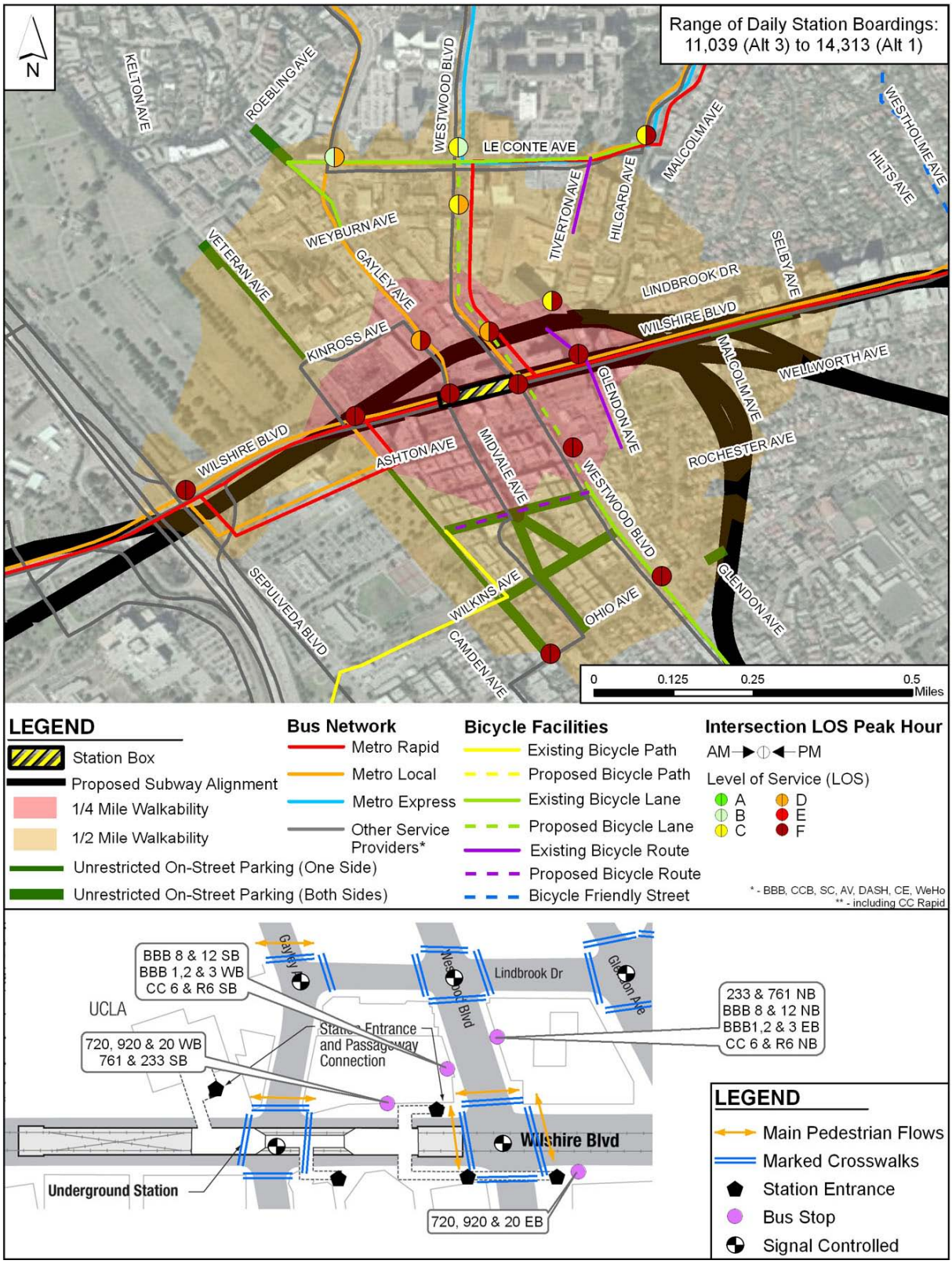

Figure 3-28. Station/Bus/Pedestrian-Bicycle Impact Analysis—Westwood/UCLA On-Street Optional Station

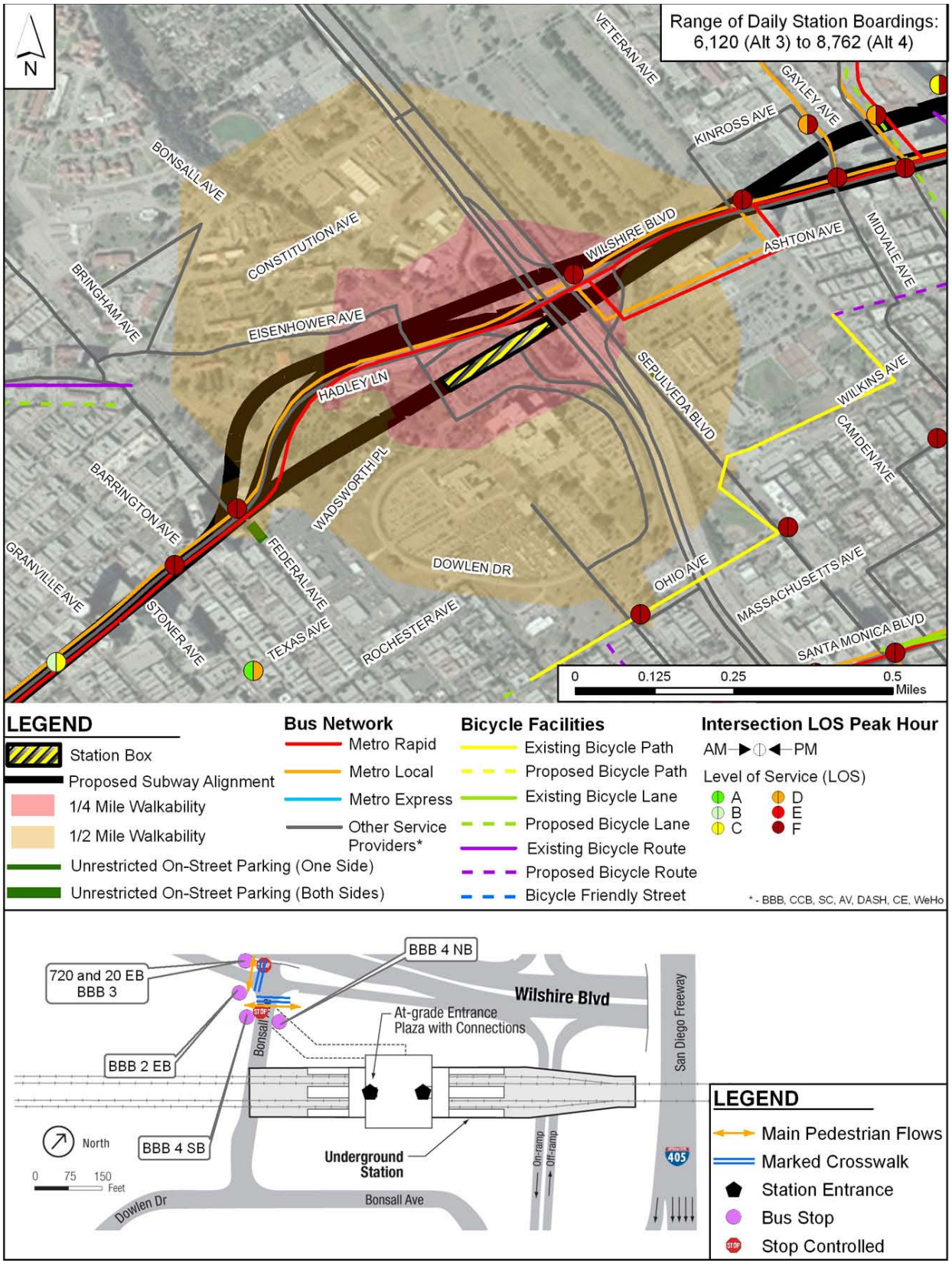

Figure 3-29. Station/Bus/Pedestrian-Bicycle Impact Analysis—Westwood/VA Hospital Station

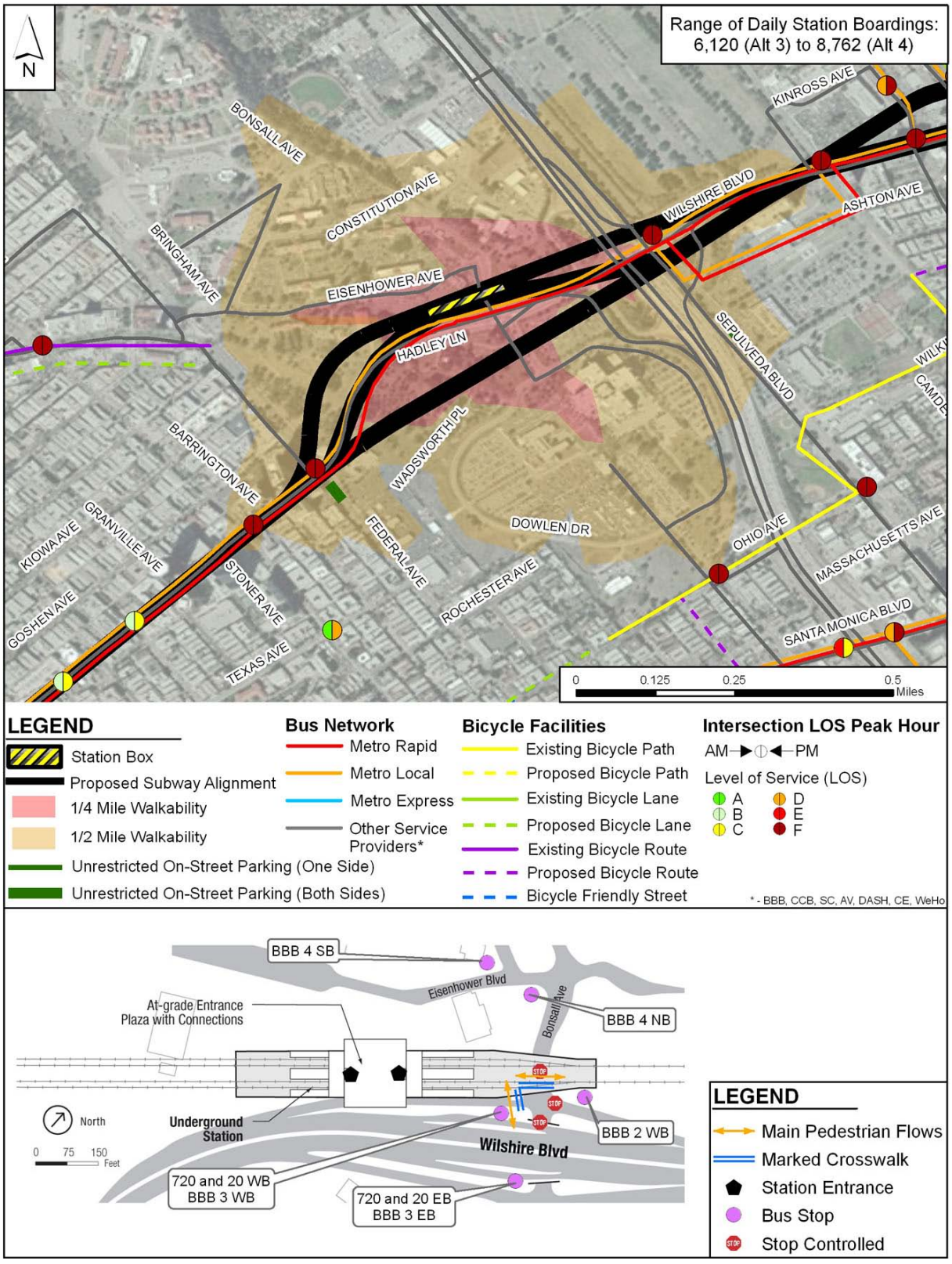

Figure 3-30. Station/Bus/Pedestrian-Bicycle Impact Analysis—Westwood/VA Hospital (North) Optional Station

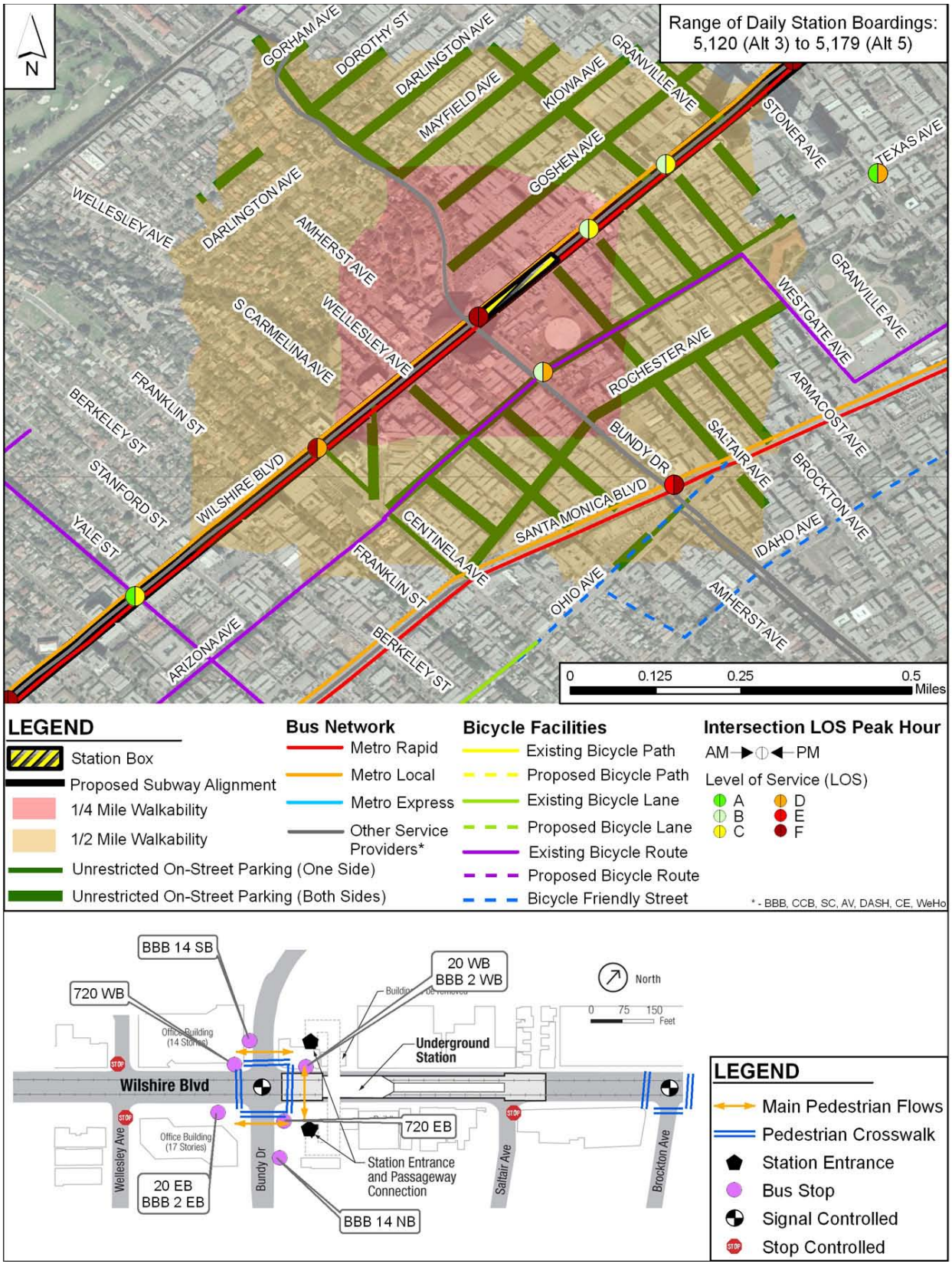

Figure 3-31. Station/Bus/Pedestrian-Bicycle Impact Analysis—Wilshire/Bundy Station

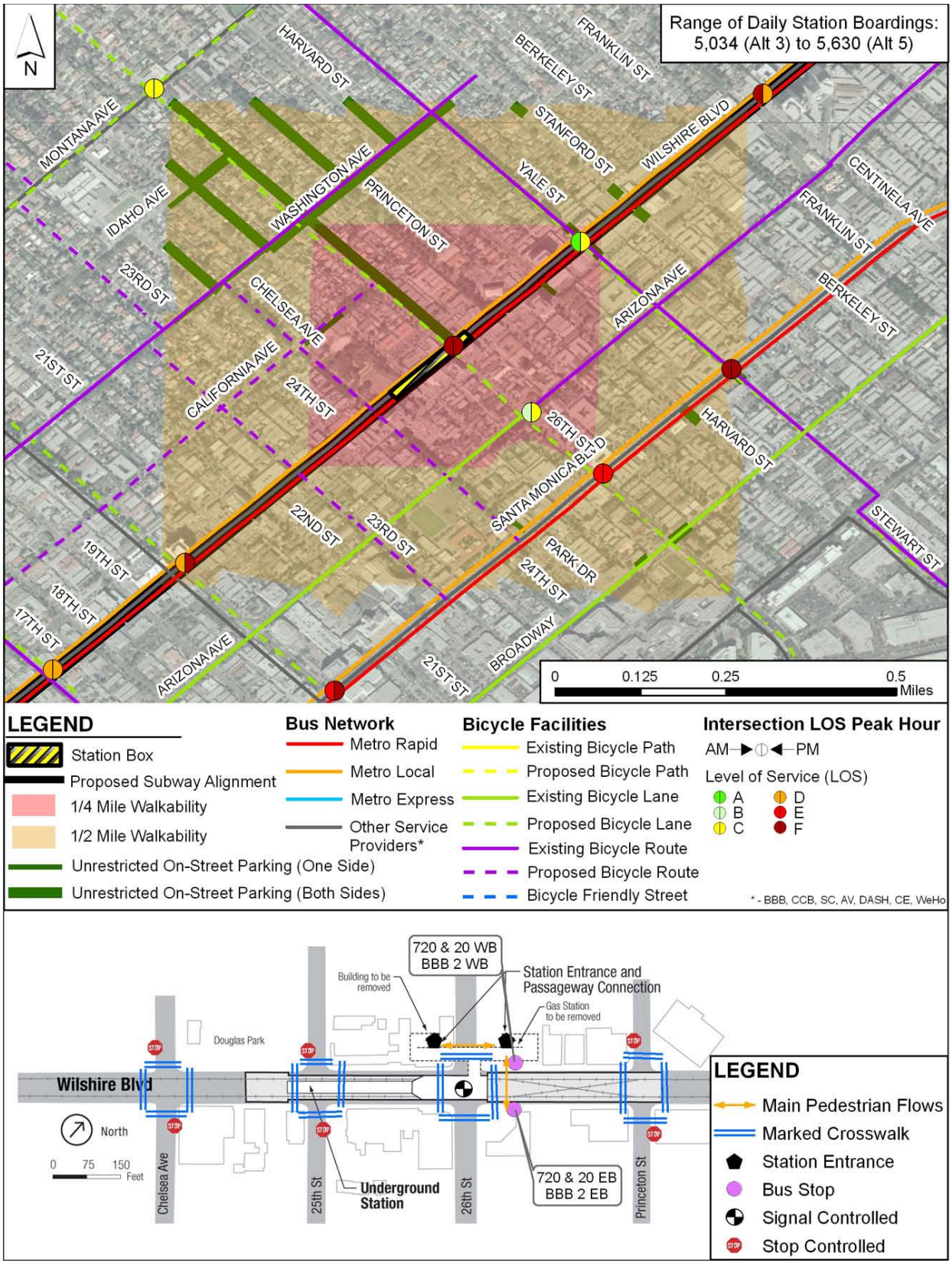

Figure 3-32. Station/Bus/Pedestrian-Bicycle Impact Analysis—Wilshire/26th Street Station

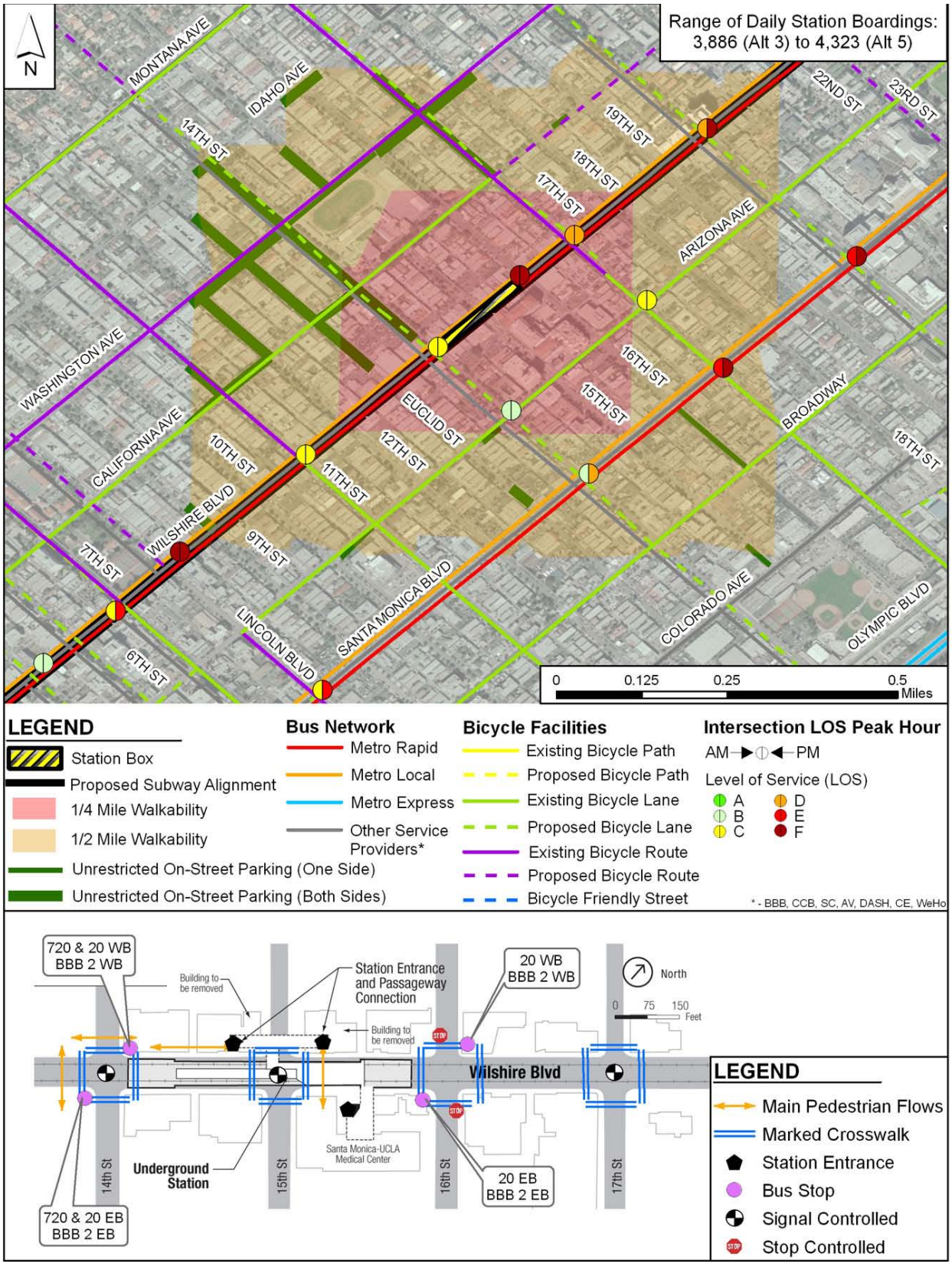

Figure 3-33. Station/Bus/Pedestrian-Bicycle Impact Analysis—Wilshire/16th Street Station

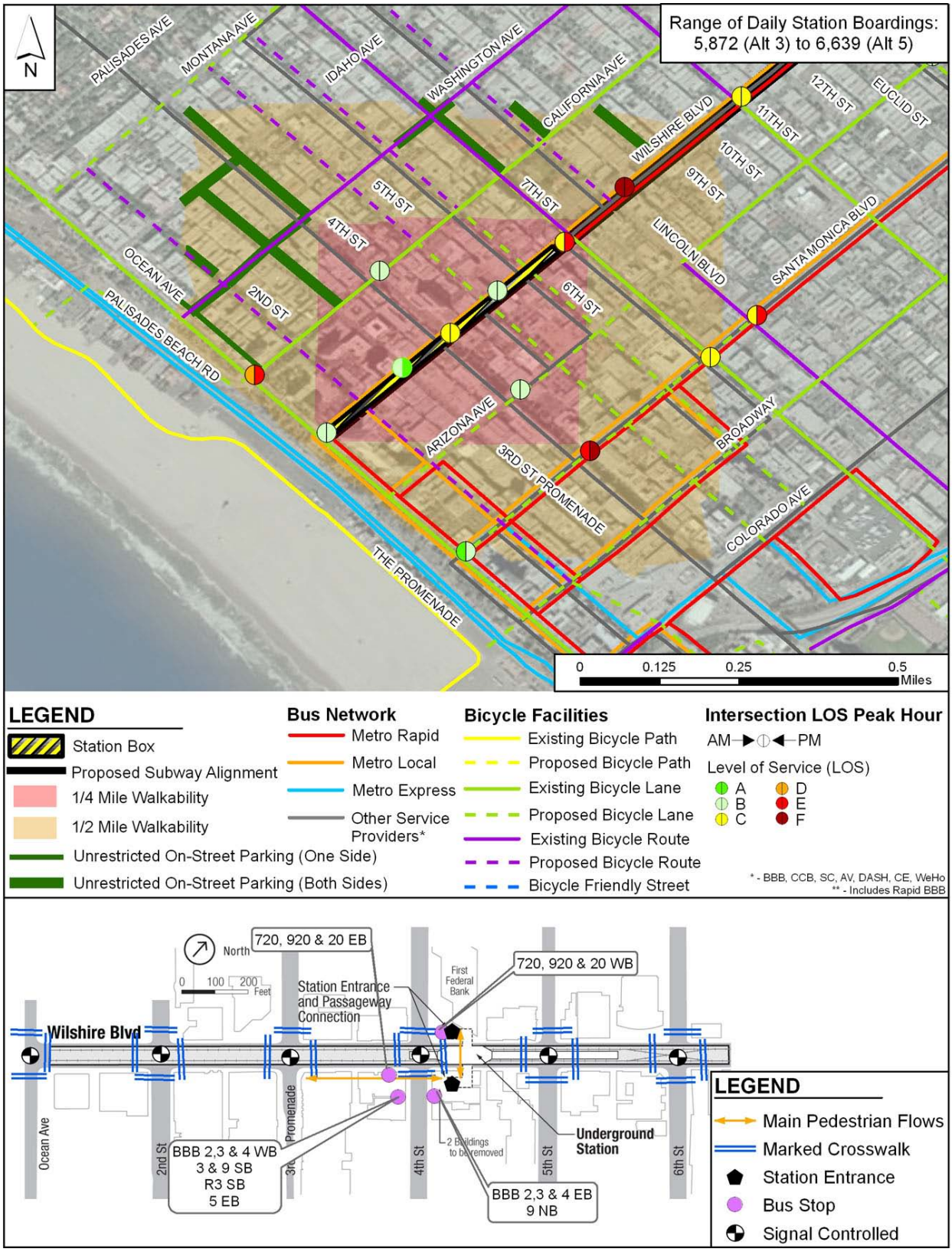

Figure 3-34. Station/Bus/Pedestrian-Bicycle Impact Analysis—Wilshire/4th Street Station

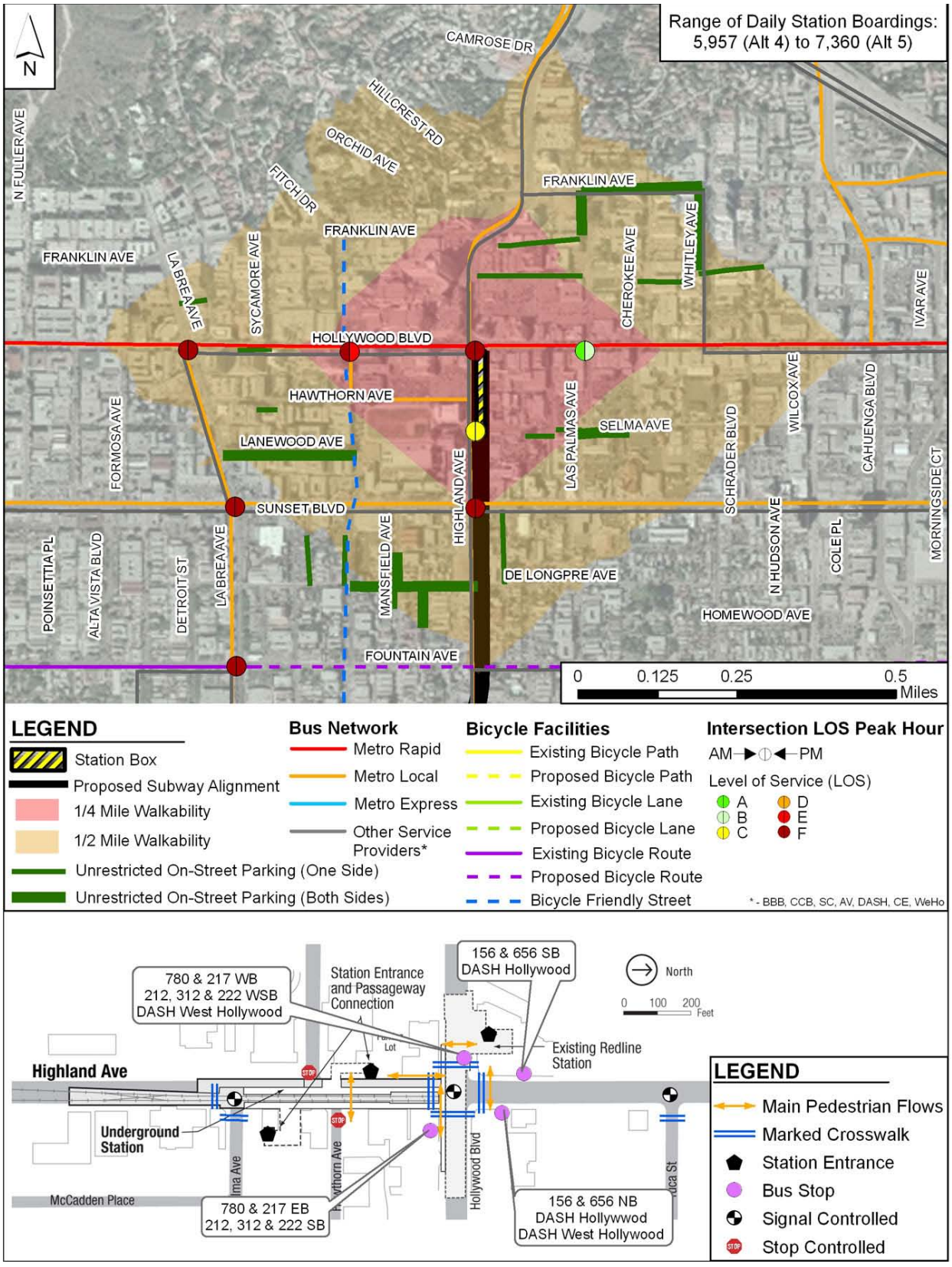

Figure 3-35. Station/Bus/Pedestrian-Bicycle Impact Analysis—Hollywood/Highland Station

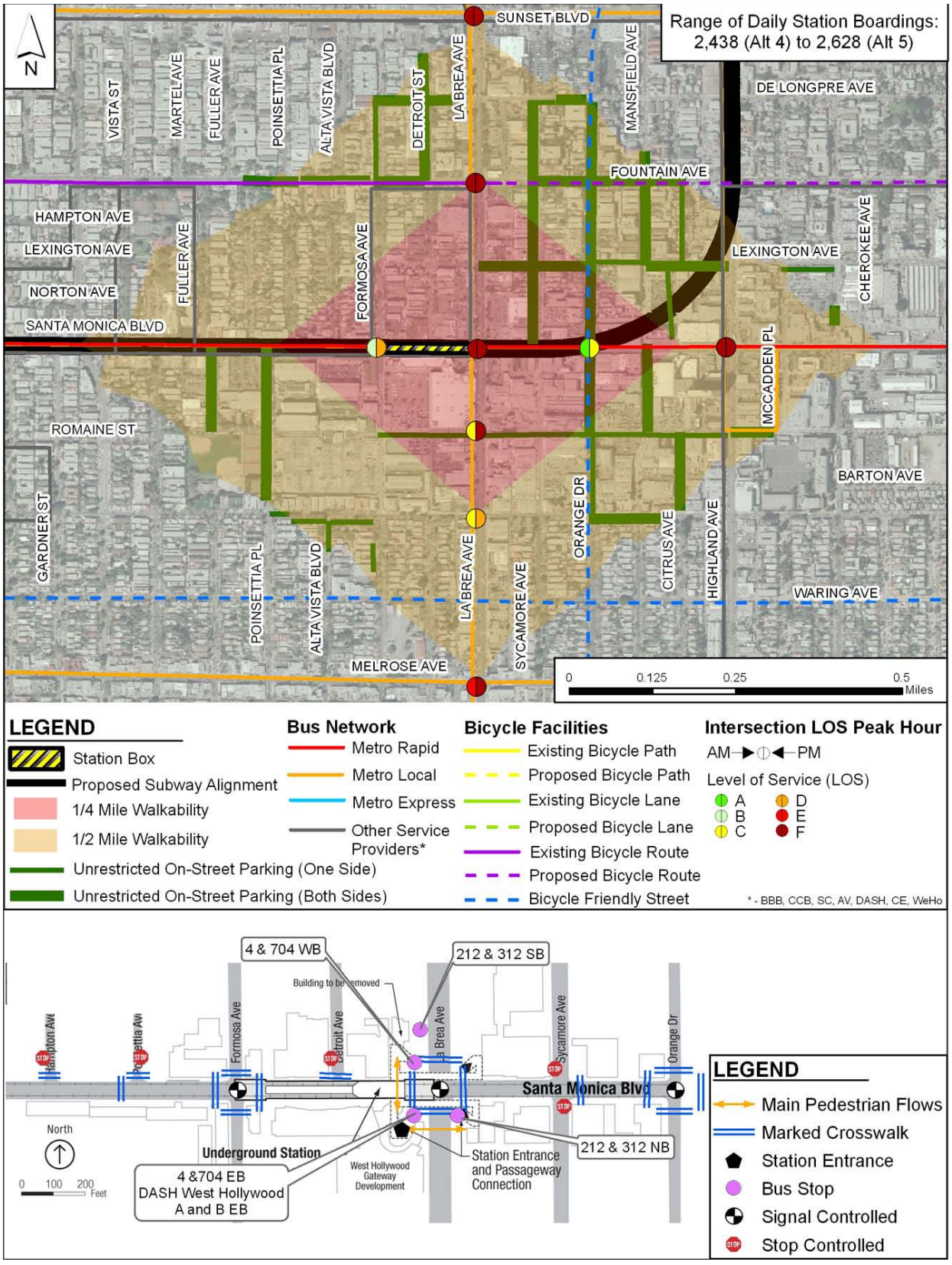

Figure 3-36. Station/Bus/Pedestrian-Bicycle Impact Analysis—Santa Monica/La Brea Optional Station

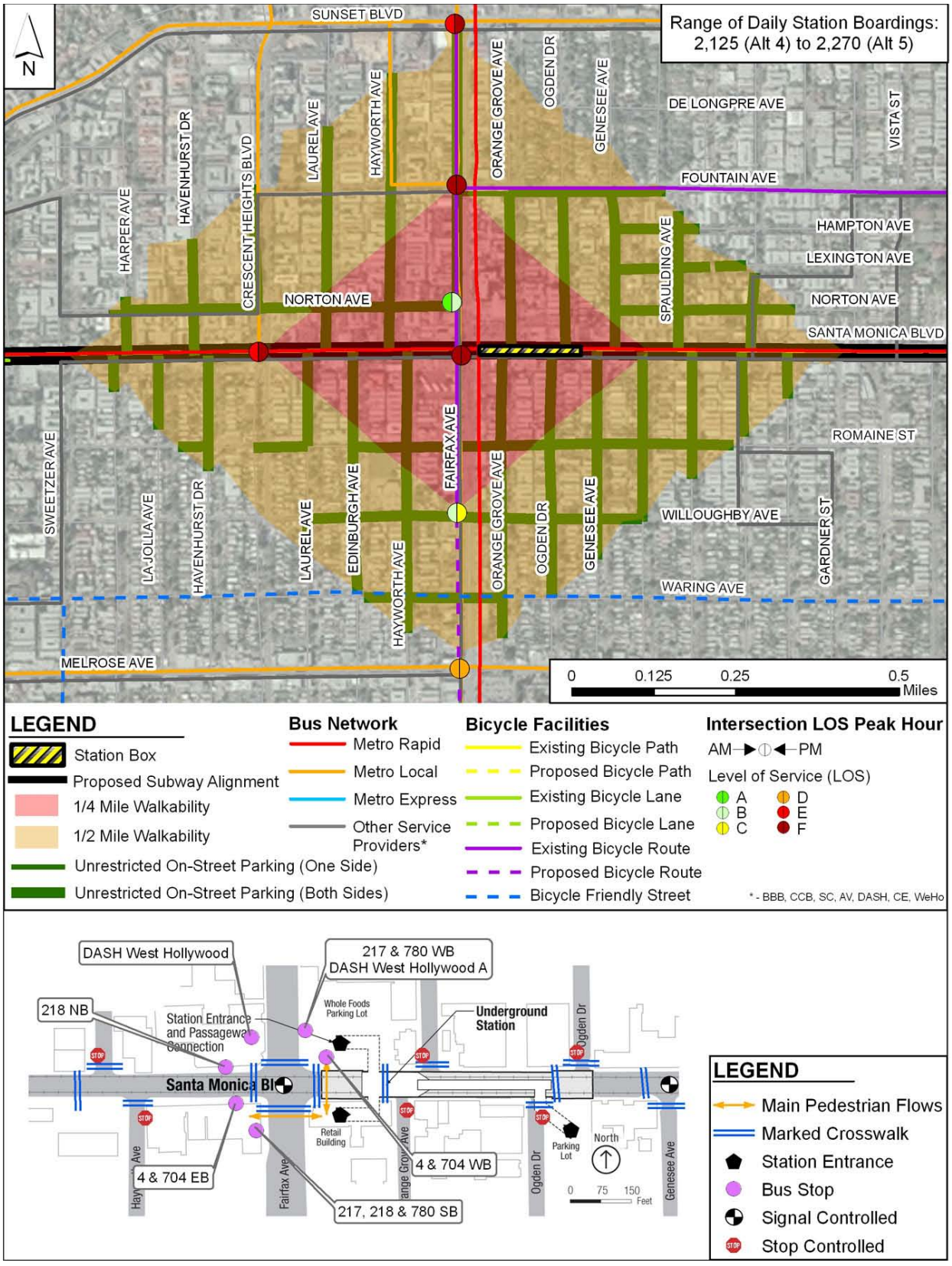

Figure 3-37. Station/Bus/Pedestrian-Bicycle Impact Analysis—Santa Monica/Fairfax Station

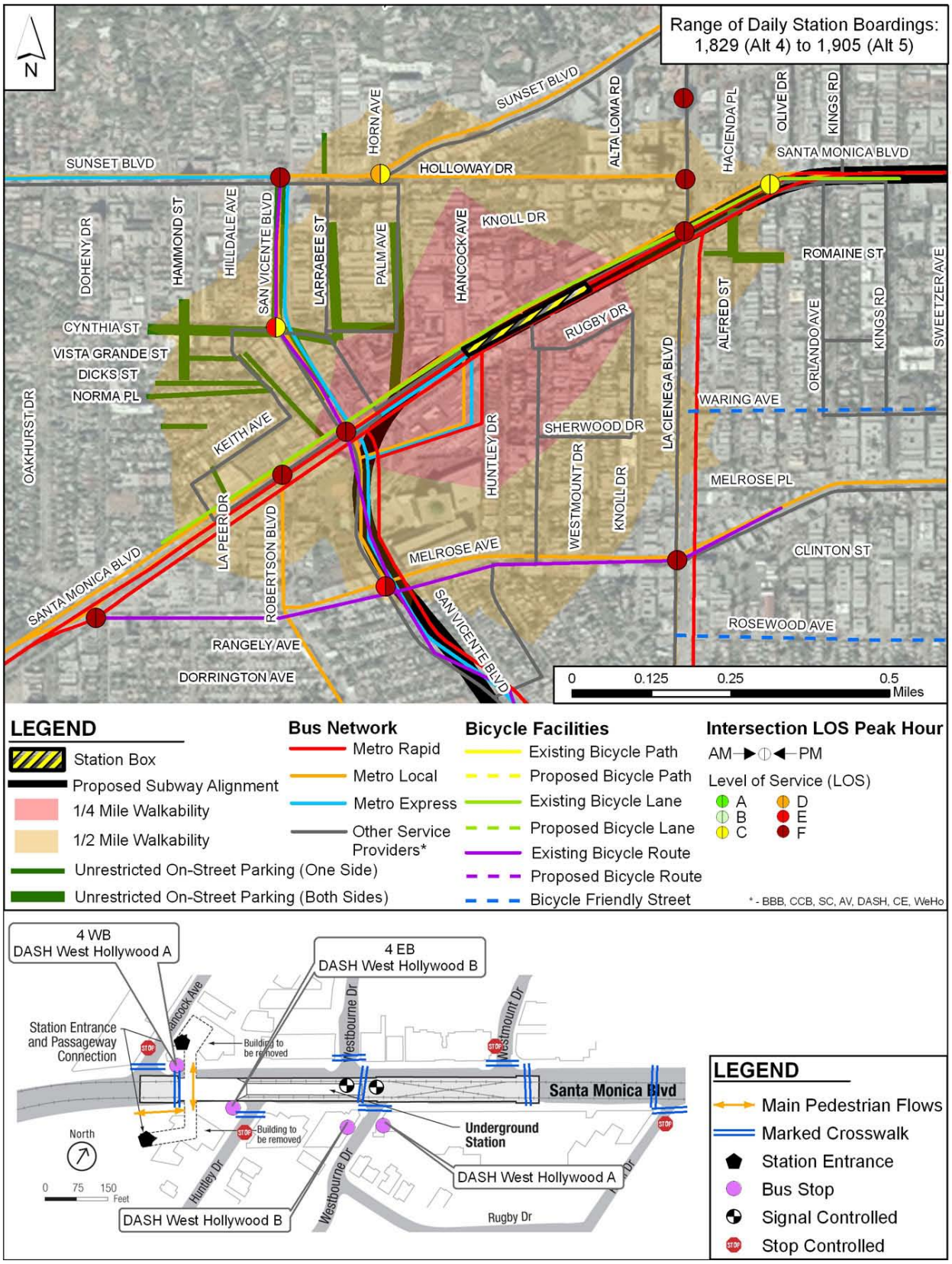

Figure 3-38. Station/Bus/Pedestrian-Bicycle Impact Analysis—Santa Monica/San Vicente Station

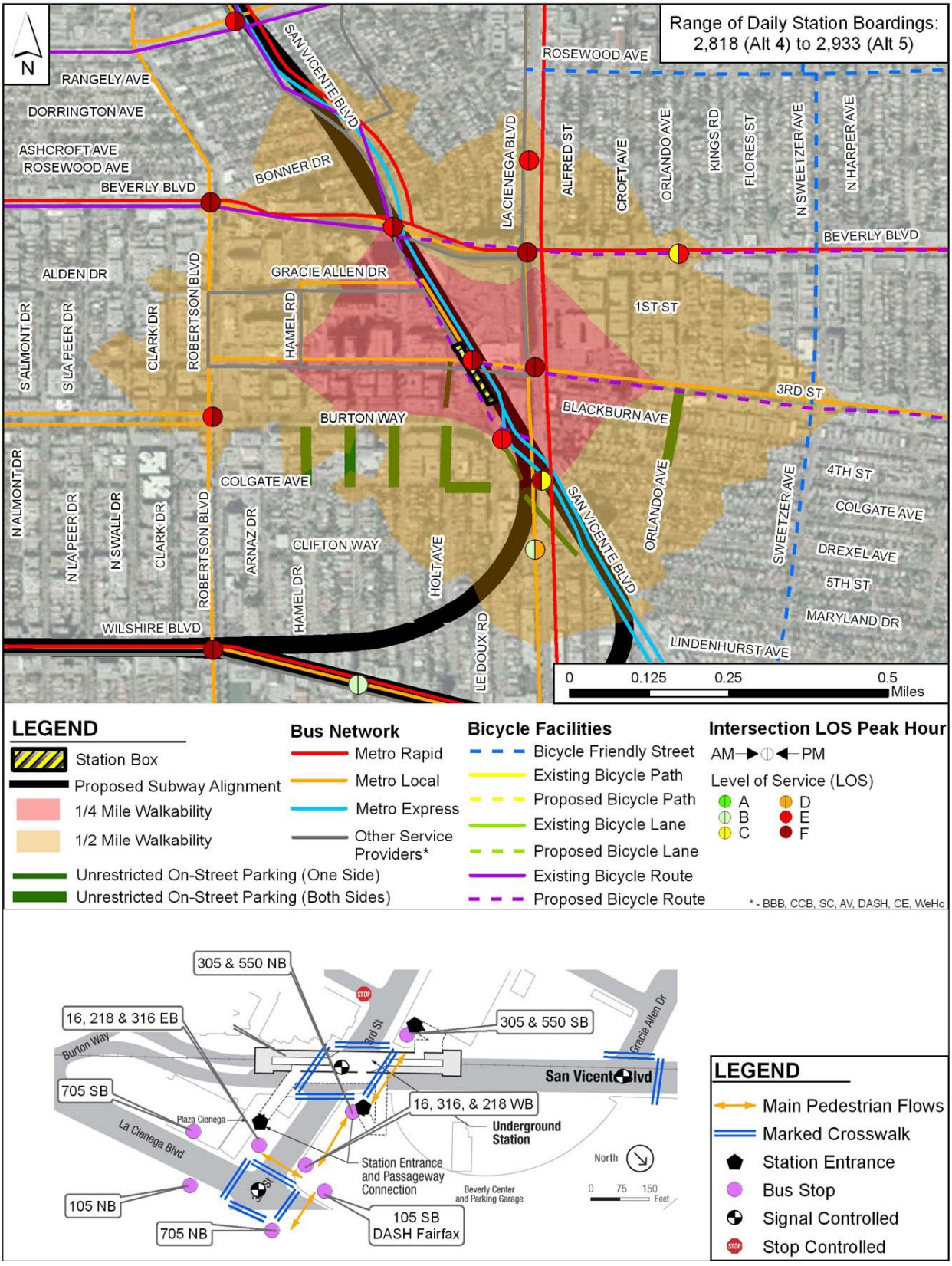

Figure 3-39. Station/Bus/Pedestrian-Bicycle Impact Analysis—Beverly Center Area Station

Table 3-16. Transit and Non-Motorized Impact Summary

Station	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	MOS 1	MOS 2
1. Wilshire/Crenshaw	Impacted	Impacted	Impacted	Impacted	Impacted	Impacted	Impacted
2. Wilshire/La Brea	Potential*	Potential*	Potential*	Potential*	Potential*	Potential*	Potential*
3. Wilshire/Fairfax	Impacted	Impacted	Impacted	Impacted	Impacted	Impacted	Impacted
Option 2: Wilshire/Fairfax East	Impacted	Impacted	Impacted	Impacted	Impacted	Impacted	Impacted
4. Wilshire/La Cienega (East)	Impacted	Impacted	Impacted	Impacted	Impacted	None	Impacted
Option 3: Wilshire/La Cienega (west) with Connection Structure	Impacted	Impacted	Impacted	Impacted	Impacted	None	Impacted
5. Wilshire/Rodeo	Impacted	Impacted	Impacted	Impacted	Impacted	None	Impacted
6. Century City (Santa Monica Boulevard)	Impacted	Potential*	Potential*	Potential*	Potential*	None	Potential*
Option 4: Century City (Constellation Boulevard)	Potential*	Potential*	Potential*	Potential*	Potential*	None	Potential*
7. Westwood/UCLA Off-Street	Impacted	Impacted	Impacted	Impacted	Impacted	None	None
Option 5: Westwood/UCLA On-Street	Impacted	Impacted	Impacted	Impacted	Impacted	None	None
8. Westwood/VA Hospital	None	Impacted	Impacted	Impacted	Impacted	None	None
Option 6: Westwood/VA Hospital (North)	None	None	None	None	None	None	None
9. Wilshire/Bundy	None	None	Impacted	None	Impacted	None	None
10. Wilshire/26th	None	None	Potential*	None	Potential*	None	None
11. Wilshire/16th	None	None	Impacted	None	Impacted	None	None
12. Wilshire/4th	None	None	Potential*	None	Potential*	None	None
13. Hollywood/Highland	None	None	None	Impacted	Impacted	None	None
14. Santa Monica/La Brea	None	None	None	Potential*	None*	None	None
15. Santa Monica/Fairfax	None	None	None	Impacted	Impacted	None	None
16. Santa Monica/San Vicente	None	None	None	Impacted	Impacted	None	None
17. Beverly Center Area	None	None	None	Impacted	Impacted	None	None
Total Impacted Station Areas	*5*	*5*	*7*	*9*	*11*	*2*	*4*
Total Impacted Station Areas (with Optional Station Locations)	*5*	*5*	*7*	*9*	*11*	*2*	*4*

Source: Fehr & Peers, April 2010

* Station area would not be affected if recommended entrance is constructed. Otherwise station area would be affected.

Mitigation Measures for Impacts in Station Areas—Bicycle and Pedestrian Network

The *Transit Impacts Assessment Report* (March 2010) identified estimated impacts on the bicycle and pedestrian network in station areas. The impacts are identified for each station (including options) under the five Build Alternatives. Details regarding mitigation measures for each impact are also presented, including, where appropriate, potential options.

The following summarizes mitigation measures under the major categories of impacts. The potential impacts involve two categories: (1) excessive delays that would be incurred by riders transferring between buses and entrances to subway stations; and, (2) pedestrian safety hazards.

Measure 1—Bus Transfer Delays

For excessive bus transfer delays, potential mitigation measures include the following:

- Install marked crosswalks.
- To the extent feasible, relocate or consolidate bus stops to ensure that transfers between bus transit and the subway do not require crossing more than one roadway.
- Relocate station entrances. If relocations are infeasible, bus stops should be relocated or consolidated to ensure that transfers between buses and the subway do not require crossing more than one roadway. In some locations, installing signals would be an alternative approach to relocating a station entrance.

Measure 2—Pedestrian Safety

For pedestrian safety hazards, mitigation measures include the following:

- Relocate bus stops.
- Construct a second station entrance. As an alternative to added station entrances, bus turnarounds are identified in some station areas.
- Shift station entrances (or provide added marked crosswalks or signals depending on location).

3.5.5 CEQA Determination

With the mitigation measures identified above, CEQA requirements would be met.

3.5.6 Impacts Remaining after Mitigation

After implementation of the mitigation measures detailed above, project-related impacts to the interfacing transit and non-motorized facilities and services would be mitigated to less than significant levels for all project alternatives.

3.5.7 Construction Impacts

The No-Build and TSM Alternatives do not have a project construction component and would not result in any construction impacts. This section focuses on the construction impacts of the Build Alternatives.

Section 3.0 Transportation Impacts discusses construction impacts related to traffic, circulation and parking. This section examines construction impacts for resource areas discussed in Chapter 4. Safety and security is discussed separately in Chapter 4. Displacement and relocation of existing uses are discussed in this section as they relate to construction staging.

Traffic, Circulation, and Parking

Traffic

This section identifies possible road closures that could require detours due to construction and obstacles to existing transit, parking, and bicycle facilities. The proposed construction staging scenarios for the Westside Subway Extension Project would determine transportation-related construction impacts.

Impacts of construction on transportation in the Study Area would affect traffic, transit, parking, and non-motorized travel. A major element of mitigation efforts is a Traffic Control Plan that would need to be approved by the appropriate public agencies.

For each Build Alternative and MOS, estimated traffic-related impacts associated with contractor work and storage area, mining entry/exit locations, tunnel boring machine

(TBM) operations, and truck haul routes are presented below. Information is also presented on traffic impacts associated with other construction elements, including vertical shafts, drop holes, grouting, and station portals.

Detailed information on truck routes would need to await final determination of construction staging, including potential consolidation of truck routings to address activities at multiple stations. The Traffic Control Plans to be developed for the project will provide an opportunity to identify appropriate details on specific routes, keeping in mind the necessary coordination with affected local jurisdictions, public transportation systems and other parties as necessary. This coordination may result in further details on actual truck haul volumes on the Westside road network.

The traffic control activities associated with construction activities described below reflect an initial identification of potential tunnel drive directions and sequences. Potential traffic control measures will be determined in part by construction staging activity for the project. Table 3-17 describes the expected steps for typical construction sequencing at a station location along with associated traffic control activities:

Table 3-17. Traffic Control Activities during Construction

Construction Phasing	Construction Activity	Traffic Control Activities
Stage 0	Utility Relocation Street Improvements Removal of Existing Raised Medium	Provide traffic control per local agency requirements
Stage 1	Soldier Pile Installation (north or west side of street)	Shift traffic to south or east side of roadway and maintain two-way traffic circulation
Stage 2	Soldier Pile Installation (south of east half of street)	Shift traffic to north or west side of roadway and maintain two-way traffic circulation
Stage 3	Decking Installation (half or full length of station)	Close roadway lanes and provide detour route
Stage 4	Decking Installation (other half of station)	Close roadway lanes and provide detour route

For any Build Alternative, street closures would be limited to night time, off-peak, and/or weekend closures. The maintenance of traffic lanes during construction would follow local agency requirements and standards with respect to minimum lane widths, the number of available travel lanes, and the duration of temporary lane closures. No closures are expected during the morning and evening peak travel periods, except for areas discussed in the following sections. Specific street closure locations would be identified in close coordination with local agencies during the final design phase.

During construction, temporary closure of traffic lanes would be necessary during the night, weekend, and/or off-peak hours. Closures of several blocks on certain streets may also be required. This would temporarily interfere with the normal flow of traffic, resulting in increased travel times due to potential traffic congestion. Construction activities at each station area would require the temporary closure of lanes on Wilshire and Santa Monica Boulevards. However, at a minimum, two lanes would be maintained in each direction during peak periods. This would reduce roadway capacity and potentially modify existing traffic patterns to bypass congested areas. At major

intersections, the impact of split phases of signals and loss of turn lanes would incur significant impacts.

Relocation of utilities would occur before excavation for stations and may require closure of traffic lanes. In some instances, block-long sections of streets might be closed temporarily. Pedestrian access (sidewalks) would remain open, and vehicular traffic would be re-routed. Special facilities, such as handrails, fences, and walkways will be provided for the safety of pedestrians. Temporary night sidewalk closures may be necessary in some locations for the delivery of oversized materials. Minor cross streets and alleyways may also be temporarily closed, but access to adjacent properties will be maintained. Major cross streets would require partial closure while relocating utilities.

The primary traffic impact related to the construction of a station is usually associated with the time it takes to install decking over the station box using methods similar to the construction of stations on the Metro Gold Line Eastside Extension. For stations built under existing streets, the top 2 to 3 feet of the roadway would be removed and decking would be installed over an approximate 2 to 3 month period. Construction of the station would continue while traffic travels on the decking. This procedure would require temporary off-peak, nighttime, and/or weekend street closures to install decking that is flush with the street. This would allow affected traffic to operate at posted speeds. As these street closure requirements are identified, traffic would be rerouted to nearby intersections and arterials with detours clearly signed and marked.

Assuming the use of 20 cubic yard haul trucks, the total number of excavation trips required for one station would be approximately 5,000 to 7,000 trucks. For a typical station configuration, this would be approximately 50 to 60 truck trips per day. During station construction, approximately 5 to 10 concrete trucks per day are anticipated. Occasional large pours of soil would be needed, requiring 30 to 40 trucks per day. The larger pours are expected to be performed at night to ensure supply and delivery of concrete and to minimize traffic impacts. Other support and delivery trucks, up to 10 to 20 per day, would be anticipated during peak station construction periods to deliver materials such as rails, structural steel, and mechanical and electrical equipment.

Designated haul routes would be identified during the final design phase. These routes would be located so as to minimize noise, vibration, and other possible impacts to adjacent businesses and neighborhoods. Following completion of the Project, if physical damage to haul routes were found, affected roads would be treated in a manner that would return affected facilities to pre-construction conditions.

TBM components will be shipped to the tunnel construction site by truck. Several oversize deliveries will be required, some during nights and weekends. However, these large component deliveries are limited to initial setup period for the TBM, as well as during the removal period. If a TBM is to be re-used to excavate a subsequent tunnel, the entire machine may be transported by road from one site to the next. This would require full or partial road closures, typically at night.

Traffic and/or pedestrian controls would be required for construction of ventilation shafts, emergency exit stairs, and other related openings to the ground surface that would be located outside the station box footprint. In general, the procedure for staging

this work would be similar to the methods used for the main station box. Typically, these openings would be directly adjacent or very close to the main station excavation and would be constructed concurrently with the station work. Because these excavations are smaller in size and depth to the main station excavation, the duration of this work would be relatively short, typically from three to six months. However, because such openings extend farther beyond the station area, there would be additional impacts.

Some drop pipes used for tunnel construction generally would be located above the tunnel structure and would be used for delivering concrete for tunnel lining. In general, access to the drop pipe would take place during a single work shift. The holes would basically be located away from intersections and likely near the middle of a block face or side of a block between two intersections. While use of drop pipes would likely be short-term, perhaps no greater than two weeks, a traffic control plan would be implemented.

Grouting operations may occur away from streets to improve the ground at cross passages and potentially to address any ground improvements as necessary. Traffic control for this type of operation is very similar to that used for drop pipes, the main difference being that it would usually be required for more than a shift and may extend into 24 hour days.

For work in the street, the operation would typically be sequenced so that existing traffic controls for station work can be extended. When this extended area affects an intersection, the work in the intersection area would need to be staged so that traffic controls within the intersection are limited to off-peak periods. Often these additional surface openings affect sidewalks, which require temporary diversion of pedestrians. Typically, this work can be done such that a minimum sidewalk width is still provided during daytime. Full sidewalk closures, where necessary, would be limited to nights and weekends.

Similar surface openings may be constructed adjacent to midline vent structures, which are remote from station sites. However, in such cases, the methods above would still be applied.

An evaluation of construction impacts are provided in the following sections for each alternative. Although the majority of impacts identified under these alternatives may be temporary, they would be considered significant and unavoidable.

Alternative 1—Westwood/UCLA Extension

Construction at station areas would reduce roadway capacity and potentially modify existing traffic patterns to bypass congested areas. Vehicular travel times and intersection operations along these roadways would be affected. To maintain a minimum of two through travel lanes in each direction, the two-way left-turn median in the mid-block area and the exclusive right- and left-turn lanes at the intersection approaches may need to be eliminated.

The resulting intersection approach lane configurations would consist of a shared through and right lane and a shared through and left lane for the roadway segments where stations are being constructed. In addition, the existing signal phasing may be changed to split phasing to minimize conflicts between left turns and opposing through

movements and minimize the formation of queues as a result of a vehicle waiting for a gap in the opposing traffic to turn left. Consequently, travel times along Wilshire and Santa Monica Boulevards are expected to increase because of increased traffic congestion during peak periods and, to a lesser extent, during off-peak periods.

It is expected that construction trucks traveling to and from the Westwood/UCLA Station construction site would travel via Wilshire Boulevard to the I-405 (San Diego Freeway), heading north to the San Fernando Valley or south to I-10 East (Santa Monica Freeway). Final destination of materials will be identified by the contractor and could vary depending on the type of materials to be disposed.

There also will be impacts to north-south streets, particularly at Wilshire Boulevard/Fairfax Avenue, Wilshire Boulevard/Rodeo Drive (Beverly), and Century City, The station boxes at these stations/station area options protrude into these nearby intersections and would thereby impact north-south traffic.

Alternative 2—Westwood/VA Hospital Extension

If the Westwood/VA Hospital Station site is the terminus, the US Army Reserve Training Facility site could be used as a TBM entry station, with mining proceeding eastbound to the Century City Station. Station excavation would occur on the VA Hospital grounds at either the north of Wilshire Boulevard or south of the Wilshire Boulevard sites. Since the Westwood/VA Hospital Station is off-street, station excavation could remain open without the need for temporary decking. Locating the terminus at the VA site may require (partial) closure of Bonsall Avenue, the eastbound Bonsall/Wilshire on-ramp, and/or the I-405 on- and off-ramps adjacent to the site. Detour routes, including those associated with a potential closure of ramps to and from I-405 may be required. Further traffic control would only be needed for entering and exiting of construction traffic onto adjacent roadways.

It is assumed that construction trucks traveling to and from the construction yard at the Westwood/VA Hospital Station would travel via Bonsall Avenue, Wilshire Boulevard, and the I-405 (San Diego) Freeway, heading south to I-10 East. Final destination of materials will be identified by the contractor and could vary depending on the type of materials to be disposed.

There also will be impacts to north-south streets, particularly at Wilshire Boulevard/Fairfax Avenue, Wilshire Boulevard/Rodeo Drive (Beverly), and Century City, The station boxes at these stations/station area options protrude into these nearby intersections and would thereby impact north-south traffic.

Alternative 3—Santa Monica Extension

This segment could be mined from the Wilshire/26th Street Station proceeding west toward 4th Street and east toward the Westwood/VA Hospital Station. However, this is not a desirable location since it is surrounded d by residential uses, including single-family homes. An alternative tunnel site is on the Army Reserve area near Federal Way. Excavation for the Wilshire /26th Street Station would require lane channelization to install soldier piling and cap beams for support of temporary roadway decking during short-term lane closures that would require the roadway to be partially closed. With

approximately 680-foot length of station involved, three partial road closures may be needed to ensure that Wilshire Boulevard would be restored to normal operations within allotted timeframes.

Mining also could proceed from the US Army Reserve Facility site or an alternative tunnel site on the Army Reserve area near Federal Way west about 3.7 miles to 4th Street in Santa Monica. Since the Westwood/VA Hospital Station would be located on VA property, the tunneling access shaft could remain open without the need for temporary decking. In this scenario, no street closures would be necessary at the TBM mining site, and traffic control would only be needed for entering and exiting of construction traffic onto adjacent roadways.

Truck haul access would be via Wilshire Boulevard from the VA Hospital site to the nearest freeway, I-10, or I-405 south or north. The route could also access I-10 east via other connecting freeways. Final destination of materials will be identified by the contractor and could vary depending on the type of materials to be disposed.

There also will be impacts to north-south streets, particularly at Wilshire Boulevard/Fairfax Avenue, Wilshire Boulevard/Rodeo Drive (Beverly), Century City, Wilshire Boulevard/26th Street, Wilshire Boulevard/16th Street, and Wilshire Boulevard/4th Street. The station boxes at these stations/station area options protrude into these nearby intersections and would thereby impact north-south traffic.

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

Construction activities at each of the seven station areas or station options would require the temporary closure of lanes on Highland Avenue, and Wilshire, Santa Monica, and San Vicente Boulevards; however, at a minimum, two lanes would be maintained in each direction during peak periods. This would reduce roadway capacity and potentially modify existing traffic patterns to bypass congested areas.

The Santa Monica/Fairfax Station could be used as the mining location under Alternative 4. Mining operations would proceed from this station east toward the existing station at Hollywood/Highland and southwest toward the Wilshire alignment. The construction worksite for mining operations would be adjacent to North Fairfax Avenue, and construction traffic would need to be separated by traffic-control measures. Excavation of the Santa Monica/Fairfax Station would require lane channelization to install soldier piling and cap beams for support of temporary roadway decking during short-term lane closures, which would require the entire roadway to be closed. With the approximately 680-foot length of station involved, several road closures may be needed to allow Santa Monica Boulevard to be restored to normal operations within allotted timeframes.

It is assumed that truck haul traffic to and from the West Hollywood stations would use Santa Monica Boulevard to access the nearest freeway, US-101, a distance of approximately three miles. Alternately, the I-10 Freeway might be accessed via Fairfax Avenue, a distance of approximately four miles.

There also will be impacts to north-south streets, particularly at Santa Monica Boulevard/La Brea Avenue, Wilshire Boulevard/Fairfax Avenue, Wilshire Boulevard/La

Cienega Boulevard, Wilshire Boulevard/Rodeo Drive (Beverly), and Century City, The station boxes at these stations/station area options protrude into these nearby intersections and would thereby impact north-south traffic.

Alternative 5—Santa Monica Extension plus West Hollywood Extension

Alternative 5 incorporates the West Hollywood Extension under Alternative 4 and under Alternative 3, the Santa Monica Extension. Impacts described for these alternatives would apply to Alternative 5.

There also will be impacts to north-south streets, particularly at Santa Monica Boulevard/La Brea Avenue, Wilshire Boulevard/Fairfax Avenue, Wilshire Boulevard/La Cienega Boulevard, Wilshire Boulevard/Rodeo Drive (Beverly), Century City, Wilshire Boulevard/26th Street, Wilshire Boulevard/16th Street, and Wilshire Boulevard/4th Street. The station boxes at these station/station area options protrude into these nearby intersections and would thereby impact north-south traffic.

MOS 1—Fairfax Station Terminus

Given the length of the Wilshire/Fairfax Station, MOS 1 would require a number of partial road closures. Lane closures for channeling the flow of traffic would use curb side lanes on one or both sides of Wilshire Boulevard. These lanes would be reopened upon completion of decking of the roadway for the entire station. As for temporary closures, Traffic Control Plans approved by LADOT would be prepared prior to the start of work.

It is expected that access to the 150-foot by 1,000-foot construction staging site near the Wilshire/Fairfax Station could follow Wilshire Boulevard, then La Brea to I-10. Alternatively, the truck haul route might follow Wilshire Boulevard to La Cienega Boulevard to I-10. Traffic control for this work would consist mainly of channelization of construction-related and general-purpose traffic flow.

There also will be impacts to north-south streets, particularly at Wilshire Boulevard/Fairfax Avenue. The station box at this station/station area option protrudes into these nearby intersections and would thereby impact north-south traffic.

MOS 2—Century City Station Terminus

Impacts identified under MOS 1 would apply, plus the following impacts associated with subway construction from the Wilshire/Fairfax Station to Century City. Access to the Century City Station staging area would be via Santa Monica Boulevard or Olympic Boulevard directly to I-405. Alternatively, use of Avenue of the Stars or Century Park West to westbound Pico, then southbound Overland Avenue to I-10 may be more feasible.

There also will be impacts to north-south streets, particularly at Wilshire Boulevard/Fairfax Avenue, Wilshire Boulevard/Rodeo Drive (Beverly), and Century City. The station boxes at these stations/station area options protrude into these nearby intersections and would thereby impact north-south traffic.

Transit

Under all Build Alternatives, travel times for both Metro and non-Metro operated bus services in the station areas would be affected and are expected to increase. Within the

construction area, buses may need to be re-routed and bus stops may need to be temporarily relocated to minimize the formation of vehicular queues behind a bus stopped to pick up and/or drop off passengers. Any road closures would impact Metro bus operations on Wilshire Boulevard and other streets, as well as transit service operated by UCLA, the Santa Monica Big Blue Bus, West Hollywood City Line/Dayline, DASH, and Culver City Bus. Any road closures should minimize as much as possible impacts on bus service reliability, travel time, and passenger convenience.

Parking

For all Build Alternatives, it may be necessary to prohibit on-street curb parking when traffic lanes are closed or eliminated due to construction. Existing parking meters affected by construction, within the traffic control zone of influence, would be removed or covered as directed by the agency having jurisdiction. Contractors would be required to have all employees park off-street at Metro-approved locations to minimize loss of crucial commercial parking. During station construction, temporary closure of lanes on Wilshire, San Vicente, and Santa Monica Boulevards would be required.

Consequently, existing on-street parking spaces and loading stalls would be temporarily removed for the duration of the construction period. For example, station construction on the Westwood/UCLA site off-street in Lot 36 could be accomplished without decking and, if adequate area is available for tunneling operations, tunneling could proceed eastbound. However, a number of parking spaces in Lot 36 would be removed to accommodate construction. The temporary loss of these parking spaces would be considered significant and unavoidable. The Westwood/UCLA Station site within Wilshire Boulevard would have more restricted work areas and consideration would be given to driving tunnels to the west from Century City or to the east from the VA property.

Pedestrian and Bicycle Access

Pedestrian and bicycle access in construction areas of all Build Alternatives would be affected. This includes street crossings, movements along sidewalks/bike lanes, access to local businesses, and access/waiting involving existing bus zones. When construction activity encroaches into a sidewalk, walkway, or crosswalk, special consideration would be given to pedestrian safety. Pedestrian access to adjoining properties and bicycle traffic movements would be maintained during construction, although in some instances, at cut-and-cover station areas, portions of sidewalks may be temporarily closed for decking construction.

Temporary nighttime sidewalk closures may be necessary in some locations, and some existing crosswalks may be temporarily closed. In addition, lane reductions and street closures could inhibit the flow of bicycle traffic during construction. Detours resulting in traffic shifts to adjacent roadways would increase traffic volumes on these roadways, thus impacting the flow of bicycle traffic.

Mitigation Measures

With implementation of the measures below, adverse effects of construction in the Study Area would be reduced for adjacent commercial areas and residential neighborhoods.

- **TCON-1**—Metro would develop traffic control plans to minimize traffic impacts during construction. Further details on these plans are included in the Traffic Handling and Construction Staging Report (137B; March 16, 2010). Traffic control plans would provide for the reasonably safe and efficient movement of road users, including pedestrians and bicyclists, through or around permanent or temporary construction work areas. These control plans would need to recognize local agency requirements and guidelines.

  The traffic control plan would identify traffic control zones, which are areas of roadway where a road's conditions are changed due to construction or by direction of a uniformed law enforcement officer. Most traffic control zones are divided into four areas: the advance warning area, the transition area, the construction activity area, and the termination area. The traffic control zone also includes the streets identified as the detour routes on the approved traffic control plans. To better facilitate traffic flow and avoid major disruptions and bottlenecks due to construction, traffic control zones (in particular advance warning areas) should extend beyond one arterial street to either side of station construction sites. This would better disperse heavy traffic flows on the major arterials and help the roadway network better absorb the traffic impacts from construction.

  Traffic lane maintenance during construction would follow local agency requirements and standards with respect to lane widths, number of lanes, and duration of temporary lane closures. During non-working hours, existing traffic lanes, including turn lanes and two-way left-turn lanes, should be restored to the pre-construction/original condition unless otherwise authorized by the local jurisdiction.

  Coordination and interaction with appropriate agencies would determine which streets can be closed and the detour routes to be used should streets need to be closed for a limited period of time. The expected year at which construction would occur would need to be determined so that construction-related traffic impacts could be identified.

  Temporary traffic signal plans would be required when the following occurs:
  - Traffic signal equipment is temporarily relocated due to construction
  - Traffic signal operation is modified to facilitate construction
  - Existing intersection lane configuration is changed
  - Visibility of traffic signal equipment is obscured by construction
  - As directed by the local agencies having jurisdiction

  Each affected agency would determine the need for temporary striping installation or modifications. Temporary striping would be considered for the following conditions:
  - When traffic is to be diverted to the left of an existing centerline for two or more consecutive nights

- When the work area is adjacent to an intersection and results in a transition within the intersection
- When there is an unusual situation where traffic and physical conditions, such as speed or restricted visibility, occur

Temporary signs would be implemented per the approved traffic control plans. Temporary sign devices include the following:

- Traffic signs (regulatory, warning, and guide)
- Changeable message signs
- Arrow panels
- High-level warning devices

When signs in a traffic control zone conflict with the implemented traffic control, the signs must be covered by the local agency's approved method to avoid confusion to motorists.

Temporary striping and signing plans shall be prepared by the construction contractor and approved by the agency having jurisdiction.

When the construction activity impacts existing newspaper stands, mail boxes, or bus shelters, an arrangement should be made with each affected owner for relocation or removal.

Emergency bus stop relocations would require a contractor employee to visit the office of the affected bus agency to negotiate the needed change. In no event shall the notice be less than 14 days. Prior to implementation of any temporary street closures or any changes affecting bus zone locations, transit providers would be contacted at least 100 days in advance of the proposed closure date.

- TCON-2—When construction activity impacts existing on-street parking spaces, Parking Circulation Plans would be prepared by the construction contractor for review and approval by the agency having jurisdiction. This plan would be used during the subsequent construction and traffic handling phase of the Project. The plans would be coordinated with affected property owners. These plans would include: 1) identification of how existing parking would be impacted by construction, 2) identification of temporary parking locations, and 3) identification of loading zone circulation plans which include identification of alternative loading locations.

  Existing parking meters affected by construction, within the traffic control zone, shall be removed or covered as directed by the agency having jurisdiction. Based on the proposed parking replacement strategy, temporary parking spaces can be considered for the affected businesses or residents during construction.

- TCON-3—Pedestrian Facilities. When construction activity encroaches into a sidewalk, walkway, or crosswalk, special consideration must be given to pedestrian safety and the following items should be considered for pedestrians in a temporary traffic control zone:
  - Pedestrians should not be led into conflicts with work-site vehicles, equipment, or operations

- Pedestrians should not be led into conflicts with vehicles moving through or around the work site
- Pedestrians should be provided with a safe, convenient, and accessible path
- Pedestrian access to residential uses such as apartments would need to be maintained during construction.

Any limits on pedestrian access to sidewalks will be as minimal as possible. Access to all businesses by pedestrians also would be maintained at all times without a requirement by business owners to make such a request.

All temporary sidewalk designs shall be submitted to Metro for approval prior to installation. Temporary sidewalks need not be expensive, but they must be well built of approved material (wood or other), compliant with the requirements of the Americans with Disabilities Act, and have a well built cover.

When pedestrians are diverted into the street or adjacent to an open trench, a K-rail-type concrete barrier or other approved barrier would be used for separating pedestrians and vehicular traffic. Sidewalk closures, if necessary, would be approved by the affected agency having jurisdiction and only one side of a street should be closed at a time.

Pedestrian access to each business property would be provided during essential hours, as requested by the property representative. If acceptable alternate access points are provided, the affected access may be closed.

- **TCON-4—Bicycle Access.** A preliminary bike lane design analysis is being prepared for the Project. This information would be used during the stage construction and traffic handling phase of the Project. During construction, Metro-approved bike routes would be maintained past all construction sites, by widened sidewalks or by signed or striped bike detour routes.
- **TCON-5—Business Access.** When construction affects existing business driveways, maintenance of traffic plans would be prepared by the construction contractor showing how vehicular access would be maintained to businesses. These plans shall be reviewed and approved by the agency having jurisdiction. The construction activity must be coordinated with each affected property representative.

  During construction, driveway entrances and exits would be maintained during business hours. If acceptable alternate access points (approved by the applicable agency) are provided, the affected driveways may be closed. The local agency may restrict left-turn and/or right-turn vehicular movements entering and/or exiting driveways during construction.

3.5.8 CEQA Determination

With these mitigation measures, CEQA requirements would be met.

3.5.9 Impacts Remaining after Mitigation

With implementation of items included in Section 3.6.7, adverse effects of construction in the Study Area would be reduced for adjacent commercial areas and residential neighborhoods. At major intersections, the impact of split phases of signals and loss of turn lanes would incur significant impacts. However, these effects are short-term in duration and only would override any expected potential adverse effects.