CHAPTER 3
TRANSPORTATION IMPACTS OF THE ALIGNMENT AND STATIONS

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3.0 TRANSPORTATION IMPACTS OF THE ALIGNMENT AND STATIONS

The California Environmental Quality Act (CEQA) requires that the effects of the proposed project be compared with the existing conditions when the effects are analyzed (existing without project). The National Environmental Policy Act (NEPA) requires that the effects of the project be compared with the baseline condition without the project, which is in the year the project would be implemented (No-Build).

This chapter of the Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR) describes the existing transportation conditions in the study area and analyzes the potential transportation impacts associated with the implementation of the No-Build Alternative, Locally Preferred Alternative (LPA), design options, and MOS (Minimum Operable Segment) variations of the LPA (described in Chapter 2) by comparing these alternatives to the existing and baseline conditions. The analysis of the LPA represents the impact of the project, while the analysis of the design options represents the impact of the project with the inclusion of the design option(s). MOS variations of the LPA are also discussed under the LPA, when any additional effects to environmental resources would occur from a shorter version of the alignment than described for the LPA. Mitigation measures intended to address project-related adverse impacts that comply with NEPA and CEQA are recommended in this chapter. The potential for construction period impacts is also assessed and mitigation measures are recommended. This section has been updated from the DEIS/DEIR to focus on the analysis of the effects of the LPA. The analysis of all the Build and TSM Alternatives in the DEIS/DEIR is incorporated here by reference.

The analysis of transportation-related impacts and mitigation measures follows the NEPA process. While CEQA requires that only "significant impacts" be identified in an Environmental Impact Report, NEPA requires that all adverse impacts of a proposed project be analyzed. Accordingly, in this joint federal and state environmental document, reference to "significant impacts" is made to fulfill this requirement under CEQA, pursuant to standards of California law. However, regardless of level of significance, all potentially adverse environmental impacts have been analyzed and mitigation proposed where feasible to reduce identified adverse effects.

Analysis of the environmental issue areas is organized under three structural headings for the rest of the chapter:

Affected Environment

- This discussion describes the existing physical environment and baseline setting wherein the proposed project would be sited.

Environmental Consequences and Mitigation Measures

- Each environmental issue area is given a separate subsection and begins with a description of the methodology used to assess adverse impacts.

- Existing and future No-Build Alternative conditions are then developed to be used as a basis for which the impact assessment will be conducted.
- For each project alternative, future conditions are developed and compared to Existing and No-Build Alternative.
- Adverse impacts are identified and mitigation measures that would reduce or eliminate them are discussed.
- As this document is a joint federal and state environmental document, thresholds are presented for both CEQA and NEPA purposes. The final discussion states the effectiveness of mitigation measures in reducing the identified impacts. Under CEQA, a final determination is made as to whether an identified impact can be reduced to a less-than-significant level, or remains significant and unavoidable.

Construction Impacts and Mitigation Measures

- Construction period impacts to the transportation network are identified and mitigation measures that would reduce or eliminate them are discussed.

Discussions of the regulatory environment and methodologies associated with each environmental resource are presented in Appendix F.

The FEIS/FEIR evaluates the locally preferred alternative (LPA) with the inclusion Design Option 6 (below-grade approach to the Exposition Line) as part of the project definition, contingent upon project costs being aligned with the project budget. In the event that the project costs ultimately exceed the project budget, the FEIS/FEIR also considers two Minimum Operable Segments (MOS) alternatives that would be consistent with the Metro financial plan for the project. Design options, under consideration but currently not included as part of the LPA, are also discussed in this document. These include an Aviation/Manchester Station, a Centinela below-grade Crossing, a Crenshaw/Vernon Station, an alternate southwest portal at the Crenshaw/King Station, and an alternate partially covered trench configuration in front of the LAX south runways. These alternatives are described in Chapter 2.0 of this document.

3.1 Affected Environment/Existing Conditions

This section presents information about the affected environment and existing transportation conditions in the study area. The transportation conditions discussed include: transit systems, street and highway systems, parking, and pedestrian and bicycle facilities.

3.1.1 Transit

3.1.1.1 Existing Transit Service

The Crenshaw/Los Angeles International Airport (LAX) Transit Corridor Project study area is served by local transit agencies, with both bus and rail (northern and southern ends of the corridor only) services. Metro (see Figure 3-1), Los Angeles Department of Transportation (LADOT), Santa Monica's Big Blue Bus, Culver CityBus, Beach Cities Transit, and Torrance Transit provide public transit service in the study area. Table 3-1 summarizes the transit service in the study area, and Figure 3-2 illustrates the major transit routes.

Figure 3-1. Metro Rapid on City Streets

Source: Metro 2008

Table 3-1. Existing Transit Services

Route	Service Area and Approximate Limit	Average Peak Hour Headway (min)
Rail		
Metro Purple Line	Downtown Los Angeles to the Wilshire/Western Station	10
Metro Green Line	Service along the I-105 Freeway between the Cities of Norwalk and Redondo Beach. Stations in the study area include the Aviation/LAX, Hawthorne, and Crenshaw Stations.	7.5
Rapid/Express Bus Service		
Metro Rapid Line 705	Service between the Cities of Vernon and West Hollywood with stops in the City of Beverly Hills and the communities of Leimert Park and Crenshaw.	10-15
Metro Rapid Line 710	Service between the City of Redondo Beach and the community of Hollywood with stops in the City of Hawthorne and the community of Hyde Park. In the study area, this line travels along Crenshaw Boulevard between Wilshire Boulevard and the I-105 Freeway.	10
Metro Rapid Line 720	Service between the Cities of Commerce and Santa Monica, operating along Whittier Boulevard east of downtown Los Angeles, and Wilshire Boulevard west of downtown Los Angeles. In the study area, this line operates along Wilshire Boulevard at the northern edge of the study area.	4-7
Metro Rapid Line 740	Service between the City of Redondo Beach and downtown Los Angeles with stops in the City of Hawthorne and the communities of Hyde Park and Exposition Park. In the study area, this line operates along Crenshaw Boulevard, from Martin Luther King Jr. Boulevard to Florence Avenue; along Florence Avenue, from Crenshaw Boulevard to La Brea Avenue; and, along La Brea Avenue and Hawthorne Boulevard, from Florence Avenue to El Segundo Boulevard.	10
Metro Rapid Line 757	Service between the City of Hawthorne and the Hollywood community with stops in the Wilshire Center and Athens. In the study area, this line operates along Western Avenue and Crenshaw Boulevard between the Imperial Highway and the Metro Green Line Crenshaw Station at the I-105 Freeway.	20
Metro Rapid Express Line 940	Express BRT line that operates on weekdays proceeding northbound during the a.m. peak period and southbound during the p.m. peak period, between the City of Redondo Beach and Downtown Los Angeles with stops in the City of Hawthorne and the communities of Hyde Park and Exposition Park. In the study area, this line provides stops at: Crenshaw/Martin Luther King Jr. Boulevards, La Brea Avenue/Manchester Boulevard, and at the Metro Green Line Hawthorne Station at the I-105 Freeway.	30
Santa Monica Big Blue Bus Rapid Line 3	Service between the City of Santa Monica and LAX. In the study area, this line operates along Aviation Boulevard between Century Boulevard and the Metro Green Line Aviation/LAX Station at the I-105 Freeway.	15
Santa Monica Big Blue Bus Rapid Line 7	Service between the City of Santa Monica and the Rimpau Transit Center. In the study area, this line operates along Pico Boulevard.	10 (a.m.) 5 or 10 (p.m.)

Table 3-1. Existing Transit Services (continued)

Route	Service Area and Approximate Limit	Average Peak Hour Headway (min)
Culver City Bus Rapid 6	Service between UCLA and the Metro Green Line Aviation/LAX Station. In the study area, the line operates along Aviation Boulevard and Sepulveda Boulevard.	15
Limited Stop Service/Express Bus Service		
Metro Limited Line 305	Service between the communities of Willowbrook and Westwood with stops in the community of Watts, the Cities of West Hollywood and Beverly Hills, and the communities of South Los Angeles, Crenshaw and Mid-City Los Angeles. In the study area, this line operates along Crenshaw Boulevard between Pico Boulevard and Vernon Avenue, and along San Vicente Boulevard between La Brea Avenue and Crenshaw Boulevard.	30
Metro Limited Line 311	Service between the Cities of Inglewood and Bell Gardens with stops in the City of Huntington Park and the communities of Hyde Park and Vermont Knolls. This line operates along Florence Avenue between Crenshaw Boulevard and La Brea Avenue, and along La Brea Avenue between Florence Avenue and Kelso Avenue.	12
Metro Limited Line 312	Service northbound in the a.m. peak period and southbound in the p.m. peak period on weekdays between the City of Hawthorne and the Hollywood community with stops in the City of Inglewood and the communities of Baldwin Hills and Mid-City Los Angeles. In the study area, this line operates along La Brea Avenue between Wilshire Boulevard and Manchester Boulevard, and along Prairie Avenue between Manchester Boulevard and Lennox Boulevard.	13
Metro Limited Line 315	Service between the City of Norwalk and the Playa del Rey community with stops at LAX, the Cities of Inglewood, South Gate, and Downey, and the communities of Westchester and Florence. In the study area, this line operates along Manchester Boulevard.	15
Metro Limited Line 328	Service between downtown Los Angeles and Century City. In the study area, this line operates along Olympic Boulevard.	10
Metro Limited Line 330	Service between the Pico/Rimpau Transit Center and East Los Angeles with stops in Boyle Heights and downtown Los Angeles. In the study area, this line operates along Pico Boulevard.	10
Metro Limited Line 333	Service between downtown Los Angeles and the City of Santa Monica with stops in the communities of Venice and Century City. In the study area, this line operates along Venice Boulevard.	11
Metro Limited Line 368	Service during weekday a.m. and p.m. peak periods only between the West Los Angeles Transit Center and the City of Montebello with stops in Downtown Los Angeles, East Los Angeles, and the City of Monterey Park. In the study area, this line operates along Washington Boulevard.	12 (a.m.) 15 (p.m.)
Metro Express Line 439	Peak-hour Service between downtown Los Angeles and LAX with stops in Culver City. In the study area, this line operates along Aviation Boulevard between Century Boulevard and the Metro Green Line Aviation/LAX Station at the I-105 Freeway.	40 (a.m.) 30 (p.m.)

Table 3-1. Existing Transit Services (continued)

Route	Service Area and Approximate Limit	Average Peak Hour Headway (min)
Metro Express Line 442	Provides northbound a.m. peak period service and southbound p.m. peak period service between the City of Hawthorne and downtown Los Angeles with stops in the City of Inglewood and South Los Angeles. In the study area, this line operates along Manchester Boulevard and along La Brea Avenue/Hawthorne Boulevard, between Manchester Boulevard and the Metro Green Line Hawthorne Station at the I-105 Freeway.	30
Metro Express Line 550	Service between San Pedro and the City of West Hollywood with stops in the communities of Harbor City, Exposition Park, and Mid-City and the City of Beverly Hills. In the study area, this line operates along Venice Boulevard.	30
Local Service		
Culver CityBus Line 6	Service between Westwood and LAX. In the study area, this line operates along Aviation Boulevard between Century Boulevard and the Metro Green Line Aviation/LAX Station at the I-105 Freeway.	10-12
DASH Crenshaw Line	Local shuttle service that circulates in the Crenshaw community. In the study area, this line operates along Crenshaw Boulevard between Coliseum Street and Stocker Street.	30
DASH Leimert/Slauson Line	Local shuttle service that circulates in the Leimert Park community. In the study area, this line operates along Crenshaw Boulevard between Martin Luther King Jr. Boulevard and Slauson Avenue.	25
DASH Midtown Line	Local shuttle service that circulates between the Crenshaw and Mid-City communities. In the study area, this line operates along Washington Boulevard, Adams Boulevard, and along Crenshaw Boulevard, from Jefferson Boulevard to Martin Luther King Jr. Boulevard.	30
Metro Local Line 28	Service between downtown Los Angeles and the community of Mid-City, at Olympic Boulevard & Fairfax Avenue. In the study area, this line operates along Olympic Boulevard.	10
Metro Local Line 30	Service between the Pico/Rimpau Transit Center and the City of Monterey Park with stops in East Los Angeles, Boyle Heights, and downtown Los Angeles. In the study area, these lines operate along Pico Boulevard.	9
Metro Local Line 33	Service between downtown Los Angeles and the City of Santa Monica with stops in the communities of Venice and Century City. In the study area, this line operates along Venice Boulevard.	11
Metro Local Line 37	Service between downtown Los Angeles and the West Los Angeles Transit Center with stops in the West Adams District and North University Park communities. In the study area, this line operates along Adams Boulevard.	7
Metro Local Line 38	Service between the West Los Angeles Transit Center and Downtown Los Angeles. In the study area, this line operates along Jefferson Boulevard.	10

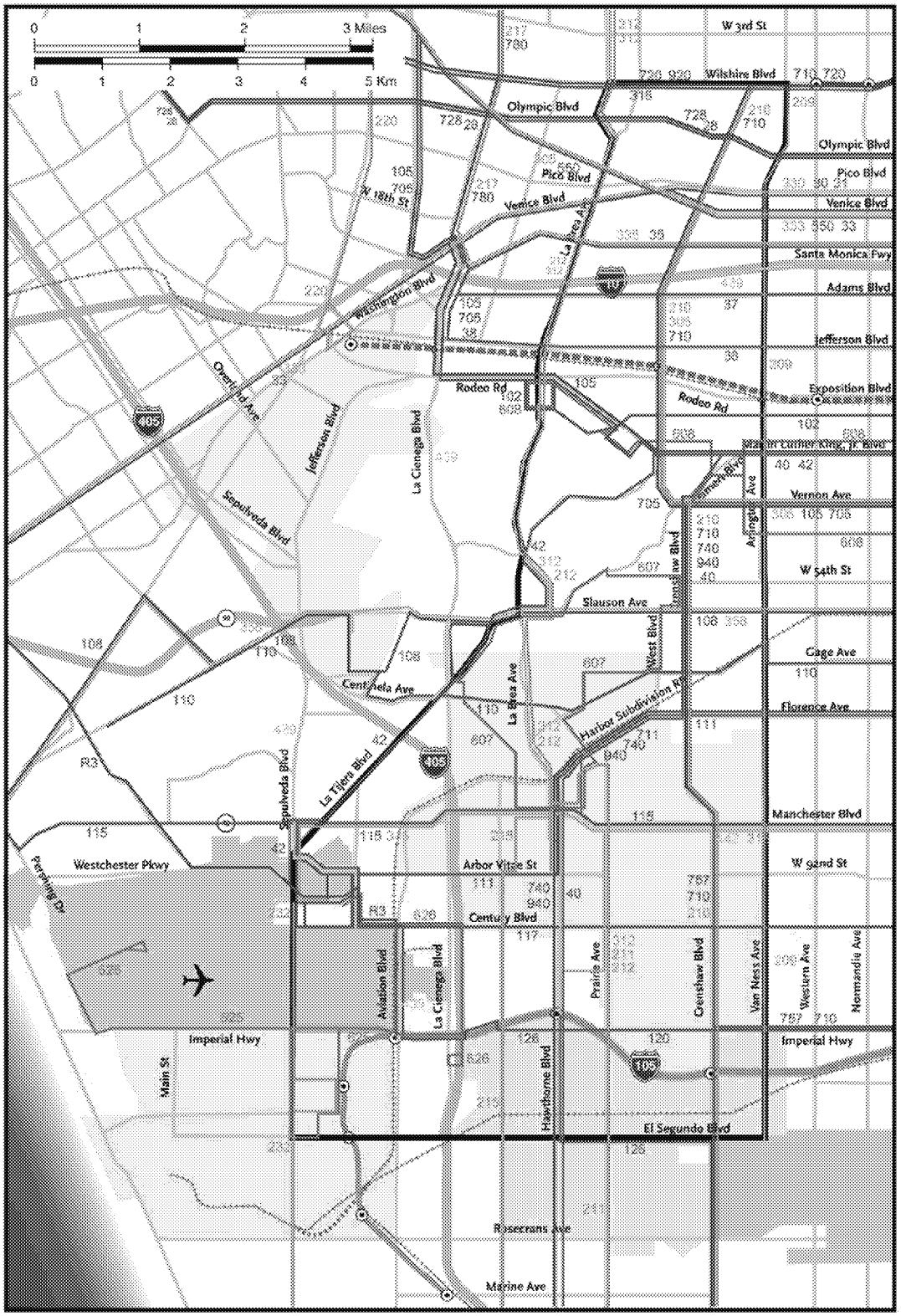
Table 3-1. Existing Transit Services (continued)

Route	Service Area and Approximate Limit	Average Peak Hour Headway (min)
Metro Local Line 40	Service between the City of Redondo Beach and downtown Los Angeles with stops in the City of Hawthorne and the communities of Hyde Park and Leimert Park. In the study area, this line operates along Crenshaw Boulevard between Martin Luther King Jr. Boulevard and Florence Avenue, along Florence Avenue between Crenshaw Boulevard and La Brea Avenue, and along La Brea Avenue/Hawthorne Boulevard between Florence Avenue and El Segundo Boulevard.	10
Metro Local Line 42	Service between downtown Los Angeles and LAX with stops in the communities of Baldwin Park and Leimert Park and the City of Inglewood. In the study area, this line operates along Crenshaw Boulevard between Stocker Street and 43rd Street.	12 (a.m.) 17 (p.m.)
Metro Local Line 68	Service between the West Los Angeles Transit Center and the City of Montebello with stops in downtown Los Angeles, East Los Angeles and the City of Monterey Park. In the study area, this line operates along Washington Boulevard.	12 (a.m.) 15 (p.m.)
Metro Local Line 102	Service between Baldwin Village and Southgate with stops in the Crenshaw community. In the study area, this line operates along Coliseum Street.	30
Metro Local Line 105	Service between the Cities of Vernon and West Hollywood with stops in the City of Beverly Hills and in the communities of Leimert Park and Crenshaw. In the study area, this line operates along Crenshaw Boulevard between Martin Luther King Jr. Boulevard and Vernon Avenue.	15
Metro Local Line 111	Service between the City of Norwalk and LAX with stops in the Cities of Downey, Bell, Huntington Park and Inglewood, and the communities of Hyde Park and Florence. In the study area, this line operates along Florence Avenue between Crenshaw Boulevard and La Brea Avenue, and along La Brea Avenue between Florence Avenue and Arbor Vitae Street.	12 (a.m.) 10 (p.m.)
Metro Local Line 115	Service between the City of Norwalk and the Playa Del Rey community with stops at LAX, the Cities of Inglewood, South Gate, and Downey, and the communities of Westchester and Florence. In the study area, this line operates along Manchester Boulevard.	15
Metro Local Line 117	Service between LAX and the City of Downey with stops in the City of Inglewood, the Watts community, City of South Gate, and the community of Vermont Knolls. In the study area, this line operates along Century Boulevard between Crenshaw Boulevard and Aviation Boulevard.	17
Metro Local Line 120	Service between the City of El Segundo and the Willowbrook community with stops in the Cities of Hawthorne, Inglewood and Los Angeles. In the study area, this line operates along the Imperial Highway.	30
Metro Local Line 124	Service between the City of El Segundo and the Willowbrook community with stops in the Cities of Hawthorne and Gardena. In the study area, this line operates along El Segundo Boulevard.	45 - 60

Table 3-1. Existing Transit Services (continued)

Route	Service Area and Approximate Limit	Average Peak Hour Headway (min)
Metro Local Line 126	Weekday service between the Cities of Manhattan Beach and Hawthorne with stops in Lawndale. In the study area, this line operates along Hawthorne Boulevard between Century Boulevard and 120th Street.	60
Metro Local Line 210	Service between downtown Redondo Beach and Hollywood with stops in the Cities of Torrance, Hawthorne, and Inglewood, and communities of Hancock Park and Crenshaw. In the study area, this line operates along Crenshaw Boulevard between Wilshire Boulevard and the I-105 Freeway.	12
Metro Local Line 211	Weekday peak period service between the Cities of Redondo Beach and Inglewood with stops in the City of Hawthorne. In the study area, this line operates along Prairie Avenue between Manchester Boulevard and El Segundo Boulevard.	30
Metro Local Line 212	Service between the City of Hawthorne and the Hollywood community with stops in the City of Inglewood and the communities of Baldwin Hills and Mid-City. In the study area, this line operates along La Brea Avenue between Wilshire Boulevard and Manchester Boulevard, and along Prairie Avenue, between Manchester Boulevard and Lennox Boulevard.	13 (a.m.) 12 (p.m.)
Metro Local Line 215	Service between the Cities of Hawthorne and Inglewood. In the study area, this line operates along Manchester Boulevard.	30
Metro Line 607	Community shuttle service operating during peak weekday hours in the Inglewood and Windsor Hills areas. In the study area, this line operates along Crenshaw Boulevard, between 54th Street and Slauson Avenue, along Florence Avenue between Centinela Avenue and Locust Street, and along La Brea Avenue between Regent Street and Kelso Avenue.	30
Metro Line 608	Community shuttle service operating in the Baldwin Village, Crenshaw, and Leimert Park communities. In the study area, this line operates along Crenshaw Boulevard between 39th Street and Homeland Drive.	60
Metro Line 625	Service operating near LAX and in the City of El Segundo. In the study area, this line operates along the Imperial Highway and at the Metro Green Line Aviation/LAX Station at the I-105 Freeway.	17
Santa Monica Big Blue Bus Line 3	Service between the City of Santa Monica and LAX. In the study area, this line operates along Aviation Boulevard between Century Boulevard and the Metro Green Line Aviation/LAX Station at the I-105 Freeway.	15
Santa Monica Big Blue Bus Line 7	Service between the City of Santa Monica and the Rimpau Transit Center. In the study area, this line operates along Pico Boulevard.	10 (a.m.) 5 or 10 (p.m.)

Figure 3-2. Existing Transit Service



3.1.1.2 Existing Transit Ridership

Daily ridership (from Fiscal Year 2007 1st Quarter data) for some of the key north-south and east-west Metro routes are detailed in Table 3-2.

Table 3-2. Daily Ridership on Select Metro Bus Lines

Metro Bus Line	Street/Arterial	Daily Boardings
North-South Metro Bus Lines		
Route 40	Crenshaw Blvd and Hawthorne Blvd	20,000
Metro Rapid 740	Crenshaw Blvd and Hawthorne Blvd	9,000
Route 210	Crenshaw Blvd	14,000
Metro Rapid 710	Crenshaw Blvd	10,000
East-West Metro Bus Lines		
Metro Rapid 720	Wilshire Blvd	48,000
Route 28	Olympic Blvd	34,000
Route 30	Pico Blvd	30,000
Route 33	Venice Blvd	27,000
Route 35	Washington Blvd	24,000
Route 105	La Cienega Blvd and Vernon Ave.	12,000
Route 108	Slauson Ave.	14,000
Route 111	Florence Ave.	16,000
Route 115	Manchester Ave. and Firestone Blvd.	15,000
Route 117	Century Blvd. and Imperial Hwy	10,000

3.1.1.3 Transit Performance

The major factors influencing bus operating conditions include the traffic conditions under which the service operates, passenger loading time, and bus-stop spacing. The corridor has substantial traffic congestion, high ridership and load factors, and closely spaced bus stops. Combined, these factors result in declining bus operating speeds over recent years, which are not competitive with the private automobile.

Transit System Speeds

Bus service in the corridor is slower than in Los Angeles County as a whole, and both are forecast to be slower by 2030. Metro Rapid Bus service in the corridor currently operates at approximately 15 miles per hour (mph) traveling north on Crenshaw Boulevard in the a.m. peak period, and approximately 13 mph traveling south on Crenshaw Boulevard in the p.m. peak period (Metro Rapid Line 710). For the Crenshaw area overall, the average bus operating speed during peak periods is estimated to be 10.9 miles per hour. This contrasts with an average county-wide bus speed of 15.7 mph. Table 3-3 shows the northbound and southbound average a.m. peak period bus speeds for 2006 and 2030 for major Rapid and Local bus lines in the corridor.

Table 3-3. Existing and Future AM Peak Period Average Bus Speeds (mph)

Bus Route	Street	2006		2030	
		Northbound	Southbound	Northbound	Southbound
Local Bus 210	Crenshaw Blvd	14.4	14.6	13.8	13.3
Rapid Bus 710	Crenshaw Blvd	17.4	16.4	16.1	15.9
Local Bus 40	Crenshaw Blvd	12.4	12.6	12.3	11.3
Rapid Bus 740	Crenshaw Blvd	13.9	15.0	14.1	13.4

Source: Metro Model 2006, 2030.

Transit Accessibility and Connectivity

Although the Crenshaw/LAX Transit Corridor contains several employment destinations, active retail centers, and stable residential neighborhoods, there are many more activity and employment centers located adjacent to or outside of the corridor to which corridor residents desire to travel. Corridor travelers have limited options and accessibility to existing transit because of continuing freeway and street system congestion, slowing and overburdened bus operations, and the lack of direct connections to the regional rail system.

Transit Reliability

Currently, at least one bus route serves each major and secondary arterial in the corridor. Six transit providers offer a combination of community based, local, limited stop, and freeway express service within the corridor. However, the frequency of corridor service does not meet the corridor's needs. Other challenges facing bus transit service in the corridor include the following:

- Capacity issues because of high corridor transit dependency
- Operational problems because of the congested arterial street system
- Poor regional transportation system connections
- Inability to produce benefits for all riders

As a result of the higher than average transit ridership in the corridor, which is approximately double the mode split of the Los Angeles County's urbanized area, many of the buses serving the corridor are at or over capacity. Operating beyond capacity results in overcrowding, rider pass-bys and loading delays, which create uneven headways and related schedule adherence problems. Overcrowding also reduces the life of buses and contributes to higher maintenance costs.

The effectiveness of corridor bus transit operations is severely impacted by arterial congestion resulting in slower bus speeds with negative effects on schedule adherence, as well as decreased service reliability and increased travel times. Buses operating in congested corridor conditions also results in higher operational and maintenance costs. Increased operational costs are incurred with the addition of buses and drivers (in an attempt to maintain the identified service schedule), and higher maintenance costs resulting from the physical wear on buses from stop-and-go operations.

3.1.2 Traffic

The following is a summary of the existing roadway system and traffic conditions in the study area. Descriptions of existing conditions are provided for major freeways and arterials in the study area.

3.1.2.1 Regional Transportation Network

The study area is generally well served by a roadway network of arterial streets and freeways, which provide options for travel both north-south and east-west.

Freeways

The study area freeway network is described below.

- **I-10** – The I-10 Freeway is a major east-west freeway that traverses the northern portion of the study area extending from the Pacific Ocean and the City of Santa Monica on the west to downtown Los Angeles and beyond, on the east. The I-10 Freeway crosses Crenshaw Boulevard south of Washington Boulevard and north of Adams Boulevard. In the study area, the average daily traffic[1] on the I-10 Freeway varies between 285,000 vehicles at the La Brea Avenue interchange, 301,000 vehicles at the Crenshaw Boulevard interchange, and 311,000 vehicles at the Arlington Avenue interchange. Peak hour conditions along the I-10 Freeway are generally congested in both directions, with a slightly higher volume of traffic traveling west in the a.m. peak and east in the p.m. peak periods.
- **I-105** – The I-105 Freeway is an east-west freeway that extends from the LAX east to the City of Norwalk. Near the proposed project alignment, the I-105 Freeway provides a single carpool lane in each direction. The median of the I-105 Freeway services the Metro Green Line, which enhances the availability of transit options to and from the study area. The ramps that provide regional access to the study area include the Crenshaw Boulevard, Prairie Avenue, Hawthorne and Aviation Boulevards on- and off-ramps. The average daily traffic varies between 199,000 vehicles at the I-405 Freeway junction, 247,000 vehicles at the Crenshaw Boulevard interchange, and 223,000 vehicles at the Hawthorne Boulevard interchange. The a.m. peak hour traffic volumes are greater traveling west, and the p.m. peak hour traffic volumes are greater traveling east.
- **I-405** – The I-405 Freeway is a major north-south freeway that connects the San Fernando Valley to West Los Angeles, the South Bay area, and Orange County. Although the I-405 Freeway parallels the corridor through a portion of the study area, there are no north/south freeway corridors fully within the study area. In the vicinity of the proposed project alignment, the I-405 Freeway provides northbound and southbound carpool lanes and auxiliary lanes. The ramps that lie in the study area include the Imperial Highway, Century Boulevard, Manchester Boulevard/Florence Avenue, and La Cienega Boulevard on- and off-ramps. The average daily traffic on the I-405 Freeway varies between 283,000 vehicles at the La Tijera Boulevard/Howard Hughes Parkway interchange, 305,000 vehicles at the I-105 Freeway junction and the

[1] *2006 Traffic Volumes on California State Highways*, State of California Department of Transportation, Traffic Operations Division.

Century Boulevard interchange, 263,000 vehicles at the Manchester Boulevard interchange, and 231,000 vehicles at the El Segundo Boulevard interchange.

- **I-110** – The I-110 Freeway is a major north-south freeway that connects the community of San Pedro with Downtown Los Angeles. The I-110 Freeway is outside the study area, but serves many corridor trips through its connections with the I-10 and I-105 Freeways, and east/west arterial streets.

Arterial Network

The list below describes the key arterials in the study area.

Major North/South Arterials (Listed from west to east)

- Aviation Boulevard (Cities of Los Angeles and Inglewood)
- La Brea Avenue/Hawthorne Boulevard (Cities of Los Angeles and Inglewood)
- Crenshaw Boulevard (City of Los Angeles) – Crenshaw Boulevard (shown in Figure 3-3) is the most commonly used north-south arterial in the study area and is often used to access the I-10 Freeway. Many retail and commercial uses lie along Crenshaw Boulevard, making it a destination as well as a major arterial serving the study area. Motorists on Crenshaw Boulevard experience significant delay during the peak hours, particularly between the I-10 Freeway and Wilshire Boulevard. Peak-hour traffic congestion can also be observed in the middle portion of the study area, although, since Crenshaw Boulevard is wider south of the I-10 Freeway, the congestion is not as severe as in the northern portion.

Figure 3-3. Looking South from 60th Street on Crenshaw Boulevard

Source: Metro 2008

  The segment of Crenshaw Boulevard between Coliseum Street and Martin Luther King Jr. Boulevard and between Brynhurst Avenue and Slauson Avenue is flanked by either one or two frontage roads, providing one lane of travel in each direction.
- Arlington Avenue (City of Los Angeles)

Major East/West Arterials (Listed from north to south)

- Wilshire Boulevard (City of Los Angeles) – Field observations suggest that Wilshire Boulevard experiences significant congestion during both peak hours. Observations of the La Brea Avenue/Wilshire Boulevard intersection show that completing a left turn onto La Brea Avenue can take up to three cycles. Through movements at many major intersections along Wilshire Boulevard also take more than one cycle in the peak hours.

- San Vicente Boulevard (City of Los Angeles)
- Venice Boulevard (City of Los Angeles)
- Florence Avenue (City of Inglewood)
- Century Boulevard (City of Los Angeles)
- Imperial Highway (City of Los Angeles)
- Olympic, Washington, Martin Luther King Jr., and Manchester Boulevards
- Pico, Adams, and Jefferson Boulevards, Stocker Street, and Slauson Avenue (City of Los Angeles)
- Exposition Boulevard (City of Los Angeles)

Daily traffic volumes along the study area arterials vary by segment. The highest daily traffic volumes for select major east-west and north-south arterials in the immediate vicinity of the proposed corridor alignment are presented in Table 3-4 for the City of Los Angeles and Table 3-5 for the City of Inglewood.

Table 3-4. Traffic Volumes for Key Arterial Segments in the City of Los Angeles

Primary Street	Cross Street/Segment	Count Date	Eastbound	Westbound	Total
East-West Arterials					
Wilshire Blvd	Western Blvd	9/28/2005	18,000	15,000	33,000
North-South Arterials					
Crenshaw Blvd	Adams Blvd	11/29/2005	28,000	26,000	54,000
Crenshaw Blvd	Florence Ave	3/30/2005	17,000	19,000	36,000
Crenshaw Blvd	MLK, Jr. Blvd	3/8/2006	24,000	22,000	46,000
Crenshaw Blvd	Slauson Ave	3/31/2005	21,000	18,000	39,000
Crenshaw Blvd	Stocker Ave	3/15/2006	21,000	21,000	42,000
La Brea Ave	Olympic Blvd	6/11/2004	25,000	22,000	47,000
La Brea Ave	Venice Blvd	1/26/2004	28,000	29,000	57,000

Source: Traffic counts conducted by LADOT's Traffic Survey Section.

Table 3-5. Traffic Volumes for Key Arterial Segments in the City of Inglewood

Street	Segment	24-Hour Traffic Volumes
Prairie Ave	Florence Ave to Regent St	29,000
Prairie Ave	Arbor Vitae St to Century Blvd	33,000
Crenshaw Blvd	Arbor Vitae St to Century Blvd	35,000
Crenshaw Blvd	Manchester Blvd to 90th St	34,000
La Brea Ave	Florence Ave to Manchester Blvd	32,000
La Brea Ave	Arbor Vitae St to Century Blvd	30,000
Century Blvd	Prairie Ave to La Brea Ave	33,000
Century Blvd	La Brea Ave to Inglewood Ave	42,000

Source: City of Inglewood Department of Public Works, 2005 Traffic Counts.

Monitoring Locations

The 2004 Congestion Management Program (CMP) for Los Angeles County lists the following locations in the study area as the freeway mainline or arterial intersection monitoring stations for the countywide congestion management analysis:

- I-10 Freeway east of La Brea Avenue
- I-105 Freeway east of Sepulveda Boulevard (Junction Route 1)
- I-105 Freeway east of Crenshaw Boulevard and west of Vermont Avenue
- I-405 Freeway north of La Tijera Boulevard
- I-405 Freeway north of Venice Boulevard
- Sepulveda Boulevard at El Segundo Boulevard (City of El Segundo)
- Manchester Avenue at Crenshaw Boulevard (City of Inglewood)
- Manchester Avenue at La Brea Avenue (City of Inglewood)
- Wilshire Boulevard at La Brea Avenue (City of Los Angeles)

All of the locations listed above, except Wilshire Boulevard at La Brea Avenue, experienced poor operating conditions (level of service [LOS] E or worse) during one or both peak hours according to 2003 volumes in the CMP.

3.1.2.2 Study Intersections and Levels of Service

A total of 26 key intersections in the study area – in close proximity to and along the LPA project alignment – were included to represent the affected environment from a traffic operations perspective. This section describes the existing conditions at the study intersections and details the methodology used to conduct the analysis. The 26 study intersections likely to be affected by the LPA are shown in Figure 3-4.[2] The jurisdictions affected by the project were consulted throughout the scoping process and assisted in the initial selection of study intersections.

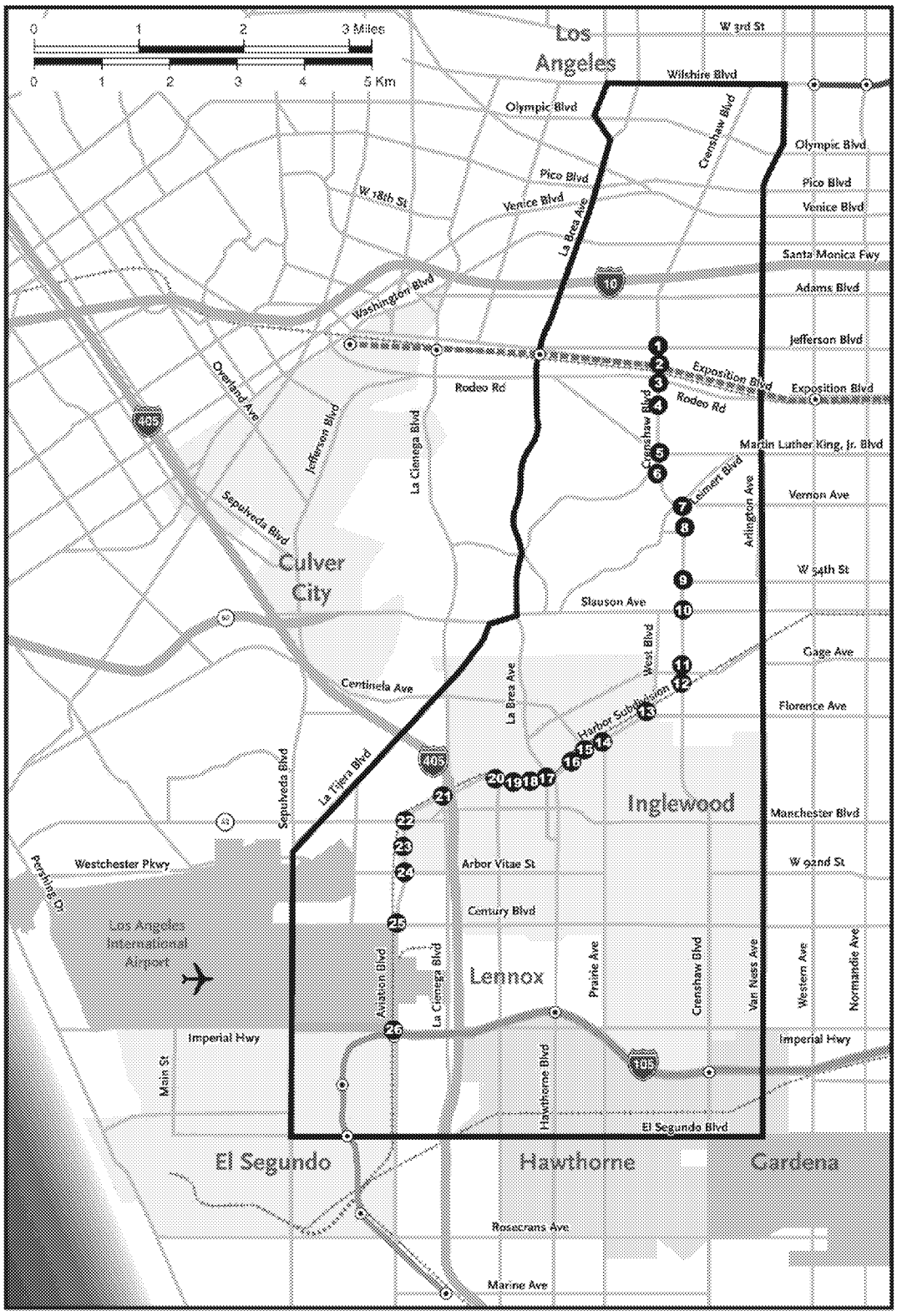
Data Collection and Analysis Methodology

Detailed a.m. and p.m. peak period intersection turning movement counts were conducted in January, April and June 2008 to represent existing traffic volumes on a typical weekday throughout the study area. Counts were taken during typical weekday peak hours from 7:00 to 10:00 a.m. and 3:00 to 7:00 p.m.

The 26 analyzed (Figure 3-4) intersections are in the Cities of Los Angeles (13 intersections) and Inglewood (13 intersections). The LADOT requires that the Critical Movement Analysis (CMA) method (Transportation Research Board, 1980) be used to determine the intersection volume-to-capacity ratio (V/C) and the corresponding LOS for the given turning movements and intersection characteristics at signalized intersections. The City of Inglewood has not developed any guidelines or criteria for traffic analysis. Because of the differing criteria

[2]The DEIS/DEIR evaluated 46 intersections when there were multiple routes throughout the study area being analyzed.

Figure 3-4. Analyzed Intersections Affected by the LPA



Source: Parsons Brinckerhoff and TAHA, 2011.

among jurisdictions, a single methodology was selected to represent existing conditions. The commonly accepted operational analysis methodology from the *2000 Highway Capacity Manual* (HCM) (Transportation Research Board, 2000) was used to estimate delay and corresponding LOS at each study intersection. For comparison purposes, the V/C ratio using the CMA method was also presented for each study intersection.

The operations analysis methodology rates intersection conditions based on the average delay, measured in seconds, experienced by drivers. LOS is a qualitative measure used to describe the condition of traffic flow, ranging from LOS A (free flow conditions) to LOS F (congested conditions), with LOS E representing theoretical capacity. Weekday a.m. and p.m. peak hours were selected for analysis because they represent the most critical periods of traffic congestion in the study area, compared to other time periods such as weekday or weekend midday.

Existing Levels of Service

The results of the analysis of existing weekday morning and afternoon peak hour conditions at the 26 study intersections are summarized in Appendix H. Twenty one of the 26 analyzed intersections (85 percent) are operating at an acceptable LOS D or better in the morning and afternoon peak hours. The remaining five intersections (15percent) operate at LOS E or F (deficient LOS) during one or both analyzed peak hours. Morning and afternoon peak period delay and corresponding LOS at each study intersection is shown in Appendix H.

3.1.2.3 Highway System Level of Service

Heavy traffic congestion exists in the study area along the I-10 Freeway, the I-405, the I-105 Freeways, Crenshaw Boulevard, La Brea Avenue/Hawthorne Boulevard, and Prairie Avenue. Typical rush hours in the corridor extend from approximately 6:30 a.m. through 10:00 a.m. in the morning and 3:30 p.m. to 7:00 p.m. in the evening.

One measure of performance for traffic operations is the V/C ratio, which evaluates the traffic volume on a roadway compared to its available capacity. V/C ratios approaching or above 1.00 reflect congested conditions and restricted traffic movements. As shown in Table 3-6, there are nearly twice as many congested miles of roadway in the p.m. peak period compared to the a.m. peak period. Similarly, Table 3-7 shows that travel times and speeds on most key roadway segments in the study area are worse during the p.m. peak period. Table 3-8 shows that that congestion will increase in 2030.

The I-10 Freeway has peak period congestion levels rated at F3,[3] meaning that the freeway operates at LOS "F" conditions for more than three hours (for each peak period direction of travel) in each peak travel period. Figure 3-5 illustrates typical a.m. peak period congestion on the I-10 and I-405 Freeways.

[3] California Department of Transportation, 1998.

Table 3-6. 2006 and 2030 Peak Period Congestion Miles and Lanes in the Study Area

	2006		2030	
	AM Peak Period	PM Peak Period	AM Peak Period	PM Peak Period
STUDY AREA MILES /a/				
Total	291	291	297	297
Congested Miles /b/	34	61	76	143
Percent Congested	12	21	26	48
STUDY AREA LANE MILES /c/				
Total Number of Lane Miles	671	671	679	679
Congested Lane Miles /b/	72	129	159	312
Percent Congested	11	19	23	46

/a/ Highway ramps and centroid connectors are not included.
/b/ Congested corresponds to LOS E or F.
/c/ Lane miles equal the distance in miles times the number of lanes; highway ramps and centroid connectors are not included.
Source: Parsons Brinckerhoff, October 2007.

Table 3-7. 2006 Peak Period Congestion on Key Study Area Roadway Segments

From	To	Distance (miles)	AM Peak Period		PM Peak Period	
			Congested Time (Min.)	Speed (mph)	Congested Time (Min.)	Speed (mph)
Crenshaw Blvd/ Wilshire Blvd	Crenshaw Blvd/I-10 Fwy	1.8	5.6	19.5	6.0	18.3
La Brea Ave/ Wilshire Blvd	San Vicente Blvd/ Pico Blvd	1.2	2.9	24.1	3.2	22.2
La Brea Ave/Stocker Street	La Brea Ave/I-10 Fwy	2.6	6.3	24.8	6.7	23.5
Crenshaw Blvd/I-10 Fwy	Crenshaw Blvd/ML King Blvd	1.6	3.5	26.4	4.3	21.6
Century Blvd/ Prairie Ave	Century Blvd/ Aviation Blvd	2.0	4.1	29.3	4.0	30.4
La Brea Ave/ Florence Ave	Hawthorne/I-105 Fwy	2.1	4.6	27.2	5.7	22.1

Source: Parsons Brinckerhoff, October 2007.

Table 3-8. 2030 Peak Period Congestion on Key Study Area Roadway Segments

From	To	Distance (miles)	AM Peak Period		PM Peak Period	
			Congested Time (Min.)	Speed (mph)	Congested Time (Min.)	Speed (mph)
Crenshaw Blvd/ Wilshire Blvd.	Crenshaw Blvd/ I-10 Fwy	1.8	6.7	16.5	7.2	15.3
La Brea Ave/ Wilshire Blvd	San Vicente Blvd/Pico Blvd	1.2	3.7	19.2	3.7	19.0
La Brea Ave / Stocker St	La Brea/I-10 Fwy	2.6	7.1	22.2	9.1	17.3
Crenshaw Blvd /I-10 Fwy	Crenshaw Blvd/ ML King Blvd	1.6	4.2	22.4	5.4	17.3
Century Blvd/ Prairie Ave	Century Blvd/ Aviation Blvd	2.0	4.6	26.1	4.2	28.4
La Brea Ave/ Florence Ave	Hawthorne Blvd/ I-105 Fwy	2.1	5.1	24.7	6.7	18.8

Source: Parsons Brinckerhoff, October 2007.

Figure 3-5. AM Peak Period Congestion - I-10 and I-405s Freeways

On the I-10 looking west from Crenshaw Boulevard, the commute toward the West Los Angeles area is particularly congested during the AM Peak Period.

During the AM Peak Period, the commute northbound on the I-405 towards the West Los Angeles area, is more congested than the southbound commute.

Source: Terry A. Hayes Associates LLC, 2007

Table 3-9 and Table 3-10 show the peak period travel times and average speeds for vehicles traveling southbound and northbound in the corridor. Northbound travel takes longer than southbound travel during the a.m. peak period while the opposite is true during the p.m. peak period.

Table 3-9. Southbound Peak Period Travel Times and Average Vehicle Speed 2006 and 2030

From	To	2006				2030			
		AM Peak Period		PM Peak Period		AM Peak Period		PM Peak Period	
		Time (Min.)	Average Speed (Mph)	Time (Min.)	Average Speed (Mph)	Time (Min.)	Average Speed (Mph)	Time (Min.)	Average Speed (Mph)
Wilshire Blvd/ Western Ave	Wilshire Blvd/ Crenshaw Blvd	1.9	18.3	2.1	16.5	2.9	12.2	2.7	13.0
Wilshire Blvd/ Crenshaw Blvd	Pico Blvd/ Crenshaw Blvd	3.9	16.7	4.2	15.2	5.2	12.3	5.5	11.8
Pico Blvd/ Crenshaw Blvd	Adams Blvd/ Crenshaw Blvd	3.5	20.5	4.6	15.3	4.4	16.2	6.3	11.3
Adams Blvd/ Crenshaw Blvd	Exposition Blvd/ Crenshaw Blvd	1.9	24.6	2.9	16.0	2.4	19.3	4.3	11.0
Exposition Blvd/ Crenshaw Blvd	MLK Blvd/ Crenshaw Blvd	1.5	28.6	1.7	24.3	1.7	25.0	2.2	19.4
MLK Blvd/ Crenshaw Blvd	Slauson Ave/ Crenshaw Blvd	4.0	23.6	5.9	16.0	5.2	18.2	7.5	12.6
Slauson Ave/ Crenshaw Blvd	West Blvd/ Florence Ave	3.8	20.7	4.7	16.6	5.6	14.1	6.4	12.3
West Blvd/ Florence Ave	La Brea Ave/ Florence Ave	3.1	23.5	2.7	27.6	3.9	18.8	3.1	23.9
La Brea Ave/ Florence Ave	Manchester Ave/ Aviation Blvd	3.9	23.1	3.9	23.2	5.0	18.2	4.5	20.3
Manchester Ave/ Aviation Blvd	Century Blvd/ Aviation Blvd	2.2	28.3	2.5	24.1	2.3	26.7	3.2	19.4
Century Blvd/ Aviation Blvd	Imperial Hwy/ Aviation Blvd	2.2	29.9	2.6	24.9	2.3	29.1	3.9	16.7
Total		31.8	22.7	38.0	19.0	40.8	17.7	49.4	14.6

Metro Model 2006, 2030

Table 3-10. Northbound Peak Period Travel Times and Average Vehicles Speed 2006 and 2030

From	To	2006				2030			
		AM Peak Period		PM Peak Period		AM Peak Period		PM Peak Period	
		Time (Min.)	Average Speed (Mph)	Time (Min.)	Average Speed (Mph)	Time (Min.)	Average Speed (Mph)	Time (Min.)	Average Speed (Mph)
Wilshire Blvd/ Crenshaw Blvd	Wilshire Blvd/ Western Ave	1.8	19.7	2.1	16.5	2.1	16.9	3.0	11.5
Pico Blvd/ Crenshaw Blvd	Wilshire Blvd/ Crenshaw Blvd	3.8	16.7	4.2	15.1	4.8	13.5	6.2	10.4
Adams Blvd/ Crenshaw Blvd	Pico Blvd/ Crenshaw Blvd	4.3	16.7	4.0	17.9	5.6	12.7	5.8	12.2
Exposition Blvd/ Crenshaw Blvd	Adams Blvd/ Crenshaw Blvd	2.5	18.9	2.1	22.3	3.3	14.4	3.0	15.6
MLK Blvd/ Crenshaw Blvd	Exposition Blvd/ Crenshaw Blvd	1.6	26.1	1.6	26.8	1.9	22.5	1.9	22.2
Slauson Ave/ Crenshaw Blvd	MLK Blvd/ Crenshaw Blvd	5.4	17.3	4.6	20.5	6.6	14.3	6.0	15.7
West Blvd/ Florence Ave	Slauson Ave/ Crenshaw Blvd	4.3	18.1	4.3	18.2	5.2	15.1	6.6	11.9
La Brea Ave/ Florence Ave	West Blvd/ Florence Ave	2.4	31.0	3.2	23.3	2.5	29.2	4.0	18.3
Manchester Ave/ Aviation Blvd	La Brea Ave/ Florence Ave	3.4	26.6	4.3	21.3	3.7	24.4	5.5	16.7
Century Blvd/ Aviation Blvd	Manchester Ave/ Aviation Blvd	2.5	24.9	2.3	27.2	3.0	20.4	2.5	24.6
Imperial Hwy/ Aviation Blvd	Century Blvd/ Aviation Blvd	2.5	26.3	2.3	28.8	3.4	19.1	2.6	25.3
Total		34.5	21.0	34.9	20.7	42.0	17.2	47.1	15.3

Metro Model 2006, 2030

3.1.3 Parking

The availability of parking throughout the study area varies significantly depending on location. Below is a summary of the approximately 2,000 curbside and off-street parking spaces in the vicinity of the proposed project alignment.

3.1.3.1 Off-Street Parking

Because of the built-out nature of Crenshaw Boulevard, few areas along the proposed corridor offer off-street parking. The following discusses off-street parking constraints that exist near the stations proposed for the Crenshaw/LAX Transit Corridor Project, beginning at the northern end of the study area.

- Crenshaw/Exposition Boulevards – The largest concentration of off-street parking near the Crenshaw/Exposition Boulevards intersection is owned by the West Angeles

Church, on the northeast corner of Crenshaw/Exposition Boulevards. Parking for the West Angeles Church is not open to the public, except during times of worship. It is expected that an agreement to share the parking facilities will be reached between the church and Metro for daytime use by Expo LRT park-and-ride patrons.

- Crenshaw/Martin Luther King Jr. Boulevards – An aerial view of the Baldwin Hills Crenshaw Plaza Shopping Center and its off-street parking supply is shown in Figure 3-6. A remodel of the mall will change the amount and configuration of mall parking in the future.

Figure 3-6. Baldwin Hills Crenshaw Plaza and Off-Street Parking

Source: Metro 2008

- Crenshaw Boulevard/Vernon Avenue (optional station) – A substantial supply of City-owned off-street parking is available for the retail uses in the immediate vicinity of this potential station.
- Crenshaw Boulevard/Slauson Avenue – There are city-owned lots to the immediate north of this intersection. North of Slauson Avenue, one-way frontage roads flank either side of Crenshaw Boulevard. These frontage roads provide curbside parking, although not directly on Crenshaw Boulevard.
- Florence Avenue/West Boulevard– A strip of off-street parking (approximately 100 spaces) is available adjacent to the proposed station.
- Florence Avenue/La Brea Avenue – Parcels to the east and west of the station location could be developed into a station serving parking facility.

- Aviation Boulevard/Manchester Boulevard (optional station) – Because of the considerable density of industrial and residential uses in the area, no off-street parking facilities of any appreciable size are available near this station.
- Aviation Boulevard/Century Boulevard – Because of the considerable density of industrial and residential uses in the area, no off-street parking facilities of any appreciable size are available near this station.

3.1.3.2 On-Street Parking

Curbside parking availability varies considerably throughout the proposed corridor alignment. This section describes the type of parking available near stations beginning in the north. Table 3-11 summarizes the roadway and curb parking characteristics (for key arterials near the proposed project alignment.

Table 3-11. Existing Surface Street Characteristics

Segment	From	To	Lane		Median	Parking Restrictions		Speed Limit
			NB/EB	SB/WB	Type	NB/EB	SB/WB	
Crenshaw Blvd continued	MLK, Jr. Blvd	Rodeo Rd (frontage rd)	3	3	2LT	NSAT	NSAT	35
	Rodeo Rd (frontage rd)	Coliseum St (no frontage)	3	3	2LT	NSAT	NSAT	35
	Coliseum St	30th St	3	3	2LT	NSAT	1HR 9-4; NS 7:00 to 9:00 a.m., 4:00 to 6:00 p.m.	35
	60th St	Slauson Ave	3	3	RM	NS 7:00 to 9:00 a.m., 4:00 to 6:00 p.m.; 1HR 9:00 to 4:00	NS 4:00 to 6:00 p.m.; 1HR	35
	Slauson Ave (begin frontage)	Leimert Split	3	3	RM	RZ	RZ	35
	Leimert Split	43rd St	3	3	2LT	Meter 2HR; NS 7:00 to 9:00 a.m., 4-6 p.m.	Meter 2HR; NS 7:00 to 9:00 a.m., 4:00 to 6:00 p.m.	35
	43rd St	Stocker St	3	3	2LT	Meter 2HR; NS 7:00 to 9:00 a.m., 4:00 to 6:00 p.m.	Meter 2HR; NS 7:00 to 9:00 a.m., 4:00 to 6:00 p.m.	35
	Stocker St	MLK, Jr. Blvd	3	3	2LT	Meter; NS 7:00 to 9:00 a.m.; 2HR meter	NSAT	35

Table 3-11. Existing Surface Street Characteristics (continued)

Segment	From	To	Lane		Median	Parking Restrictions		Speed Limit
			NB/EB	SB/WB	Type	NB/EB	SB/WB	
Crenshaw Blvd continued	Florence Ave	66th St	3	3	2LT	NS 7:00 to 9:00 a.m., 4:00 to 6:00 p.m.	1HR 8:00 to 4:00 p.m.; NS 4:00 to 6:00 p.m.	35
	66th St	60th St	3	3	2LT	NS 7:00 to 9:00 a.m., 4:00 to 6:00 p.m.; 1HR 9:00 to 4:00	NS 4:00 to 6:00 p.m.; 1HR	35
Aviation Blvd	Florence Ave	Arbor Vitae St	2	2	2DY	NP	Meter Parking	40
	Arbor Vitae St	Century Blvd	2	2	2DY	NSAT	NP	40
	Century Blvd	Transit Hub	2	2	2LT	NSAT	NSAT	40
Florence Ave	La Brea Ave	Aviation Blvd	2	2	RM	NSAT	NSAT	40
	La Brea Ave	Hillcrest Blvd	2	3	RM	PA	NSAT	40
	Hillcrest Blvd	Redondo Blvd	3	3	RM	NSAT	NSAT	40
	Redondo Blvd	Brynhurst Ave	2	2	2DY	NPAT	NSAT	40
	Brynhurst Ave	Crenshaw Blvd	2	2	2LT	NS 7:00 to 9:00 a.m., 4:00 to 7:00 p.m.		40

Notes:

MEDIAN TYPE: DY=Double Yellow Centerline; SDY=Single Dashed Yellow Centerline; 2DY=Two Double Yellow Centerlines; 2LT= Two-way left turn lane; RM=Raised Median; UD=Undivided Lane

LANES: # = Number of lanes

NSAT = No Stopping Anytime; RZ = Red zone - No parking allowed

NS = No Stopping; NP = No Parking; PA = Parking Allowed

Source: Fehr & Peers field observations, January 2008.

South of the I-10 Freeway crossing to Exposition Boulevard, parking is permitted along Crenshaw Boulevard during off-peak hours. Parking is also permitted during off-peak periods between Exposition Boulevard and Rodeo Road.

One-way frontage roads flank both sides of Crenshaw Boulevard south of Rodeo Road to Martin Luther King Jr. Boulevard. Curbside parking is available on both sides of the frontage roads, with no visible parking restrictions (see Figure 3-7). From Martin Luther King Jr. Boulevard to Vernon Avenue, limited curbside parking is provided. Parking meters along this stretch provide for two-hour parking, with peak period restrictions.

Figure 3-7. Crenshaw Boulevard On-Street Parking

Source: Metro 2008

South of Leimert Boulevard, Crenshaw Boulevard is flanked by frontage roads similar to those present north of Martin Luther King Jr. Boulevard. From Leimert Boulevard to Slauson Avenue, curbside parking is available along the frontage roads with no posted parking restrictions. Between Slauson Avenue and Florence Avenue, parking is generally available on both sides of the street; however, it is restricted during one or both peak periods.

Some segments of Crenshaw Boulevard between La Brea Avenue and Hillcrest Boulevard and Brynhurst Avenue and Crenshaw Boulevard provide curbside parking during non-peak periods on the south side of the street.

Parking is generally prohibited on both sides of Florence Avenue in the City of Inglewood.

Parking is generally prohibited on both sides of Century Boulevard, west of La Cienega Boulevard in the City of Los Angeles.

3.1.4 Pedestrian and Bicycle Facilities

3.1.4.1 Pedestrian Facilities

Figure 3-8. Pedestrian Activity at the Intersection of Crenshaw and Martin Luther King, Jr. Boulevards

Source: Metro 2008

The pedestrian system varies across the study area depending on the density, mix of land uses, and vehicular circulation patterns. The entire street network, excluding the urban freeways, is generally considered open to pedestrian traffic, either on the sidewalks or road shoulders. Figure 3-8 shows pedestrians crossing at an enhanced pedestrian crosswalk in the study area. In some areas, pedestrian flow is impeded because of missing, inadequate, or unattractive sidewalks and crossings. The locations where pedestrian movements are difficult have been identified and are listed below.

- The intersection of Crenshaw and Exposition Boulevards contains the Metro Exposition LRT Line that follows Exposition Boulevard. The elongation of the intersection crossing at both the North and South Exposition Boulevard roadways results in a lengthy pedestrian crossing along Crenshaw Boulevard. The pedestrian environment will be improved with the introduction of the Metro Expo LRT Line Phase I (as described in Section 3.2).
- The section of Crenshaw Boulevard between West Vernon Avenue and Slauson Avenue contains frontage roads. Merging vehicles from the frontage roads near the crosswalks increases the potential for conflicts between pedestrians and vehicles. This part of the corridor is vehicle-oriented and provides unattractive pedestrian amenities. However, the frontage roads slow traffic adjacent to sidewalks and provide a buffer from the wide boulevard. Landscaping and facilities for pedestrians are limited.
- Sidewalks are not present on the north side of East Florence Avenue between Aviation Boulevard and North Cedar Avenue. Throughout this segment, Florence Avenue runs adjacent to railroad tracks. In addition, two intersections, at Aviation/Century Boulevards and Aviation Boulevard/Imperial Highway, do not have crosswalks, which impede the flow of pedestrian connectivity. Parallel facilities do accommodate pedestrian traffic on the east side of Aviation Boulevard; however, overall pedestrian appeal is reduced by inconsistent and lengthy crossings.

3.1.4.2 Bicycle Facilities

Bicycle facilities are classified based on a standard typology, described in further detail below.

- Class I Bikeway (Bike Path) – A completely separate right-of-way designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flows minimized.
- Class II Bikeway (Bike Lane) – A restricted right-of-way designated for the use of bicycles, with a striped lane on a street or highway. Bicycle lanes are generally five feet wide. Vehicle parking and vehicle and pedestrian cross-flows are permitted.
- Class III Bikeway (Bike Route) – A right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles.

In the study area, shown in Figure 3-9, existing bicycle facilities include:

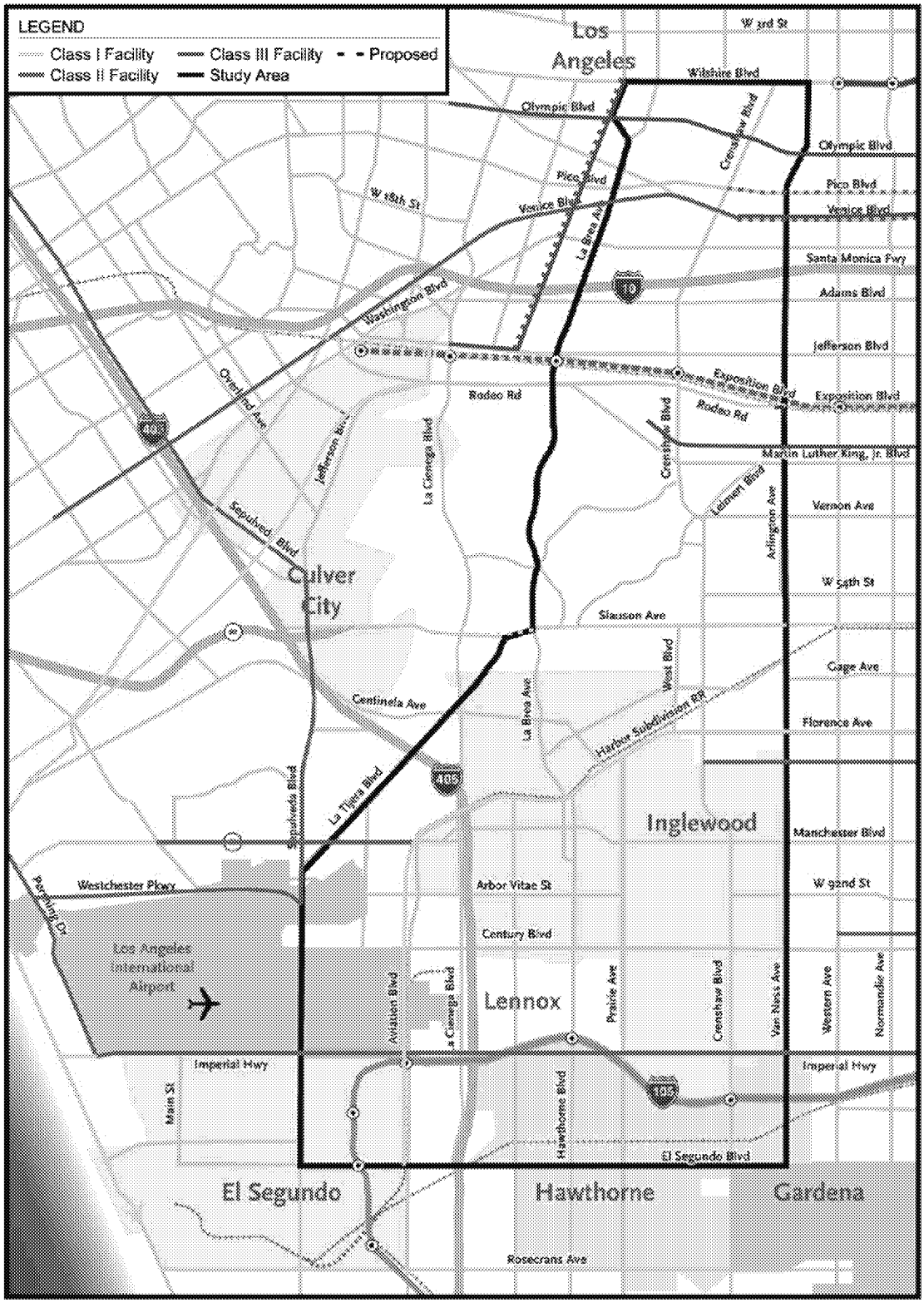
- Class I facilities are planned for the Exposition Light Rail Transit Corridor in the northern portion of the study area and along Slauson Avenue in the middle of the study area. A Class I facility exists on Florence Avenue/Aviation Boulevard in the southern portion of the study area.
- Class II facilities are available on Venice Boulevard starting just east of Crenshaw Boulevard and continuing to the western edge of the study area; along Manchester Avenue from the western edge of the study area to Aviation Boulevard; and along Imperial Highway throughout the study area.
- Class III facilities are available on 39th Street starting just west of Crenshaw Boulevard and continuing east to the edge of the study area, as well as on 76th Street from Crenshaw Boulevard to Vermont Avenue.

3.1.5 Future Transit Conditions

This section describes the transit network affecting the Crenshaw/LAX Transit Corridor, the methodology used to determine potential effects, and assesses the potential for impacts resulting from the LPA.

A travel demand forecasting model was used to analyze future transit ridership and performance. Travel forecasting models are mathematical models, which describe the relationships between land use and demographics, causes of personal travel, and the resultant amount and location of that travel. These models are statistically derived from observations of individual travel choices obtained by extensive surveys of the region's travel characteristics of travelers and their households. The travel demand forecasting model used in the study area was developed by Metro and is based on and receives its demographic inputs from Southern California Association of Governments (SCAG) Regional Travel Demand Model. The travel demand forecasting model includes the approved land use and financially constrained future highway and transit network for 2030. The model predicts future travel demand based on several input data items that include:

Figure 3-9. Existing and Proposed Bicycle Facilities



- SCAG forecasts of growth in population and employment
- SCAG forecast changes in the socio-demographic characteristics of travelers
- Future characteristics of the roadway and transit systems including travel times, costs, and system capacity reflective of the planned system (No-Build Alternative) and project alternatives

Using data generated by the Metro travel demand forecast model, detailed travel pattern information was collected and summarized for future 2030 conditions. For purposes of regional planning, the Los Angeles County area has been subdivided by Metro into areas called Community Statistical Areas (CSA). This study also utilized the CSA geographies in the Corridor in particular and Los Angeles County in general, as well as whole counties outside Los Angeles County to develop detailed origin/destination and travel pattern information. Integrated transit forecasts were developed by the Metro model for all project alternatives for 2030 conditions. The Metro model has been peer-reviewed by a panel of experts with nationwide modeling expertise and has been found to incorporate appropriate procedures and inputs to serve as a basis for evaluating the effects of fixed-guideway projects under Federal Transit Administration (FTA) processes. The model provides forecasts of highway and transit loadings including both bus and rail ridership. The proposed project was coded into the network as a rail line including the line segment, stations and park-and-ride sites.

To analyze the effects of the various alternative project scenarios on the transit system as a whole, the following transit performance measures were derived from the Metro model and summarized for each scenario:

- Daily Linked Fixed Guideway Trips-A trip from origin to destination on the Metro Rail system. Even if a person must make several transfers during a journey, the trip is counted as one linked trip on the Metro Rail system;
- Daily Linked Bus Trips-A trip from origin to destination on the countywide bus system. Even if a person must make several transfers during a journey, the trip is counted as one linked trip on the countywide bus system;
- Daily Linked Transit Trips-A trip from origin to destination on the countywide transit system (includes bus and rail modes). Even if a person must make several transfers during a journey, the trip is counted as one linked trip on the countywide transit system;
- Daily Linked Trips (from all travel modes)-A trip from origin to destination utilizing any travel mode. Even if a person used multiple modes or transfers within (bus to bus) or between modes (car to rail), the trip is counted as one linked trip on the system; and
- Total Transit Mode Share-The percentage share that transit has in relation to all modes of travel.

Table 3-12 provides a summary of countywide transit performance measures for project scenarios.

Table 3-12. Regional Transit Performance Measures (in 2030)

Countywide Statistics	Existing	No-Build	LPA
Daily Linked Fixed Guideway Trips *	235,587	331,994	336,425
Daily Linked Bus Trips	1,091,767	1,183,824	1,183,190
Daily Linked Transit Trips	1,345,354	1,515,818	1,519,615
Daily Linked Trips (Total All Modes)	59,985,976	77,856,299	77,856,300
Total Transit Mode Share	2.3%	1.95%	1.95%

Note: The Daily Linked Fixed Guideway Trips represents the total number of trips on Urban Rail, Commuter Rail, and BRT. There are two reasons that the difference between No Build and LPA does not equal the ridership of the Crenshaw/LAX LRT Line: (1) The data is expressed in trips, not boardings (ridership). One trip could include more than one boarding. (2) The LPA could generate more boardings on the urban rail lines, BRT and commuter rail lines. It also could reduce the boardings on other fixed guideway lines due to a shift in trip patterns.

Source: 2008 Metro Travel Demand Model
* Inclusive of Orange Line BRT trips

Outputs of linked daily transit trips, daily fixed guideway boardings, daily bus boardings, and daily linked trips are all systemwide (throughout Los Angeles County) statistics. This includes all Metro buses and rail activity as well as municipal transit operations for transit statistics and trip activity across all travel modes for daily linked trips. With over 1.5 million transit trips and nearly 80 million total trips projected daily in 2030, the Crenshaw/LAX Transit Corridor LPA results in a minimal change to the transportation system.

No-Build Alternative

The starting point for assessing the potential for impacts is to define a future year "No-Build" transit network. Typically, this network consists of existing transit services, plus improvements that were environmentally cleared or under construction at the time of the analysis.

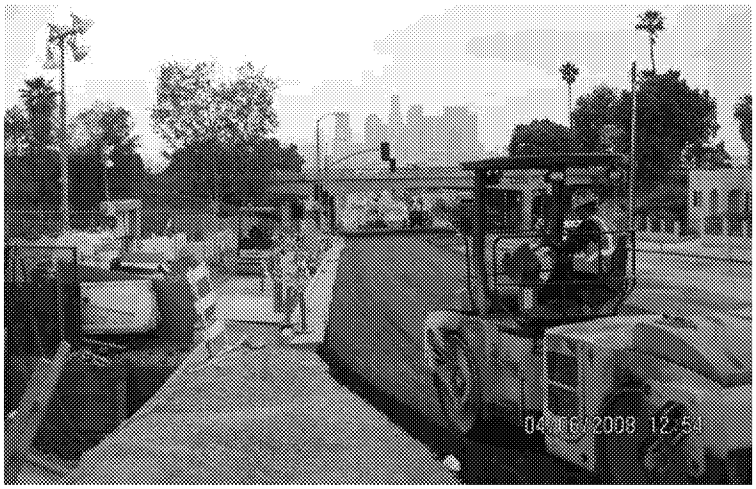
The definition of No-Build Alternative includes the following:

- Exposition LRT Phase I
- LAX Automated People Mover (APM), which connects the Metro Green Line Aviation/LAX Station to LAX terminals, to be developed and operated by others.
- Completion of the Metro Rapid Bus Program

These projects and programs provide improvements that serve the study area. The Exposition LRT Line (see Figure 3-10) will provide service along the Exposition right-of-way from downtown Los Angeles to Culver City (Phase 1). It will share track and two stations (the 7th Street/Metro Center Station and the Pico Station) with the Metro Blue Line as it leaves downtown Los Angeles. It will then travel along the Metro-owned right-of-way to the Phase I terminus at Washington/National Boulevards. Eight new stations will be constructed along the Exposition LRT Line. In addition to the station at Washington/National Boulevards, new stations will be constructed at: Flower/23rd Streets, Jefferson Boulevard, Exposition Boulevard/Vermont Avenue, Western Avenue,

Crenshaw Boulevard, La Brea Avenue, and La Cienega Boulevard. The Crenshaw Boulevard and La Brea Avenue Stations would be located within the study area. The Exposition LRT line will be approximately nine miles long. It parallels the heavily congested Santa Monica Freeway (I-10) and is scheduled to open in 2011/2012.

Figure 3-10. Construction of the Metro Gold Line Eastside Extension



Source: Metro 2008

A second phase of the Exposition Line extends this line to the west with a terminus in the City of Santa Monica. This phase is anticipated to be completed in 2015. This extension was analyzed for its potential effect on the regional transit network, but not included into the modeling for the No-Build Alternative.

LPA

The LPA would provide new LRT services in the Crenshaw/LAX Transit Corridor. The new services would operate along a new bi-directional, fixed guideway in a combination of grade-separated and at-grade alignments. Transit signal preemption will be provided at all grade crossings along the Harbor Subdivision alignment where the traffic signal is located within 200 feet of the crossing and also at locations where traffic from the signal is expected to back up across the crossing. A railroad clearance phase will be used to allow traffic approaching the traffic signal to be able to move away from the tracks before the train arrives. Along the Crenshaw Boulevard alignment, LRT trains will travel when both the northbound and southbound through traffic signal phases are green using coordinated signal timing and/or transit priority to improve LRT flows when possible. The background bus network is assumed to remain the same as the alternatives proceed from No-Build to LRT.

The modeling for the project was completed prior to the selection of the LPA. Model runs were performed to test an LPA with no design options and an LPA with six initial design options. The LPA includes two of the initial six design options and two additional options that emerged since the selection of the LPA. The actual results of the LPA would represent a number in between the two model runs. As a worst case scenario, the LPA is analyzed as the LPA with no design options.

The LPA may include the following design options:

- Cut-and-Cover Crossing at Centinela
- Optional Aviation/Manchester Station (new design option)

- Optional Below-Grade Crenshaw/Vernon Station
- Alternate Southwest Portal at Crenshaw/King Station (new design option)

3.2 Environmental Consequences

3.2.1 Transit Service

This section describes the impacts to the transit system caused by the proposed project. Table 3-12 in the previous section shows countywide and corridor transit ridership for both the No Build and LPA.

3.2.1.1 No-Build Alternative

According to Table 3-12, total linked transit trips on a weekday basis are expected to exceed 1.5 million countywide. Transit mode share under the No-Build Alternative expected in 2030 is 1.95 percent. The No-Build Alternative would result in the operation of buses in a more congested environment which would provide slower travel times and a potential increase in transit ridership compared to existing conditions. However, the No-Build Alternative is the base comparison for the LPA and would not result in adverse transit impacts.

In-vehicle travel times on buses traveling through the study area are anticipated to increase between 2006 and 2030, along with increased traffic congestion on the roadways. Depending on the origins and destinations of bus riders, in-vehicle travel times may increase by a few minutes to ten minutes or more. Table 3-13 shows the changes in corridor bus travel times between 2006 and 2030.

Table 3-13. Study Area Bus Travel Times (2006) and Changes (2006 to 2030)

Route Name/Direction	Route End to End Run Time (2006 Minutes) AM Peak Period	From/To	Percent Change in Travel Times from 2006 to 2030 AM Peak Period
210 Southbound	70	Wilshire/Crenshaw	7% increase
210 Northbound	71	Crenshaw/Wilshire	1% increase
710 Southbound	66	Wilshire-Western Green Line Station/ Crenshaw Green Line Station	11% decrease
710 Northbound	62	Crenshaw Green Line Station/ Wilshire-Western Green Line Station	7% decrease
40 Southbound	93	MLK Blvd/Florence/La Brea/ Hawthorne Green Line Station	11% increase
40 Northbound	95	Hawthorne Green Line Station/ La Brea/Florence/MLK Blvd	1% increase
740 Southbound	75	MLK Blvd/Florence/La Brea/ Hawthorne Green Line Station	11% increase
740 Northbound	82	Hawthorne Green Line Station/ La Brea/Florence/MLK Blvd	1% decrease

Source: Metro Model 2006, 2030.

By 2030, corridor transit demand is estimated to increase by approximately 55 percent (Metro Model 2006, 2030). Without significant improvements and capacity enhancement, the corridor's bus transit system will be substantially overburdened, and mobility to and from the corridor will be significantly constrained.

3.2.1.2 LPA

As shown in Table 3-12, the LPA is expected to increase countywide transit trips by about 4,000 trips in 2030 compared to the No-Build Alternative. Fixed guideway trips are estimated to increase by 4,431 trips (1.3 percent) over the No-Build Alternative. Total transit mode share would remain essentially constant at 1.95 percent because the increase in transit trips expected from the LRT is not of sufficient size to increase the county-wide transit mode share. Ridership for the LPA is summarized in Table 3-14.

Table 3-14. Daily Boardings Based on 2030 Forecast

Station	LPA	LPA with Design Options
Crenshaw/Exposition Station	3,103	3,086
Crenshaw/Martin Luther King Jr. Station	1,386	1,246
Crenshaw/Vernon Station	N/A	841
Crenshaw/Slauson Station	1,002	925
Florence/West Station	716	661
Florence/La Brea Station	1,446	1,451
Aviation/Manchester Station	752	754
Aviation/Century Station	1,386	1,398
Crenshaw/Exposition to Aviation/Century	9,791	10,362
Mariposa/Nash	703	662
El Segundo/Nash	270	267
Douglas/Rosecrans	942	940
Redondo Beach (Marine)	922	917
From Metro Green Line	2,837	2,786
Daily Boardings	**12,628**	**13,148**

Source: 2008 Metro Travel Demand Model. Ridership estimates do not yet assume the development of the Exposition Line Phase II, or transit projects funded through Measure R (such as the Westside Extension, Regional Connector, or Gold Line Foothill Extension)

Table 3-15 compares the estimated travel times (southbound runs) of the LPA and the LPA with design options. The estimated average southbound travel times for automobiles through the corridor are also compared. Under the No-Build Alternative, no direct route would exist between the Crenshaw/Exposition Station and the Metro Green Line Aviation/LAX Station. To travel between these two stations, a rider would take Metro Rapid 710 and transfer to the Metro Green Line. Total in-vehicle travel time would likely exceed 36 minutes (according to current Metro timetables). Factoring in walk and transfer wait time, the journey could surpass 45 minutes.

Table 3-15. Project Alternative Travel Time Comparison (2030)

Station Name	Cumulative Travel Time (Mins.)		
	Average Auto Peak	LPA	LPA with all Design Options
Exposition Line Station to:			
Crenshaw/ King Station to:	1.9	3.5	1.5
Crenshaw/Vernon Station (Optional LRT) to:	5.4	-	3.2
Crenshaw/Slauson Station to:	8.2	6.6	6.6
Florence/West Station to:	14.2	9.7	9.7
Florence/La Brea Station to:	17.7	12.1	12.1
Aviation/Manchester Station to:	22.5	14.8	14.7
Aviation/Century Station to:	25.2	16.6	16.5
Metro Green Line Aviation/LAX Station to:	28.3	-	-
Metro Green Line Mariposa Station		21.4	21.4

Source: Metro Travel Demand Model & LRT Operating Plans. Travel times for the peak and off-peak LPA are the same.

Along the Crenshaw/LAX Transit Corridor, the LPA would offer improved transit service in terms of faster and more reliable service compared to the No-Build Alternative.

Impacts from the LPA would be beneficial as increased levels of transit service would be provided by a new LRT line along the Crenshaw/LAX Transit Corridor. Significant benefits accrue to transit travel time with a 31 percent reduction to the equivalent Metro Rapid Travel time.

The MOSs would require a transfer to a bus connection to complete the connection from the Metro Green Line to the Exposition Line. The MOS-King Alternative would require a connection from the Crenshaw/King Station to the Exposition Line and the MOS-Century Alternative would require a bus connection from the Aviation/Century Station to the Green Line. Significant transit capacity exists for both these segments and the access needs of these links are expected to be served by the background bus network with minor adjustments as necessary. Ridership projections are approximately 40 percent lower than the LPA. The additional connection would substantially increase travel times. The impacts from the MOSs would not be as beneficial as the LPA, however, an increased level of transit service over the No-Build Alternative would be provided by a new LRT line along the Crenshaw/LAX Transit Corridor.

3.2.1.3 Design Options

The below-grade trench at Centinela and alternate southwest portal at the Crenshaw/King Station would not have an effect on the transportation impact analysis discussed below. The optional Aviation/Manchester and Crenshaw/Vernon Stations would add approximately 2 minutes of travel time as shown in Table 3-16.

Table 3-16. Design Options Travel Time Comparison

Design Option	Impact on Travel Time
Exposition Below Grade Alignment	- 2 min
Crenshaw/Vernon Station	+ 2 min
Centinela Grade Separation	0 min
Alternate Southwest Portal at Crenshaw/King Station	0 min

Similar to the LPA, the impacts from the design options would be beneficial as increased levels of transit service would be provided by a new LRT line along the Crenshaw/LAX Transit Corridor.

3.2.1.4 Mitigation Measures

No mitigation measures would be required as project impacts would be substantially beneficial.

3.2.1.5 CEQA Determination

The proposed project would have a beneficial impact on existing transit service, by adding transit infrastructure to the existing transit system. Therefore, no significant impacts are anticipated for the LPA, design options, and MOSs.

3.2.2 Regional Transportation

This subsection considers the potential for the project to generate impacts on the regional transportation system, including the countywide network of freeways and arterials.

Methodology

To assess impacts to the regional transportation system, changes in travel patterns were analyzed for and the LPA compared to the No-Build alternative. The regional performance measures of vehicle miles traveled (VMT), vehicle hours traveled (VHT), average vehicle speed, and peak hour variations of these metrics are derived from the Metro Travel Demand Model.

A total of 13 roadway improvements, ranging from the I-10 Freeway ramp widening to traffic signal actuation to bus-only lanes, have been proposed by Metro and Caltrans. Because these proposed improvements are only in the concept or preliminary planning stages, they were not assumed in the No-Build Alternative for future baseline conditions.

3.2.2.1 No-Build Alternative

Considering all roadways in the study area, including freeways and ramps, the total number of lane miles that experience V/C ratios above 0.90 (corresponding to a LOS E or F) during the a.m. and p.m. peak periods is expected to increase by 121 and 142 percent, respectively, between 2006 and 2030, as shown previously in Table 3-6. Table 3-7 and Table 3-8 show that travel times and delays on certain arterial segments in the study area

will increase from 2006 to 2030 without transit improvements. At the same time, roadway capacity will remain approximately the same, with only one percent additional lane miles provided in the study area.

By 2030, V/C ratios at or above 0.90 during the a.m. peak period are expected for all segments of Crenshaw Boulevard north of Manchester Boulevard. In addition, La Brea Avenue/Hawthorne Boulevard and Prairie Avenue, between Manchester Boulevard and the I-105 Freeway would continue to experience heavy traffic conditions, with most segments having V/C ratios above 0.90 during the a.m. peak period. The increased traffic congestion will also result in lower peak period travel speeds along these corridors, generally below 30 miles per hour and below 20 miles per hour along certain sections of Crenshaw Boulevard. In the coming years, LOS is not expected to improve and may significantly worsen as a result of population growth and increased trip making.

Table 3-9 shows the peak period travel times and average speeds for vehicles traveling southbound in the corridor for 2006 and 2030. Overall, the southbound travel time for vehicles in major segments of the corridor during the a.m. and p.m. peak periods would increase by 28 and 30 percent, respectively. The southbound average speed during the a.m. and p.m. peak periods would decrease by 20 and 23 percent, respectively.

Table 3-10 shows the peak period travel times and average speeds for vehicles traveling northbound in the corridor for 2006 and 2030. Overall, the northbound travel time for vehicles in major segments of the corridor during the a.m. and p.m. peak periods would increase by 22 and 35 percent, respectively. The northbound average speed during the a.m. and p.m. peak periods would decrease by 18 and 26 percent, respectively.

3.2.2.2 LPA

Table 3-17 illustrates the projected regional travel changes that would result from the LPA compared to the 2030 baseline condition both for Los Angeles County as a whole as well as for the study area. Compared to the No-Build Alternative, the LPA is not able to affect noticeable change on countywide or study area performance measures. The data suggest that the LPA has a beneficial effect on the regional transportation network by reducing VMT, VHT, and peak hour trips. Overall, there is little percentage change between the LPA when compared to the No-Build Alternative because total travel demand within the county and study area remains significantly greater than any reduction affected by a project alternative. Peak vehicle trips would be reduced by 0.3 percent in the a.m. peak and 0.2 percent in the p.m. peak compared to the No-Build Alternative. In the study area, additional improvements are seen in the performance measures such as the peak hour VMT, VHT and vehicle trips compared to the No-Build Alternative. Implementation of the LPA would have a more pronounced effect in the study area than countywide.

Although minimal, impacts from the LPA would be beneficial on both a countywide and study area level.

The MOSs would result in a 40 percent ridership reduction when compared to the LPA. Therefore, impacts from the MOSs would be less than the LPA, however, they would be marginally beneficial on both a countywide and study area level.

Table 3-17. Comparative Performance Measures for No-Build Alternative and LPA (2030)

	No-Build	LPA
Regional		
Vehicle Miles Traveled (VMT)	454,428,000	454,402,000
Vehicle Hours Traveled (VHT)	20,189,000	20,192,000[1]
Average Vehicle Speed (mph)	22.5	22.5
AM Peak Vehicle Trips	9,192,500	9,191,500
PM Peak Vehicle Trips	15,781,100	15,780,000
Study Area		
VMT	5,128,000	5,126,000
VHT	210,000	210,000
Average Speed (mph)	24.4	24.4
AM Peak VMT	1,147,000	1,147,000
AM Peak VHT	55,000	55,000
AM Peak Average Speed (mph)	20.8	20.8
AM Peak Vehicle Trips	153,400	152,900
PM Peak VMT	1,737,000	1,736,000
PM Peak VHT	92,400	92,300
PM Peak Average Speed (mph)	18.8	18.8
PM Peak Vehicle Trips	263,600	263,100

[1]Although the VHT data within the study area does not increase, the regional VHT data shows a slight increase due to model inconsistencies in arterial street-coding within separate county jurisdictions.
Source: 2008 Metro Travel Demand Model

3.2.2.3 Design Options

Impacts from the design options would be less than the LPA, however, they would be beneficial on both a countywide and study area level.

3.2.2.4 Mitigation Measures

No mitigation measures would be required as project impacts would be beneficial.

3.2.2.5 CEQA Determination

Because small decreases in countywide and study area VMT and VHT are found when the LPA is compared to the existing conditions, the proposed project would have a beneficial impact on the regional transportation patterns.

3.2.3 Intersection Analysis

Methodology

The traffic impact analysis used a Travel Demand Forecasting Model, as described in Section 3.2.1. Using data generated by the travel demand forecasting model, detailed travel pattern information was collected and summarized for future 2030 conditions. Integrated

highway and transit forecasts were developed by the Metro model for all project alternatives for 2030 conditions.

Screenline Analysis. The integrated highway and transit forecasts were post-processed to yield screenline-based growth factors for specific portions of the study area for each project alternative. Growth factors were used to account for the increase in future base traffic volumes as a result of areawide or regional growth and development in the project corridor. Considering that topography and land use characteristics vary throughout the project corridor, growth factors were developed for the study corridor by four geographical subareas. Each subarea is bordered by selected screenlines. Screenlines are imaginary lines drawn across the major roadways in the vicinity of the project corridor and are used to assess the traffic volumes arriving and departing the project corridor. Each screenline is analyzed by direction (north, south, east or west) to ensure that the analysis of traffic volumes (which may be more congested in one direction than the other depending on the time of day) reflects appropriate peak hour conditions rather than an average condition. The subareas and the screenlines bordering those subareas are listed below:

- Subarea 1: Wilshire Boulevard, Jefferson Boulevard, La Brea Avenue, Western Avenue
- Subarea 2: Jefferson Boulevard, Slauson Boulevard, La Brea Avenue, Western Avenue
- Subarea 3: Slauson Boulevard, Florence Avenue, Aviation Boulevard, Western Avenue
- Subarea 4: Manchester Avenue, El Segundo Boulevard, Aviation Boulevard, La Brea Avenue

A comparison of 2005 and forecast 2030 traffic volumes from the Metro model indicates that the overall traffic growth in the vicinity of the project corridor by 2030 is projected to be about 0.2 percent to 2 percent per year depending on the travel direction. These growth factors were then applied to existing 2008 count data to yield future 2030 volumes for the study intersections for all future scenarios.

Intersection Level of Service. Intersection LOS analysis was performed using Synchro (version 7) software. Synchro is a network-based interactive computer program that enables calculation of LOS at signalized intersections. Synchro uses the *Highway Capacity Manual (HCM) 2000* methodology. The HCM LOS for intersections is determined by measuring delay by seconds per vehicle. The methodology is consistent with the methodology in *HCM 2000*, Chapter 16 for signalized intersections. With this methodology, the average control delay per vehicle is estimated for each lane group and aggregated for each approach and for the intersection as a whole. Synchro also calculates signal timing (green times and cycle lengths) and maximum queue lengths to assist in evaluating signalized intersections. The pedestrian flashing do not walk crossing times at all LRT at-grade intersections were based on the actual planned roadway widths using 4 feet/minute walking speed. Pedestrians crossing Crenshaw Boulevard at lower walking speeds are provided refuge areas in the median of Crenshaw to wait for the next walk indication. The pedestrian walk times were set at a minimum of 7 seconds with 15 seconds used for walk times at LRT at-grade station entrances.

Corridor-Level Traffic Volume Forecasts. The traffic count data collected for the existing conditions analysis data was used in conjunction with the most recent travel model forecast data to estimate 2030 traffic volumes. As a result, the analysis uses a refined methodology that incorporates the most recent travel model forecast data, as well as the most consistent ground count data.

For the LPA, Metro's policy for *Grade Crossing for Light Rail Transit* (December, 2003) was used to assist in the development of 2030 traffic volumes at intersections within 200 feet of proposed at-grade roadway crossings. Initial screening results of LRT operations at the proposed at-grade crossing locations are detailed in a technical memorandum *Implications of Metro Grade Crossing Policy in the Proposed Crenshaw/LAX Transit Corridor Project Study Area* (Fehr & Peers, October 2008).

Park-and-Ride Traffic Volume Forecasts. Park-and-ride projections were used to develop trip generation and trip distribution for the LPA. Park-and-ride data was obtained from the Metro model which only provides data for riders that access stations on fixed guideways (LRT and heavy rail transit (HRT)). The park-and-ride trips were added to 2030 traffic volume forecasts to estimate the total traffic volumes.

Significance Criteria

The intersection LOS analysis assumes that an intersection would be adversely affected by traffic volume changes if the project alternative will cause an increase in average vehicle delay according to the following thresholds that were developed in consultation with local jurisdictions:

- Final LOS C – an adverse impact has occurred if the delay is increased by 10 or more seconds
- Final LOS D – an adverse impact has occurred if the delay is increased by 7.5 or more seconds
- Final LOS E/F – an adverse impact has occurred if the delay is increased by 5 or more seconds

The evaluation of intersection impacts is discussed in two parts based on whether or not the LPA operates at-grade in the same right-of-way with automobile traffic. The intersections where the LPA operates at-grade in the same right-of-way with automobile traffic are discussed separately to establish the appropriate combination of light rail transit and traffic signal operations and optimize the effectiveness of the local transportation network.

Twenty-three of the 26 study intersections are not in locations where the LPA operates at-grade in the same right-of-way with automobile traffic. The remaining three of the 26 study intersections are located along the at-grade portion of the alignment along Crenshaw Boulevard from 60th to 48th Streets:

- Crenshaw Boulevard/Slauson Avenue
- Crenshaw Boulevard/54th Street

- Crenshaw Boulevard/48th Street

These three intersections are representative of the intersections along Crenshaw Boulevard where the LPA operates at-grade. Additional intersection analysis was completed during advanced conceptual engineering to characterize the full range of effects of the project along these at-grade segments. These three intersections were analyzed with a range of automobile signal cycle lengths ranging from 120 to 150 seconds. The analysis assumes a combination signal timing at different intersections to facilitate the flow of both light rail operations and traffic flow. The analysis also assumes the prohibition of left turns from Crenshaw Boulevard to 54th Street. A 150-second cycle length is used to represent the scenario representing maximum signal timing for intersection analysis. A 120-second cycle length represents the typical cycle length that can accommodate the signal phasing required for both light rail operations and traffic flow. The range of cycle lengths provides flexibility during subsequent phases of design for the project to provide a foundation to coordinate with LADOT in establishing the appropriate signal operations design that is ultimately applied. Typically higher level control strategies, such as Adaptive Control, provide less traffic delay than pre-timed operation, and is used here to provide a conservative evaluation of impacts.

The intersection analysis for the remaining 23 intersections assumed actuated control without fixed cycle lengths and the 2030 intersection LOS, delay, and V/C ratio calculations are provided for the LPA in comparison to 2030 No-Build condition.

3.2.3.1 No-Build Alternative

The results of the analysis of existing weekday morning and afternoon peak hour conditions at the 26 study intersections are presented in Table 3-18. Under existing conditions, 21 of the 26 analyzed intersections are projected to operate at an acceptable LOS D or better in the morning and afternoon peak hours. The remaining five intersections are projected to operate at LOS E or F during one or both analyzed peak hours.

Under the No-Build Alternative, ten of the 26 analyzed intersections are projected to operate at an acceptable LOS D or better during one or both analyzed peak hours. Table 3-18 also shows the 2030 cumulative No-Build peak hour traffic volumes at the 26 study intersections.

3.2.3.2 LPA

Intersections Without On-Street LRT Operation

The results of the analysis of the LPA weekday morning and afternoon peak hour conditions at the study intersections are summarized in Table 3-19. Compared to the No-Build Alternative, 12 of the 26 study intersections are projected to operate at an acceptable LOS D or better during one or both analyzed peak hours.

Of the 14 intersections that are projected to operate at an LOS E or F in the morning and afternoon peak hours, the project would cause ten of the study intersections to experience a slight increase in delay (less than 5 seconds), and four intersections are projected to experience a greater amount delay (5 seconds or more) in either or both the a.m. and p.m. peak hours.

Table 3-18. Existing vs LPA Analysis

Int #	N/S Street	E/W Street	Peak Period	Existing Conditions		LPA		Change in Delay	Impact
				Delay (sec)	LOS (based on delay)	Delay (sec)	LOS (based on delay)		
1	Crenshaw Blvd	Jefferson Blvd	AM	26	C	26	C	0	No
			PM	24	C	24	C	0	No
2	Crenshaw Blvd	Exposition Blvd	AM	40	D	37	D	-3	No
			PM	15	B	15	B	0	No
3	Crenshaw Blvd	Rodeo Rd	AM	31	C	30	C	-1	No
			PM	25	C	24	C	-1	No
4	Crenshaw Blvd	Coliseum St	AM	20	B	20	B	0	No
			PM	8	A	8	A	0	No
5	Crenshaw Blvd	MLK, Jr. Blvd	AM	52	D	54	D	2	No
			PM	42	D	44	D	2	No
6	Crenshaw Blvd	Stocker St	AM	49	D	50	D	1	No
			PM	53	D	54	D	1	No
7	Crenshaw Blvd	Vernon Ave	AM	48	D	49	D	1	No
			PM	39	D	39	D	0	No
8	Crenshaw Blvd	48th St	AM	12	B	14	B	2	No
			PM	8	A	8	A	0	No
9	Crenshaw Blvd	54th St	AM	20	C	25	C	5	No
			PM	14	B	15	B	1	No
10	Crenshaw Blvd	Slauson Ave	AM	117	F	61	E	-56	No
			PM	109	F	99	F	-10	No
11	Crenshaw Blvd	Hyde Park Blvd	AM	23	C	17	C	-6	No
			PM	24	C	18	C	-6	No
12	Crenshaw Blvd	67th Street	AM	17	B	17	B	0	No
			PM	19	B	17	B	-2	No
13	Florence Ave	Redondo Blvd	AM	27	C	26	C	-1	No
			PM	16	B	18	B	2	No

Table 3-18. Existing vs LPA Analysis (continued)

Int #	N/S Street	E/W Street	Peak Period	Existing Conditions		LPA		Change in Delay	Impact
				Delay (sec)	LOS (based on delay)	Delay (sec)	LOS (based on delay)		
14	Prairie Ave	Florence Ave	AM	32	C	27	C	-5	No
			PM	31	C	32	C	1	No
15	Centinela Blvd	Florence Ave	AM	31	C	13	B	-18	No
			PM	44	D	43	D	-1	No
16	Hillcrest Blvd	Florence Ave	AM	20	C	19	C	-1	No
			PM	18	B	18	B	0	No
17	La Brea Ave	Florence Ave	AM	66	E	68	E	2	No
			PM	42	D	43	D	1	No
18	Fir Ave/Ivy Ave	Florence Ave	AM	6	A	14	A	8	No
			PM	10	A	18	A	8	No
19	Eucalyptus Ave	Florence Ave	AM	12	B	19	B	7	No
			PM	24	C	19	C	-5	No
20	Inglewood Ave	Florence Ave	AM	4	A	4	A	0	No
			PM	6	A	6	A	0	No
21	La Cienega Blvd	Florence Ave	AM	66	E	68	E	2	No
			PM	77	E	78	E	1	No
22	Florence Ave	Manchester Ave	AM	53	D	55	D	2	No
			PM	29	C	30	C	1	No
23	Aviation Blvd	Hillcrest Blvd	AM	9	A	6.8	A	-2.2	No
			PM	4	A	4	A	0	No
24	Aviation Blvd	Arbor Vitae St	AM	33	C	33	C	0	No
			PM	15	B	16	B	1	No
25	Aviation Blvd	Century Blvd	AM	50	D	50	D	0	No
			PM	56	E	57	E	1	No
26	Aviation Blvd	Imperial Hwy	AM	47	D	46	D	-1	No
			PM	60	E	60	E	0	No

Table 3-19. LPA vs No-Build Analysis

Int #	N/S Street	E/W Street	Peak Period	No-Build Alternative			LPA			Delay Change	Impact
				V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS		
1	Crenshaw Blvd	Jefferson Blvd	AM	1.066	67	E	1.074	67	E	0	No
			PM	0.981	57	E	0.975	57	E	0	No
2	Crenshaw Blvd	Exposition Blvd	AM	1.167	87	F	1.143	81	F	-6	No
			PM	0.965	23	C	0.963	23	C	0	No
3	Crenshaw Blvd	Rodeo Rd	AM	0.972	58	E	0.969	57	E	-1	No
			PM	0.858	40	D	0.856	39	D	-1	No
4	Crenshaw Blvd	Coliseum St	AM	0.891	27	C	0.887	27	C	0	No
			PM	0.703	10	A	0.701	10	A	0	No
5	Crenshaw Blvd	MLK, Jr. Blvd.	AM	0.945	104	F	0.949	107	F	3	No
			PM	0.876	63	E	0.891	66	E	3	No
6	Crenshaw Blvd	Stocker St	AM	0.975	68	E	0.973	69	E	1	No
			PM	1.026	84	F	1.031	85	F	1	No
7	Crenshaw Blvd	Vernon Ave	AM	0.955	91	F	0.957	93	F	2	No
			PM	0.932	77	E	0.929	77	E	0	No
8	Crenshaw Blvd	48th St	AM	0.716	19	B	0.83	22.5	C	3.5	No
			PM	0.691	20	C	0.79	19.9	B	-0.1	No
9	Crenshaw Blvd	54th St	AM	0.936	31	C	1.11	37.9	D	6.9	No
			PM	0.827	22	C	0.95	24.2	C	2.2	No
10	Crenshaw Blvd	Slauson Ave	AM	1.089	171	F	1.13	102.2	F	-68.8	No
			PM	1.129	118	F	1.27	109.3	F	-8.7	No
11	Crenshaw Blvd	Hyde Park Blvd	AM	0.755	28	C	0.751	21	C	-7	No
			PM	0.745	32	C	0.759	24	C	-8	No
12	Crenshaw Blvd	67th St	AM	0.639	19	B	0.637	19	B	0	No
			PM	0.651	25	C	0.640	22	C	-3	No

Table 3-19. LPA vs No-Build Analysis (continued)

Int #	N/S Street	E/W Street	Peak Period	No-Build Alternative			LPA			Delay Change	Impact
				V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS		
13	Florence Ave	Redondo Blvd / High St	AM	0.787	58	E	0.791	55	E	-3	No
			PM	0.545	20	B	0.545	22	C	2	No
14	Prairie Ave	Florence Ave	AM	0.777	61	E	0.777	51	D	-10	No
			PM	0.949	50	D	0.952	51	D	1	No
15	Centinela Blvd	Florence Ave	AM	1.119	90	F	0.93	36.6	D	-53.4	No
			PM	1.188	77	E	1.09	74.8	E	-2.2	No
16	Hillcrest Blvd	Florence Ave	AM	0.634	27	C	0.638	26	C	-1	No
			PM	0.571	20	C	0.574	20	C	0	No
17	La Brea Ave	Florence Ave	AM	0.988	131	F	1.007	135	F	4	No
			PM	0.835	61	E	0.850	62	E	1	No
18	Fir Ave/Ivy Ave	Florence Ave	AM	0.439	7	A	0.49	16.9	B	9.9	No
			PM	0.639	12	B	0.65	21.5	C	9.5	No
19	Eucalyptus Ave	Florence Ave	AM	0.689	17	B	0.83	26.7	C	9.7	No
			PM	0.795	52	D	0.87	42.2	D	-9.8	No
20	Inglewood Ave	Florence Ave	AM	0.623	5	A	0.621	5	A	0	No
			PM	0.565	7	A	0.565	7	A	0	No
21	La Cienega Blvd	Florence Ave	AM	1.017	119	F	1.023	123	F	4	No
			PM	1.169	115	F	1.177	117	F	2	No
22	Florence Ave	Manchester Ave	AM	1.081	88	F	1.111	91	F	3	No
			PM	0.824	40	D	0.833	41	D	1	No
23	Aviation Blvd	Hillcrest Blvd	AM	0.578	12	B	0.575	9	A	-3	No
			PM	0.449	5	A	0.448	5	A	0	No

Table 3-19. LPA vs No-Build Analysis (continued)

Int #	N/S Street	E/W Street	Peak Period	No-Build Alternative			LPA			Delay Change	Impact
				V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS		
24	Aviation Blvd	Arbor Vitae St	AM	0.952	104	F	0.949	103	F	-1	No
			PM	0.791	25	C	0.803	26	C	1	No
25	Aviation Blvd	Century Blvd	AM	1.065	109	F	1.063	109	F	0	No
			PM	1.053	97	F	1.064	98	F	1	No
26	Aviation Blvd	Imperial Hw	AM	0.705	58	E	0.704	57	E	-1	No
			PM	0.953	99	F	0.951	99	F	0	No

Most of the intersections which experience a decrease (or no change) in delay are located along sections where the alignment is above grade or underground. For this analysis, it was assumed that trains would operate on 5-minute headways, which reduces operational efficiency at intersections with at-grade crossings.

To be conservative in the analysis of intersection impacts of the LPA, it was assumed that the operation of the LRT would not cause any existing traffic to divert from corridor roadways to other parallel routes in the study area. While some minor traffic shifts may occur, the limited number of equivalent north/south routes in the study area will limit traffic diversions away from corridor roadways, despite the operation of the LRT.

Overall ridership would be significantly reduced with the MOSs, and effects to intersections would be increased over the LPA. However, the MOSs would still result in decreased automobile VMT which would not result in adverse intersection effects.

On-Street LRT Operation Intersection

The LPA would not result in adverse traffic impacts at any of the three at-grade intersections along Crenshaw Boulevard when analyzed with a 150-second cycle length for 2030. The LPA would result in adverse effects at the Crenshaw Boulevard/54th Street intersection for the 140-, 130-, 120-second signal cycle lengths (using the LADOT criteria). The analysis shows that the project would cause the LOS to degrade from C to D with an increase in delay of over 7.5 seconds. The two other study intersections (Crenshaw Boulevard/48th Street and Crenshaw Boulevard/Slauson Avenue) along the at-grade segment of Crenshaw Boulevard would not result in adverse effects at the 150-, 140-, 130-, 120-second signal cycle lengths. The longer signal cycle lengths would result in Crenshaw Boulevard getting more of the signal phase which would cause east and west-bound traffic to wait longer and some queues would build up on these streets. The LOS and delay for the range of signal cycle lengths compared to the No-Build Alternative are provided in Appendix H.

The MOSs would not result in different effects at the three intersections along the at-grade alignment along Crenshaw Boulevard than what was described for the LPA.

3.2.3.3 Design Options

The cut-and-cover crossing at Centinela involves a grade separation at one additional study intersection compared with the LPA. The Centinela Avenue/Florence Avenue intersection would reduce the delay by two seconds in the a.m. peak hour and one second in the p.m. peak hour over the No-Build Alternative. The remaining 25 study intersections will operate the same as under the LPA. The other design options would not affect intersection volumes.

The design options would not alter the three intersections along the at-grade alignment along Crenshaw Boulevard than compared to the LPA.

3.2.3.4 Mitigation Measures

There are no feasible mitigation measures to reduce the impacts at the Crenshaw Boulevard/54th Street intersection for the 140-, 130-, and 120-second signal cycle lengths.

3.2.3.5 CEQA Determination

This CEQA determination is based on the thresholds of significance for traffic impacts as described in the NEPA analysis.

No-Build Alternative

Under the No-Build Alternative, future intersection volumes would be compared to existing traffic volumes. Based on the above criteria, significant impacts would occur at 19 of the 26 intersections under the No-Build Alternative.

LPA

As a conservative estimate, the percentage in delay change for the LPA (future with project) versus the No-Build Alternative (future without project) was applied to existing conditions. The results of the LPA (existing with project) versus existing conditions (existing without project) comparison is shown in Appendix H. The analysis of the LPA on existing condition showed that none of the 26 analyzed intersections would exceed the thresholds of significance for traffic impacts. Therefore, no significant impacts would occur to intersections.

MOS-King would increase ridership by 211 daily boardings at the Crenshaw/King Station with respect to the LPA, which would be the northern terminus. Because the alignment is underground at the Crenshaw/King terminus, the increased ridership and associated trips to this station would not conflict with the light rail operations near this station. Overall ridership would be significantly reduced, and effects to intersections would be closer to existing conditions than the LPA. However, MOS-King would still result in decreased automobile VMT which would not result in significant intersection impacts. MOS-Century would not result in increased ridership at the Aviation/Century Station with respect to the LPA, the new southern terminus. Therefore, less-than-significant impacts to intersections would occur for the MOSs.

Design Options

The two optional stations do not contain park-and-ride lots and the cut-and-cover crossing at Centinela is the only design option which would affect intersection LOS. Although, the LPA does not adversely affect the Centinela Avenue/Florence Avenue intersection, the cut-and-cover crossing would improve the LOS at this intersection compared to existing conditions. Therefore, no significant impacts to intersections would occur for the design options.

3.2.3.6 Impacts After Mitigation

There is one location (Crenshaw Boulevard and 54th Street) that is impacted at signal cycle lengths at or less than 140 seconds. There are no changes in street geometry that would reduce impacts. Increasing the signal cycle length to 150 seconds would eliminate the impact. The determination of the type of traffic signal control operation or a fixed cycle length, however, is an issue broader than the effects at a single intersection and has system implications for the grid of intersections north and south as well as east and west of this location. Within this system constraint, the intersection operations will be optimized to the extent feasible through a cooperative effort between Metro and LADOT

as the project progresses toward implementation, and is operated thereafter. Depending upon the ultimate traffic signal control operation, the impacts at this intersection may be considered significant according to LADOT criteria.

3.2.4 Local Circulation

3.2.4.1 No-Build Alternative

The No-Build Alternative is the future baseline from which the LPA is compared to for assessment of adverse impacts. Therefore, by definition, the No-Build Alternative would not result in adverse local circulation effects.

3.2.4.2 LPA

Hindry Avenue

The LRT tracks crossing Hindry Avenue north of the intersection will prohibit left turns onto northbound Hindry from Florence Avenue due to safety and traffic flow considerations. In order to access the Westchester neighborhood to the north, vehicles will approach the intersection along northbound Hindry Avenue which can be accessed via Manchester Boulevard. Other access to the neighborhood is through Osage Avenue which is accessed via Manchester Avenue. The shift of local traffic would create a minor route pattern change to residents but no adverse circulation effects would occur.

Cable Place

The LRT crossing will require closure of Cable Place from Ivy Avenue for safety considerations. Cable Place is a minor roadway that currently connects Eucalyptus Avenue with Ivy Avenue, and provides access to the City of Inglewood's Public Works Center parking facility. This roadway is not typically used for local circulation. Cable Place will be accessible from Eucalyptus Avenue and will terminate at the entrance to the parking facility. Vehicles traveling on Ivy Avenue will need to access the parking facility by using either Beach Avenue or Florence Avenue to Eucalyptus Avenue, and onto Cable Place. The shift of employee traffic would create a minor inconvenience to employees but no adverse circulation effects would occur.

Redondo Boulevard/High Street

The Redondo Boulevard/Florence Avenue intersection would be closed because the angled crossings could create visibility issues. This crossing will be reconfigured so that High Street would continue south across Redondo Boulevard to form a right angle intersection with the tracks and Florence Avenue. The traffic flow through the new intersection will be similar to the flows through the existing Redondo Boulevard/Florence Avenue intersection, and no adverse effects would occur.

Victoria Avenue

The portal for the LPA will require the closure of Victoria Avenue. Local access within the area is primarily residential and the alternate route would occur on Brynhurst Avenue which runs parallel and just west of Victoria Avenue. South of the portal, existing Metro right-of-way will be used to connect northbound traffic on Victoria Avenue to Crenshaw

Boulevard. Due to the proximity to the BNSF crossing, the intersection will be restricted to only allow right turns from Victoria onto southbound Crenshaw. No other turn movements will be allowed at the intersection. The shift of local traffic would create a minor inconvenience to residents but no adverse circulation effects would occur.

71st Street

Seventy-first Street will be converted to allow eastbound one-way traffic, with only a right turn in connection from northbound West Boulevard onto 71st Street. This street is primarily used for residents along 71st Street. Vehicles accessing 71st Street from the east will need to travel south on Brynhurst Avenue to Florence Avenue, make a right turn and then right to West Boulevard. Access to the buildings on the south side of 71st could also be made from the parallel alley. The shift of residential traffic would create a minor inconvenience to residences but no adverse circulation effects would occur.

Crenshaw/Slauson Station Area

The LRT alignment will be located at-grade in the center of Crenshaw Boulevard in front of View Park Preparatory schools, requiring the through lanes to be moved further toward the curbsides of the street and will require the removal of the frontage road along Crenshaw Boulevard. The entire west curb lane from 57th Street to Slauson Avenue would continue to be signed as a pedestrian loading zone during school loading hours instead of on-street parking. No adverse effects to circulation are anticipated. A potential widening of Slauson Avenue to accommodate additional lanes of travel is potentially to be implemented based upon discussions with LADOT. Such a change could reduce delay even further and could result in an improvement in level of service from LOS F to LOS E. Potential impacts to right-of-way fall within the impacts discussed in Section 4.2 Displacement of Existing Uses.

Prohibition of Left Turns at 54th Street

Left turns from Crenshaw Boulevard onto 54th Street would be prohibited. This will affect approximately 60 vehicles making the northbound to westbound left turn in both the morning and afternoon peak hours, and approximately 90 vehicles making the southbound to east bound turn in both periods. The diverted left turn traffic was assumed to travel beyond 54th Street to the next intersection, make a U-turn, and then a right turn into 54th Street. This represents the worst case for LOS calculations. There is the possibility that a portion of the traffic will travel on 52nd or 57th Streets to access properties that are closer to 54th Street, but due to the relatively low volume of left turns, and the number of potential routes travelled, the impact to any one street is expected to be minimal. The redistribution of approximately 600 to 900 daily cars to the neighboring streets would result in an inconvenience to residents and employees, however, these modifications would not adversely affect local circulation.

The MOSs would result in shorter alignments that would shift the local circulation toward the new termini. However, the alignment would be grade-separated near both new termini under the MOSs, and the daily boardings at the new terminus stations would not be substantially different than they are under the LPA. The existing background bus transportation network can satisfy the demand of those making a

connection, requiring no additional service. Therefore, no adverse effect to local circulation would occur.

Exposition Boulevard (South of the Exposition Line and east of Crenshaw Boulevard)

Exposition Boulevard, which currently allows one-way eastbound traffic from northbound Crenshaw Boulevard, would potentially be closed to facilitate pedestrian movement from the Crenshaw/LAX Exposition Station to the Metro Exposition Line. Because all of the businesses on this block would be displaced for station infrastructure and parking, access along this street would not be required. Access to the industrial properties and rear residential yards along Exposition Place (further to the east) would still be maintained along Bronson Avenue and Rodeo Road. Therefore, the effects to local circulation would not be adverse.

3.2.4.3 Design Options

The design options would not introduce any changes to the local circulation network than described for the LPA. Therefore, no adverse effect to local circulation would occur.

Mitigation Measures

No mitigation measures would be required because no adverse local circulation impacts anticipated.

3.2.4.4 CEQA Determination

No-Build Alternative

Under the No-Build Alternative, local circulation would be compared to existing traffic. Based on the future traffic volumes, local circulation patterns would not change but congestion on the surrounding street system would increase.

LPA

The LPA would have the same street modifications and configurations on the existing traffic network as described under the NEPA analysis. The effects of local circulation would be reduced because the traffic volumes are substantially lower for existing conditions than under the future 2030 base conditions. Similar to the NEPA analysis, no significant impacts would occur for local circulation.

The MOSs would result in shorter alignments that would shift the local circulation toward the new termini. The daily boardings at the new terminus stations would not be substantially different than they are under the LPA. Therefore, less-than-significant impacts to local circulation would occur.

Design Options

The design options would not introduce any additional changes to the local circulation network other than those described for the LPA. Therefore, less-than-significant impacts to local circulation would occur.

3.2.5 Parking

This section describes the future on- and off-street parking conditions along the corridor and assesses the potential for parking-related impacts resulting from the proposed project.

Methodology

The methodology for evaluating the impacts of removing on-street parking, off-street parking and station area spillover to accommodate the proposed project considers a number of factors. The evaluation addresses such issues as convenience, access, safety, business disruption, and the need for parking replacement. The evaluation also reflects field observations on the utilization of on-street parking along the corridor, as well as the availability of supplemental off-street parking and/or on-street parking in the immediate vicinity of the corridor.

3.2.5.1 No-Build Alternative

No on- or off-street parking loss would occur under the No-Build Alternative.

3.2.5.2 LPA

On-Street Parking

On-street parking loss would occur primarily between Brynhurst Avenue and 63rd Street as a result of the inclusion of a rail right-of-way in the median of Crenshaw Boulevard. This on-street parking loss would occur on the inner portion of the frontage road that borders both sides of Crenshaw Boulevard. The frontage road would be eliminated to accommodate the center-running rail right-of-way. There is a total loss of 328 on-street parking spaces along Crenshaw Boulevard with a loss of 158 northbound and 170 southbound on-street parking spaces. A parking utilization survey conducted during the advanced conceptual engineering phase determined that the loss of on-street parking would not result in a parking shortage for the area. The curb parking supply along this corridor will be sufficient to satisfy demand for both the inner and outer portions of the frontage road as parking is underutilized, according to existing observations. Side street parking is also available to motorists. In addition, many of the businesses along Crenshaw Boulevard from 48th to 59th Street where on-street parking would be lost, contain off-street parking for customers. Therefore, no adverse effects to on-street parking would occur.

Off-Street Parking

Comparatively, the project is expected to result in only a minor loss of off-street parking. This loss would occur in the Harbor Subdivision portion of the transit corridor and be limited to private off-street lots where the land would be used for station development. This land would be acquired by Metro prior to construction of the LPA.

Addition of Station Area Parking

The location and size of the park-and-ride facilities was refined during the advanced conceptual engineering phase. The park-and-ride lots would provide a total of 330 parking spaces along the corridor to provide for demand by transit riders. The

Crenshaw/LAX Transit Corridor Project will have park-and-ride sites at the La Brea, West, and Crenshaw/Exposition Stations. The Florence/West Station park-and-ride lot will contain approximately 120 spaces, the Florence/La Brea Station park-and-ride lot will contain approximately 100 spaces, and the Crenshaw/Exposition Station park-and-ride lot will contain approximately 110 spaces. This supply would meet the station area parking demand forecasted through the transit model. At other stations along the corridor where off-street parking would not be provided, spillover parking to the adjacent streets may occur, but is likely to be minimal based on parking demand at stations with park-and-ride facilities. Although the lack of parking supply may result in slightly reduced ridership, it preserves ridership associated with adjacent land uses and may also encourage transit patrons to use other modes of access such as walking, bicycling, transit and kiss-and-ride (drop-off). There is potential for shared use of existing and planned off-street parking resources should Metro and the owners of adjacent parking resources reach an agreement. However, outside of any agreements or access, owners of adjacent parking resources may provide parking controls, such as validation, to restrict transit parking. The implementation of parking controls and strategies are outside of Metro's jurisdiction. It is Metro's expectation that private owners would implement parking controls to ensure that adequate parking is available for their customers. Therefore, no adverse effects to station area parking would occur.

MOS-King would increase parking demand by 22 spaces at the Crenshaw/King Station, which would be the northern terminus. Similar to the LPA, there is potential for shared use of existing and planned off-street parking resources should Metro and the owners of adjacent parking resources reach an agreement. Similar to the LPA, it is Metro's expectation that private owners would implement parking controls (such as validation or pricing) to ensure that adequate parking is available for their customers. MOS-Century would not increase parking demand. Therefore, no adverse effects to station area parking would occur for the MOSs.

3.2.5.3 Design Options

The optional below-grade station at Crenshaw/Vernon Station would be the only design option that would result in the loss of additional on-street parking compared to the LPA. This option would result in the loss of 28 additional on-street parking spaces (19 northbound and nine southbound). This additional loss of parking would not result in a shortage of parking for the area and therefore, no adverse effects to on-street parking would occur.

3.2.5.4 Mitigation Measures

None required.

3.2.5.5 CEQA Determination

CEQA guidelines state that a significant impact would occur if the proposed project results in inadequate parking supply.

No-Build Alternative

The parking analysis presented above indicates that the No-Build Alternative would not remove existing parking and would not result in inadequate parking. Therefore, no significant impacts would occur under this alternative.

LPA

The parking analysis presented above indicates that the LPA would not result in inadequate parking in 2030. Existing parking inventory is less utilized than the projected future parking inventory. Therefore no significant impact would occur to parking loss.

Similar to the LPA, the MOSs would not result in inadequate parking. Therefore no significant impact would occur to parking loss.

Design Options

Similar to the LPA, the design options would not result in inadequate parking. Therefore no significant impact would occur to parking loss.

3.2.6 Pedestrian Circulation

This section describes the potential for impacts to the pedestrian circulation system. An adverse impact would occur if the project would result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the project corridor or adjacent areas.

Methodology

Pedestrian activity along the Crenshaw/LAX Transit Corridor is light compared to other locations in Los Angeles County, such as downtown Los Angeles, Hollywood Boulevard in Hollywood, or downtown Long Beach. The corridor consistently operates at a pedestrian LOS A, which is defined in the *HCM Chapter 18*: "At a walkway LOS A, pedestrians move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely."

For impact assessment, two qualitative analyses were performed. First, the project generated pedestrian trips to and from project stations/stops was assessed to determine if sidewalk overcrowding could occur. Second, the project design was assessed to determine if the design could create potentially hazardous conditions or interfere with pedestrian access.

For the LPA, the number of daily pedestrian trips to and from the project stations/stops was projected using the Metro Travel Demand Model. Walk trips are drawn from the surrounding neighborhood and typically start or end within 1/2 mile of a station/stop. The No-Build scenario is what would typically happen without an investment in the corridor and thus would not generate additional walk trips above the baseline.

3.2.6.1 No-Build Alternative

By definition, the No-Build Alternative would not result in adverse pedestrian impacts.

3.2.6.2 LPA

As shown in Table 3-20, under the LPA, a daily maximum of 750 walk trips are expected (Florence/West Station). A daily total of 750 or fewer walk trips per station would add only a few trips per minute even during the morning and evening peak periods. The increase in daily walk trips throughout the corridor as a result of pedestrian travel to and from the project stations would not result in sidewalk congestion. Therefore, no adverse impact would occur with respect to sidewalk overcrowding.

Table 3-20. Walk Trip Projections (Daily Pedestrian Trips/Station)

Station Name	LPA
Mariposa/Nash Station (Green Line)	68
Aviation/Imperial/LAX Station (Green Line)	N/A
Aviation/Century Station	208
Aviation/Manchester Station (Optional)	138
Florence/La Brea Station	408
Florence/West Station	748
Crenshaw/Slauson Station	452
Crenshaw/Vernon Station(Optional)	578
Crenshaw/King Station	462
Crenshaw/Exposition Station (Expo Line)	642

Source: Metro Travel Demand Model

Station construction would improve the pedestrian system immediately adjacent to LRT stations. Enhanced sidewalks, upgraded disabled access, and new landscaping are some station-area pedestrian improvements expected as a result of the project. Because of these expected improvements, the LPA would have a beneficial impact when compared to potential hazardous conditions or interference with pedestrian access.

Similar to the LPA and design options, the MOSs would add only a few trips per minute even during the morning and evening peak periods. The increase in daily walk trips would not result in sidewalk congestion. Therefore, no adverse impact would occur with respect to sidewalk overcrowding.

3.2.6.3 Design Options

The optional Aviation/Manchester and Crenshaw/Vernon Stations would result in 138 and 578 additional walk trips respectively (as shown in Table 3-20). The increase in daily walk trips as a result of pedestrian travel to and from these optional stations would not result in sidewalk congestion. Therefore, no adverse impact would occur with respect to sidewalk overcrowding.

3.2.6.4 Mitigation Measures

No mitigation measures would be required as no project impacts are expected.

3.2.6.5 CEQA Determination

The LPA (existing with project) when compared to existing conditions would generate the same number of pedestrian trips and existing pedestrian volumes are lower than pedestrian volumes in 2030. Therefore, the proposed project would not result in significant pedestrian impacts.

3.2.7 Bicycle Circulation

This section describes the potential for impacts to the bicycle network. An adverse impact would occur if the project would create potentially hazardous conditions for bicyclists or otherwise interfere with bicycle accessibility to the project corridor or adjacent areas.

Methodology

Existing bike routes intersect the project corridor and new corridor and corridor intersecting routes are planned as part of the *City of Los Angeles Bicycle Plan*. There is one Class II bicycle lane along Venice Boulevard, west of Crenshaw Boulevard in the corridor. All other existing bicycle routes are designated Class III.

The most recent *City of Los Angeles Bicycle Plan*[4] includes several proposed bicycle facility improvements in the study area. These improvements include:

- Class II bike lanes would exist along Venice Boulevard, east of Crenshaw Boulevard
- Class I bike paths along Exposition Boulevard as part of the Metro Exposition Line LRT project.
- *The City of Los Angeles Bicycle Plan* also establishes a priority for bicycle facilities along Martin Luther King Jr. Boulevard and 54th Street.
- Bicycle parking facilities are also recommended at the Lot C Transit Center. Metro currently provides bicycle lockers and racks at the Green Line Aviation/LAX Station.

Secure bicycle parking will be provided at all stations for the proposed project. To determine the potential for bicycle impacts, a qualitative assessment of the effects of the project on the corridor and corridor bicycle network was performed. If the project is found to result in potentially hazardous conditions or interfere with bicycle access, an impact would occur.

3.2.7.1 No-Build Alternative

By definition, the No-Build Alternative would not result in adverse bicycle impacts.

3.2.7.2 LPA

The LPA would not interfere with the planned or existing bicycle routes and thus would not adversely affect bicycle operating conditions in the corridor. The Crenshaw Boulevard center-running LRT guideway would not impact any bicycle access along the corridor. Bicycle lanes would be constructed between 48th and Slauson Avenue along the street-running portion of the alignment. The at-grade guideway would have only a

[4] *City of Los Angeles Bicycle Plan,* City of Los Angeles Planning Department, adopted March 1, 2011.

minimal effect on bike travel that intersects the corridor, as a result of at-grade train crossings increasing the delay when crossing Crenshaw Boulevard. The width of the right-of-way in the Harbor Subdivision is not wide enough to support a bike path.

The parking facilities proposed at the three locations along the LRT route would also provide bicycle parking. The addition of bicycle parking at park-and-ride stations would have a beneficial impact on the bicycle network.

The MOSs would have similar effects as described for the LPA. No adverse affects to the bicycle network would occur.

3.2.7.3 Design Options

The design options would have similar effects as described for the LPA. No adverse affects to the bicycle network would occur.

3.2.7.4 Mitigation Measures

No mitigation measures would be required as no project impacts are expected.

3.2.7.5 CEQA Determination

The existing bicycle network is less developed than the planned 2030 network. Therefore the LPA (existing conditions with project) would reduce the potential for affecting the existing bicycle network. Similar to the NEPA analysis, the proposed project would not result in significant bicycle impacts.

3.2.8 Construction Impacts

This section examines the potential for impacts during the construction period of the LPA. Implementation of the No-Build Alternative would not result in disruption to the roadway network and thus is not analyzed as part of the impact analysis. Appendix F describes the regulatory framework governing the assessment of construction-related impact analysis and the general construction scenario for the project.

Figure 3-11. At-Grade LRT Construction

Source: Metro 2008

3.2.8.1 LPA

Construction of the LPA would consist of three section types: aerial, below-grade, and at-grade (shown in Figure 3-11). The particular construction impacts for the LPA are varied among the sections and unique to the affected areas. It is anticipated that all LRT-related construction would result in temporary adverse effects to traffic at all locations. Table 3-21 summarizes, and the following sections discuss, the potential impacts related to construction of the LRT alignment.

Table 3-21. LPA Construction Impacts

Segment or Station	Alternative	Construction Type	Impact
Imperial Hwy: Near Aviation Blvd	LPA	Aerial Crossing	• Lane reductions (18 months) • Turn prohibitions (18 months) • Off-peak intermittent closures (18 months)
Aviation Blvd/Hornet Way: 116th St to 96th St	LPA	Aerial & Below Grade	• Lane reductions (24 months) • Turn prohibitions (24 months) • Off-peak intermittent closures (24 months) • Periodic closures – side streets (24 months) • Parking reductions – side streets (24 months)
Century Blvd: Near Aviation Blvd	LPA	Aerial Crossing	• Lane reductions (18 months) • Turn prohibitions (18 months) • Off-peak intermittent closures (18 months)
Manchester Blvd Near Aviation Blvd	LPA	Aerial Crossing	• Intermittent closures (12 months) • Possible long term closures (12 months) • Lane reductions (12 months) • Possible Turn prohibitions (12 months)
Optional Aviation/Manchester Station	Design Option	Aerial Structure or At-Grade	Additional Impacts: • Intermittent closures (6 months) • Possible long term closures (3 months) • Lane reductions (6 months) • Possible turn prohibitions (6 months)
Florence Ave: Manchester Ave to La Brea Ave	LPA	Aerial & At-Grade	• Lane reductions (24 months) • Turn prohibitions (24 months) • Off-peak intermittent closures (24 months) • Periodic closures – side streets (24 months) • Parking reductions – side streets (24 months)
La Brea Ave: Near Florence Ave	LPA	Under Crossing	• Lane reductions (18 months) • Turn prohibitions (18 months) • Off-peak intermittent closures (18 months) • Periodic Closures (6 months)
Florence Ave: La Brea Ave to Centinela Ave	LPA	At-Grade	• Lane reductions (18 months) • Turn prohibitions (18 months) • Off-peak intermittent closures (18 months) • Periodic closures – side streets (6 months) • Parking reductions – side streets (18 months)
Centinela Ave: Near Florence Ave	LPA	At-Grade Crossing	• Lane reductions (12 months) • Turn prohibitions (12 months) • Off-peak intermittent closures (12 months) • Periodic Closures (6 months)
Centinela Ave at Florence Ave	Design Option	Under Crossing	Additional Impacts: • Lane reductions (6 months) • Turn prohibitions (6 months) • Off-peak intermittent closures (6 months) • Periodic Closures (6 months)

Table 3-21. LPA Construction Impacts (continued)

Segment or Station	Alternative	Construction Type	Impact
Florence Avenue: Centinela Ave to Brynhurst Ave	LPA	At-Grade	• Lane reductions (18 months) • Turn prohibitions (18 months) • Off-peak intermittent closures (18 months) • Periodic closures – side streets (6 months) • Parking reductions – side streets (18 months)
Crenshaw Blvd: 67th St to 60th St	LPA	Below Grade	• Lane reductions (30 months) • Turn prohibitions (30 months) • Off-peak intermittent closures (30 months) • Parking reductions (30 months) • Parking reductions – side streets (30 months) • Possible long term closures (6 months) • Periodic closures – side streets (30 months)
Crenshaw Blvd: 60th St to Vernon Ave	LPA	At-Grade	• Lane reductions (24 months) • Turn prohibitions (24 months) • Off-peak intermittent closures (24 months) • Parking reductions (24 months) • Periodic closures (24 months) • Periodic closures – side streets (24 months)
Crenshaw/Vernon Station (Optional)	Design Option	Below Grade	Additional Impacts: • Intermittent closures (24 months) • Possible long term closures (3 months) • Parking reductions (24 months)
Crenshaw Blvd: Vernon Ave to Rodeo Pl	LPA	Below Grade	• Possible lane reductions (36 months) • Turn prohibitions (6 months) • Off-peak closures (6 months) • Parking reductions (36 months)
Crenshaw/King Station	LPA	Below Grade	• Lane reductions (36 months) • Intermittent closures (36 months) • Parking reductions (36 months)
Crenshaw Blvd: Rodeo Pl to Exposition Blvd Crenshaw/Exposition Station	LPA	Below Grade	• Lane reductions (36 months) • Turn prohibitions (36 months) • Off-peak intermittent closures (36 months) • Parking reductions (36 months) • Parking reductions – side streets (36 months) • Possible long term closures (6 months) • Periodic closures – side streets (36 months)

Source: IBI Group, 2011.

Impacts of Aerial Construction

Four locations along the LRT alignment are identified as operating in an aerial structure. Typical impacts associated with construction of the aerial structure include temporary to long-term lane closure, temporary removal of parking, and secondary impacts to adjacent streets. The following identifies the construction related impacts to traffic, circulation, and parking.

At Imperial Highway, construction of the aerial structure between 111th Street and Metro Green Line would result in the closure of left-turn pockets (complete or partial) on Aviation Boulevard, as well as lane closures during off-peak and nighttime hours on both Aviation Boulevard and Imperial Highway for a duration of approximately 18 to 24 months. The turn lane closures would result in reduced capacity in the lanes and may also result in the diversion of arterial traffic to nearby arterials such as Sepulveda Boulevard or La Cienega Boulevard. No on-street parking is available along Aviation Boulevard or Imperial Highway; the off-street Metro Green Line park-and-ride lot may require some partial closures as a result of construction of the aerial structures for an approximate duration of 18 months. These impacts are temporary as the standard operational phase will restore the lane closures.

At Century Boulevard, an aerial structure and station is planned between 102nd Street and Arbor Vitae Street. A temporary lane closure may be necessary. Century Boulevard currently consists of five eastbound lanes, a raised median, and four westbound lanes, both east and west of Aviation Boulevard. Construction of the aerial structure and station would require the closure of one eastbound lane along Century Boulevard for a duration of approximately 18 months, thereby reducing vehicular capacity and potentially disrupting east-west traffic traveling through this intersection. Additional intermittent off-peak and nighttime closures may be needed for the same duration. Because of the limited number of east-west crossings along the Harbor Subdivision right-of-way, displaced traffic may divert to other routes, including Arbor Vitae Street to the north or Imperial Highway to the south. Lane closures are not anticipated along this portion of Aviation Boulevard. On-street parking is not available either on Aviation Boulevard or Century Boulevard under existing conditions. Off-street parking at some adjacent commercial land uses would be lost during construction because of construction staging. Completion of the aerial structure and station would result in permanent loss of off-street parking, as described in Section 3.6.2.

At Manchester Avenue/Aviation Boulevard, an aerial structure would be provided to cross over Manchester Avenue, extending in an aerial alignment approximately 1,300 feet within the Harbor Subdivision right-of-way. The aerial alignment would return to grade on the north side of Manchester Avenue. Construction would require the closure of one through lane on eastbound Manchester Avenue for approximately 12 months. Additional intermittent off-peak hour and night closures may be needed for the same duration, and the temporary loss of on-street parking along Manchester Avenue would be likely.

At La Cienega Boulevard and I-405, an aerial structure is planned between Hindry Avenue and Oak Street. Construction of the LRT aerial structure through this section of the alignment would likely require intermittent off-peak and nighttime lane closures along La Cienega Boulevard in combination with lane narrowings for up to 24 months. These lane closures may cause adverse impacts at La Cienega Boulevard with possible diversion of southbound traffic to 83rd Street and through a residential neighborhood. Because of the limited number of north-south crossings of the Harbor Subdivision and Florence Avenue, potential adverse impacts may be associated with closures at Hyde Park Boulevard and Oak Street. Traffic may divert to Eucalyptus Avenue; however, construction of the aerial section just to the east may affect this routing and cause other diversions. Construction over I-405 Freeway will require a nighttime lane closures on the I-450 Freeway to install and remove

temporary construction platforms, and an approximate four-month long closure of the carpool lanes in both directions to allow construction of the foundation and LRT bridge columns. On-street parking is not available along Florence Avenue. On Augusta Street, adjacent to the Harbor Subdivision and north of Florence Avenue, removal of on-street parking is likely during the construction period and could ultimately lead to the permanent loss of on-street parking because of the necessity to acquire a small amount of right-of-way for the aerial structure.

Impacts of Below-Grade Construction

Four locations along the LPA alignment are designated as below-grade: 111th Street to 104th Street along the Harbor Subdivision, Victoria Avenue along the Harbor Subdivision to 60th Street along Crenshaw Boulevard, along Crenshaw Boulevard from 48th Street to Exposition Boulevard, and a below-grade crossing at La Brea Avenue.

The southern section from 111th Street to 104th Street is designated for cut-and-cover construction subject to FAA and LAWA approval. All east-west crossings would be prohibited for approximately eight months. Arterial through traffic would not be affected by these closures, although the adjacent industrial activities would require re-routing their access to avoid the Harbor Subdivision crossings. This would cause diversion of local traffic to alternate routes. The limited number of crossings available may compound street closures in the area. On-street parking is not available along this section of Aviation Boulevard, and off-street parking (to the west of the Harbor Subdivision) may be lost during construction for up to 24 months.

The LPA would travel in a below-grade crossing at La Brea Avenue. Construction would require intermittent lane closures at La Brea Avenue at Crenshaw Boulevard for 6 to 18 months.

A below-grade alignment would be located between Victoria Avenue and 60th Street. The below-grade alignment would be built as a cut and cover tunnel. Mainly industrial uses abut the Harbor Subdivision, with residential communities directly to the north and south of the alignment and along Crenshaw Boulevard. Construction would require the closure of one lane in each direction on Crenshaw Boulevard and the temporary loss of on-street parking. There are three travel lanes in each direction with on-street parking along this section of Crenshaw Boulevard. The closures would reduce overall capacity to two lanes in each direction. Additional closures would include the restriction of left turns from/onto Crenshaw Boulevard from side streets. These closures and lane reductions would be in effect for up to 30 months. These reductions in traffic capacity and circulation may result in diverted traffic and adversely impact the surrounding residential neighborhoods. The construction may also adversely impact access to adjacent institutional land uses.

The section of Crenshaw Boulevard between 48th Street and Exposition Boulevard is designated for below-grade construction. Land uses directly adjacent to the alignment are commercial. The neighborhood immediately surrounding this location is primarily residential. The cut and cover construction would severely reduce the movements along Crenshaw Boulevard over the open cut sections. Cut-and-cover construction is assumed to be the worst case type of construction activity with the most impacts that occurs from

the surface disruption of the street. A temporary bridge, which would take approximately four months to complete, would be used to minimize the impacts of this construction method. Off-peak and night closures would be required during the four month construction period of the temporary bridge. Full off-peak or weekend closures of Crenshaw Boulevard may be necessary on a short term basis. The number of traffic lanes on Crenshaw Boulevard would be reduced as a result, and local circulation would be impacted. Traffic may divert to Victoria Avenue to the west or 11th and Bronson Avenues to the east, causing impacts to the residential street system. On-street parking would be lost for up to 36 months during the construction phase to make way for displaced travel lanes. The median left-turn lanes would likely be closed during the construction period, prohibiting left turns at areas along Crenshaw Boulevard for up to six months. While on-street parking is not available on Crenshaw Boulevard, on-street parking is available on the frontage roads immediately to the east and west. This parking may be temporarily lost because of staging of construction equipment.

Construction of the below-grade stations at King and Exposition would use the cut and cover method This section of the alignment would be susceptible to the impacts caused by the traffic diversions related to the work up and downstream of this location. On-street parking is limited through this part of the corridor; construction of the station may result in the temporary loss of on-street parking for 12 to 18 months. This may affect adjacent businesses that rely on the on-street parking supply; there is also a limited supply of off-street parking in this area. Access to the Baldwin Hills Crenshaw Plaza Mall will be maintained during construction. The mall provides ample off-street parking in this area. Because the parking supply of malls are typically designed for the 20th highest hour of parking demand, which usually occurs in mid-December, there will likely be excess parking supply during non-holiday periods that could accommodate any temporary parking displacement in this area.

Impacts of At-Grade Construction

The remainder of the LPA alignment is designated as operating at-grade and includes the following sections: between Arbor Vitae Street and Hindry Avenue; between Oak Street and La Brea Avenue; between La Brea Avenue and Victoria Avenue; and between 59th Street and 48th Street. All remaining crossings within the Harbor Subdivision would be at-grade.

In the Harbor Subdivision between Arbor Vitae Street and Hindry Avenue and Oak Street and Inglewood Avenue, there are nine grade crossing locations. Construction of the LRT would require intermittent off-peak lane reductions and closures of these crossings for 6 to 18 months and cause traffic to divert to other locations. Commercial traffic diversion would primarily be affected by the closures at Arbor Vitae Street, Manchester Avenue, and Hindry Avenue. Limited on-street parking is available at both Manchester Avenue and Hindry Avenue. Construction of the grade crossings would likely result in the temporary loss of on-street parking adjacent to these crossings for 6 to 18 months. Some parking may also be lost as a result of construction. However, the most adverse impact is the disruption of normal business operations as a result of intermittent site access.

Between 59th Street and 48th Street along Crenshaw Boulevard, construction of the center running alignment would require the temporary loss of travel and parking lanes along Crenshaw Boulevard for up to 24 months. Left-turn lanes would be closed and

lanes shifted to accommodate construction equipment and staging; the number of travel lanes would also be reduced to accommodate construction for up to 24 months. Access from minor streets crossing Crenshaw Boulevard would be temporarily prohibited during construction for up to 24 months; several locations may experience a permanent ban on these movements. On-street parking is not available on Crenshaw Boulevard in this stretch of the corridor, and frontage roads to the east and west may experience a temporary loss of parking as a result of construction for up to 24 months.

Although construction of the LPA would require the loss of on-street parking and reduction in travel lanes, in most instances these are temporary conditions during the construction phase. The loss of on-street parking would occur along Crenshaw Boulevard from 48th to 60th Street. The majority of businesses along this segment have dedicated off-street parking and would be primarily affected by intermittent access. The businesses without off-street parking would be affected by intermittent access and the loss of on-street parking. The operational phase of the LPA would result in the restoration of these parking and travel lanes at select locations. In general, adverse effects to traffic and parking are anticipated in relation to LRT construction at several locations on the alignment.

The MOSs would result in shorter construction period effects since a grade-separated segment would be eliminated under each MOS alternative. However, construction effects along the remainder of the alignment would be similar to what was described for the LPA, and adverse effects to traffic and parking are anticipated in relation to LRT construction at several locations on the alignment.

3.2.8.2 Design Options

The design options would increase the amount of construction activity compared to what was described for the LPA. The optional Aviation/Manchester Station would require a longer period of construction at the Manchester aerial crossing and could lead to intermittent lane closures. Similarly, the cut-and-cover crossing at Centinela and optional below-grade station at Crenshaw/Vernon Station would require additional excavation which would also increase the period of construction and subsequent lane closures/restrictions and temporary parking loss. On-street parking is limited near the optional Crenshaw/Vernon Station; construction of the station may result in the temporary loss of on-street parking for up to 12 months. This may affect adjacent businesses that rely on the on-street parking supply; there is also a limited supply of off-street parking in this area. The alternate southwest portal at the Crenshaw/King Station would not significantly alter the construction period from what was described for the LPA. Similar to the LPA, adverse effects to traffic and parking are anticipated in relation to LRT construction at several locations on the alignment.

3.2.8.3 Mitigation Measures

Mitigation measures are proposed to avoid, minimize, and mitigate adverse construction-related effects on traffic, circulation, and parking.

T1 Metro shall coordinate with the local jurisdictions to designate and identify haul routes for trucks and to establish hours of operation. The selected routes should minimize noise, vibration, and other impacts.

T2 Metro shall prepare a traffic management plan to facilitate the flow of traffic in and around the construction zone. This traffic management plan shall identify a community liaison and include the following measures:

- Schedule a majority of construction-related travel (i.e., deliveries, hauling, and worker trips) during the off-peak hours;
- Develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas;
- Where feasible, temporarily re-stripe roadway to maximize the vehicular capacity at those locations affected by construction closures;
- Where feasible, temporarily remove on-street parking to maximize the vehicular capacity at those locations affected by construction closures;
- Where feasible, station traffic control officers should be at major intersections during peak hours to minimize delays related to construction activities;
- Develop and implement an outreach program to inform the general public about the construction process and planned roadway closures;
- Develop and implement a program with business owners to minimize impacts to businesses during construction activity, including but not limited, to signage programs.

T3 Metro shall include in the traffic management plan measures that minimize any potential adverse effects to pedestrian movement in the corridor and to maximize pedestrian safety to the extent feasible.

T4 Metro shall coordinate with local school districts to disclose potential impacts to school bus routes.

T5 Project contractors shall provide alternate off-street parking for their employees during the construction period, in order to minimize the loss of parking to adjacent commercial districts.

T6 Project contractors shall prohibit parking for their employees in adjacent residential neighborhoods, in order to minimize the impacts to nearby residents.

3.2.8.4 CEQA Determination

The CEQA determination compares the effects of the proposed project, design options and MOSs with the existing conditions described in the affected environment/existing conditions section. The CEQA Guidelines implicitly acknowledge that construction-related changes may be the source of significant impacts to the physical environment even though these effects may be short-term in duration. Typically significant construction effects are identified in CEQA as changes to the physical environment that are particularly disruptive or that have specific health and safety considerations. The construction effects identified above by in large require the development and implementation of a comprehensive array of construction management and abatement measures as described previously under the Mitigation Measures heading. Because the previous NEPA analysis uses existing conditions to analyze construction effects, the preceding discussion has addressed all topic areas of environmental effects as required by

CEQA. With implementation of mitigation measures, no less-than-significant impacts to traffic would occur during construction.

3.2.8.5 Impacts Remaining After Mitigation

With the implementation of Mitigation Measures **T1** through **T6,** the adverse effects of construction activity would be reduced for adjacent commercial districts and residential neighborhoods. Because these effects are associated with the construction phases and are short-term in nature, no permanent adverse effects are anticipated.