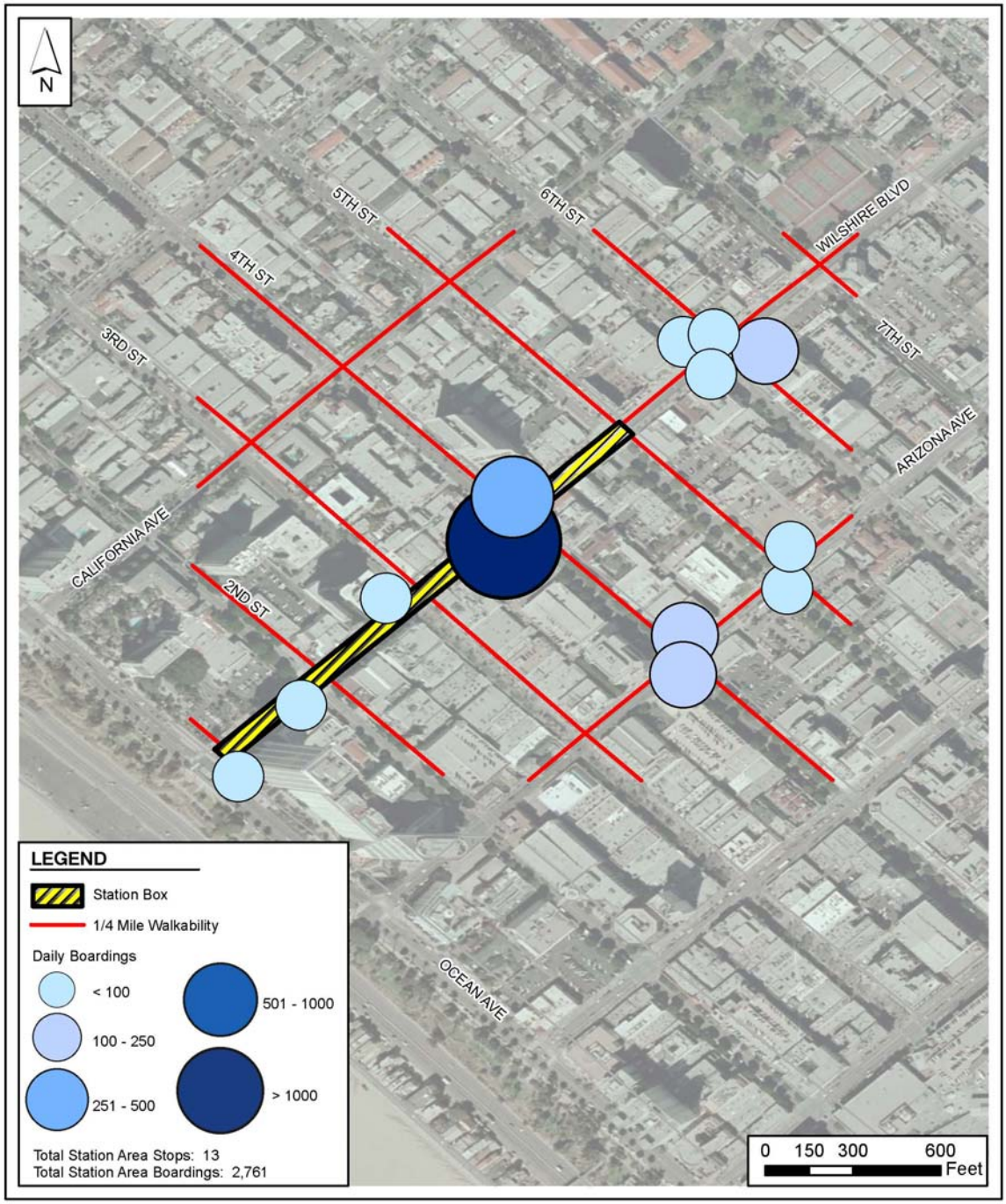


Figure 3-16. Hollywood/Highland Station-Area Stop-Level Boardings

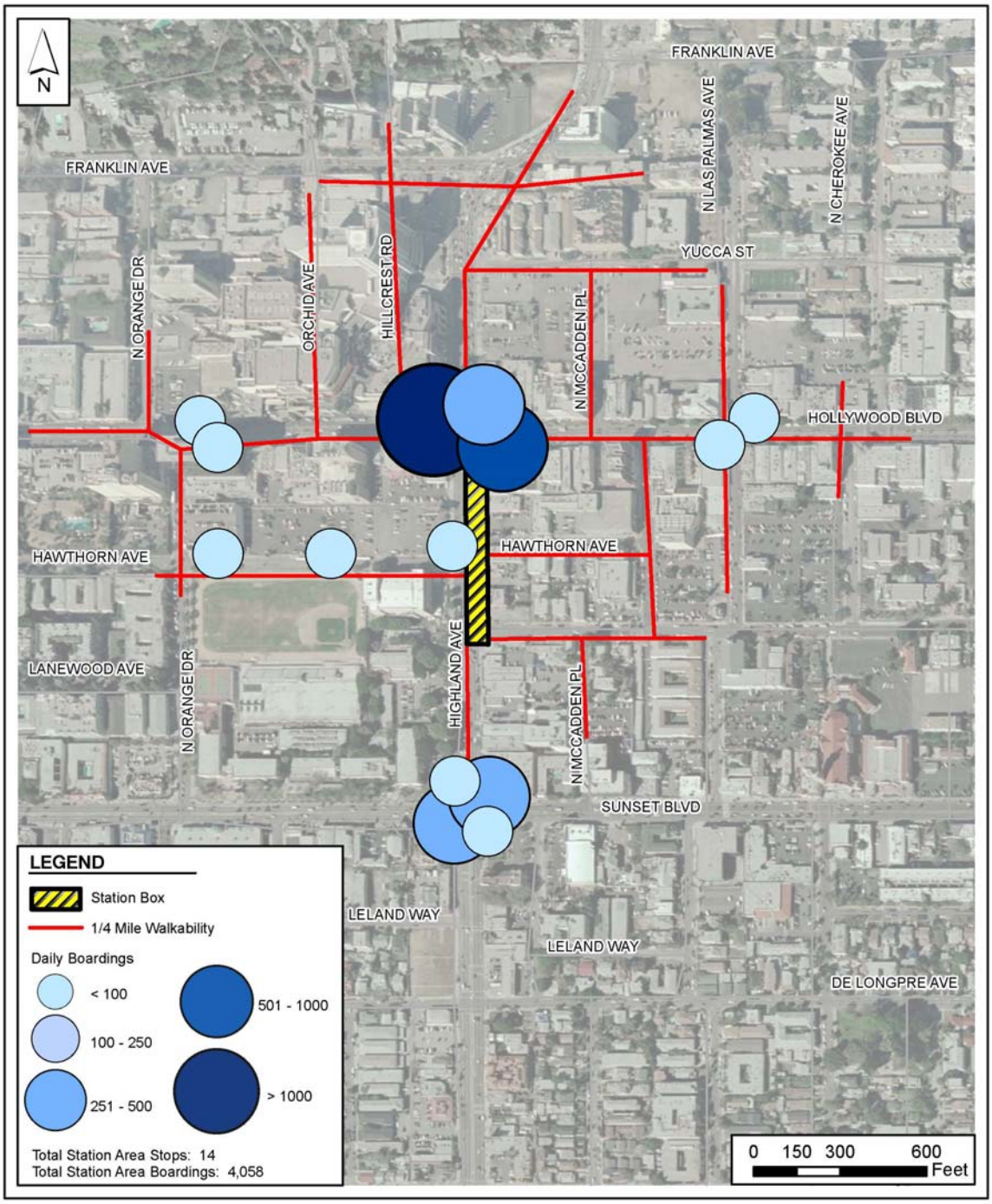


Figure 3-17. Santa Monica/La Brea Station-Area Stop-Level Boardings

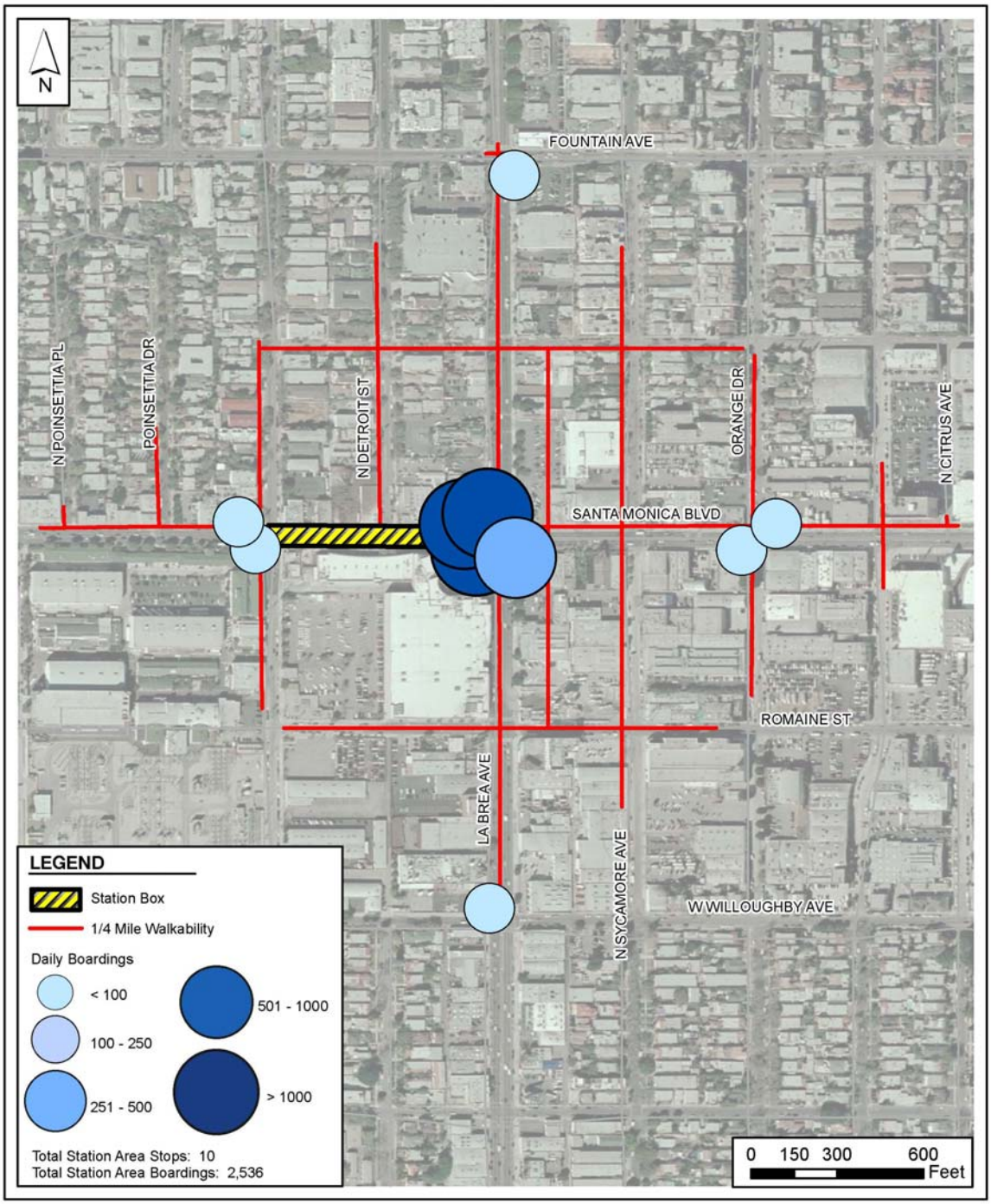


Figure 3-18. Santa Monica/Fairfax Station-Area Stop-Level Boardings

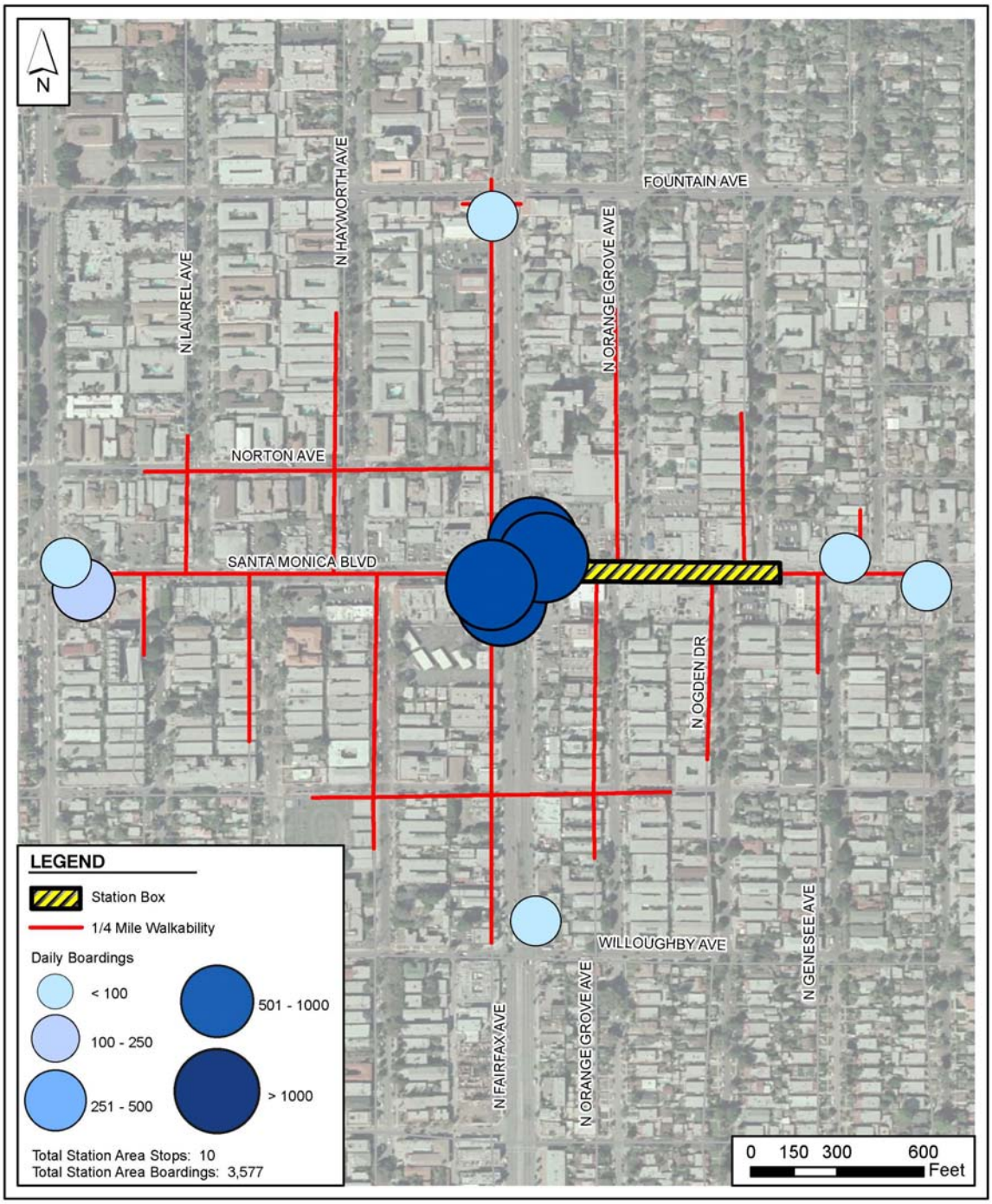


Figure 3-19. Santa Monica/San Vicente Station-Area Stop-Level Boardings

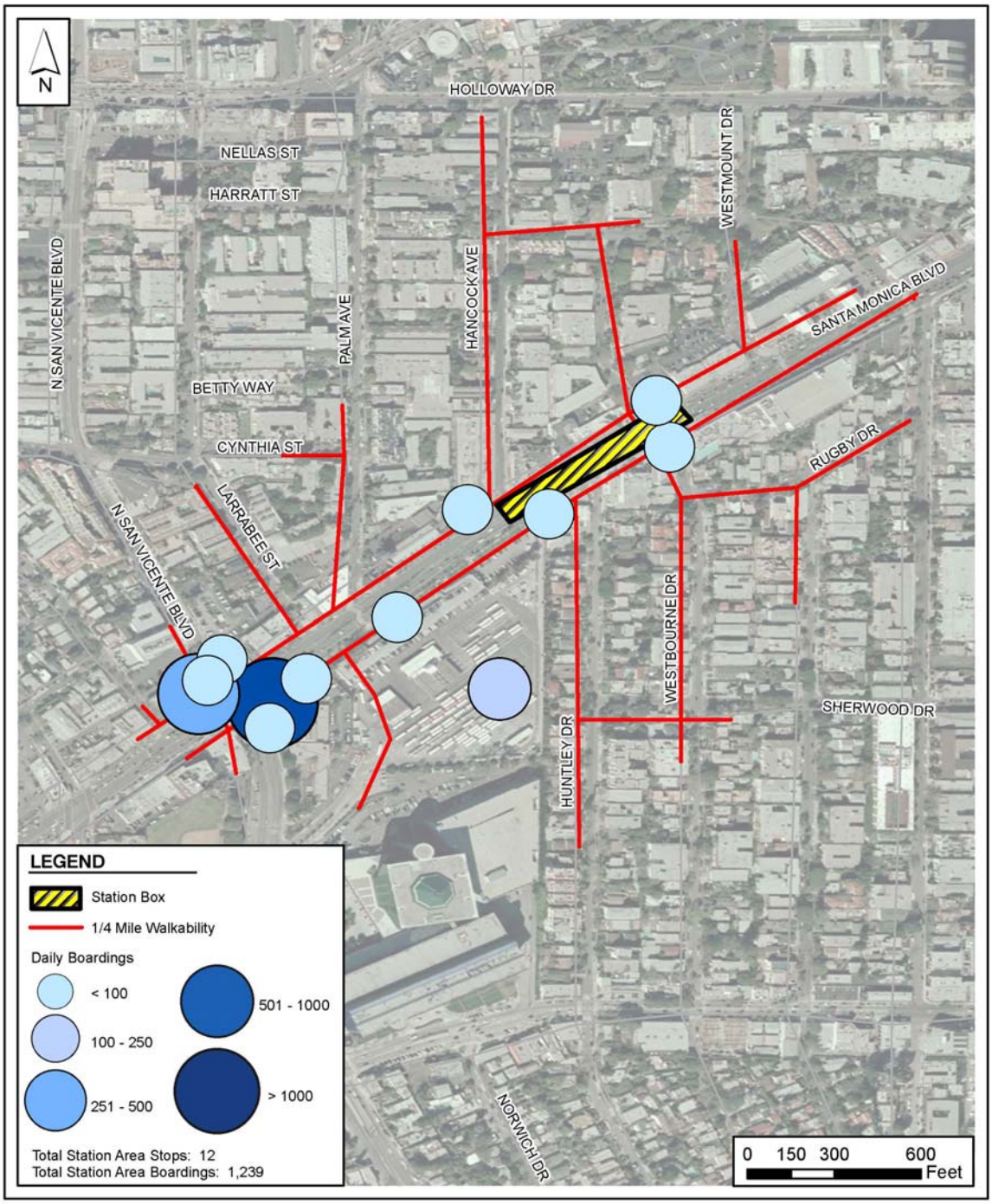


Figure 3-20. Beverly Center Area Station-Area Stop-Level Boardings

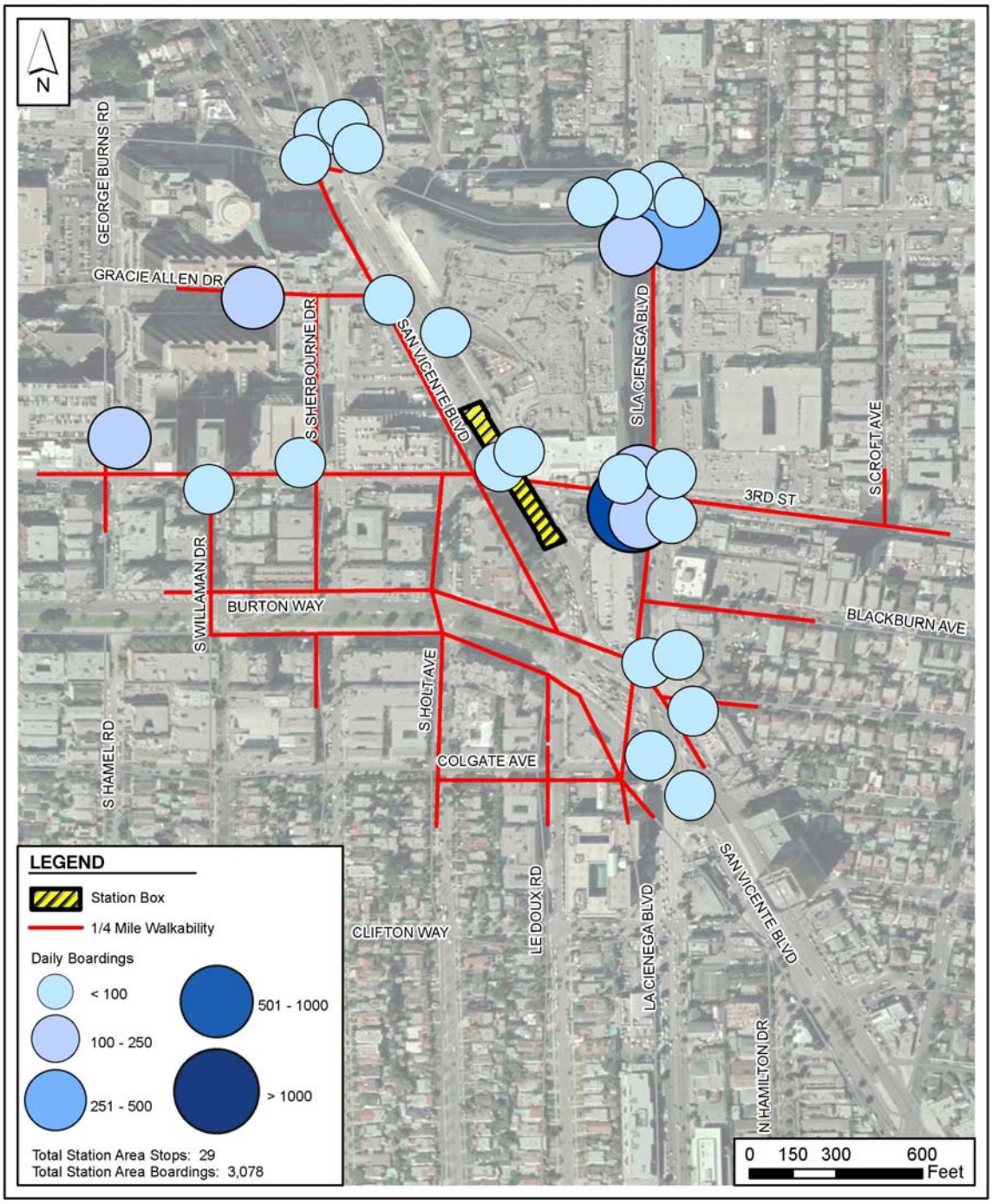
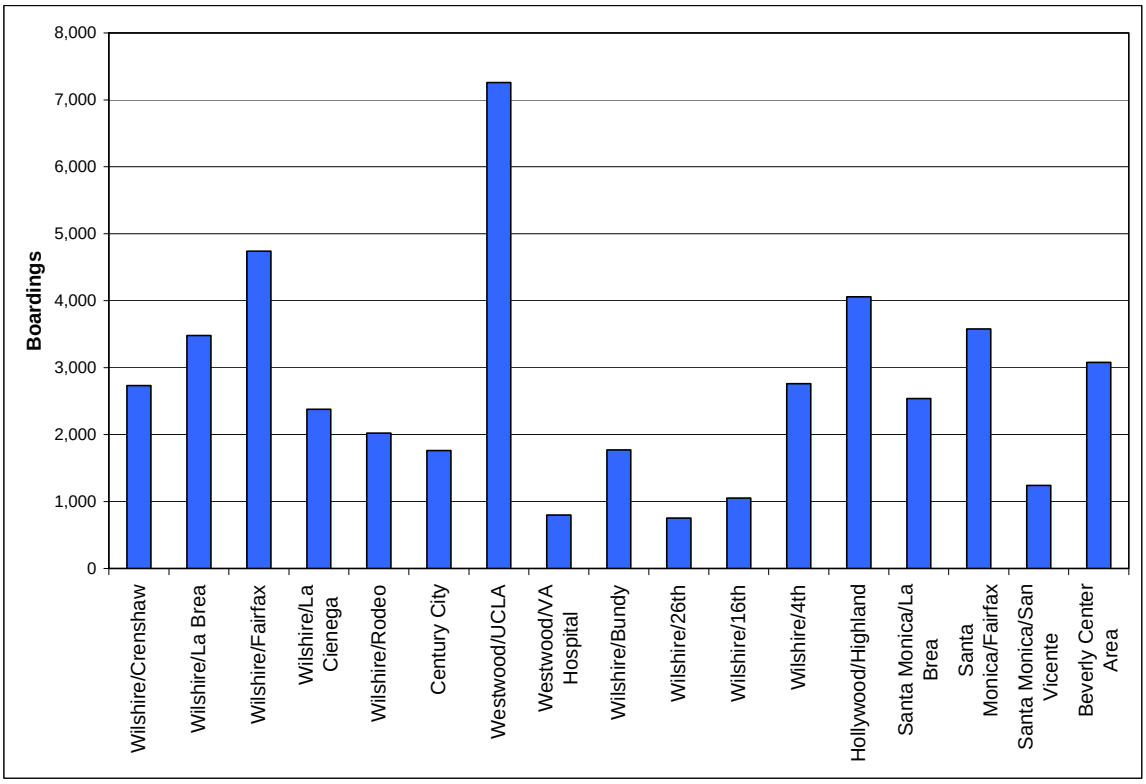


Figure 3-21. Daily Metro, Santa Monica, and Culver City Bus Boardings within ¼-Mile of Station Areas



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