3.0 TRANSPORTATION IMPACTS AND MITIGATION

INTRODUCTION

This section examines the transportation impacts associated with the proposed Project, as described in Chapter 2.0 Alternatives Considered.

Contents of Environmental Analysis

The three environmental issue areas analyzed in Sections 3.1 through 3.3 are listed below:

3.1 Transit
3.2 Traffic
3.3 Parking

Analysis of the subsection topics listed above is organized by the following structural headings:

Affected Environment. This discussion describes the existing physical environment or baseline setting wherein the proposed Project would be placed. Any applicable regulatory information, which may include government rules, regulations, plans, and policies applicable to the proposed Project and topic area, are also included in this discussion.

Impact Assessment. This section begins with a description of methodology for each environmental topic area and the means by which the analysis was undertaken. The discussion compares the thresholds prescribed for each topic area to anticipated changes that result from implementation of the proposed Project and a determination is made as to the degree of change from baseline conditions described in the Affected Environment discussion. Impacts identified fall within one of the following categories:

- *Less-Than-Significant Impact*: Results in no substantial adverse change to existing environmental conditions;
- *Significant, Mitigable Impact*: Constitutes a substantial adverse change to existing environmental conditions that can be mitigated to less-than-significant levels by implementation of feasible mitigation measures;
- *Significant Unavoidable Impact*: Constitutes a substantial adverse change to existing environmental conditions that cannot be fully mitigated by implementation of all feasible mitigation measures; and
- *Beneficial Impact*: Results in a positive change to environmental conditions.

Mitigation Measures. For any significant impacts identified, mitigation measures that would reduce or eliminate the impact are listed.

CEQA Determination. Thresholds are presented for both CEQA and NEPA evaluation purposes. Also included in the section is “Significance Remaining After Mitigation.” This final discussion states the effectiveness of mitigation measures in reducing the impacts identified. 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.

3.1 TRANSIT

3.1.1 AFFECTED ENVIRONMENT

The public transit system serving the Study Area is comprised of an integrated system of rail and bus transit services. An overview of the existing Study Area bus service operators and routes by Corridor service area shows that there are nearly 76,000 daily boardings on the bus lines generally along the Martin Luther King Boulevard Corridor.

In Downtown Los Angeles, the Metro Red Line provides connections to the Metro Blue Line (at 7th/Metro Station) operating south through southeast Los Angeles to Long Beach, and to the Metrolink commuter rail system, to multiple regional directions, at Union Station. Connections to the Metro Green Line, operating from Norwalk past LAX to the beach communities, can be made via the Metro Blue Line. Metro Gold Line, recently opened in Summer 2003, provides service to Pasadena. Future Metro Rail extensions will provide connections to East Los Angeles, as well as to the San Gabriel Valley.

Regional fixed route bus transit service is primarily provided by Metro. The Los Angeles Department of Transportation (LADOT) provides commuter express service within the Study Area and to Downtown Los Angeles. Express service typically uses the Santa Monica Freeway (I-10) from the Westside to Downtown Los Angeles. Culver City Bus Lines and Santa Monica Municipal Bus Lines operate local routes that interface at the West Los Angeles Transit Center at Washington Boulevard and La Cienega Boulevard. The fixed route bus system is complemented by community connectors, including LADOT DASH routes, smart shuttle and paratransit services (for transit dependent seniors and handicapped individuals).

While no bus lines currently serve the exact route of the Exposition Corridor, Metro routes 14/37 and 38 serve the travel corridor between Downtown Los Angeles and West Los Angeles via Jefferson and Adams Boulevards. Metro Route 102 is another primary local route along Jefferson Boulevard, Exposition Boulevard, and Coliseum Street. Metro Rapid Bus (Route 720) provides limited stop service along the entire Wilshire/Whittier Boulevards segment outside of the Study Area. Other recently-initiated Metro Rapid Bus routes (705 Vernon Avenue/La Cienega Boulevard; 710 Crenshaw Boulevard; 740 Hawthorne Boulevard/Crenshaw Boulevard/MLK Boulevard; 717 Fairfax Avenue and 754 Vermont Avenue) provide north-south service.

Based on the census data, 41 percent of all work transit trips in Los Angeles County originate in the Study Area. The remaining 59 percent originate at various points in the County and may potentially run through the Study Area. West Los Angeles (as defined by this report) contains 18 percent of Los Angeles County's population, implying that the transit needs of West Los Angeles are higher than the service presently provided. In addition to the high transit mode split of 14 percent, the Study Area has a significantly higher use of transit than the rest of Los Angeles County.

3.1.2 TRANSIT OPERATIONS CONCEPT

The starting point for developing a transit operations plan is to define a future year "No Build" or "No Action" transit network. Typically this network consists of existing transit services, plus improvements that are planned or committed.

Since preparation of the Draft EIS/EIR, Metro has updated its Long Range Transportation Plan and adopted a countywide Metro Rapid program. The updated definitions of No Build includes the following:

- Countywide rapid bus (Metro Rapid) program (assumes 25 to 30 routes in Los Angeles County)
- Wilshire Boulevard Bus Rapid Transit Project
- Metro Orange Line BRT
- Eastside LRT
- Green Line extension to LAX
- Transitway projects in the San Fernando Valley (Reseda, Van Nuys, Sherman Way) and the Crenshaw-Aviation corridor from the Wilshire/Western Metro Red Line station to the Aviation Metro Green Line station

The Metro Rapid routes that are represented under 2020 No Build are presented in **Table 3.1-1.** A summary of elements that are included in the 2020 No Build that are new services compared to existing service as of 2001 is provided in **Table 3.1-2.**

TABLE 3.1-1: BRT AND METRO RAPID ROUTES REPRESENTED IN 2020 NO BUILD

Route No./a/	Corridor	Approximate limits
BRT ROUTES		
920	Wilshire Blvd.-Whittier Blvd.	Santa Monica - Montebello (BRT on Wilshire Blvd.)
940	Metro Orange Line	North Hollywood - Warner Center
METRO RAPID ROUTES		
703	Hawthorne Blvd.-PCH	South Bay Transit Center - 1st St./Long Beach Blvd.
704	Santa Monica Blvd.	Ocean Ave./Santa Monica Blvd. - Pico Blvd./Hill St.
705	Vernon Ave.-La Cienega Blvd.	Pacific Ave./Florence Ave. - La Cienega Blvd.
706	S. Sepulveda Blvd.	Federal Ave./Wilshire Blvd. - LAX - Aviation Green Line
710	Crenshaw Blvd.-Rossmore Ave.	Hollywood Blvd./Highland Station - South Bay Transit Center (peak BRT segments)
711	Florence Ave.	Norwalk Station - LAX
713	Lincoln Blvd.	4th St./Wilshire Blvd. - Aviation Green Line
714	Beverly Blvd.	Santa Monica Blvd./Canon Dr. - Pico Blvd./Grand Ave.
715	Manchester Ave.-Firestone Blvd.	Atlantic Ave./Firestone Blvd. - LAX
726	Atlantic Ave.	Artesia Blue Line - Fair Oaks Ave.
728	W. Olympic Blvd.	Century City - Union Station
730	Pico Blvd.	Ocean Ave./Colorado Blvd. - Union Station
734	N. Sepulveda Blvd.	Sylmar Metrolink - Sepulveda Blvd./Ventura Blvd.
740	Crenshaw Blvd.-Hawthorne Blvd.	South Bay Transit Center - Union Station (peak BRT segments)
741	Roscoe Blvd.	Sylmar Transit Center - Reseda Blvd./Ventura Blvd.
742	Crenshaw Blvd.-Aviation Blvd.	Wilshire Blvd./Western Ave.-Aviation Blvd./Imperial Hwy.(peak BRT segments)
745	S. Broadway Blvd.	I110/I105-Union Station
750	Ventura Blvd.	Universal City Station - Warner Center
751	Long Beach Blvd. - Soto St.	Long Beach Blvd./Firestone Blvd. - Ave 26/Figueroa St.
753	Central Ave.	5th St./Grand Ave. - Imperial Hwy./Wilmington Green Line
754	Vermont Ave.	Vermont Green Line - Vermont Ave./Sunset Blvd.
757	Western Ave.	Crenshaw Blvd./Imperial Hwy. - Western Ave./Hollywood Blvd.
760	Long Beach Blvd.	Artesia Blvd. Station - Union Station
761	Van Nuys Blvd.	Foothill Blvd./Van Nuys Blvd. - Wilshire Blvd.
766	Lankershim Blvd.-San Fernando Rd.	Sylmar Metrolink - Chandler Blvd./Lankershim Blvd.
770	Garvey Ave.-Chavez St.	El Monte Ave. - Spring St./Pico Blvd.
780/717	Hollywood Blvd.-Los Feliz Blvd.	Colorado Blvd./Allen Ave. - Jefferson Blvd. /La Cienega Blvd.
794	San Fernando Rd.	Spring St./Pico Blvd. - Olive St./San Fernando Rd.

/a/ Route numbers based on coding convention; actual rapid bus implementation may use different route numbers and operators. Rapid bus routes are intended to be representative of the Metro Rapid program in 2020; actual implementation may vary.
SOURCE: Manuel Padron & Associates, 2004

TABLE 3.1-2: NO BUILD TRANSIT CONCEPT - CHANGES TO EXISTING SERVICE (AS OF 2001)	
Rail Lines	Metro Red Line - improve headways
	Metro Gold Line - add Pasadena-LA and Eastside-LA
	Metro Green Line - add branch from Norwalk to LAX
BRT Routes	Convert Wilshire Blvd./Whittier Blvd. rapid bus to BRT operations on Wilshire Blvd.; add Metro Orange Line
Metro Rapid	Beyond Ventura Blvd., add rapid bus routes on 27 corridors countywide (see Table 3.1-1)
Local Routes	Modify headways on Metro 20, 21, 30/31, 33, 37, 40, 68, 105, 108, 115, 204, 207, 210, 217, 333, 434
	CC 6; SM 3 (due to introduction of rapid bus or Short Range Transit Plan proposals)
Note: Metro=Metropolitan Transportation Authority; CC=Culver City Municipal Bus Lines; SM=Santa Monica Municipal Bus Lines SOURCE: Manuel Padron & Associates, 2004	

It should be noted that these projects and programs (particularly Metro Rapid) provide significant improvements that serve the Study Area.

The next step from No Action is a Transportation Systems Management (TSM) alternative, which attempts to address the Project needs by optimizing transit operations short of a major capital investment. Additional TSM bus improvements focused on serving the Exposition Corridor are:

- Rapid bus on Jefferson Boulevard, with the west end terminating at the West Los Angeles Transit Center (in the vicinity of the Mid-City/Exposition LRT terminus) and the east end terminating in the vicinity of 7th Street/Flower Street in Downtown Los Angeles. Assumed service frequencies are five minutes in the peak, and ten minutes in the midday; and
- Rapid bus on Venice Boulevard, proceeding from the West Los Angeles Transit Center and terminating in downtown Santa Monica at 2nd Street/Santa Monica Boulevard.

A summary of elements that are included in the 2020 TSM as it builds over 2020 No Build is provided in **Table 3.1-3**.

TABLE 3.1-3: TSM TRANSIT CONCEPT - CHANGES TO NO BUILD	
Metro Rapid	Add Metro 733 (Venice Blvd.) and Metro 738 (Jefferson Blvd., 7th St./Flower St. - WLA Transit Center)
Local Routes	Improve headway and modify route on Metro 102 (Jefferson Blvd.- Exposition Blvd.)
	Convert Metro 333 (Venice Blvd. Ltd) to rapid bus route Metro 733 from Santa Monica Blvd. to WLA transit center
	Improve headway on CC 6 (Sepulveda Blvd.) and SM 3 (Lincoln Blvd.)
Note: Metro=Metropolitan Transportation Authority; CC=Culver City Municipal Bus Lines; SM=Santa Monica Municipal Bus Lines Rapid bus route numbers based on coding convention; actual implementation may use different route numbers and operators. SOURCE: Manuel Padron & Associates, 2004	

The Mid-City/Exposition LRT Project would introduce light rail service on the Exposition Corridor with five-minute peak headways and ten-minute base headways. Bus transit services in the corridor would be modified to complement the rail Project:

- Routes would be deviated as appropriate to feed the nearest LRT station;
- Routes currently terminating at the West Los Angeles Transit Center would be rerouted to the Venice/Robertson or La Cienega Stations;
- Service frequencies would be improved on key north-south routes feeding LRT stations;
- Selected rapid bus patterns on key north-south routes feeding LRT stations would be added or supplemented;
- Service frequencies on parallel east-west routes would be modified as appropriate; and
- Some express routes would be truncated at the Venice/Washington LRT terminus rather than continuing onward to Downtown Los Angeles.

Table 3.1-4 summarizes the elements that would be included for the Mid-City/Exposition LRT Project as it builds over 2020 TSM.

TABLE 3.1-4: MID-CITY/EXPOSITION LRT: CHANGES TO TSM	
Rail Lines	Mid-City/Exposition Line - 7th St./Flower St. to Venice Blvd./Washington Blvd.(5 minute peak, 10 minute base headways)
Metro Rapid	Connect Metro 705, 710, 740, 742, 754, and 757 to appropriate Mid-City/Exposition LRT stations
	Improve headways on Metro 706 (Sepulveda Blvd.) and 713 (Lincoln Blvd.)
	Improve peak headway on Metro 757 (Western Ave.) and improve midday headway on Metro 710 (Crenshaw Blvd.-Rossmore Ave.)
	Add rapid bus service on La Brea Ave.(Metro 712) and supplement service on La Cienega Blvd.(Metro 780/717)
	Terminate Metro 780/717 (La Cienega Blvd.) at La Cienega Blvd. Station and terminate Metro 733 (Venice Blvd.) At Venice Blvd./Washington Blvd. station
	Eliminate Metro 738 (Jefferson Blvd.) since replaced by Mid-City/Exposition LRT
Local Routes	Connect Metro 33, 102, 204, 207, 210, 212, 305, 550 and 608; CC 5; DASH South East, Crenshaw Blvd., Leimert Blvd./Slauson Ave., and Midtown to appropriate Mid-City/Exposition LRT stations
	Terminate Metro 37 (Adams), Metro 38/71 (Jefferson Blvd.), Metro 68 (Washington Blvd.), Metro 102 (Jefferson Blvd.-Exposition Blvd.), Metro 217 (Fairfax Ave.), Metro 434 (Pacific Palisades), Metro 439 (Redondo Beach-LA), CC 1 (Washington Blvd.), CC 4 (Fox Hills-Jefferson Blvd.), CC 5 (Braddock Dr.), SM Super 12, and LADOT 430/431 (VA Hospital Commuter) at La Cienega Blvd. or Venice Blvd./Washington Blvd. station as appropriate
	Deviate Metro 220 (Culver Blvd.-Robertson Blvd.) and SM 12 (Robertson Blvd.) to serve Venice Blvd./Washington Blvd. station
	Improve headways on Metro 38/71 (Jefferson Blvd.), Metro 102 (Jefferson Blvd.-Exposition Blvd.), Metro 220 (Culver Blvd.-Robertson Blvd.), Metro 434 (Pacific Palisades), CC 4 (Fox Hills-Jefferson Blvd.), CC 5 (Braddock Dr.), SM 12 (Robertson Blvd.), SM Super 12 (UCLA commuter)
	Improve midday headways on Metro 40 (Hawthorne Blvd.-MLK), Metro 212 (La Brea Ave.), Metro 217 (Fairfax Ave.), LADOT 430/431
	Eliminate LADOT 437 (replaced by upgraded Metro 220)
	Eliminate DASH F (LACBD-USC shuttle)

Note: Metro=Metropolitan Transportation Authority; CC=Culver City Municipal Bus Lines; SM=Santa Monica Municipal Bus Lines;
LADOT and DASH=City of Los Angeles Department of Transportation
Rapid bus route numbers based on coding convention; actual implementation may use different route numbers and operators.
SOURCE: Manuel Padron & Associates, 2004

For the Phased Implementation, the transit operating plan would make applicable modifications to 2020 TSM, but would not develop the more comprehensive feeder bus services defined for the full Mid-City/Exposition LRT Project to Venice/Robertson. **Table 3.1-5** summarizes the elements that are included for the Phased Implementation as modified from the 2020 TSM.

TABLE 3.1-5: MID-CITY/EXPOSITION LRT PHASED IMPLEMENTATION TRANSIT CONCEPTS: CHANGES TO TSM	
MID-CITY/EXPOSITION LRT TO VERMONT	
Rail Lines	Mid-City/Exposition Line - 7th St./Flower St. to Vermont Ave.(5 minute peak, 10 minute base headways)
Metro Rapid	Connect Metro 740 (Crenshaw Blvd.-Hawthorne Blvd.) and Metro 754 (Vermont Ave.) to appropriate Mid-City/Exposition LRT stations
Local Routes	Connect Metro 102, Metro 204, Metro 550 and DASH South East to appropriate Mid-City/Exposition LRT stations
	Improve headway on Metro 102 (Jefferson Blvd.-Exposition Blvd.)
	Eliminate DASH F (LACBD-USC shuttle)
MID-CITY/EXPOSITION LRT TO CRENSHAW	
Rail Lines	Mid-City/Exposition Line - 7th St./Flower St. to Crenshaw Blvd. (5 minute peak, 10 minute base headways)
Metro Rapid	Connect Metro 710, 740, 742, 754, and 757 to appropriate Mid-City/Exposition LRT station.
	Improve peak headway on Metro 757 (Western Ave.) and improve midday headway on Metro 710 (Crenshaw Blvd.-Rossmore Ave.)
Local Routes	Connect Metro 102, 204, 207, 210, 305, 550, 608; DASH South East, Crenshaw Blvd., Leimert Blvd./Slauson Ave., and Midtown to appropriate Mid-City/Exposition LRT stations
	Improve headway on Metro 102 (Jefferson Blvd.-Exposition Blvd.) and connect with Figueroa St., Vermont Ave. and Western Ave. LRT stations
	Eliminate DASH F (LACBD-USC shuttle)
MID-CITY/EXPOSITION LRT TO LA CIENEGA	
Rail Lines	Mid-City/Exposition Line - 7th St./Flower St. to La Cienega Blvd.(5 minute peak, 10 minute base headways)
Metro Rapid	Connect Metro 705, 710, 740, 742, 754, and 757 to appropriate Mid-City/Exposition LRT stations
	Improve peak headway on Metro 757 (Western Ave.)
	Add rapid bus service on La Brea Ave.(Metro 712) and supplement service on La Cienega Blvd.(Metro 780)
	Terminate Metro 780/717 (La Cienega Blvd.) at La Cienega Blvd. Station
	Eliminate Metro 738 (Jefferson Blvd.) since replaced by Mid-City/Exposition LRT
Local Routes	Connect Metro 102, 204, 207, 210, 212, 305, 550 and 608; CC 5; DASH South East, Crenshaw Blvd., Leimert Blvd./Slauson Ave., and Midtown to appropriate Mid-City/Exposition LRT stations
	Terminate Metro 37 (Adams), Metro 38/71 (Jefferson Blvd.), Metro 68 (Washington Blvd.), Metro 102 (Jefferson Blvd.-Exposition Blvd.), Metro 217 (Fairfax Ave.), Metro 434 (Pacific Palisades), Metro 439 (Redondo Beach-LA), CC 1 (Washington Blvd.), CC 4 (Fox Hills-Jefferson Blvd.), CC 5 (Braddock Dr.), and SM Super 12 (UCLA commuter) at La Cienega Blvd. station
	Improve headways on Metro 38/71 (Jefferson Blvd.), Metro 102 (Jefferson Blvd.-Exposition Blvd.), Metro 434 (Pacific Palisades), CC 4 (Fox Hills-Jefferson Blvd.), CC 5 (Braddock Dr.), and SM Super 12 (UCLA commuter)
	Improve midday headways on Metro 40 (Hawthorne Blvd.-MLK), Metro 212 (La Brea Ave.),and Metro 217 (Fairfax Ave.)
	Eliminate DASH F (LACBD-USC shuttle)

Note: Metro=Metropolitan Transportation Authority; DASH=City of Los Angeles Department of Transportation
Rapid bus route numbers based on coding convention; actual implementation may use different route numbers and operators.
SOURCE: Manuel Padron & Associates, 2004, 2005

The transit operating concept would lead to a growth in bus transit services as the alternatives proceed from No Build to TSM to the Mid-City/Exposition LRT, as demonstrated in **Table 3.1-6.** Summary data represents all Metro services countywide, plus incremental statistics from applicable municipal operators in the Study Area.

TABLE 3.1-6: SUMMARY TRANSIT STATISTICS				
	2001	2020	2020	2020
Summary Statistic	Existing	No-Build	TSM	Expo LRT
Total Buses	2,413	2,482	2,526	2,589
Annual Revenue Vehicle Miles (millions)	80.282	84.825	86.075	89.398
Annual Revenue Vehicle Hours (millions)	6.538	7.015	7.134	7.459

Note: Summary statistics include entire Metro bus services, plus incremental statistics from municipal operators. 2001 Existing based on actuals; 2020 No Build, Baseline and Expo LRT based on transportation model.
SOURCE: 2001 NTD (2001 Existing), Manuel Padron & Associates, 2004

Moving from 2001 existing service to 2020 No Action assumes an additional 69 buses. Compared to No Action, 44 additional buses are needed for TSM and 107 additional buses are required for the LRT Build Alternative. The additional buses identified for the Mid-City/Exposition LRT Project are based on a system of bus feeder services taking advantage of the major investment. Future transit operations concepts may refine this feeder bus concept to limit the additional buses needed to those routes that have the greatest ridership impact.

3.1.3 IMPACT ASSESSMENT

Methodology

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 Metro travel demand model and summarized for each scenario:

- Daily Fixed Guideway Boardings
- Daily Transit Trips
- Daily Transit Boardings
- Daily Bus Boardings
- Total Transit Mode Share

Table 3.1-7 provides a summary of countywide transit performance measures for all scenarios.

TABLE 3.1-7: COMPARISON OF TRANSIT PERFORMANCE MEASURES (2020)

Countywide Statistics	2020 No Action	TSM	Mid-City/Exposition LRT
Daily Fixed Guideway Boardings	NA	NA	43,600
Daily Transit Trips	1,733,327	1,735,292	1,755,516
Compared to *No Action*	NA	0.11%	1.28%
Daily Transit Boardings	2,663,740	2,670,670	2,702,713
Compared to *No Action*	NA	0.26%	1.46%
Daily Bus Boardings	2,198,379	2,203,775	2,205,713
Compared to *No Action*	NA	0.25%	0.33%
Total Transit Mode Share	**2.67%**	**2.67%**	**2.71%**
SOURCE: Manuel Pardon & Associates, 2003			

Earlier ridership estimates in the Draft EIS/EIR reported 27,200 fixed guideway boardings for the Mid-City/Exposition LRT to Venice/Robertson Boulevards. These estimates were generated from the Metro travel demand model, using a minimal feeder bus network and no rapid bus service beyond the two rapid bus lines that were being demonstrated at that time (on Wilshire Boulevard and Ventura Boulevard). The updated transportation model runs provide an upper limit to the estimated ridership, so that daily fixed guideway boardings are anticipated to be in the range of 27,200 to 43,600.

It should be noted that since daily transit trips, daily transit boardings and daily bus boardings are all systemwide statistics, changes due to the Project appear minimal. While TSM leads to an increase in transit use, its effects do not substantially change the overall county transit mode share (the proportion of trips made using transit). The Mid-City/Exposition LRT Project leads to a noticeable improvement in systemwide transit boarding and transit mode share.

Metro has subsequently prepared updated estimates based on a forecast year of 2025. **Table 3.1-8** presents daily fixed guideway boardings as updated for the Forecast Year 2025, which is similar but somewhat reduced compared to the Forecast Year 2020 results. Estimated boardings for the MOS phasing options to La Cienega Boulevard, Crenshaw Boulevard and Vermont Avenue are also included.

TABLE 3.1-8: DAILY FIXED GUIDEWAY BOARDINGS BASED ON YEAR 2025 FORECAST

	Boardings
LRT to Venice Blvd./Robertson Blvd. (Full LPA)	42,900
LRT to La Cienega Blvd.	39,400
LRT to Crenshaw Blvd.	28,300
LRT to Vermont Ave.	18,100

SOURCE: Metro, July 2004 and October 2004; MPA, 2005

Table 3.1-9 presents a summary of Project increase in bus activity.

TABLE 3.1-9: 2020 AM/PM PEAK HOURS BUS TRAFFIC

Line No.	Bus Stops	No Project		With Project		Project Added Bus
		Peak Headway (min)	Frequency (buses per peak hour)	Peak Headway (min)	Frequency (buses per peak hour)	
VENICE/ROBERTSON STATION						
Metro 733 (333)	Station Transit Center	10	6	5	12	6
Metro 434	Station Transit Center	20	3	15	4	1
LADOT 430/431	Station Transit Center	20	3	20	3	0
SM BBB Super 12	Station Transit Center	15	4	10	6	2
Sub Total			16		25	9
~~3~~Metro 33	On Street	10	6	10	6	0
Metro 220	On Street	60	1	15	4	3
SM BBB 10	On Street	12	5	12	5	0
SM BBB 12	On Street	30	2	15	4	2
Culver City 1	On Street	15	4	15	4	0
Culver City 4	On Street	60	1	15	4	3
Culver City 5	On Street	60	1	15	4	3
Sub Total			4		5	11
Grand Total			40		60	20
LA CIENEGA STATION						
Metro 68	Station Transit Center	5	12	5	12	0
Metro 102	Station Transit Center	35	2	10	6	4
Metro 439	Station Transit Center	36	2	36	2	0
Metro 37	Station Transit Center	10	6	10	6	0
Metro 38	Station Transit Center	9	7	6	10	4
Metro 217	Station Transit Center	15	4	15	4	0
Metro 105	Station Transit Center	10	6	10	6	0
Metro 780	Station Transit Center	10	6	10	6	0
Culver City 1	Station Transit Center	15	4	15	4	0
Culver City 4	Station Transit Center	60	1	15	4	3
Culver City 1	Station Transit Center	15	4	15	4	0

TABLE 3.1-9: 2020 AM/PM PEAK HOURS BUS TRAFFIC						
		No Project		With Project		
Line No.	Bus Stops	Peak Headway (min)	Frequency (buses per peak hour)	Peak Headway (min)	Frequency (buses per peak hour)	Project Added Bus
Culver City 4	Station Transit Center	60	1	15	4	3
Culver City 5	Station Transit Center	60	1	15	4	3
Sub Total			50		64	14
Metro 705	On Street	12	5	12	5	0
Sub Total			5		5	0
Grand Total			**55**		**69**	**14**
CRENSHAW STATION						
Metro 608	Station Transit Center	30	2	30	2	0
Sub Total			2		2	0
Metro 210	On Street	13	5	13	5	0
Metro 305	On Street	20	3	20	3	0
Metro 710	On Street	10	6	10	6	0
Metro 742	On Street	15	4	15	4	0
Sub Total			18		18	0
Grand Total			**20**		**20**	**0**
SOURCE: Korve Engineering, 2004						

No Action. The No Action Alternative would not have any transit impacts.

LPA. Impacts from the LPA would be beneficial as increased levels of transit service would be provided by light rail and the bus feeder system that would support it.

Downtown Los Angeles Connection Options. There would be no changes to bus service with the Hill Street Couplet and Flower Street Design Options in Downtown Los Angeles in comparison to the LPA. Impacts from any of the options would be beneficial when compared to the No Action alternative.

La Cienega Station Parking Option. The Southwest Corner Parking option would not only provide parking for transit riders, but would provide a bus transit facility. The No Parking option would not provide this facility at La Cienega Station as no structure would be constructed.

Jefferson Boulevard Design Options. There would be no changes to bus levels of service with the Jefferson Boulevard design options in comparison to the LPA.

Venice/Robertson Design Options. The Venice/Robertson Design Options would all provide access to bus service and result in the same beneficial impacts as the LPA.

Phased Implementation. If the Mid-City/Exposition LRT Project were only constructed from Downtown Los Angeles to Vermont Avenue, Crenshaw Boulevard, or La Cienega Boulevard proportionally lower levels of bus feeder service would be provided. As described in **Table 3.1-5** above, these impacts are beneficial in comparison to the No Action Alternative, but not as great as the LPA.

3.1.4 MITIGATION MEASURES

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

3.1.5 CEQA DETERMINATION

The proposed Project would have a beneficial impact on transit.

3.2 TRAFFIC

Since preparation of the Mid-City/Westside Draft EIS/EIR document, the overall methodology for addressing traffic and transportation impacts within the corridor has been revised in direct response to comments and concerns raised by the Cities of Culver City and Los Angeles. The primary change enacted by Metro has been the adoption of a systematic grade crossing policy using growth outputs from Metro's Travel Demand and street segment and intersection adjustments based on existing traffic count data. The Metro Board adopted the Grade Crossing Policy in December 2003 (see Appendix E). The Metro Board used the Grade Crossing Policy to identify proposed grade separations in the Exposition corridor as described in the Chapter 2.0 Alternatives Considered of this report.

This chapter presents the expected traffic impacts of the proposed Project. The chapter addresses regional transportation, intersection level of service changes by geographic subarea, and other traffic impact considerations. Traffic impacts are presented separately for the Downtown Connection subarea, the Mid-Corridor subarea and the West End subarea (**Figure 3.2-1**). The Downtown Connection subarea consists of 11 intersections; the Mid-Corridor subarea of 8 intersections; and the West End subarea of 19 intersections. The majority of the Downtown Connection subarea and Mid-Corridor subarea intersections are grade crossings where the LRT crosses local roadways. As such, the methodology adopted by Korve Engineering for the Metro's adopted Grade Crossing Policy is integral to the assessment of time delay-related traffic impacts using the Highway Capacity Manual (HCM) methodology. The assessment of impacts in the Downtown Connection and Mid-Corridor areas has been prepared by Korve Engineering.

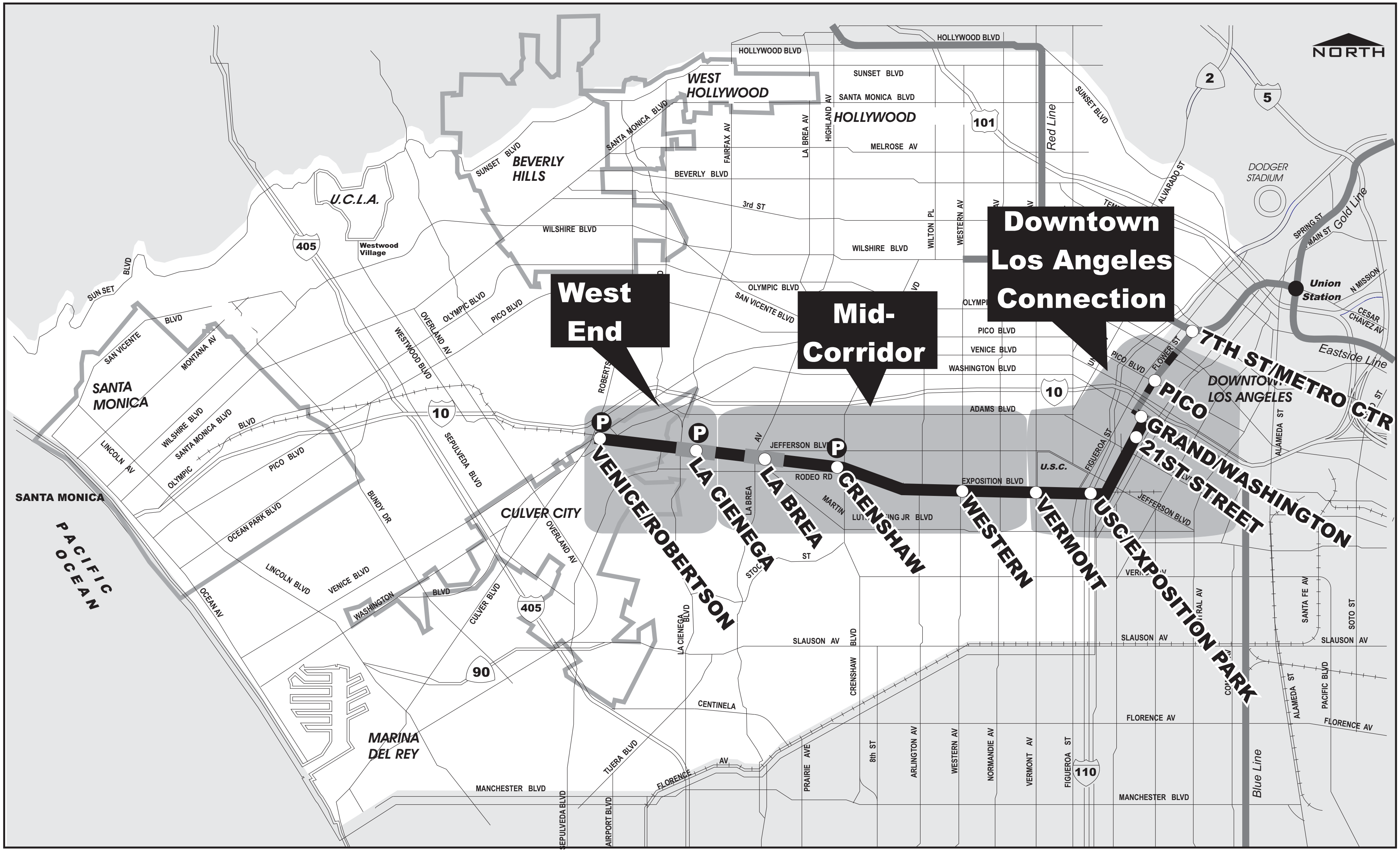
The West End subarea includes 17 intersections that are primarily affected by station area circulation either at the proposed Venice/Robertson station or at the proposed La Cienega station (2 of the 17 locations are proposed grade crossings). The proposed LRT stations are focal points of traffic and circulation concerns raised by Culver City and Los Angeles. Consistent with the requirements of these two jurisdictions, these broader station area-related traffic impacts are addressed through either critical movement analysis (CMA) or intersection capacity utilization techniques(ICU). The station area traffic impacts, including the phased implementation option to terminate the Exposition Project at the La Cienega Station are addressed by an assessment prepared by Kaku Associates for the West End intersections.

3.2.1 REGIONAL TRANSPORTATION

3.2.1.1 Overview

The following discussion presents an overview of the transportation system within the Study Area that would be affected by the Project considered under this Final EIS/EIR. Transportation improvements in the Exposition Corridor are being studied, in part, for the following reasons:

- Major concentration of activity centers and destinations
- High employment and population densities
- Substantial transit-dependent population
- High levels of existing and projected future travel demand
- Existing traffic congestion
- Projected worsening of congestion in the future
- Constrained transportation facilities



SOURCE: Terry A. Hayes Associates LLC, 2004

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FIGURE 3.2-1

STUDY AREA WITH GEOGRAPHIC SUBAREAS

The highway transportation system in the Study Area is comprised of a well-defined grid of arterials and freeways generally following a north-south/east-west orientation as shown in **Figure 3.2-1**. The freeway network in the Study Area includes the San Diego Freeway (I-405), Santa Monica Freeway (I-10), Marina Del Rey Freeway (SR-90), the Harbor Freeway (I-110) and the Hollywood Freeway (US 101). The Study Area's freeways and streets carry some of the highest traffic volumes in southern California. A total of 1.9 million vehicle-miles are traveled during the evening peak hour on the streets and freeways within the Study Area.

3.2.1.2 Freeway Network

The following is a description of the freeway network within the Study Area.

Santa Monica Freeway (I-10) – a major east-west freeway that traverses the entire length of the Study Area from the Pacific Ocean to Downtown Los Angeles, connecting a majority of the Study Area's communities. This freeway is one of the busiest in the nation and carries some of the highest daily traffic volumes in the country. The I-10 Freeway varies between three and five general lanes in each direction, with several sections of parallel auxiliary lanes and collector-distributor roads. Within the Study Area, the daily traffic volume varies between 149,000 vehicles at the La Cienega Boulevard/I-10 interchange and 325,000 vehicles at the I-110/I-10 interchange at the eastern end of the Corridor.

Hollywood Freeway (US-101) – a generally east-west oriented freeway that provides the principal direct connection between Downtown Los Angeles and the San Fernando Valley through Hollywood. This freeway generally has four lanes in each direction. Daily volumes vary from 124,000 vehicles in Downtown (Fourth Street interchange) to 276,000 vehicles (Glendale Boulevard interchange) at the mid-point of the Study Area.

Harbor Freeway (I-110) – a north-south freeway that connects the Port of Los Angeles to Pasadena via Downtown Los Angeles. The freeway varies between four to five lanes in each direction. South of Downtown Los Angeles, the I-110 Freeway has a two-lane transitway for buses and carpools in the median, which includes some elevated sections. Daily traffic varies between 158,000 vehicles (Sunset Boulevard/I-110 interchange) north of US-101 and 317,000 vehicles (Downtown interchanges) in the Study Area.

San Diego Freeway (I-405) – a major north-south freeway that connects the San Fernando Valley and points north to the West Side of Los Angeles, and south to Long Beach and Orange County. The freeway varies between four to five lanes in each direction and has a carpool lane outside the Corridor Study Area south of the I-105 Freeway. Daily traffic on the I-405 Freeway varies between 265,000 vehicles (Sunset Boulevard interchange) and 333,000 vehicles (Olympic Boulevard interchange) in the Study Area.

Marina Freeway (SR-90) – an east-west freeway that provides access to the Marina Del Rey area from the Inglewood area to the east, and the north-south I-405 Freeway corridor. This approximately four-mile long freeway has four lanes in each direction. Daily traffic volumes range from 32,000 vehicles at the eastern terminus to 77,000 vehicles at the I-405 interchange in the western section of the Study Area.

Figures 3.2-2 and **3.2-3** illustrate the portions of the existing freeway network within the Study Area during the AM and PM peak hour of service, respectively. Also shown are their respective peak hour levels expanded to include LOS F-1, LOS F-2, LOS F-3, etc., indicating the number of hours of congested conditions (from one to three) during the peak period.

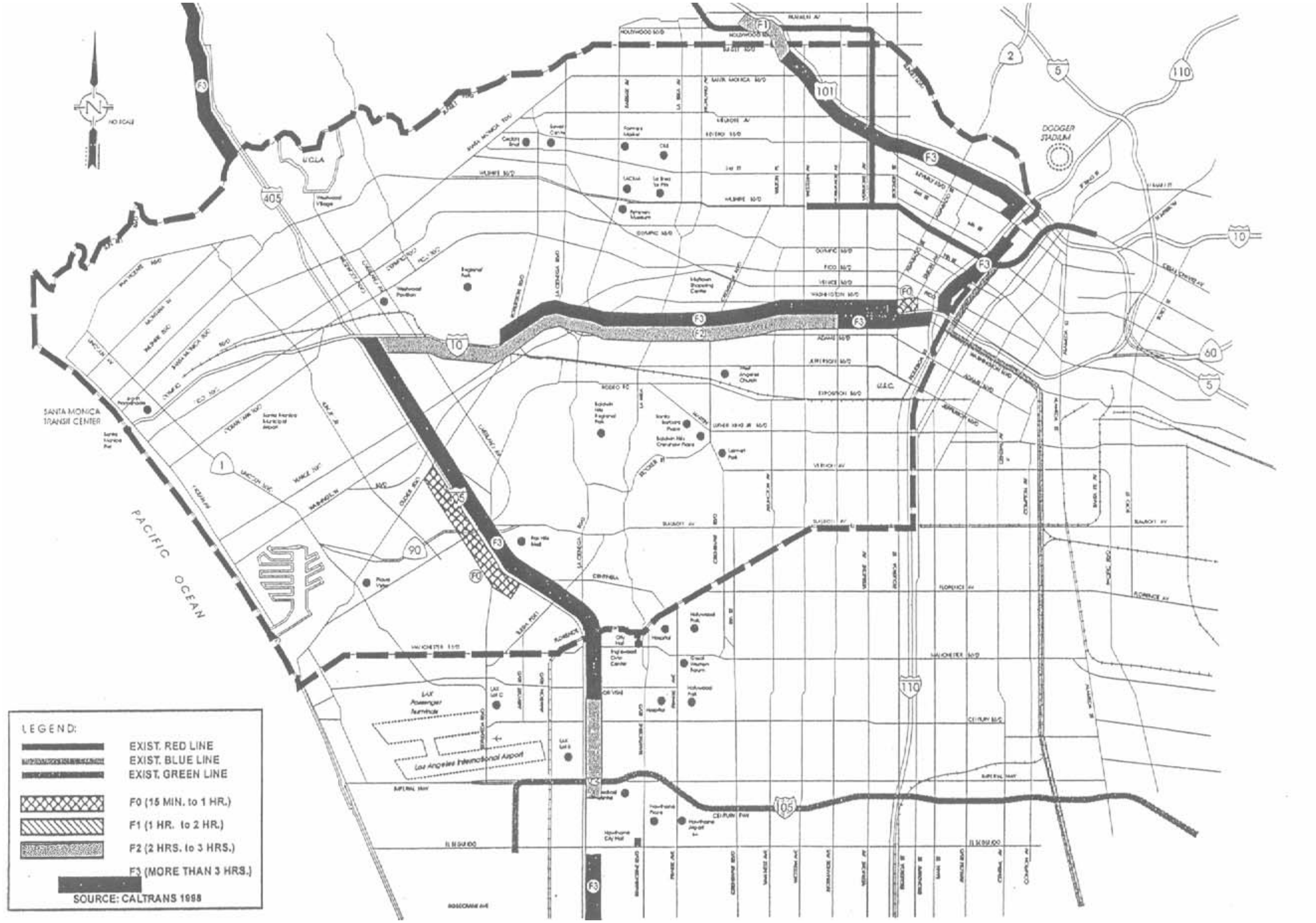

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FIGURE 3.2-2

FREEWAY LEVEL OF SERVICE (AM PEAK PERIOD 1998)

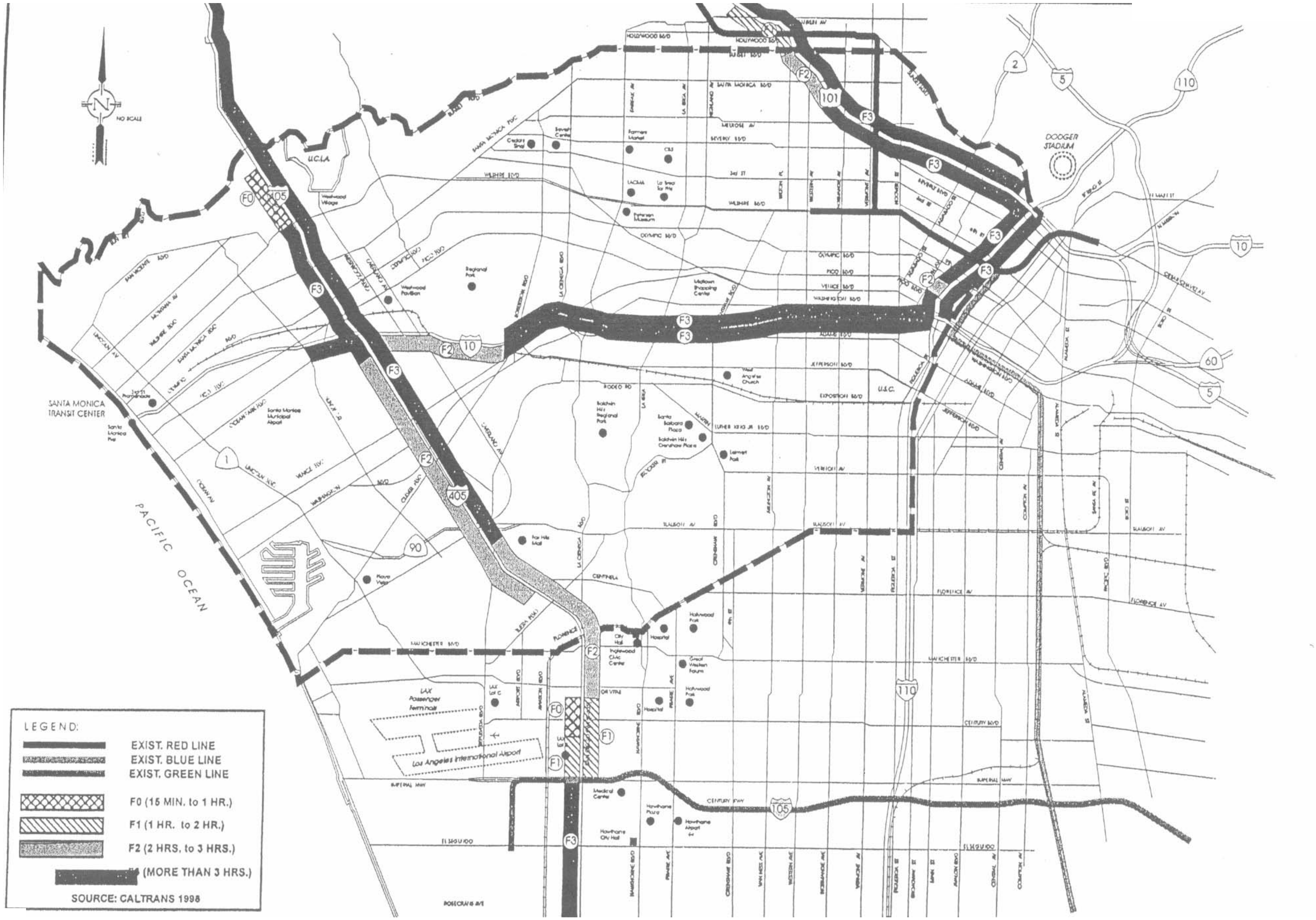

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FIGURE 3.2-3

FREEWAY LEVEL OF SERVICE (PM PEAK PERIOD 1998)

3.2.1.3 Arterial Network

The Study Area has an extensive network of arterials that follow two predominant grid patterns or systems, as illustrated in **Figure 3.2-1**, above. Arterials along the Mid-City/Westside Transit Corridor generally have a north-south/east-west orientation. Approximately 60 percent of the total daily travel (in vehicle miles) in the Study Area occurs on surface streets. During the evening peak hour, a total of approximately 76,000 vehicle hours of travel occur on the corridor's streets and freeways, with approximately 52,000 vehicle hours, or almost 70 percent of evening peak hour travel taking place on surface streets. The following points highlight some of the key features of the Mid-City/Westside Transit Corridor's major arterials (all volumes are two-way volumes).

Major East/ West Arterials (Listed from North to South)

- **Pico Boulevard** – varies between two to three lanes in each direction. Current evening peak-hour volumes range from 1,600 vehicles (east of Vermont Avenue) to 3,200 (east of Sepulveda Boulevard).
- **Venice Boulevard** – varies between two to three lanes in each direction. Current evening peak-hour volumes range from 1,600 vehicles (east of Vermont Avenue) to 3,700 (east of Sepulveda Boulevard).
- **Washington Boulevard** – varies between two to three lanes in each direction. Current evening peak-hour volumes range from 1,800 vehicles (east of Sepulveda Boulevard) to 2,300 (east of La Cienega Boulevard).
- **Jefferson Boulevard** – varies between two to three lanes in each direction. Current evening peak-hour volumes range from 1,000 vehicles (east of Vermont Avenue) to 2,400 (east of Sepulveda Boulevard).
- **Exposition Boulevard** – varies between two to three lanes in each direction. Existing evening peak hour volumes were identified as 2,200 vehicles east of Vermont Avenue.
- **Adams Boulevard** – varies between two to three lanes in each direction. Current evening peak-hour volumes were identified as 1,800 vehicles east of Vermont Avenue.

Major North-South Arterials (Listed from West to East)

- **Sepulveda Boulevard** – varies between two to three lanes in each direction. Current evening peak-hour volumes range between 2,400 vehicles (south of Sunset Boulevard) and 3,600 (north of Jefferson Boulevard).
- **Overland Avenue** – varies between two to three lanes in each direction. Existing evening peak-hour volumes are 2,100 (north of Venice Boulevard).
- **Culver/Robertson Boulevards** – varies between two to three lanes in each direction. Evening peak- hour volumes range from 1,400 vehicles (south of Beverly Boulevard) to 2,100 (south of Venice Boulevard).
- **La Cienega Boulevard** – varies between two to three lanes in each direction. Current evening peak-hour volumes range between 3,300 vehicles (south of Beverly Boulevard) and 7,200 (north of Slauson Avenue).
- **Fairfax Avenue** – varies between two to three lanes in each direction. Current evening peak-hour volumes range between 2,400 vehicles (south of Beverly Boulevard) and 3,100 (north-east of La Cienega Boulevard).
- **La Brea Avenue** – varies between two to three lanes in each direction. Existing evening peak-hour volumes range from 3,700 vehicles (south of Beverly Boulevard) and 5,300 (south of Jefferson Boulevard).
- **Crenshaw Boulevard** – varies between two to three lanes in each direction. Current evening peak-hour volumes range between 2,700 vehicles (north of Slauson Avenue) and 3,200 (south of Venice Boulevard).

- **Wilton Place/Arlington Avenue** – has two lanes in each direction. Current evening peak-hour volumes range between 1,200 vehicles (north of Slauson Avenue) and 2,800 (south of Venice Boulevard).
- **Western Avenue** – varies between two to three lanes in each direction. Current evening peak-hour volumes range between 2,100 vehicles (south of Venice Boulevard) and 2,400 (south of Beverly Boulevard).
- **Normandie Avenue** – varies between two to three lanes in each direction. Current evening peak-hour volumes range between 1,900 vehicles (south of Beverly Boulevard) and 2,500 (north of Slauson Avenue).
- **Vermont Avenue** – varies between two to three lanes in each direction. Existing evening peak-hour volumes range from 1,700 vehicles (north of Slauson Avenue) to 2,800 (south of Beverly Boulevard).
- **Figueroa Street** – varies between two to three lanes in each direction. Current evening peak-hour volumes range from 2,200 vehicles (south of Venice Boulevard) to 2,800 (north of Slauson Avenue).

While the controlling factor, in terms of network capacity, in an arterial street system is generally the level of congestion at signalized intersections, mid-block segments can also reach capacity if there are not enough through lanes to carry the traffic demand. **Figures 3.2-4** and **3.2-5** illustrate the locations where the existing roadways are at or near capacity in the AM and PM peak periods, respectively. The mid-block segment (link) shown in bold-face in the two figures are those which currently operate at LOS E or F during the two peaks. The existing arterial segment congestion is spread over most of the study area's major arterials, with no major differences between links that are congested in AM or PM peaks. Congestion patterns are more pronounced on arterials north of the I-10 Freeway and east of the I-405 Freeway. East of Fairfax Avenue, north-south arterials appear to be relatively more congested than the east-west arterials. South of I-10 Freeway, the congested arterial segments are not continuous and are mostly concentrated between Crenshaw and Culver Boulevards.

3.2.1.4 Impact on Regional Travel Patterns

Table 3.2-1 illustrates the projected regional travel changes that would result from the Project compared to the 2020 baseline condition both for Los Angeles County as a whole as well as for the Study Area. Overall the key countywide statistic is that there would a 0.04 percent reduction in daily vehicle trips with negligible increases (0.02 to 0.05 percent) in daily auto vehicle miles traveled and vehicle hours traveled. In contrast, the implementation of the Project would have a more pronounced effect within the Study Area where there would be both reduction in automobile vehicle miles traveled and vehicle hours traveled.

As discussed in Chapter 2.0 Alternatives Considered of this report, there are a number of design options being considered as alternatives to the LPA adopted by the Metro Board. These options do not fundamentally change the service characteristics of the Project in a manner that alter the regional travel characteristics presented in **Table 3.2-1**. The Phased Implementation Options under consideration would result in reduced transit service. The shorter-length routes would result in lesser reductions to automobile vehicles miles and vehicle hours of travel.

No Action. As discussed in the Chapter 1.0 Purpose and Need, the No Action Alternative would result in increased congestion and delays within the Study Area by the year 2020. As shown in **Table 3.2-1**, the average vehicle speed in the Study Area would be 20.9 mph in the PM peak hour.

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FIGURE 3.2-4
BASELINE AM PEAK HOUR
ARTERIAL SEGMENTS WITH LOS E OR F

SOURCE: Meyer, Mohaddes Associates, Inc.

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FIGURE 3.2-5

BASELINE PM PEAK HOUR

ARTERIAL SEGMENTS WITH LOS E OR F

TABLE 3.2-1: PERFORMANCE MEASURES FOR PROJECT ALTERNATIVES COMPARED TO 2020 BASELINE			
	Baseline	Mid-City/Exposition LRT	% Change
COUNTYWIDE STATISTICS			
Daily Vehicle Trips	25,341,747	25,331,096	-0.04%
Daily Auto VMT	419,533,328	419,794,696	0.05%
Daily Auto VHT	16,312658	16,322,961	0.03%
Average Vehicle Speed	25.72	25.72	0.02%
STUDY AREA STATISTICS			
Daily Auto VMT	20,070,594	20,003,976	-0.28%
Daily Auto VHT	806,769	805,690	-0.08%
Average Vehicle Speed	24.88	24.83	-0.20%
AM Peak Auto VMT	4,606,487	4,592,753	-0.31%
AM Peak Auto VHT	220,564	221,649	0.39%
AM Peak Average Speed	20.89	20.72	-0.70%
PM Peak Auto VMT	6,543,843	6,520,567	-0.26%
PM Peak Auto VHT	312,843	314,558	0.71%
PM Peak Average Speed	20.92	20.73	-0.96%
SOURCE: Meyer, Mohaddes Associates 2000.			

LPA. On a countywide and Study Area basis, the LPA would result in statistically small changes.

Downtown Los Angeles Connection Options. Regional trip patterns would not be affected by the Downtown Los Angeles Connection Design Options and would be the same as the LPA.

La Cienega Station Parking Options. Regional trip patterns would not be affected by the La Cienega Parking options and would be the same as the LPA.

Jefferson Boulevard Design Options. Regional trip patterns would not be affected by the bridge length options at Jefferson Boulevard. Impacts on regional travel would be similar to the LPA.

Venice/Robertson Design Options. Regional trip patterns would not be affected by the Venice/Robertson Design Options and would be the same as the LPA.

Phased Implementation. The phased implementation options ending at Vermont Avenue, Crenshaw Boulevard, or La Cienega Boulevard would have beneficial impacts; however, such beneficial impacts would be reduced compared to the LPA.

3.2.1.5 Impact on Freeways

No Action. The No Action alternative would result in continued delays and congestion on regional freeways due to general traffic growth. No reduction in traffic as a result of the implementation of the LRT build alternative would occur under the No Action alternative.

LPA. The LPA or its design options could affect ramps to the I-110 and the I-10 freeways at several locations. The impacts would result from the circulation of station area related traffic or from the physical proximity of the light rail alignment to a ramp entry or exit point. Specifically, the LPA would affect the I-110 Northbound Hope Street On-Ramp as well as the I-10 Robertson Boulevard off-ramps. The Robertson Boulevard ramps would be affected due to the fact that the Venice/Robertson Station would be the terminus for the Project and it is estimated that just over 20 percent of the patrons living/working west of this point would potentially use the I-10 freeway to access this station.

I-110 Hope Street On-Ramp. The Project would cross the potential queues area for the ramp, particularly in peak hour conditions where queues build up at the ramp meter. To avoid queued vehicles blocking the LRT operations, mitigation measure T1 has been developed to address this impact.

Robertson Boulevard I-10 Ramps. The existing ramps include a westbound auxiliary lane between the Venice/Robertson Boulevards interchange and the National Boulevard interchange to the west and an eastbound added lane. The existing daily traffic level on the ramps (about 14,500 average daily trips based upon 2003 count data) corresponds to about 1,500 peak hour trips in the peak direction. The peak hour impact of the ramp traffic (50 eastbound off trips in the AM peak hour and 80 westbound on trips in the PM peak hour) would be three to four percent of the ramp capacity which would not be a discernible increase to ramp traffic. In addition, the westbound on-ramp is metered. The addition of 80 westbound vehicles to the traffic stream in the PM peak hour represents about two vehicles every traffic signal cycle and would not significantly increase the length of the queue. Similarly, the addition of 50 eastbound vehicles to the off-ramp traffic in the AM peak hour represents on average about one additional vehicle per signal cycle and would not significantly increase the queuing at the traffic signal at Venice Boulevard.

It should be noted that Caltrans, Culver City, City of Los Angeles and Metro are currently studying improvements to the Venice/Robertson/Interstate 10 interchange. It is recognized that the existing configuration subjects local roadways to traffic queues and that ramps operate poorly as a result. Ultimately, the freeway interchange may be significantly reconfigured, most likely with modifications to the local circulation system.

Finally, it should be pointed out that the Venice/Robertson Station is an interim terminal station; at such time as the line would be extended west, the station traffic shed would diminish in size and station access traffic would decrease, potentially reducing freeway ramp impacts.

In order to identify regional improvements that would relieve congestion in the I-10/Robertson Boulevard ramp vicinity, mitigation measure T2 has been developed.

Downtown Los Angeles Connection Options

- *Hill Street Couplet Design Option*. This option would require that LRT trains move along 18th Street in the eastbound direction and along 17th Street in the westbound direct between Flower Street and Hill Streets. Seventeenth and 18th Streets are located immediately north and south of the I-10 Freeway and serve as access roads to/ from the ramps to the local downtown street system. The passage of the LRT along these streets would temporarily block the ramps. To eliminate the an adverse effect, a fixed-timed traffic signal timing plan would be developed to move traffic and trains along the 17th and 18th Streets couplet along with some progression for north-south traffic along Grand Avenue, Olive and Hill Streets (mitigation measure T3). Provisions would be made to allow outbound trains to cross traffic exiting from the eastbound I-10 off-ramp approaching Grand Avenue - the traffic signal timing plan would need to provide a "queue clearance" phase whereby the off-ramp traffic would be briefly held while an eastbound green would be provided at 18th Street/Grand Avenue to clear any queue on 18th Street so the LRT train could proceed across the ramp exit - immediately after train passage, the ramp could be allowed to flow again so the impact on storage and queuing could be manageable, resulting in no adverse effects.

- *Flower Street Design Option*. The LRT trackway for this option would cross the entry to the I-110 southbound "diamond lane" on-ramp south of Adams Boulevard. In order to minimize the potential for traffic conflicts, southbound left-turns to either Adams Boulevard or the on-ramp would need to be held in a left-turn bay and the trackway would need to be physically separated from the parallel roadway lanes. This issue can be resolved in final design and is not considered an adverse impact.

La Cienega Parking Options. The location of a parking structure on the southwest corner of La Cienega and Jefferson would not have a direct effect on a freeway ramp, and no adverse impacts are anticipated.

Jefferson Boulevard Design Options. Neither the extension of a the bridge over the Jefferson/National intersection nor widening options for Jefferson Boulevard would have an affect on a freeway ramp and no adverse impacts are anticipated.

Venice/Robertson Design Options. For each of the design options under consideration, the location of parking would be unchanged from the LPA. As a result impacts and required mitigation measures for the I-10 Robertson ramps would be the same as the LPA discussed above.

Phased Implementation Options. The Phase Implementation Options that would terminate the Project at either Vermont, Crenshaw or La Cienega. These shorter length routes would not present any new impacts to freeway ramps not already disclosed for the LPA.

3.2.1.6 Mitigation Measures

T1 Exposition Boulevard/South Hope Street/I-110 On-Ramp (LPA and Hill Street Couplet Design Option only)

- Metro shall provide a coordinated timing plan between the ramp meter, the intersection, and use either a queue cutter or the existing signalized pedestrian crossing between the Department of Motor Vehicles building and its parking lot east of South Hope Street to manage queuing across the trackway.

T2 I-10 Robertson Boulevard Ramps

- Metro shall contribute $100,000 toward the preparation of a study identifying possible improvements and reconfiguration of freeway ramps and connecting arterial streets. The study shall include review and coordination by the City of Los Angeles, Culver City, and Caltrans.

T3 I-10 Off-Ramp/Grand Avenue/17th street/18th Street (Hill Street Couplet Design Option only)

- Metro shall modify signal timing plan to allow outbound trains to cross traffic from the eastound I-10 off-ramp approaching Grand Avenue.

3.2.2 DOWNTOWN CONNECTION SUBAREA

3.2.2.1 Affected Environment

For traffic impact assessment purposes, the Downtown Connection Subarea extends from the intersection of Flower Street and 12th Street to Exposition Boulevard and Vermont Avenue. Eleven intersections as shown in **Figure 3.2-6** have been analyzed. These intersections have been selected in coordination with the Los Angeles Department of Transportation (LADOT). The intersections addressed are as follows:

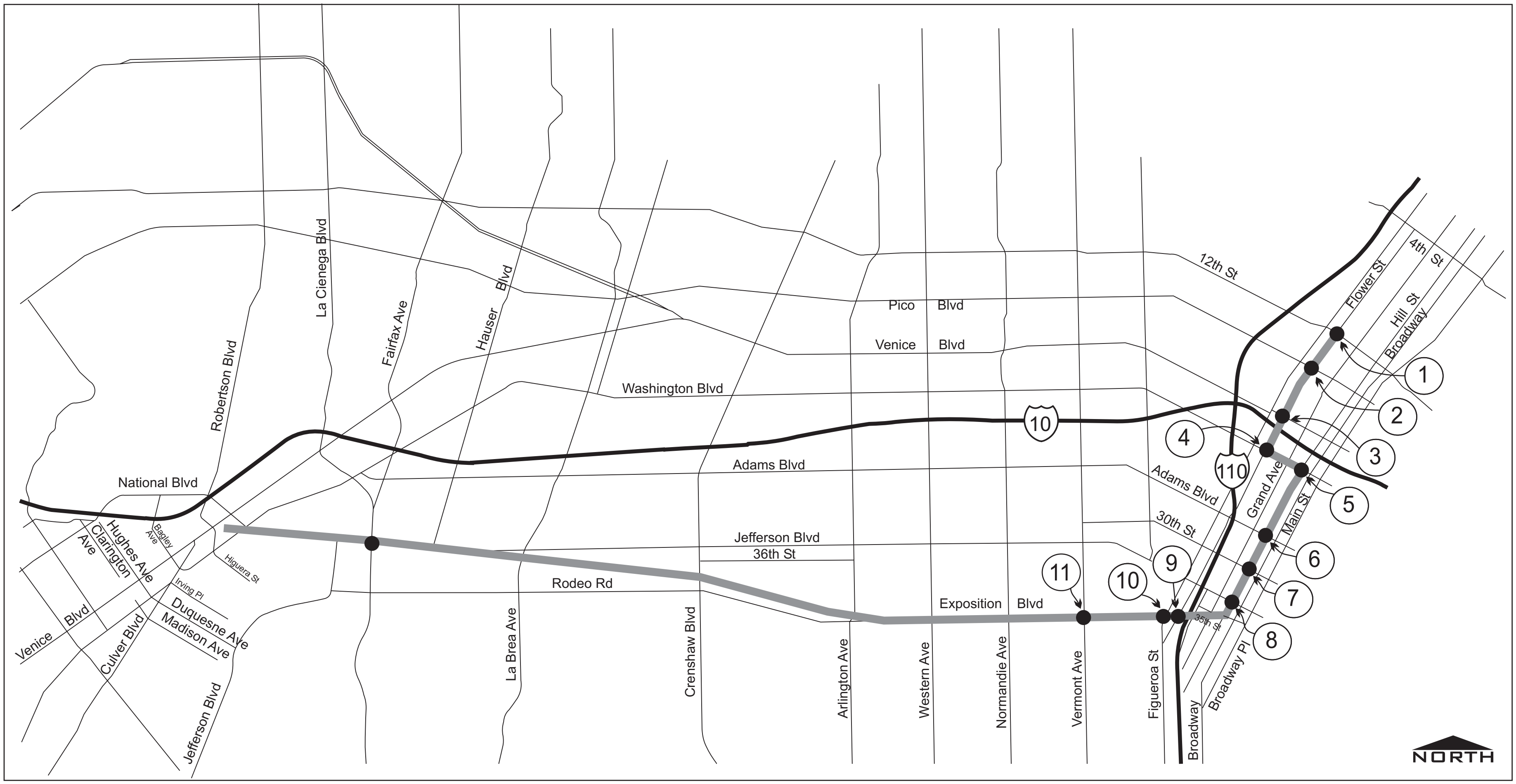
1. 12th Street/Flower Street
2. Flower Street/Pico Boulevard
3. Flower Street/Venice Boulevard
4. Flower Street/ Washington Boulevard
5. Hill Street/Washington Boulevard
6. Hill Street/Adams Boulevard
7. Hill Street/30th Street
8. Hill Street/Jefferson Boulevard
9. Flower Street/Exposition Boulevard
10. Figueroa Street/Exposition Boulevard
11. Vermont Avenue/Exposition Boulevard

3.2.2.1.1 Study Intersections and Baseline Levels of Service

In the Downtown Connection Subarea, 11 intersections were selected for detailed level of service analysis. They represent key intersections that are directly along the Mid-City/Exposition Corridor alignment, or would potentially be affected by a nearby transit crossing. The 11 study intersections are illustrated in **Figure 3.2-6**. **Figures 3.2-7** and **3.2-8** illustrate the base year (1998) AM and PM peak hour traffic volumes, respectively.

Detailed AM and PM peak period turning movement ground counts were compiled for the 11 study intersections. For the four intersections added in Downtown Los Angeles along Flower Street, only PM counts were compiled. All traffic count data was summarized per the LADOT specified traffic count format. Current conditions at each study intersection were analyzed using the Operational Analysis Methodology of the 2000 Highway Capacity Manual (HCM). The Operations Analysis Methodology results in a rating of conditions at an intersection based on the average number of seconds of delay experienced by motorists traveling through the intersection.

Level of service (LOS) is a qualitative measure used to describe the condition of traffic flow, ranging from Level A, free flow conditions, to Level F, jammed conditions, with top of Level E representing theoretical capacity. Detailed signal timing and phasing information was obtained from LADOT and was used as inputs to the intersection analysis. Weekday AM and PM peak hours were selected for analysis because they represent the most critical periods of traffic congestion along the Exposition Corridor compared to other time periods such as weekday or weekend mid-day.



LEGEND: ● Study Intersection

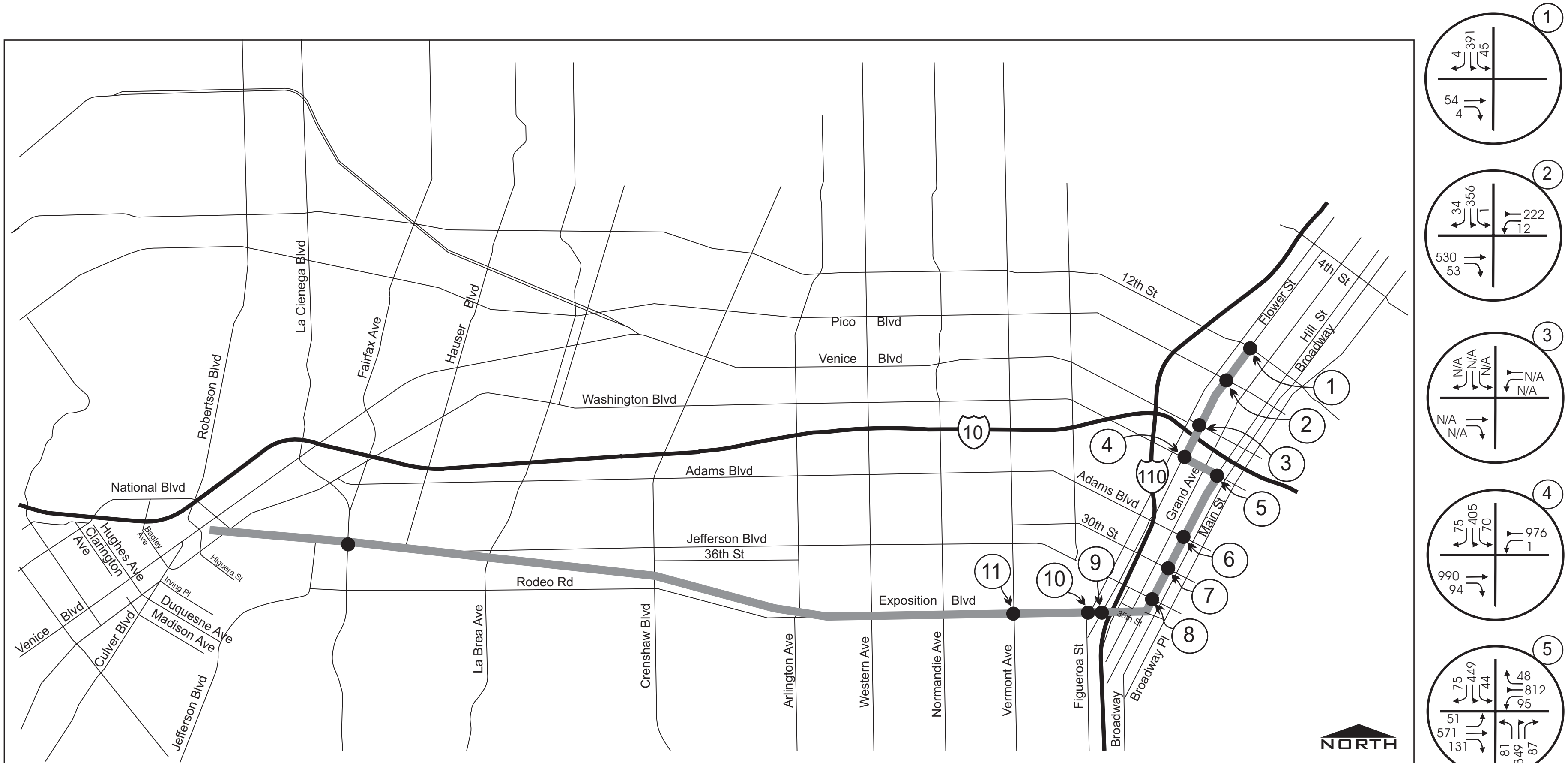
1.12th Street/Flower Street
2.Flower Street/Pico Boulevard
3.Flower Street/Venice Boulevard
4.Flower Street/Washington Boulevard
5.Hill Street /Washington Boulevard
6.Hill Street /Adams Street
7.Hill Street /30th Boulevard
8.Hill Street /Jefferson Boulevard
9.Flower Street/Exposition Boulevard
10.Figueroa Street/Exposition Boulevard
11.Vermont Avenue/Exposition Boulevard

Metro

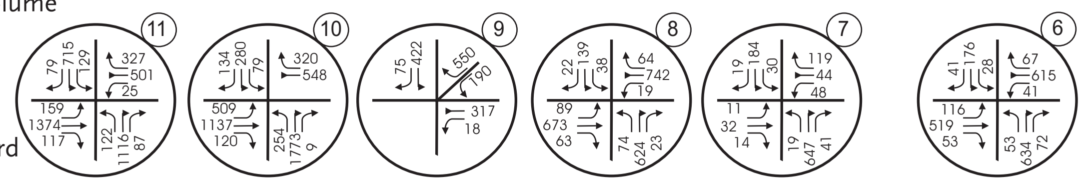
SOURCE: Meyer, Mohaddes Associates, Inc.

FIGURE 3.2-6

STUDY INTERSECTIONS - DOWNTOWN CONNECTIONS SUBAREA



LEGEND: ● Study Intersection XX Traffic Volume



1. 12[th] Street/Flower Street
2. Flower Street/Pico Boulevard
3. Flower Street/Venice Boulevard
4. Flower Street/Washington Boulevard
5. Hill Street /Washington Boulevard
6. Hill Street /Adams Street
7. Hill Street /30th Boulevard
8. Hill Street /Jefferson Boulevard
9. Flower Street/Exposition Boulevard
10. Figueroa Street/Exposition Boulevard
11. Vermont Avenue/Exposition Boulevard

Metro

SOURCE: Korve Engineering and KAKU Associates

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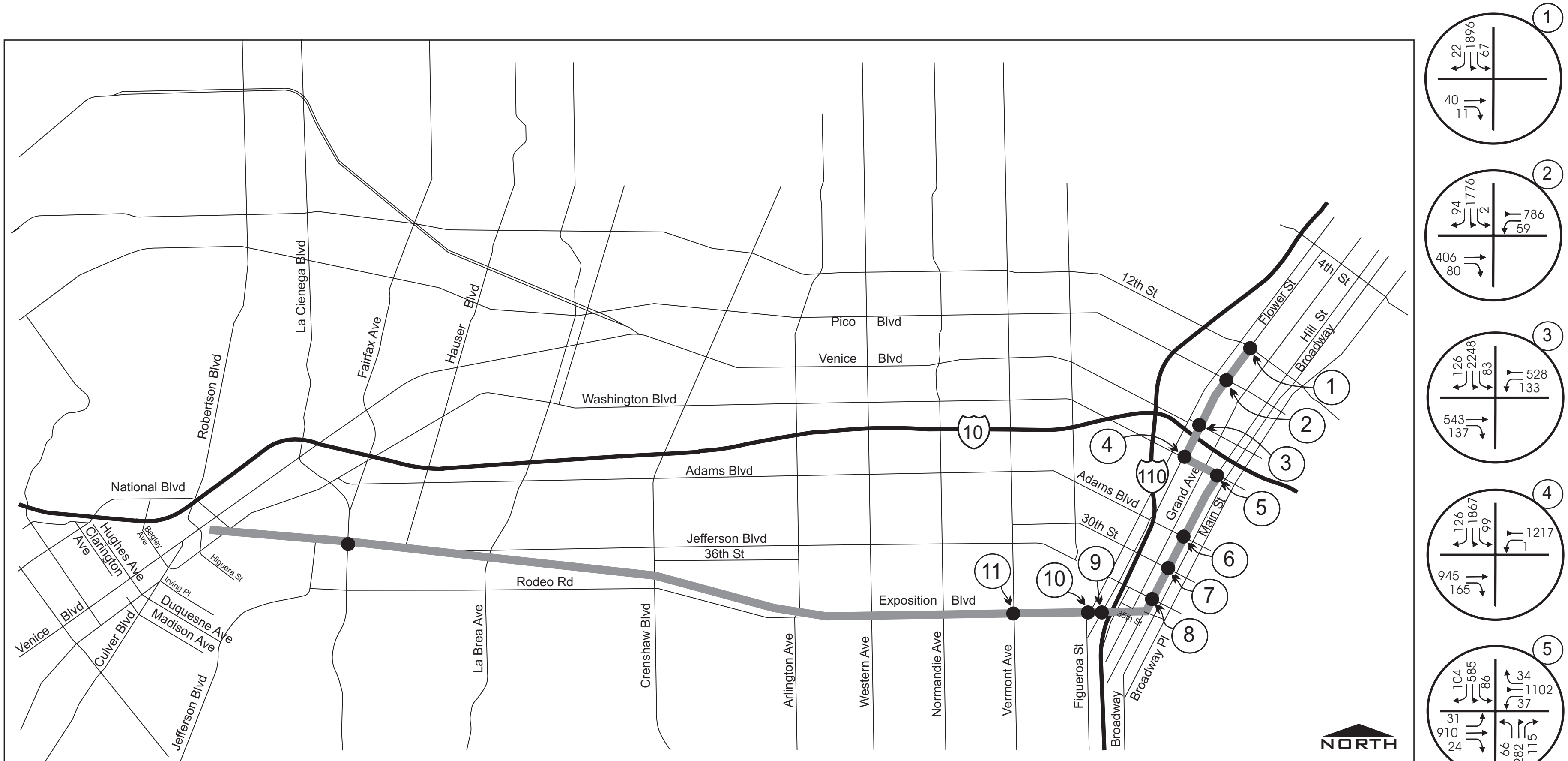
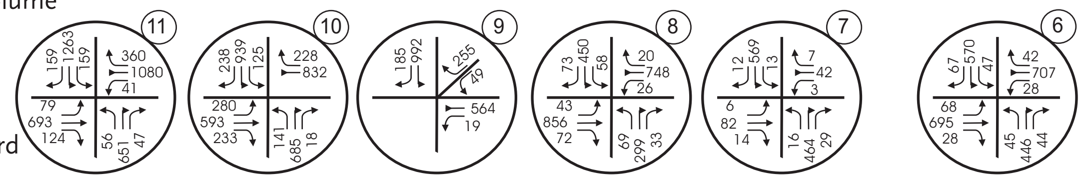
FIGURE 3.2-7

BASE YEAR AM PEAK HOUR TRAFFIC VOLUMES - DOWNTOWN CONNECTION SUBAREA



LEGEND: ● Study Intersection XX Traffic Volume



1. 12th Street/Flower Street
2. Flower Street/Pico Boulevard
3. Flower Street/Venice Boulevard
4. Flower Street/Washington Boulevard
5. Hill Street /Washington Boulevard
6. Hill Street /Adams Street
7. Hill Street /30th Boulevard
8. Hill Street /Jefferson Boulevard
9. Flower Street/Exposition Boulevard
10. Figueroa Street/Exposition Boulevard
11. Vermont Avenue/Exposition Boulevard

Metro

SOURCE: Korve Engineering and KAKU Associates

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FIGURE 3.2-8

BASE YEAR PM PEAK HOUR TRAFFIC VOLUMES - DOWNTOWN CONNECTION SUBAREA

All of the 11 analyzed intersections are presently operating at acceptable LOS D or better conditions. **Table 3.2-2** presents LOS and average delay for a typical vehicle for the 11 studied intersections for existing (2004) conditions.

TABLE 3.2-2: EXISTING CONDITIONS STUDY AREA INTERSECTIONS LEVEL OF SERVICE AND DELAY

	AM		PM	
Intersection	LOS	Delay (Sec.)	LOS	Delay (Sec.)
1. 12th Street/Flower Street/a/	N/A	N/A	A	1.3
2. Flower Street/Pico Boulevard/a/	N/A	N/A	B	15.9
3. Flower Street/Venice Boulevard/a/	N/A	N/A	B	18.9
4. Flower Street/Washington Boulevard/a/	N/A	N/A	B	16.7
5. Hill Street /Washington Boulevard	B	18.1	B	18.4
6. Hill Street /Adams Boulevard	B	13.2	B	13.6
7. Hill Street /30th Street	B	12.4	B	11.5
8. Hill Street /Jefferson Boulevard	B	13.2	B	12.9
9. Flower Street/Exposition Boulevard	B	17.3	C	21.9
10. Figueroa Street/Exposition Boulevard	D	48.5	D	36.6
11. Vermont Avenue/Exposition Boulevard	C	21.7	B	15.3

/a/ Kaku Associates, October 2004.
SOURCE: Korve Engineering, 2004.

3.2.2.2 Impact Assessment

Methodology

The overall methodology for addressing traffic and other transportation impacts has been revised in response to comments raised by the affected local jurisdictions (City of Los Angeles, Department of Transportation and the City of Culver City). In addition, the Metro Grade Crossing Policy was developed and applied to refine the Project definition. The underlying traffic impact methodology used in the Final EIS/EIR includes the following analytical elements as described below:

Travel Demand Forecast Model Data. The measures of transportation supply and demand in the Study Area are based upon the results of the Metro travel demand forecasting model and its associated database. 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 through extensive surveys of the region's travel characteristics of travelers and their households.

The travel-forecasting model used in the Study Area was developed by the Metro and is based upon and receives its demographic inputs from Southern California Association of Governments (SCAG) Regional Travel Demand Model. Metro travel forecast model includes the approved land use and financially constrained future highway and transit network for Year 2020. The model predicts future travel demand based upon several input data items that include:

- 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 Metro travel demand model, detailed travel pattern information was collected and summarized for 1998 base and future 2020 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 within 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 highway and transit forecasts were developed by the Metro Model for all Project alternatives for Year 2020 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 FTA processes. The model provides forecasts of highway and transit loadings including both bus and rail ridership.

The analysis of Project impacts has been prepared by comparing the Year 2020 "No Project" baseline to the "With Project" scenario as currently defined with service between the existing Metro Center subway station at 7th Street/Metro Center in Downtown Los Angeles to the Venice/Robertson Station in Culver City. The Mid-City/Exposition LRT Project was coded into the network including the line segment, stations, park and ride sites, and feeder bus services.

Revised travel demand model runs were prepared for the Final EIS/EIR. The revised travel demand model runs reflect the development of the Metro "rapid bus" network that would occur in the base condition regardless of the Project (as opposed to specific feeder bus route revisions directly associated with the Project).

Corridor-Level Traffic Volume Forecasts. In the Draft EIS/EIR, peak hour intersection turn movements were developed directly from raw model outputs for the roadway network link volumes. As a result, there were various locations where future year peak hour traffic link volumes and factored intersection turn movement volumes were lower than existing ground count data. Metro received comments from affected jurisdictions including Los Angeles and Culver City regarding these apparently inconsistent results as reported in the Draft EIS/EIR.

In response to a suggestion by LADOT, the analysis contained in the Final EIS/EIR includes recent count data, as well as collected Year 2003 and 2004 traffic count data at selected key intersections. The traffic count data was used in conjunction with the most recent travel model forecast data to estimate year 2020 traffic volumes. As a result, the Final EIS/EIR uses a refined methodology that incorporates the most recent travel model forecast data, as well as the most consistent ground count data.

Local Street Permanent Closure Traffic Effects Incorporated in Traffic Volume Forecasts. Traffic that currently uses roadways to be closed would be diverted to the remaining crossing locations and there would be some out-of-direction travel; on the other hand, traffic levels would be reduced on these minor roadways due to the closures at the Metro right-of-way.

Intersection Level of Service. The intersection level of service analysis assumes that an intersection would be adversely affected by traffic volume changes if the Project will cause a deterioration in LOS to E or worse or results in an increase in the average vehicle delay of 5.0 seconds or more at an intersection projected to operate at LOS E or worse under No Project conditions. Because of the application of the Metro's Grade Crossing Policy, intersections with the LPA route at La Brea Avenue and La Cienega Boulevard are proposed for grade separation.

Impact on Intersection Levels of Service

This key subsection of the Traffic Section presents the Year 2020 intersection level of service and delay calculations for the Project in comparison to Year 2020 No Project conditions.

No Action. **Table 3.2-3** depicts the LOS and average delay at study area intersections without the influence of the LPA. As shown, the intersections would operate at LOS D or better. The average delay would range from 8.6 to 44.9 seconds in the AM peak and from 5 to 45.6 seconds in the PM peak.

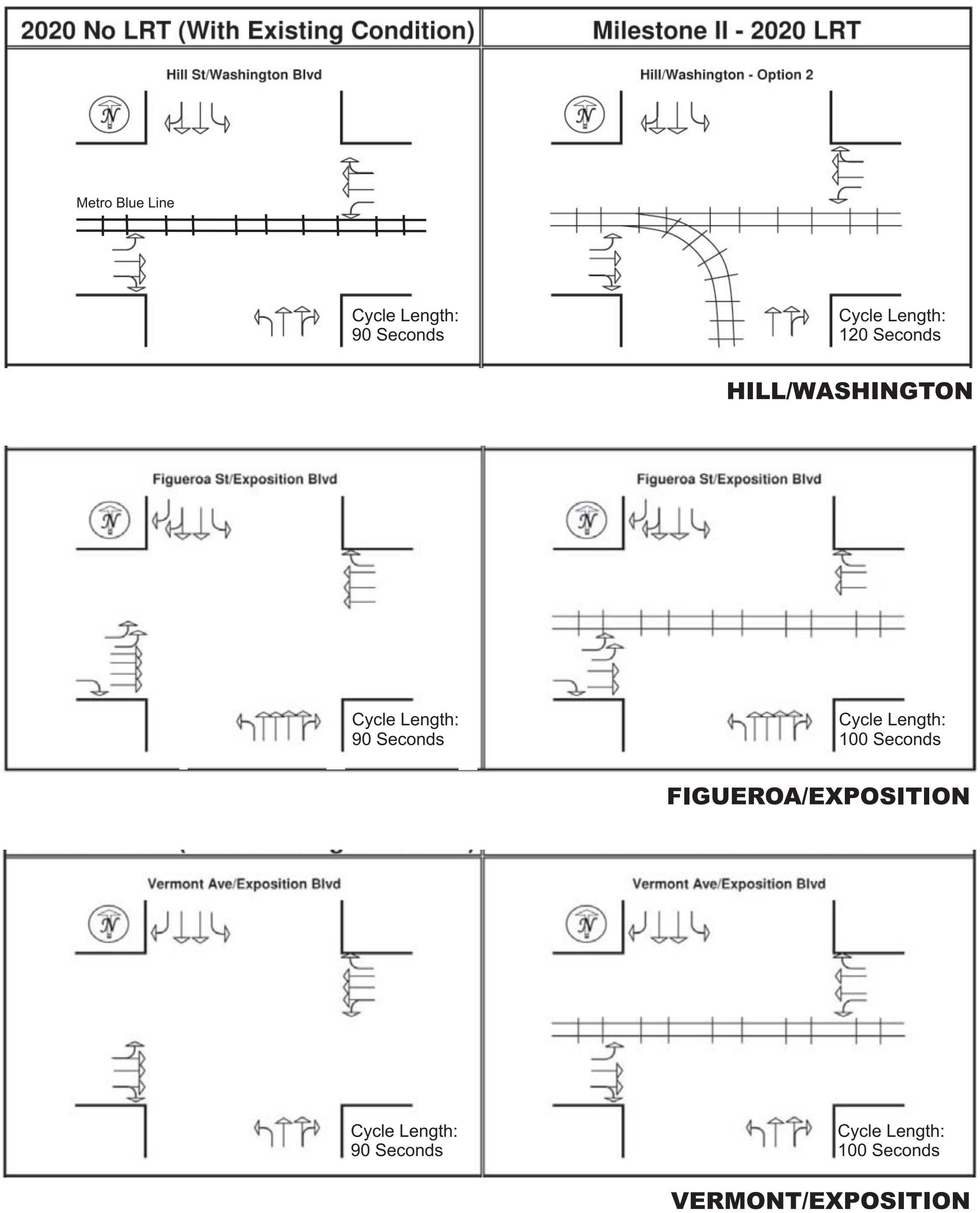
TABLE 3.2-3: YEAR 2020 CONDITIONS WITH AND WITHOUT LRT (LPA)

	Without Project				With Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
Intersections	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)
1. 12th St/Flower St	N/A	N/A	B	19.5	N/A	N/A	B	19.5
2. Flower St/Pico Blvd	N/A	N/A	C	27.3	N/A	N/A	C	27.3
3. Flower St/Venice Blvd	N/A	N/A	C	24.1	N/A	N/A	C	24.1
4. Flower St/Washington Blvd	N/A	N/A	A	5	N/A	N/A	A	5
5. Hill St/Washington Blvd	C	25.9	C	24.6	C	33.5	D	35.6
6. Hill St/Adams Blvd	B	16.6	B	16.3	C	27	C	24.5
7. Hill St/30th St	A	8.6	A	6	A	6.4	A	4.9
8. Hill St/Jefferson Blvd	B	17.2	B	19.8	D	48.3	C	33.5
9. Flower St/Exposition Blvd	B	18.2	C	33.6	C	29.5	C	28.6
10. Figueroa St/Exposition Blvd	D	44.9	D	45.6	D	40.8	D	52
11. Vermont Ave/Exposition Blvd	C	23.2	B	16.4	D	44.9	D	49.4

SOURCE: Korve Engineering, 2004

LPA. The Mid-City/Exposition light rail alignment would operate adjacent to or within street rights of way at numerous locations within the Project area. The intersection analysis assumes "good practices" would be implemented under the LPA. "Good practices" for operation in such environments is to provide positive control of all conflicting roadway movements. Positive control would be achieved either by physically blocking opposing roadway flows with automatic crossing gates and/or with traffic signal indications at intersections and grade crossings. Lane configurations associated with "good practices" are shown in **Figure 3.2-9**.

For example, at an intersection where the LRT trackway would be located in the median, cross street traffic approaching an intersection would be controlled by a red traffic signal indication during train passage. In addition, while parallel roadway through traffic (which would not conflict with the LRT operation) may proceed with a green traffic signal indication concurrently with the LRT train, left-turns made from the parallel roadway which would conflict with the LRT train would need to be held during the train phase. For this condition, the "best practice" would be to have a separate left-turn bay and red arrow phase to control the conflicting auto traffic. Alternatively, in the event a separate turn bay cannot be provided, it would be "good practice" to hold all of the parallel auto traffic with a red signal indication and to provide a concurrent active sign display indicating "train coming" and/or "no left turn" active warning sign until after the LRT train has crossed into the intersection (After the train is across the intersection, the parallel roadway traffic can be allowed to move and the left turners can cross the trackway after the train clears).



Metro

SOURCE: Korve Engineering

FIGURE 3.2-9
INTERSECTION RECOMMENDED
MITIGATION-DOWNTOWN CONNECTION
SUBAREA

Another example of "best practice" would be to provide positive control of left turns made from the cross street so that roadway vehicles can be cleared from the median and/or trackway whether in conjunction with pre-emption of an adjacent traffic signal or during the normal sequence of phases at a location where the LRT operates within a traffic signal controlled intersection.

It should be noted that attainment of "good practice" design or "best practice" design has been assumed in the lane configurations used for the traffic operational capacity evaluation provided in the Final EIS for the "With Project" alternatives. In addition, provisions in the design of the intersections have been listed as mitigation.

Table 3.2-3, above, depicts the LOS and average delay at study area intersections. As shown, average delay would range from 6.4 to 48.3 seconds in the AM peak and 5 to 52 seconds in the PM peak. All of the study intersections would operate at LOS D or better in the year 2020 with the Project. Thus, no adverse impacts are anticipated. **Figures 3.2-10** and **3.2-11** illustrate the year 2020 cumulative LRT AM and PM peak hour traffic volumes.

Downtown Los Angeles Design Options - For the Downtown Connection, the study considered the following options:

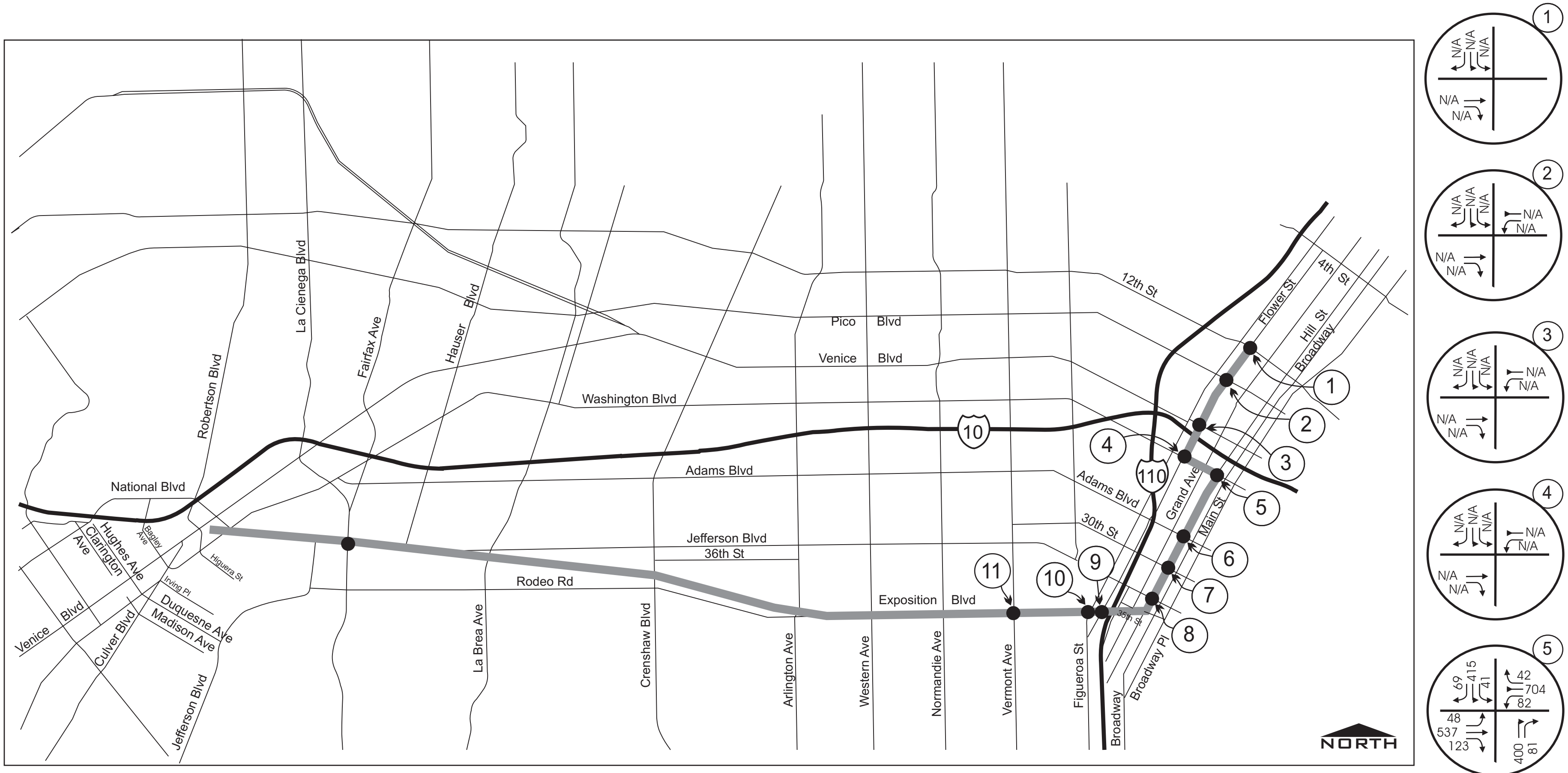
- Hill Street Couplet Design Option - As discussed in Chapter 2, the Hill Street Couplet Design Option has been formulated to eliminate the light rail vehicle turn from/to the Washington Boulevard Blue Line tracks to the north-south Hill Street alignment. It is expected that this turn would cause additional delay to the intersection operations as shown in **Table 3.2-3**. Additionally, accommodating the light rail vehicle turn would have a direct effect on rail service operations for the existing Blue Line and for the Mid-City/Exposition LRT (see Section 3.2.5.1). The couplet concept would route east-west LRT operations just north of Washington Boulevard along 17^{th} and 18^{th} Street from Flower Street to Hill Street (17^{th} Street is a one-way westbound street, and 18^{th} Street is a one-way eastbound street). The turn onto Hill Street would be from 18^{th} Street for light rail vehicles traveling eastbound and the corresponding westbound turn would be from Hill Street to 17^{th} Street. These turns would be accomplished at existing signalized intersections, where signal phasing would have to be adjusted to allow the LRT movement. Allowing the turn movement to be accomplished north of the Washington Boulevard and the Blue Line would allow the Exposition light rail vehicle to pass through the Washington Boulevard and Hill Street intersection in a north-south direction. As such, the light rail vehicle would cross the Blue Line, as permitted by the existing traffic signal phasing, and no adverse effects on the level of service at the Washington boulevard and Hill Street intersection is anticipated.

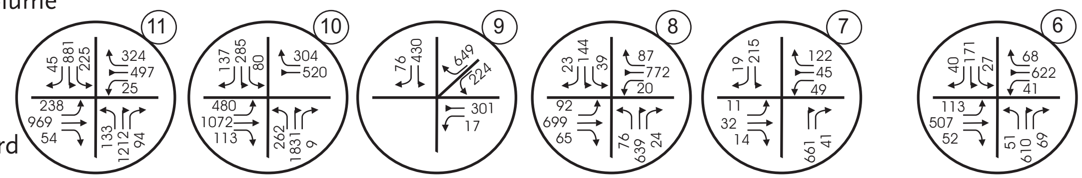
La Cienega Parking Options. Not applicable.

Jefferson Boulevard Design Options. Not applicable.

Venice/Robertson Design Options. Not applicable.

Phased Implementation Option. Impacts would be similar to the LPA.





LEGEND: ● Study Intersection XX Traffic Volume

1. 12th Street/Flower Street
2. Flower Street/Pico Boulevard
3. Flower Street/Venice Boulevard
4. Flower Street/Washington Boulevard
5. Hill Street /Washington Boulevard
6. Hill Street /Adams Street
7. Hill Street /30th Boulevard
8. Hill Street /Jefferson Boulevard
9. Flower Street/Exposition Boulevard
10. Figueroa Street/Exposition Boulevard
11. Vermont Avenue/Exposition Boulevard

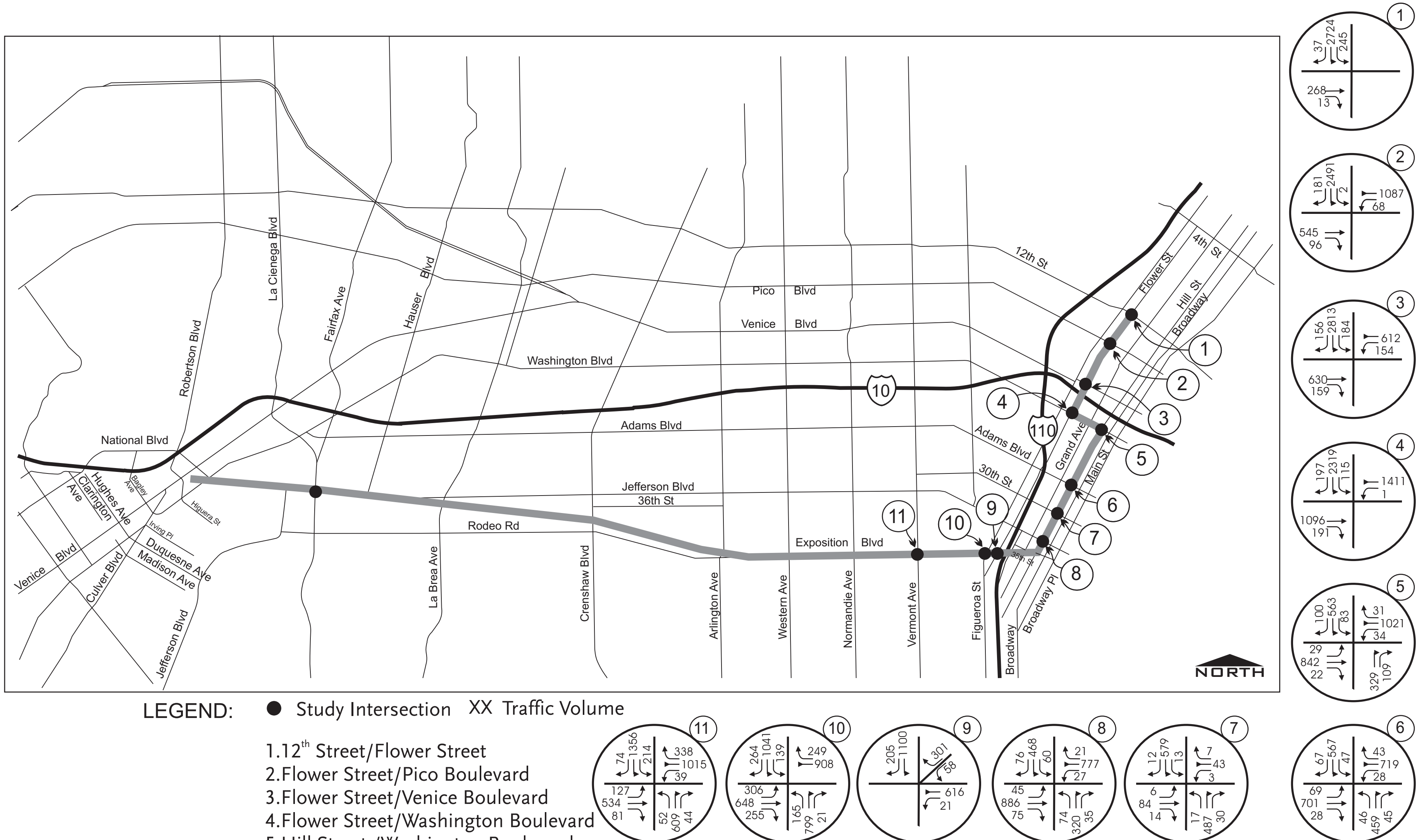
Metro

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-10

CUMULATIVE 2020 LRT AM PEAK HOUR TRAFFIC VOLUMES - DOWNTOWN CONNECTION SUBAREA



LEGEND: ● Study Intersection XX Traffic Volume

1. 12th Street/Flower Street
2. Flower Street/Pico Boulevard
3. Flower Street/Venice Boulevard
4. Flower Street/Washington Boulevard
5. Hill Street /Washington Boulevard
6. Hill Street /Adams Street
7. Hill Street /30th Boulevard
8. Hill Street /Jefferson Boulevard
9. Flower Street/Exposition Boulevard
10. Figueroa Street/Exposition Boulevard
11. Vermont Avenue/Exposition Boulevard

Metro

SOURCE: Korve Engineering and KAKU Associates

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-11

CUMULATIVE 2020 LRT PM PEAK HOUR TRAFFIC VOLUMES - DOWNTOWN CONNECTION SUBAREA

3.2.2.3 Mitigation Measures

T4 Hill Street/Washington Boulevard (LPA and Hill Couplet only)

- Metro shall ensure that the northbound left-turn is prohibited. Metro shall ensure that northbound lane is configured to accommodate one shared through/right-turn lane and one through lane; and
- Metro shall ensure that signal timing and phasing is modified to accommodate the LRT phase.

T5 Hill Street/Adams Boulevard (LPA and Hill Couplet only)

- Metro shall ensure that the northbound lane is configured to accommodate one shared through/right-turn lane and one exclusive left-turn lane;
- Metro shall ensure that the southbound lane is configured to accommodate one shared through/right-turn lane and one exclusive left-turn lane; and
- Metro shall ensure that signal timing and phasing is modified to accommodate protected left-turn phases for the northbound and southbound approaches.

T6 Hill Street/30th Street (LPA and Hill Couplet only)

- Metro shall ensure that the northbound left-turn is prohibited and that northbound lane is configured to accommodate one through lane and one shared through/right-turn lane;
- Metro shall ensure that the southbound left-turn is prohibited and that southbound lane is configured to accommodate one through lane and one shared through/right-turn lane; and
- Metro shall ensure that signal timing and phasing is modified to accommodate the LRT phase.

T7 Hill Street/Jefferson Boulevard (LPA and Hill Couplet only)

- Metro shall ensure that the northbound lane is configured to accommodate one shared through/right-turn lane and one exclusive left-turn lane;
- Metro shall ensure that the southbound lane is configured to accommodate one shared through/right-turn lane and one exclusive left-turn lane; and
- Metro shall ensure that signal timing and phasing shall be modified to accommodate protected left-turn phases for the northbound and southbound approaches.

T8 Flower Street/Adams Boulevard (Flower Street Options)

- Metro shall ensure that the southbound lane is configured to accommodate one shared through/right-turn lane, one through lane and one shared through/left-turn lane; and
- Metro shall ensure that signal timing and phasing is modified to accommodate the new additional LRT phase.

T9 Flower Street/Jefferson Boulevard (Flower Street Options)

- Metro shall ensure that the southbound lane is configured to accommodate one shared through/right-turn lane, one through lane and one shared through/left-turn lane; and
- Metro shall ensure that signal timing and phasing is modified to accommodate the new additional LRT phase.

T10 Figueroa Street/Exposition Boulevard

- Metro shall ensure that the eastbound lane is configured to accommodate two exclusive left-turn lanes and two through lanes;
- Metro shall ensure that the westbound lane is configured to accommodate one exclusive right-turn lane and two through lanes; and
- Metro shall ensure that signal phasing and timing is modified to accommodate the LRT phase.

T11 Vermont Avenue/Exposition Boulevard

- Metro shall ensure that the eastbound shared through/left-turn lane is converted to an exclusive left-turn lane.
- Metro shall ensure that the westbound shared through/left-turn lane is converted to an exclusive left-turn lane; and
- Metro shall ensure that signal timing and phasing is modified to accommodate protected left-turn phases for all the approaches.

3.2.3 MID-CORRIDOR SUBAREA

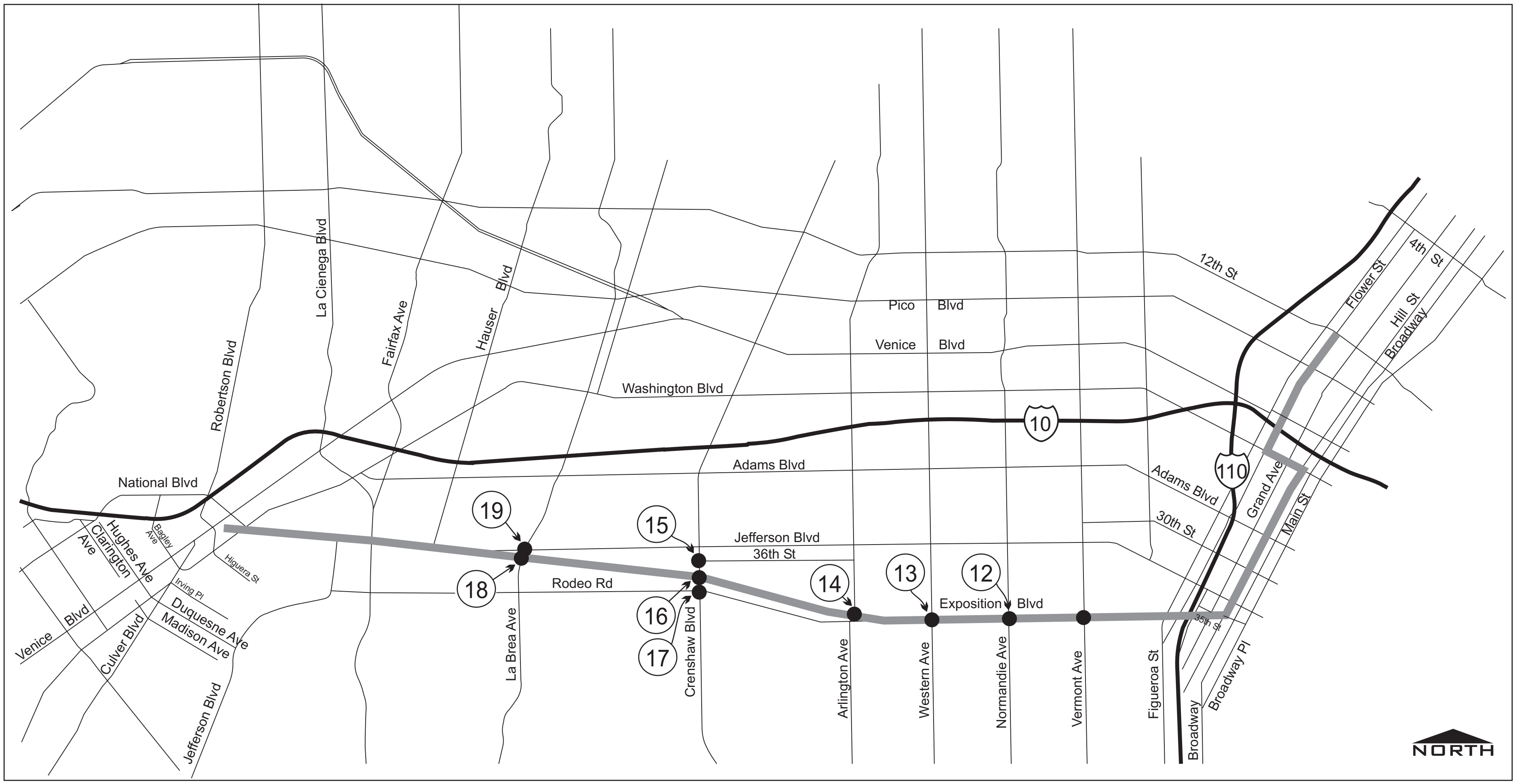
3.2.3.1 Affected Environment

For traffic impact assessment purposes, the Mid Corridor Subarea extends from west of the Exposition Boulevard and Vermont Avenue intersection to the Jefferson Boulevard and La Brea intersection. Eight intersections, as shown in **Figure 3.2-12**, have been analyzed. These intersections have been selected in coordination with the Los Angeles Department of Transportation (LADOT). The intersections addressed are as follows:

12. Normandie Avenue/Exposition Boulevard
13. Western Avenue/Exposition Boulevard
14. Arlington Avenue/Exposition Boulevard
15. Crensahw Boulevard/36th Street (not a grade crossing)
16. Crenshaw Boulevard/Exposition Boulevard
17. Crenshaw Boulevard/Rodeo Road (not a grade crossing)
18. La Brea Avenue/Exposition Boulevard
19. La Brea Avenue/Jefferson Boulevard (not a grade crossing)

3.2.3.1.1 Study Intersections and Baseline Levels of Service

In the Mid-Corridor Subarea, eight intersections were selected for detailed level of service analysis. They represent key intersections that are directly along the Exposition Corridor alignment, or would potentially be affected by a nearby transit crossing, or are on a major access route to a planned parking facility. The eight study intersections are illustrated in **Figure 3.2-12**. **Figures 3.2-13** and **3.2-14** illustrate the base year (1998) AM and PM peak hour traffic volumes, respectively.



LEGEND: ● Study Intersection

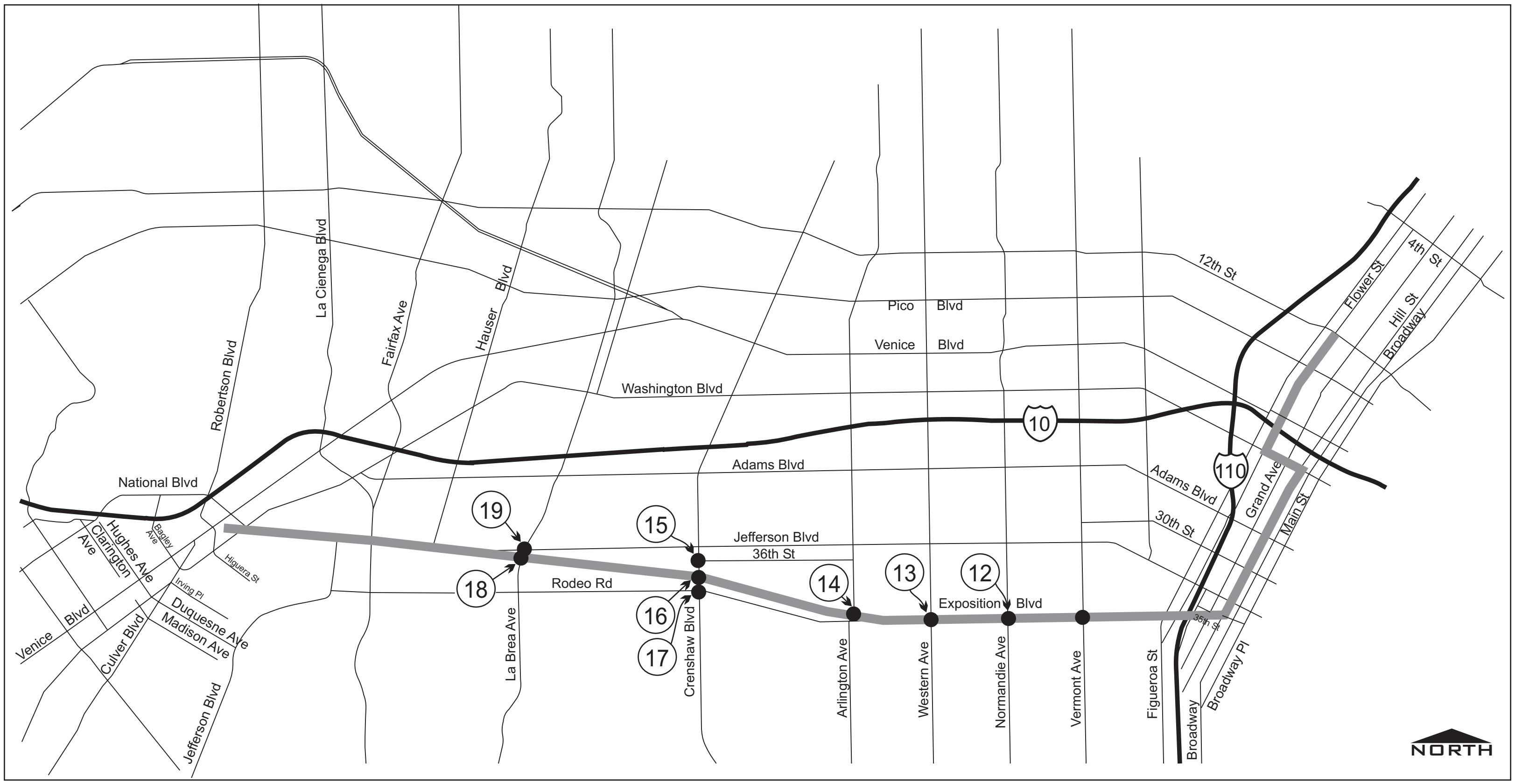
12. Normandie Avenue/Exposition Boulevard
13. Western Avenue/Exposition Boulevard
14. Arlington Avenue/Exposition Boulevard
15. Crenshaw Boulevard/36th Street
16. Crenshaw Boulevard/Exposition Boulevard
17. Crenshaw Boulevard/Rodeo Road
18. La Brea Avenue/Exposition Boulevard
19. La Brea Avenue/Jefferson Boulevard

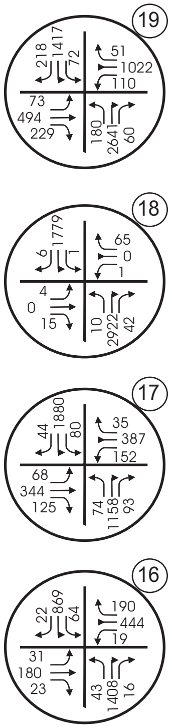
Metro

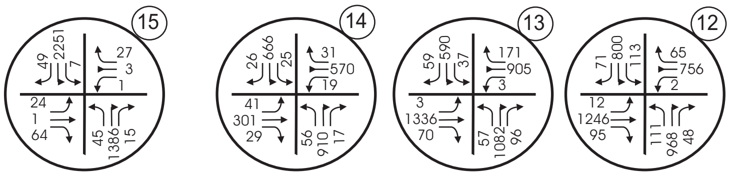
SOURCE: Meyer, Mohaddes Associates, Inc.

FIGURE 3.2-12

STUDY INTERSECTIONS - MID-CORRIDOR SUBAREA







LEGEND:

● Study Intersection   XX Traffic Volume

12. Normandie Avenue/Exposition Boulevard
13. Western Avenue/Exposition Boulevard
14. Arlington Avenue/Exposition Boulevard
15. Crenshaw Boulevard/36th Street
16. Crenshaw Boulevard/Exposition Boulevard
17. Crenshaw Boulevard/Rodeo Road
18. La Brea Avenue/Exposition Boulevard
19. La Brea Avenue/Jefferson Boulevard

Metro

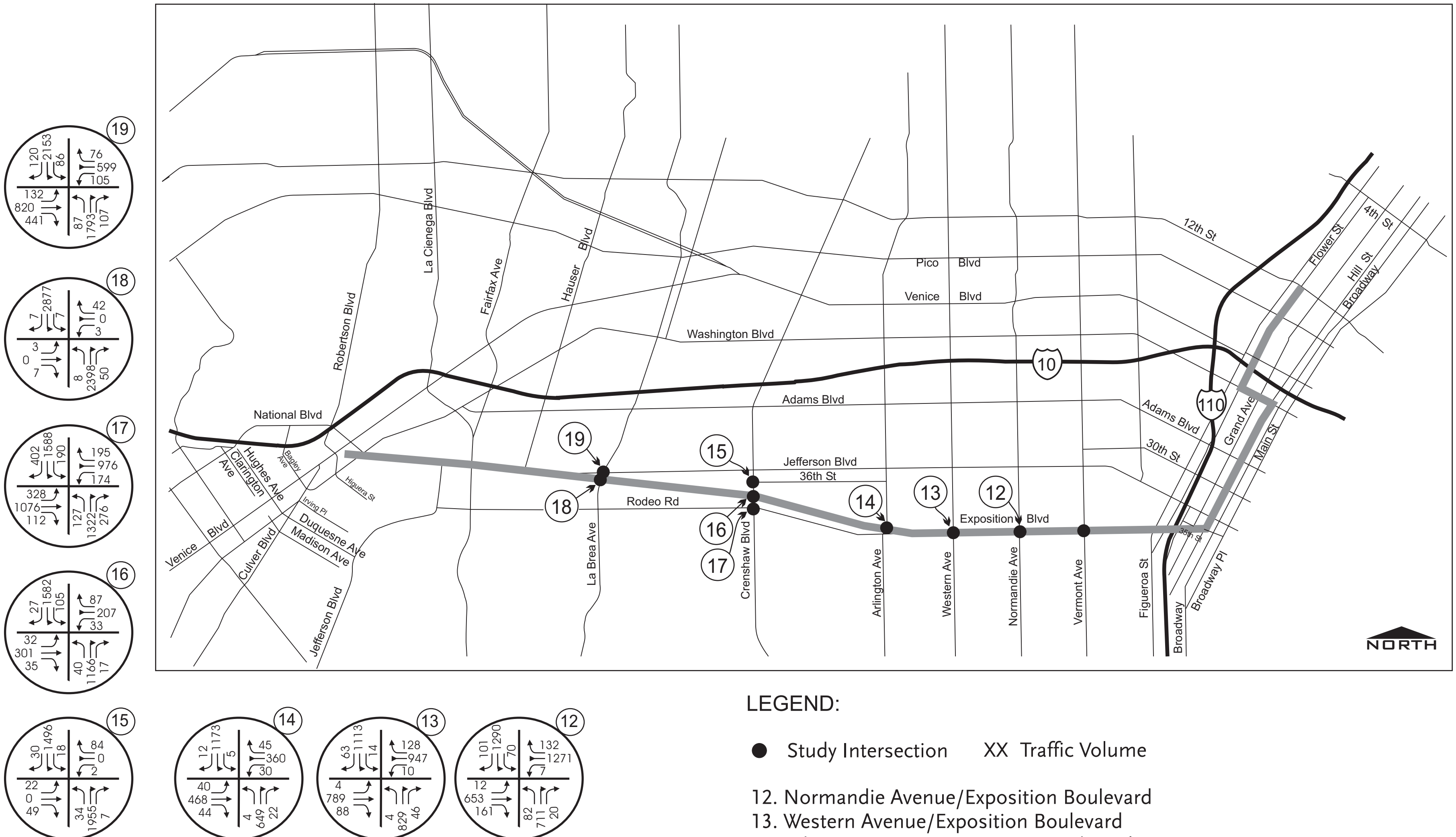
SOURCE: Korve Engineering and KAKU Associates

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

NTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-13

BASE YEAR AM PEAK HOUR TRAFFIC VOLUMES - MID-CORRIDOR SUBAREA



LEGEND:

● Study Intersection XX Traffic Volume

12. Normandie Avenue/Exposition Boulevard
13. Western Avenue/Exposition Boulevard
14. Arlington Avenue/Exposition Boulevard
15. Crenshaw Boulevard/36th Street
16. Crenshaw Boulevard/Exposition Boulevard
17. Crenshaw Boulevard/Rodeo Road
18. La Brea Avenue/Exposition Boulevard
19. La Brea Avenue/Jefferson Boulevard

Metro

SOURCE: Korve Engineering and KAKU Associates

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-14

BASE YEAR PM PEAK HOUR TRAFFIC VOLUMES - MID-CORRIDOR SUBAREA

Detailed AM and PM peak period turning movement ground counts were compiled for the eight study intersections. All traffic count data was summarized per the LADOT specified traffic count format. The summertime counts were increased by an average of three percent to reflect typical fall conditions. Current conditions at each study intersection were analyzed using the Operational Analysis Methodology of the 2000 Highway Capacity Manual (HCM). The Operations Analysis Methodology results in a rating of conditions at an intersection based on the average number of seconds of delay experienced by motorists traveling through the intersection. Detailed signal timing and phasing information was obtained from LADOT and Culver City and was used as inputs to the intersection analysis. Weekday AM and PM peak hours were selected for analysis because they represent the most critical periods of traffic congestion along the Mid-City/Exposition Corridor compared to other time periods such as weekday or weekend mid-day.

Eight intersections in the study area are presently operating at acceptable LOS D or better conditions. **Table 3.2-4** presents the baseline (1998) conditions LOS and the average delay to a typical vehicle for the studied intersections.

TABLE 3.2-4: BASELINE CONDITIONS STUDY AREA INTERSECTIONS LEVEL OF SERVICE AND DELAY

	AM		PM	
Intersection	LOS	Delay (Sec.)	LOS	Delay (Sec.)
12. Normandie Avenue/Exposition Boulevard	C	22.6	C	26.9
13. Western Avenue/Exposition Boulevard	C	22.7	B	19.7
14. Arlington Avenue/Exposition Boulevard	B	13.7	B	15.1
15. Crenshaw Boulevard/36th Street	X	X	X	X
16. Crenshaw Boulevard/Exposition Boulevard	B	16.3	B	17
17. Crenshaw Boulevard/Rodeo Road	X	X	X	X
18. La Brea Avenue/Exposition Boulevard	A	3.9	A	2.2
19. La Brea Avenue/Jefferson Boulevard	C	29.8	C	22.8

SOURCE: Korve Engineering, 2004.

3.2.3.2 Impact Assessment

Methodology

The impact assessment methodology for evaluating regional travel demand, local street traffic effects, and intersection LOS is the same as used for the Downtown Connection subarea (see "3.2.2.2 Impact Assessment" for details). In addition, traffic adjustments have been made to take into account circulation for the Crenshaw Station parking facility. Access and trip distribution assumptions are shown in Appendix I.

3.2.3.2.1 Impact on Intersection Level of Service

No Action. Table 3.2-5 depicts the level of service at study area intersection without the influence of the LPA. As shown, the Crenshaw Boulevard/Rodeo Road intersection would operate at LOS E during the PM peak, and the Crenshaw Boulevard/36th Street intersection would operate at LOS F during the AM and PM peak. Overflow is anticipated at the Crenshaw Boulevard/36th Street intersection.

LPA. The intersection analysis assumes "good practices" would be implemented under the LPA (see discussion in "3.2.2Impact Assessment). Lane configurations associated with "good practices" are shown in **Figure 3.2-15**. **Table 3.2-5** depicts LOS at study area intersection with the influence of the LPA. Year 2020 cumulative LRT AM and PM peak hour traffic volumes are shown in **Figure 3.2-16** and **Figure 3.2-17**. As shown in **Table 3.2-5**, during the AM peak, the study intersections would operate at LOS D or better. During the PM peak, one intersection (Crenshaw Boulevard/Rodeo Road) would operate at LOS E. At this intersection, average delay would incrementally increase by 4.4 seconds. Based on the methodology for determining adverse impacts, none of the eight study areas intersections would be adversely affected by the LRT, with implementation of intersection improvements.

TABLE 3.2-5: YEAR 2020 WITH AND WITHOUT LRT (LPA) CONDITIONS STUDY AREA INTERSECTIONS

	Year 2020 No Project				Year 2020 With Project (LPA)			
	AM		PM		AM		PM	
Intersection	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)
12. Normandie Ave/Exposition Blvd	C	25.8	D	44.2	D	39	D	49.7
13. Western Ave/Exposition Blvd	C	22.2	B	17.8	C	24.2	C	21.5
14. Arlington Ave/Exposition Blvd	B	14.9	B	16.7	C	27.5	D	39.3
15. Crenshaw Blvd/36th St /a/	F	Over Flow/b/	F	Over Flow/b/	A	3.4	B	10.8
16. Crenshaw Blvd/Exposition Blvd	C	27.5	C	31.8	C	28.5	D	40.1
17. Crenshaw Blvd/Rodeo Rd /a/	C	17.8	E	74.3	C	18.2	E	78.7
18. La Brea Ave/Exposition /c/	A	5.1	A	3.3	A	4.3	A	3.7
19. La Brea Ave/Jefferson Blvd	D	36.3	C	26.6	C	33.7	C	25.4

/a/ Added to assess station area impacts
/b/ Project would install traffic signal (Mitigation Measure **T14**)
/c/ Intersection operates at LOS A because it is a T-intersection with right in/right out only. Rail crossing is proposed to be grade-separated due to high traffic volumes and queuing on La Brea Avenue.
SOURCE: Korve Engineering, 2004

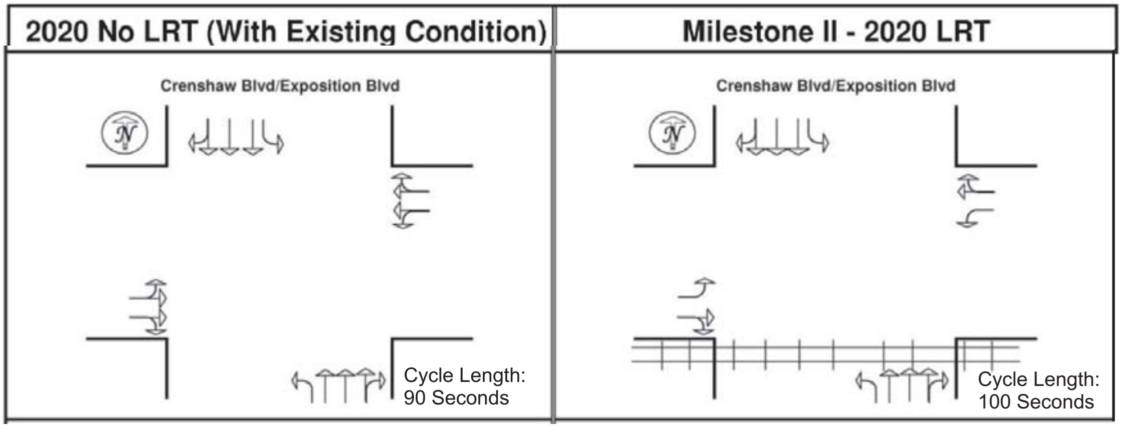
Downtown Los Angeles Design Options. Not applicable.

La Cienega Parking Options. Not applicable.

Jefferson Boulevard Design Options. Not applicable.

Venice/Robertson Design Options. Not applicable.

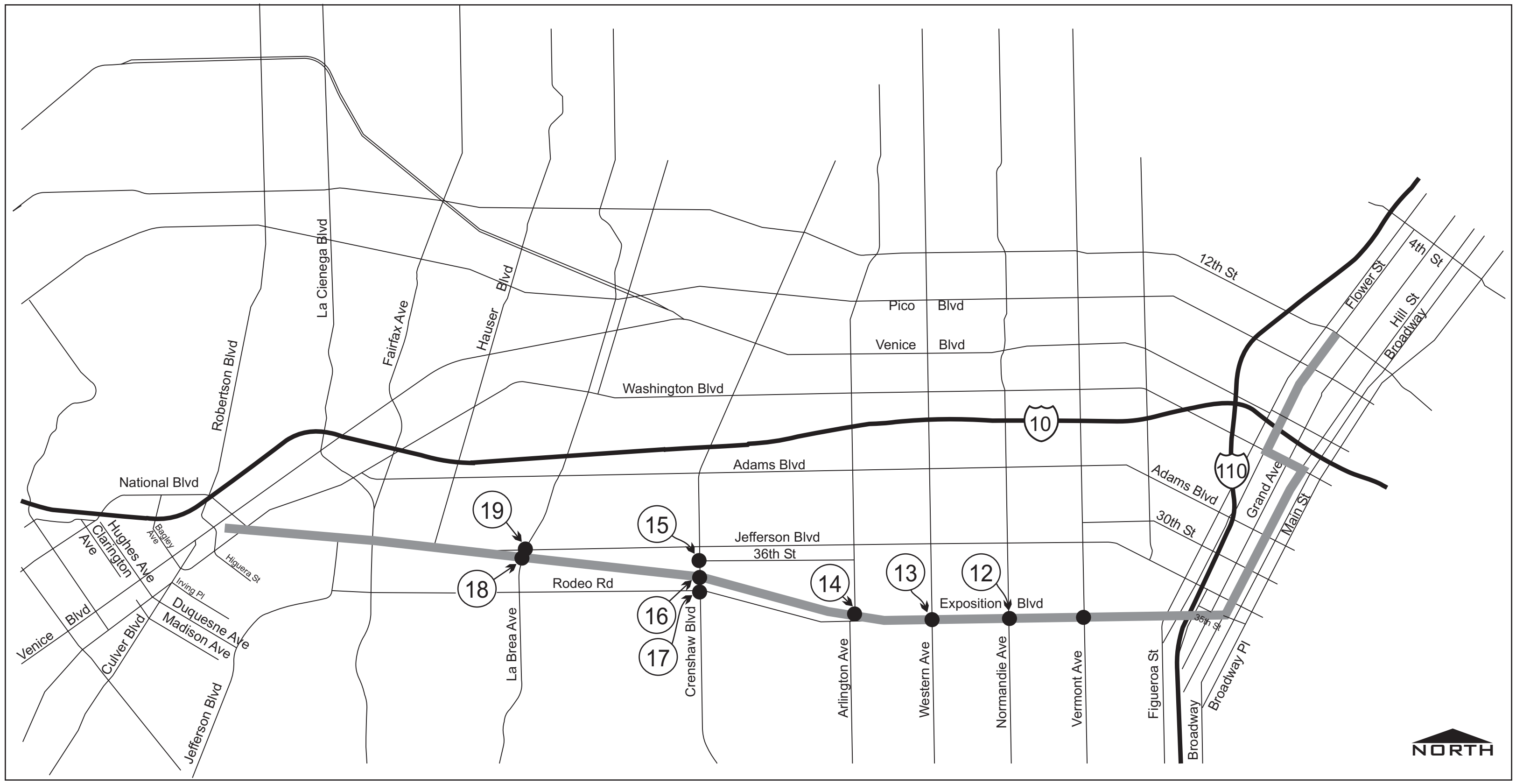
Phased Implementation Options. Not applicable.

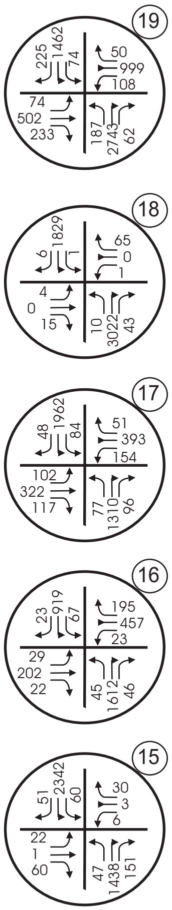


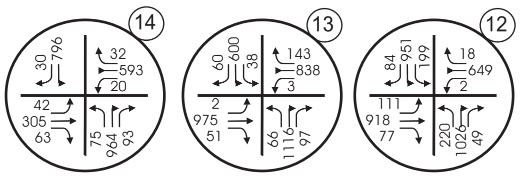
CRENSHAW/EXPOSITION

FIGURE 3.2-15

INTERSECTION RECOMMENDED MITIGATION-MID-CORRIDOR SUBAREA







LEGEND:

● Study Intersection   XX Traffic Volume

12. Normandie Avenue/Exposition Boulevard
13. Western Avenue/Exposition Boulevard
14. Arlington Avenue/Exposition Boulevard
15. Crenshaw Boulevard/36th Street
16. Crenshaw Boulevard/Exposition Boulevard
17. Crenshaw Boulevard/Rodeo Road
18. La Brea Avenue/Exposition Boulevard
19. La Brea Avenue/Jefferson Boulevard

Metro

SOURCE: Korve Engineering and KAKU Associates

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

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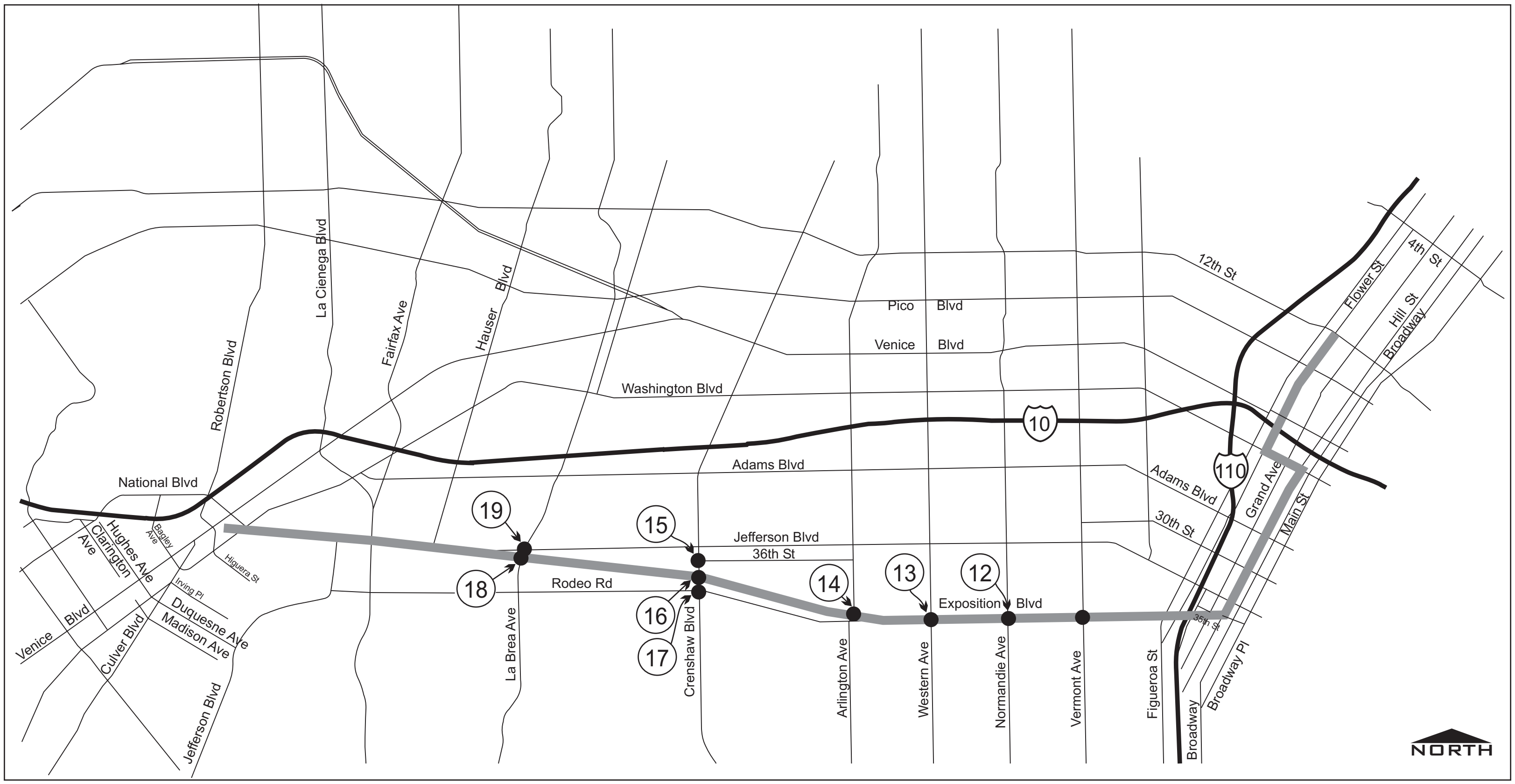
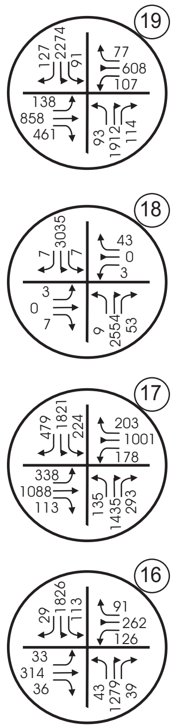
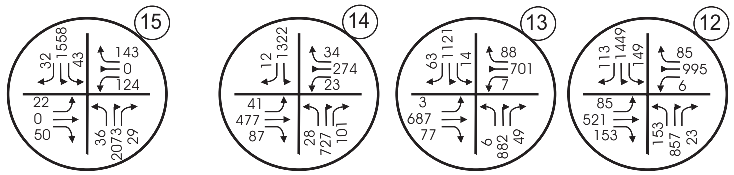
FIGURE 3.2-16

CUMULATIVE 2020 LRT AM PEAK HOUR TRAFFIC VOLUMES - MID-CORRIDOR SUBAREA







LEGEND:

● Study Intersection XX Traffic Volume

12. Normandie Avenue/Exposition Boulevard
13. Western Avenue/Exposition Boulevard
14. Arlington Avenue/Exposition Boulevard
15. Crenshaw Boulevard/36th Street
16. Crenshaw Boulevard/Exposition Boulevard
17. Crenshaw Boulevard/Rodeo Road
18. La Brea Avenue/Exposition Boulevard
19. La Brea Avenue/Jefferson Boulevard

Metro

SOURCE: Korve Engineering and KAKU Associates

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-17

CUMULATIVE 2020 LRT PM PEAK HOUR TRAFFIC VOLUMES - MID-CORRIDOR SUBAREA

3.2.3.3 Mitigation Measures

T12 Normandie Avenue/Exposition Boulevard

- Metro shall ensure that the westbound lane is configured to accommodate one exclusive left-turn lane, one through lane and one shared through/right-turn lane;
- Metro shall ensure that the southbound lane is configured to accommodate one exclusive left-turn lane, two through lanes and one exclusive right-turn lane; and
- Metro shall ensure that signal timing and phasing is modified to accommodate protected left-turn phases for all the approaches.

T13 Western Avenue/Exposition Boulevard

- Metro shall ensure that an exclusive left-turn lane is added to both northbound and southbound to accommodate one exclusive left-turn lane, one through lane and one shared through/right-turn lane; and
- Metro shall ensure that signal timing and phasing is modified to accommodate protected left-turn phases for all the approaches.

T14 Arlington Avenue/Exposition Boulevard

- Metro shall ensure that the an exclusive left-turn lane is added to northbound to accommodate one left-turn lane, one through lane and one shared through/right-turn lane;
- Metro shall ensure that the both eastbound and westbound lanes are configured to accommodate one exclusive left-turn lane and one shared through/right-turn lane;
- Metro shall ensure that a southbound left-turn is prohibited; and
- Metro shall ensure that signal timing and phasing is modified to accommodate protected left-turn phases for the northbound and eastbound approaches.

T15 Crenshaw Boulevard/Exposition Boulevard

- Metro shall ensure that both eastbound and westbound lanes are configured to accommodate one exclusive left-turn lane and one shared through/right-turn lane;
- Metro shall ensure that signal timing and phasing accommodate protected left-turn phases for the eastbound and westbound approaches; and
- Metro shall ensure that a new traffic signal is installed at the intersection of Crenshaw Boulevard and 36^{th} Street.

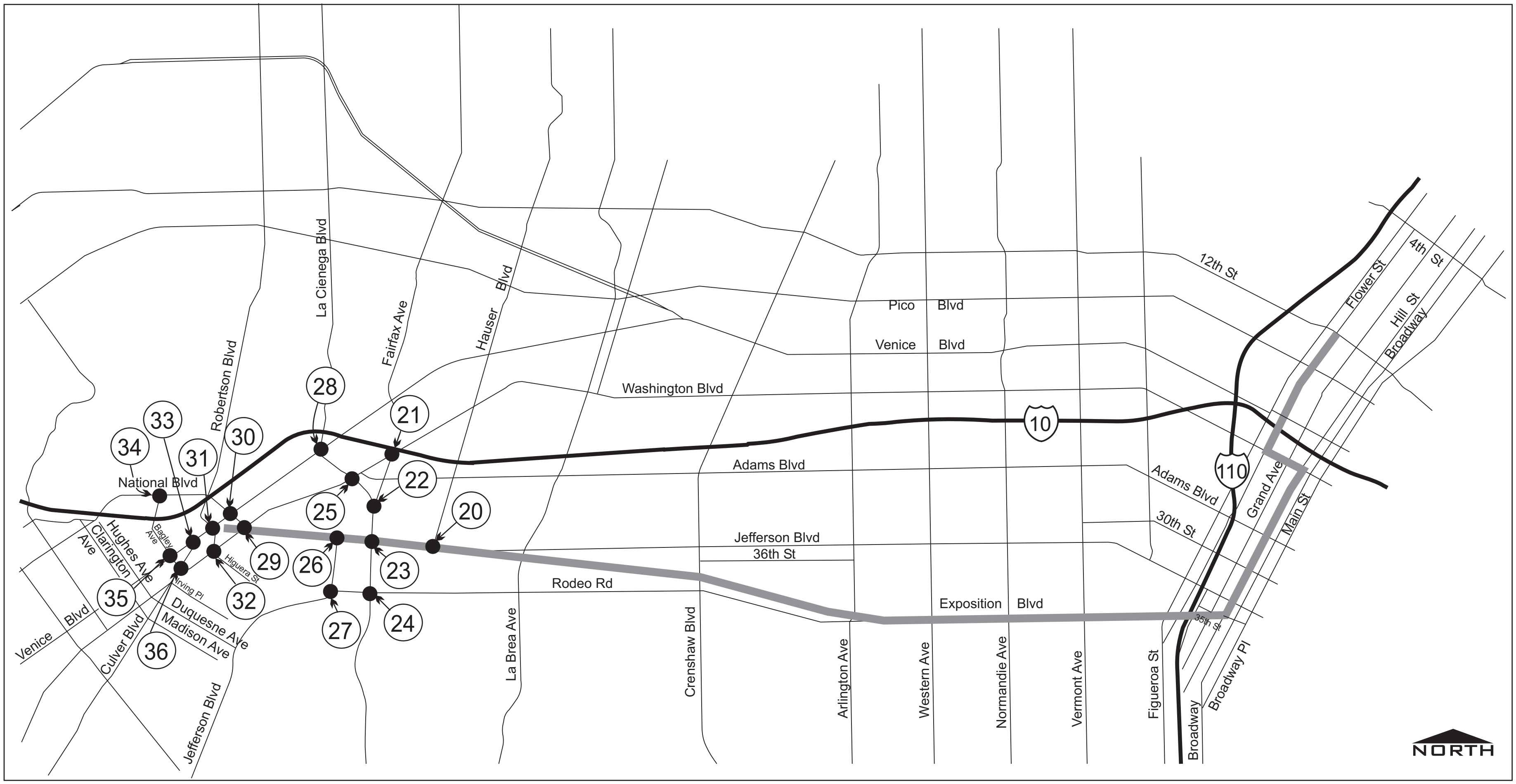
3.2.4 WEST END SUBAREA

3.2.4.1 Affected Environment

The West End Subarea includes the area west of La Brea to Venice Boulevard and Robertson Boulevard. The subareas include portions of Los Angeles and Culver City. A total of 17 intersections were analyzed in the West End Subarea. These intersections were chosen because they would be directly affected by operations and station area circulation of the proposed LRT. The study intersections are shown in **Figure 3.2-18** and are as follows:

20. Jefferson Boulevard/Hauser Boulevard
21. Fairfax Avenue/Washington Boulevard
22. La Cienega Boulevard/Fairfax Avenue/Blackwelder Street
23. La Cienega Boulevard/Jefferson Boulevard
24. La Cienega Boulevard/Rodeo Road
25. La Cienega Boulevard/Washington Boulevard
26. Jefferson Boulevard/National Boulevard
27. Jefferson Boulevard/Higuera Street/Rodeo Road
28. La Cienega Boulevard/Venice Boulevard
29. National Boulevard/Washington Boulevard
30. Venice Boulevard/National Boulevard
31. Venice Boulevard/Robertson Boulevard
32. Washington Boulevard/Robertson Boulevard
33. Venice Boulevard/Culver Boulevard
34. Venice Boulevard/Bagley Avenue
35. National Boulevard/Bagley Avenue
36. Washington Boulevard/Culver Boulevard

Intersection 21 is located on the boundary of Los Angeles and Culver City. Intersections 22, 25, 29, 32 and 36 are within the City of Culver City. All the remaining intersections are situated within the City of Los Angeles.



LEGEND: ● Study Intersection

20. Jefferson Boulevard/Hauser Boulevard
21. Fairfax Avenue/Washington Boulevard
22. La Cienega Boulevard/Fairfax Avenue/Blackwelder Street
23. La Cienega Boulevard/Jefferson Boulevard
24. La Cienega Boulevard/Rodeo Road
25. La Cienega Boulevard/Washington Boulevard
26. Jefferson Boulevard/National Boulevard
27. Jefferson Boulevard/Higuera Street/Rodeo Road
28. La Cienega Boulevard/Venice Boulevard
29. National Boulevard/Washington Boulevard
30. Venice Boulevard/National Boulevard
31. Venice Boulevard/Robertson Boulevard
32. Washington Boulevard/Robertson Boulevard
33. Venice Boulevard/Culver Boulevard
34. Venice Boulevard/Bagley Avenue
35. National Boulevard/Bagley Avenue
36. Washington Boulevard/Culver Boulevard

SOURCE: Kaku Associates

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-18

STUDY INTERSECTIONS - WEST END SUBAREA

3.2.4.1.1 Study Intersection and Baseline Level of Service

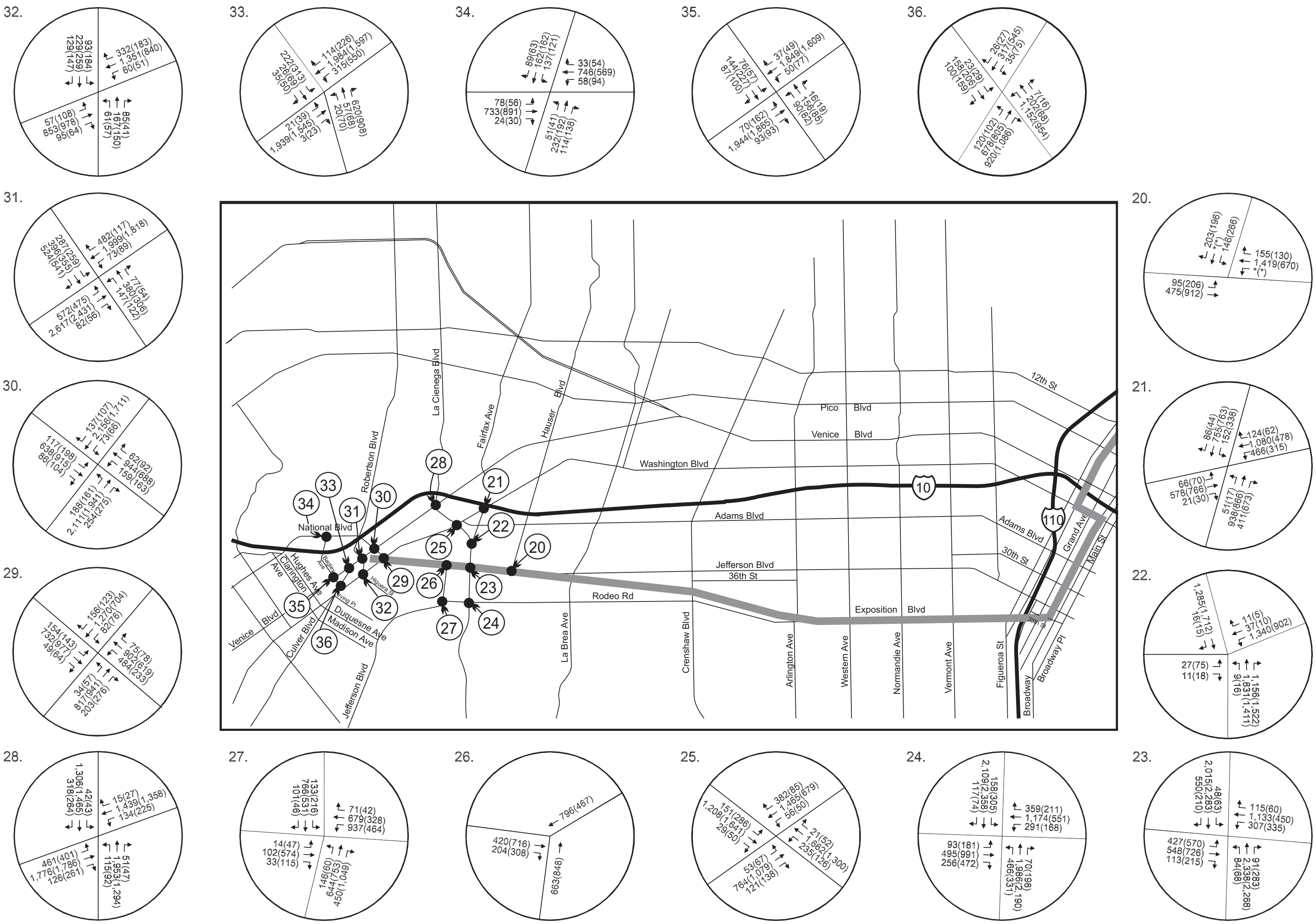
Within the West End Subarea, 17 intersections were selected for a level of service analysis. Weekday morning and afternoon peak period (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.) traffic counts were conducted at the 17 analyzed intersections in May 2005. The peak hour volumes illustrated in **Figure 3.2-19** represent, for the purpose of this analysis, existing (2005) conditions. All 17 of the study intersections are signalized.

The "Intersection Capacity Utilization" (ICU) method of intersection analysis was used to determine the intersection volume to capacity (V/C) ratio and corresponding LOS for the turning movements and intersection characteristics at the signalized intersections in the City of Culver City. The "Critical Movement Analysis-Planning" method from the *Transportation Research Circular No. 212 - Interim Materials on Highway Capacity* (Transportation Research Board, 1980) was used to determine the intersection V/C ratio and corresponding LOS for the signalized intersections within the City of Los Angeles.

Table 3.2-6 summarizes the existing weekday AM and weekday PM peak hour LOS at the 17 analyzed intersections. The following ten intersections currently operate at LOS E or F during one or more peak hours:

- La Cienega Boulevard/Fairfax Avenue/Blackwelder Street
- La Cienega Boulevard/Jefferson Boulevard
- La Cienega Boulevard/Rodeo Road
- La Cienega Boulevard/Washington Boulevard
- Jefferson Boulevard/Higuera Street/Rodeo Road
- La Cienega Boulevard/Venice Boulevard
- National Boulevard/Venice Boulevard
- Robertson Boulevard/Exposition Boulevard/Venice Boulevard
- Culver Boulevard/Venice Boulevard
- National Boulevard/Bagley Avenue

The remaining seven intersections currently operate at LOS D or better during all peak hours. The Cities of Los Angeles and Culver City have implemented a traffic management system, the Automated Traffic Surveillance and Control (ATSAC) system that is already operational at all of the 17 intersections. This system is considered to increase capacity by seven percent at each intersection in the system. For the purpose of this study, capacity increases of seven percent were applied to the analyzed intersections to reflect the improvement.



LEGEND:

● Study Intersection

X(X) - AM(PM) Peak Hour Traffic Volumes

SOURCE: Kaku Associates

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-19

EXISTING PEAK HOUR TRAFFIC VOLUMES - WEST END SUBAREA

TABLE 3.2-6: 2005 EXISTING INTERSECTION LEVEL OF SERVICE				
	AM		PM	
Intersection	LOS	V/C	LOS	V/C
20* Hauser Boulevard/Jefferson Boulevard	A	0.595	A	0.437
21* Fairfax Avenue/Washington Boulevard (LA Methodology)	C	0.787	C	0.728
21* Fairfax Avenue/Washington Boulevard (Culver City Methodology)	C	0.799	C	0.772
22* La Cienega Boulevard/Fairfax Avenue/Blackwelder Street /a/	F	1.179	E	0.999
23* La Cienega Boulevard/Jefferson Boulevard	F	1.095	F	1.030
24* La Cienega Boulevard/Rodeo Road	F	1.150	F	1.135
25* La Cienega Boulevard/Washington Boulevard /a/	E	0.966	D	0.859
26* Jefferson Boulevard/National Boulevard	A	0.403	A	0.554
27* Jefferson Boulevard/Higuera Street/Rodeo Road	D	0.804	F	1.198
28* La Cienega Boulevard/Venice Boulevard	D	0.862	E	0.916
29* National Boulevard/Washington Boulevard /a/	D	0.881	C	0.788
30* National Boulevard/Venice Boulevard	F	1.002	E	0.915
31* Robertson Boulevard/Exposition Boulevard/Venice Boulevard	F	1.070	E	0.993
32* Robertson Boulevard/Higuera Street/Washington Boulevard /a/	C	0.773	B	0.616
33* Culver Boulevard/Venice Boulevard	B	0.679	C	0.736
34* Bagley Avenue/National Boulevard	D	0.857	E	0.935
35* Bagley Avenue/Venice Boulevard	B	0.698	C	0.748
36* Washington Boulevard/Culver Boulevard /a/	D	0.827	D	0.849

Notes:
* Intersection is currently operating under ATSAC system.
/a/ Intersection located in Culver City
SOURCE: Kaku Associates, 2005.

3.2.4.2 Impact Assessment

Methodology

To evaluate the potential impact of the proposed Project on the local street system, it was necessary to develop estimates of future traffic conditions both with and without the proposed LRT Project.

To develop the traffic turning movements for year 2020, a methodology needed to be developed using a long-range forecasting tool. The Metro has developed a transit/highway travel demand forecasting model and this was selected to derive the growth factors that could be applied to the existing year volumes to project a future year with and without the LRT Project.

The travel forecasting model is based upon and receives its demographic inputs from the Southern California Association of Governments (SCAG) Regional Travel Demand Model. The model includes the approved land uses and financially constrained future highway and transit network for the year 2020. The data inputs listed below allow the model to predict future highway demand based upon:

- 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 Alternative.

Using the forecasts generated by the Metro travel demand model, detailed travel pattern information was collected and summarized for the model base year (1998) and future 2020 conditions. Integrated highway and transit forecasts were developed by the Metro model for future 2020 conditions with and without the proposed LRT. 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 growth factors from this model were used to grow the 2005 count data to 2020 conditions. These growth factors were developed at a highway link level of analysis and used to adjust both the AM and PM peak hour count data.

The trip generation for the proposed Project was inherent in the travel demand model forecasts and was thus applied through the growth factors to determine the 2020 traffic conditions with the LRT Project. The growth factors at the 17 intersections are on the whole slightly less than the No Project scenario, indicating that the net outcome with the addition of the LRT was a reduction in traffic at the intersections around the station. The locally preferred alternative (LPA) includes an at-grade station between Washington and Venice (LRT Terminus), an aerial station at La Cienega/Jefferson, an at-grade crossing at Jefferson/National, and parking for the La Cienega Station east of La Cienega (City of Los Angeles East Central Interceptor Site [ECIS]).

The LPA scenario also assumes that the LRT system has specific operating characteristics. Namely, the trains' arrival and departure times at grade crossings would be synchronized in order to limit delay to motorists. The trains would also have headways of five minutes, which would amount to 12 trains per hour at the grade crossings.

The growth factors applied to the existing year turning movements in order to produce the "With Project" scenarios were taken from the Metro travel demand model and represented year 2020 conditions (with LRT). Furthermore, vehicle trips generated by the proposed parking facility and drop-off locations were added to the estimated traffic volumes to produce conservative year 2020 traffic volume forecasts. The trips generated by the proposed parking facilities and drop-off locations were derived using the following methodology.

Parking Facilities

Venice/Robertson Station. The number of parking spaces for the proposed parking facilities for the Venice/Robertson Station would be as follows: 736 spaces for the west parking facility, 68 spaces for the central parking facility, 41 spaces for the east parking facility. Based on observations of other parking facilities within the County of Los Angeles and mode of access data from the Metro travel demand model, it was estimated that the AM and PM peak hour demand would amount to approximately 45 percent and 35 percent of the parking facilities' supplies, respectively. Under the LPA the parking facilities would generate approximately 384 AM peak hour trips (346 inbound and 38 outbound) and 307 PM peak hour trips (31 inbound and 277 outbound). See Appendix I for the trip assignments.

La Cienega Station. The number of parking spaces for the proposed parking facility for the La Cienega Station would be as follows: 830 spaces for the parking facilities located on the ECIS site. Based on observations of other parking facilities in the County of Los Angeles and mode of access data from the Metro travel demand model, it was estimated that the AM and PM peak hour demand would amount to approximately 45 percent and 35 percent of the parking facility's supply, respectively. The paring facility would therefore generate approximately 228 AM peak hour trips (205 inbound and 23 outbound) and 182 PM peak hour trips (18 inbound and 164 outbound). See Appendix I for the trip assigments.

Drop-off Locations

Venice/Robertson Station. Mode of access information was also generated by the Metro model for drop-off trips. This data was generated for a peak time period of seven hours (6-9 AM and 3-7 PM) From this information it was estimated that approximately 25 percent and 20 percent of the drop-off trips would be generated in the AM and PM peak hours respectively. The drop-off locations would therefore generate approximately 48 AM peak hour trips (24 inbound and 24 outbound) and 38 PM peak hour trips (19 inbound and 19 outbound). See Appendix I for the trip assignments.

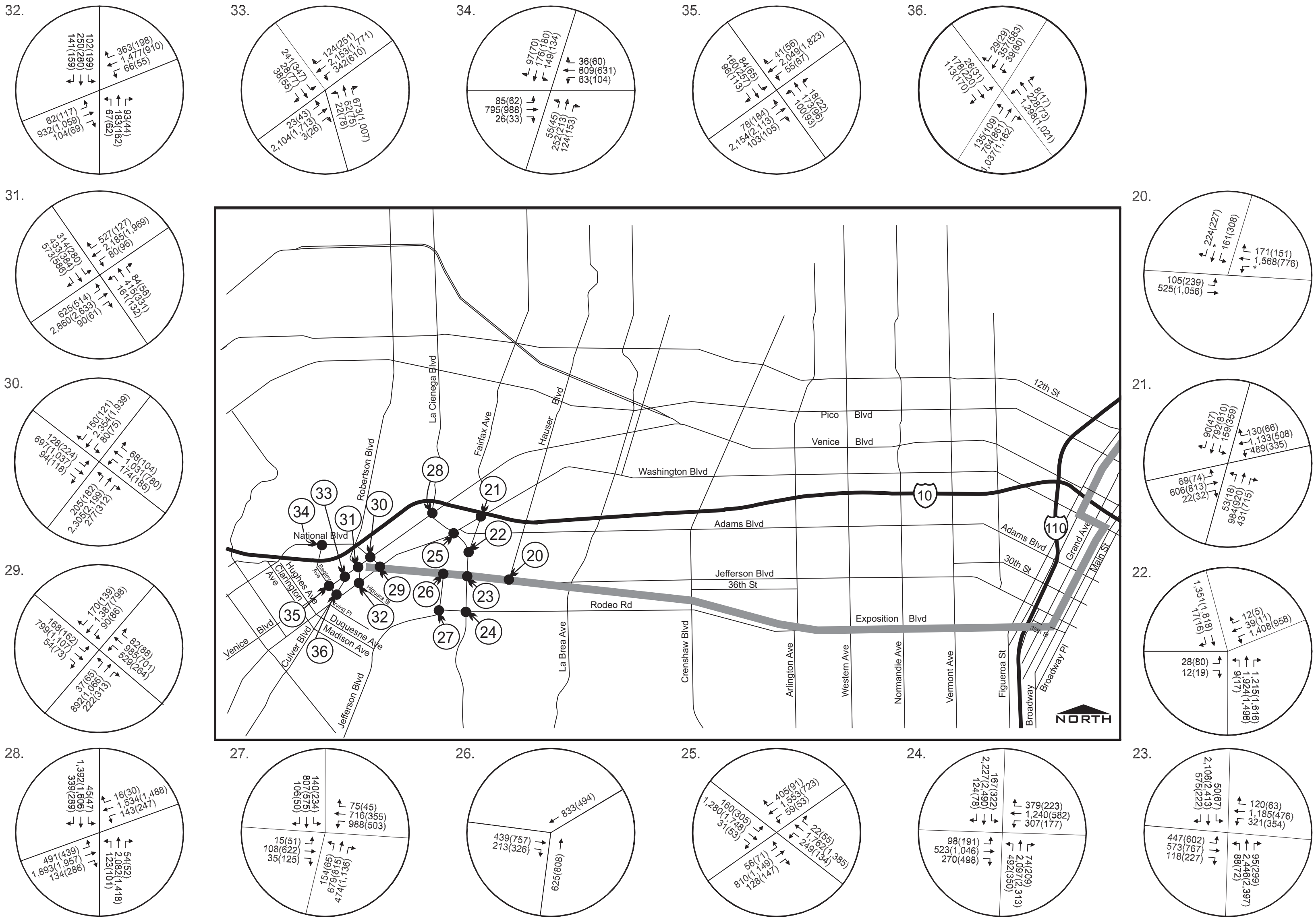
La Cienega Station. Mode of access information was also generated by the Metro model for drop-off trips. This data was generated for a peak time period of seven hours (6-9 AM and 3-7 PM) From this information it was estimated that approximately 25 percent and 20 percent of the drop-off trips would be generated in the AM and PM peak hours respectively. The drop-off locations would therefore generate approximately 36 AM peak hour trips (18 inbound and 18 outbound) and 30 PM peak hour trips (15 inbound and 15 outbound). See Appendix I for the trip assignments.

3.2.4.2.1 Impact on Intersection Level of Service

The No Project traffic projections generally reflect the changes to existing traffic conditions that can be expected from two sources. The first source is the ambient growth in traffic, which reflects increases in traffic due to regional growth and development. The second source is traffic generated by specific development projects located within, or in the vicinity of, the study area. These projected traffic volumes represent No project conditions for year 2020. **Figure 3.2-20** shows the future with No project traffic volumes while **Table 3.2-7** presents the level of service analysis for the No project condition. The table shows that the following 11 intersections now operate at LOS E or F during one or more of the peak hours:

- La Cienega Boulevard/Fairfax Avenue/Blackwelder Street
- La Cienega Boulevard/Jefferson Boulevard
- La Cienega Boulevard/Rodeo Road
- La Cienega Boulevard/Washington Boulevard
- Jefferson Boulevard/Higuera Street/Rodeo Road
- La Cienega Boulevard/Venice Boulevard
- National Boulevard/Washington Boulevard
- Venice Boulevard/National Boulevard
- Robertson Boulevard/Exposition Boulevard/Venice Boulevard
- Bagley Avenue/National Boulevard
- Washington Boulevard/Culver Boulevard

The remaining six intersections operate at LOS D or better during one or more of the peak hours.



LEGEND:

● Study Intersection

X(X) - AM(PM) Peak Hour Traffic Volumes

SOURCE: Kaku Associates

Metro

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

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FIGURE 3.2-20

2020 NO PROJECT PEAK HOUR TRAFFIC VOLUMES - WEST END SUBAREA

TABLE 3.2-7: 2020 INTERSECTION LEVEL OF SERVICE NO PROJECT				
	AM		PM	
Intersection	LOS	V/C	LOS	V/C
20* Hauser Boulevard/Jefferson Boulevard	B	0.665	A	0.517
21* Fairfax Avenue/Washington Boulevard (LA Methodology)	D	0.828	C	0.778
21* Fairfax Avenue/Washington Boulevard (Culver City Methodology)	D	0.838	D	0.818
22* La Cienega Boulevard/Fairfax Avenue/Blackwelder Street /a/	F	1.240	F	1.060
23* La Cienega Boulevard/Jefferson Boulevard	F	1.148	F	1.094
24* La Cienega Boulevard/Rodeo Road	F	1.219	F	1.202
25* La Cienega Boulevard/Washington Boulevard /a/	F	1.022	E	0.913
26* Jefferson Boulevard/National Boulevard	A	0.425	A	0.590
27* Jefferson Boulevard/Higuera Street/Rodeo Road	D	0.852	F	1.304
28* La Cienega Boulevard/Venice Boulevard	E	0.923	F	1.011
29* National Boulevard/Washington Boulevard /a/	E	0.960	D	0.889
30* National Boulevard/Venice Boulevard	F	1.101	F	1.046
31* Robertson Boulevard/Exposition Boulevard/Venice Boulevard	F	1.176	F	1.083
32* Robertson Boulevard/Higuera Street/Washington Boulevard /a/	D	0.842	B	0.663
33* Culver Boulevard/Venice Boulevard	C	0.743	D	0.824
34* Bagley Avenue/National Boulevard	E	0.937	F	1.043
35* Bagley Avenue/Venice Boulevard	C	0.781	D	0.856
36* Washington Boulevard/Culver Boulevard /a/	E	0.928	E	0.905

Notes:
* Intersection is currently operating under ATSAC system.
/a/ Intersection located in Culver City
SOURCE: Kaku Associates, 2005.

LPA. The future year 2020 traffic analysis focuses on an LPA that would have an at-grade Venice/Robertson terminus station situated between Venice Boulevard and Washington Boulevard in Culver City. The parking for this station is shown in Appendix I. The transit users who are dropped off are assumed to use the facility south of the alignment bounded by Robertson Boulevard on the south, Washington Boulevard to the east and Venice Boulevard to the north. This is defined as the central lot in the aforementioned figures.

There would also be an at-grade crossing at intersection of Jefferson/National. In addition to the aforementioned, the La Cienega Station would be a grade-separated aerial structure at La Cienega/Jefferson with parking located at ECIS. The parking structure would be located on the southeast corner of the intersection of La Cienega Boulevard/Jefferson Boulevard. Parking would be accessed via right in/right out movements on La Cienega Boulevard and right in/right and left out movements on Jefferson Boulevard.

This scenario assumes 12 trains per hour (five minute headways) at the grade crossings on Jefferson Boulevard, National Boulevard and Washington Boulevard. The V/C ratios computed for the intersections of Washington Boulevard/National Boulevard and Jefferson Boulevard/National Boulevard were adjusted to reflect this delay to traffic. This was achieved by computing the time lost (58 seconds per cycle) to the signal preemption[1] as a percentage of the peak hour and adjusting the saturation flow (vehicles per hour per lane) to reflect this in the V/C calculation. The saturation flow at these two locations was reduced by approximately 19 percent.

Table 3.2-8 describes the "With Project" LPA scenario with parking on the southeast corner, and the traffic volumes associated with this scenario are displayed in **Figure 3.2.21**. The table shows that, with the addition of the Project, there would be significant traffic impacts at the following locations:

- La Cienega Boulevard/Jefferson Boulevard (AM peak hour only)
- La Cienega Boulevard/Rodeo Road (PM peak hour only)
- Jefferson Boulevard/National Boulevard (AM peak hour only)
- Washington Boulevard/National Boulevard (AM and PM peak hours)
- National Boulevard/Venice Boulevard (PM peak hour only)

Changing the traffic signal phasing on the eastbound and westbound approaches could mitigate the traffic impact at the intersection of La Cienega Boulevard/Jefferson Boulevard. The current configuration for 2020 shows that the eastbound and westbound left-turn phasing would be protected. Changing this to permissive phasing would mitigate the traffic-related impact at this location.

The traffic impact at La Cienega Boulevard/Rodeo Road would require a mitigation measure that restripes the westbound approach lanes on Rodeo Road to accommodate an additional left-turn lane. In order to implement this mitigation, the realignment of the intersection would be required for the eastbound departure lanes, as one departure lane would be lost to the additional westbound left-turn lane. The addition of this measure would mitigate the traffic impact at this location.

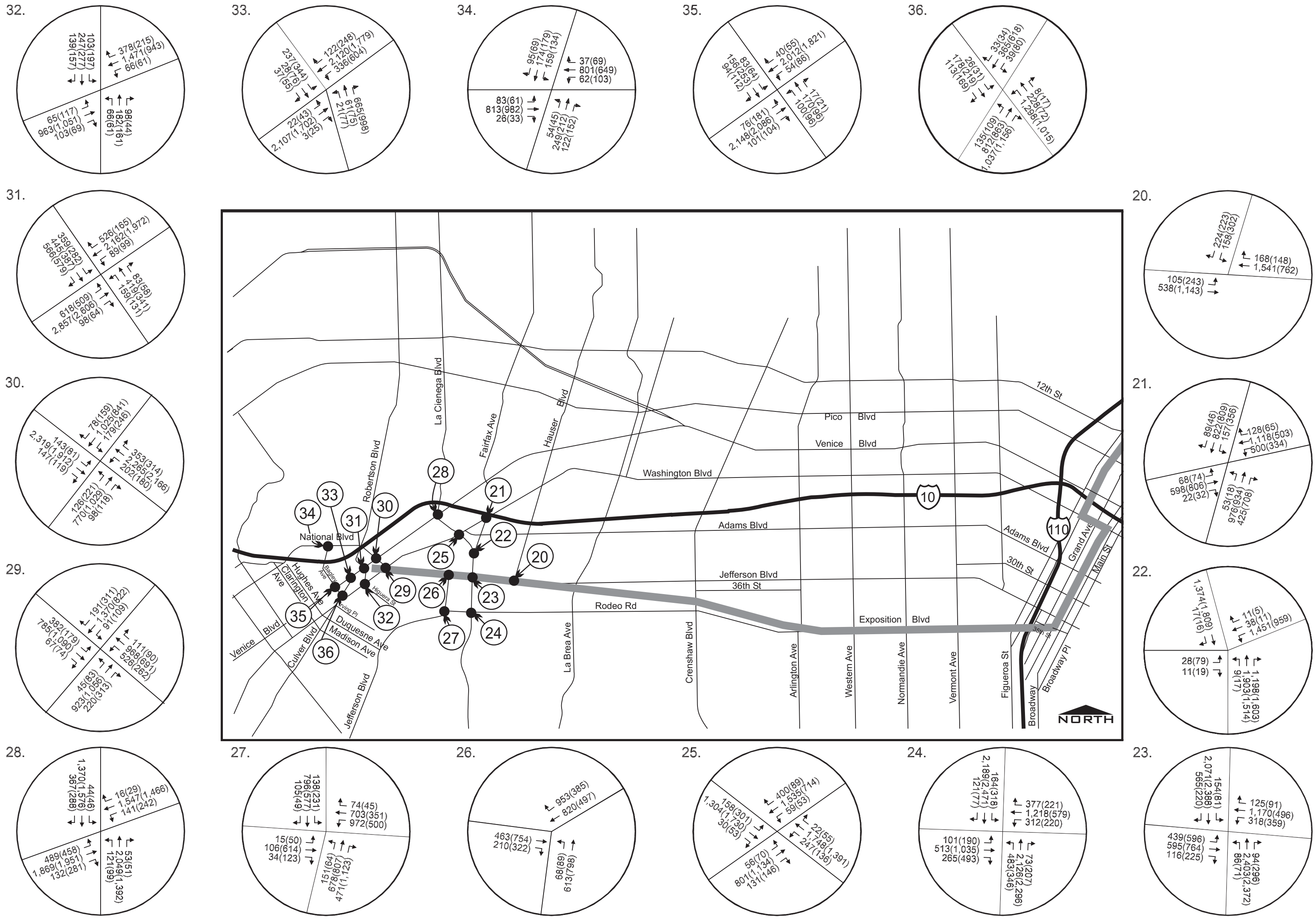
Jefferson Boulevard/National Boulevard would be adversely affected due to the heavy southbound right traffic movement on Jefferson Boulevard. To address this traffic impact, the southbound approach would need restriping to accommodate a right-turn lane, a through/right lane and a through lane. The addition of this measure would mitigate the traffic impact at this location.

[1] Traffic and Rail Operations at Washington/National Intersection. Korve Engineering, December 6, 2004

TABLE 3.2-8: 2020 INTERSECTION LOS WITH AND WITHOUT MITIGATION: LOCALLY PREFERRED ALTERNATIVE

Intersection	Peak Hour	No Project		With Project		Project Increase in V/C	Significant Project Impact	With Mitigation		Project Increase in V/C	Significant Project Impact
		V/C	LOS	V/C	LOS			V/C	LOS		
20* Hauser Boulevard/Jefferson Boulevard	AM	0.665	B	0.655	B	-0.010	NO				
	PM	0.517	A	0.512	A	-0.005	NO				
21* Fairfax Avenue/Washington Boulevard (LA Methodology)	AM	0.828	D	0.818	D	-0.010	NO				
	PM	0.778	C	0.776	C	-0.002	NO				
21* Fairfax Avenue/Washington Boulevard (Culver City Methodology)	AM	0.838	D	0.828	D	-0.010	NO				
	PM	0.818	D	0.816	D	-0.002	NO				
22* La Cienega Boulevard/Fairfax Avenue/Blackwelder Street /a/	AM	1.240	F	1.247	F	0.007	NO				
	PM	1.060	F	1.060	F	0.000	NO				
23* La Cienega Boulevard/Jefferson Boulevard	AM	1.148	F	1.202	F	0.054	YES	1.138	F	-0.010	NO
	PM	1.094	F	1.096	F	0.002	NO	1.038	F	-0.056	NO
24* La Cienega Boulevard/Rodeo Road	AM	1.219	F	1.200	F	-0.019	NO	1.200	F	-0.019	NO
	PM	1.202	F	1.222	F	0.020	YES	1.150	F	-0.052	NO
25* La Cienega Boulevard/Washington Boulevard /a/	AM	1.022	F	1.013	F	-0.009	NO				
	PM	0.913	E	0.906	E	-0.007	NO				
26* Jefferson Boulevard/National Boulevard	AM	0.425	A	0.957	E	0.532	YES	0.660	B	0.235	NO
	PM	0.590	A	0.628	B	0.038	NO	0.566	A	-0.024	NO
27* Jefferson Boulevard/Higuera Street/Rodeo Road	AM	0.852	D	0.843	D	-0.009	NO				
	PM	1.304	F	1.289	F	-0.015	NO				
28* La Cienega Boulevard/Venice Boulevard	AM	0.923	E	0.916	E	-0.007	NO				
	PM	1.011	F	0.997	E	-0.014	NO				
29* National Boulevard/Washington Boulevard /a/	AM	0.960	E	1.256	F	0.296	YES	0.970	E	0.010	NO
	PM	0.889	D	1.099	F	0.210	YES	0.892	D	0.003	NO
30* National Boulevard/Venice Boulevard	AM	1.101	F	1.090	F	-0.011	NO	1.026	F	-0.075	NO
	PM	1.046	F	1.079	F	0.033	YES	1.044	F	-0.002	NO
31* Robertson Boulevard/Exposition Boulevard/Venice Boulevard	AM	1.176	F	1.178	F	0.002	NO				
	PM	1.083	F	1.078	F	-0.005	NO				
32* Robertson Boulevard/Higuera Street/Washington Boulevard /a/	AM	0.842	D	0.844	D	0.002	NO				
	PM	0.663	B	0.676	B	0.013	NO				
33* Culver Boulevard/Venice Boulevard	AM	0.743	C	0.731	C	-0.012	NO				
	PM	0.824	D	0.817	D	-0.007	NO				
34* Bagley Avenue/National Boulevard	AM	0.937	E	0.933	E	-0.004	NO				
	PM	1.043	F	1.037	F	-0.006	NO				
35* Bagley Avenue/Venice Boulevard	AM	0.781	C	0.774	C	-0.007	NO				
	PM	0.856	D	0.851	D	-0.005	NO				
36* Washington Boulevard/Culver Boulevard /a/	AM	0.928	E	0.943	E	0.015	NO				
	PM	0.905	E	0.902	E	-0.003	NO				

Notes: * Intersection is currently operating under ATSAC system.
/a/ Intersection located in Culver City.
SOURCE: Kaku Associates



LEGEND:

● Study Intersection

X(X) - AM(PM) Peak Hour Traffic Volumes

SOURCE: Kaku Associates

Metro

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-21

LPA, JEFFERSON BLVD DESIGN OPTION, VENICE/ROBERTSON ROW DESIGN OPTION PEAK HOUR TRAFFIC VOLUMES - WEST END SUBAREA

An adverse effect was also identified at the intersection of National Boulevard/Washington Boulevard. The critical traffic volumes at this location occur on the southbound (National Boulevard) through, westbound (Washington Boulevard) through and eastbound (Washington Boulevard) left turn movements. In order to mitigate the traffic impacts a three-stage mitigation approach would be required. Firstly, the westbound approach would require restriping and would need to be reconfigured with a left-turn lane, two through lanes and a through/right lane. The westbound departure would require a small amount of additional right-of-way to accommodate three departure lanes (the two existing departure lanes are almost wide enough to be restriped into three lanes). In addition, this reconfiguration would require a small number of parking spaces to be removed on the westbound departure leg. The eastbound approach leg would also require a restriping that would change the configuration to a left-turn lane, two through lanes and a through/right lane. As a direct result of this mitigation, the eastbound departure leg would require a restriping so that it could accommodate three through lanes of traffic; it could be achieved by the removal of parking at this location. Finally, the last stage of the mitigation would necessitate an additional southbound through lane on National Boulevard on both sides of the intersection. In order to achieve this mitigation, additional right-of-way would be required on National Boulevard on either side of the intersection with Washington Boulevard. This additional right-of-way would be required to accommodate a southbound right-turn lane on National Boulevard, thus allowing a restriping of the existing lanes to the following configuration: two left-turn lanes, three through lanes and a right-turn lane southbound. Furthermore, the northbound leg on National north of Washington would be reconfigured to receive the three through travel lanes. This would be accomplished by realigning the street in a northerly direction across the existing Metro LRT right-of-way. Additional right-of-way would also be required from the south eastern corner of the intersection of Washington Boulevard and National Boulevard. The configuration of the northbound approach would remain unchanged with two left-turn lanes, a through lane and a through/right lane.

The final adversely affected intersection under the LPA is that of National Boulevard/Venice Boulevard. The critical traffic volumes at this location were determined to be the eastbound and westbound left-turning movements onto National Boulevard. The mitigation measure required at this intersection would be dual left-turn lanes on both the east and westbound approaches. This could be achieved through a widening of the existing pavement by utilizing some of the central median and the sidewalks on Venice Boulevard. This would not result in any loss of parking, but a small reduction in the width of the sidewalks. The sidewalks at this location are atypical in the sense that they are very wide, often in excess of 20 feet. All of the intersection configurations following implementation of mitigation measures are displayed in Appendix I.

Other aspects of the design that would require future consideration are in relation to the southeast corner parking structure. The analysis assumes that only a small percentage of vehicles exiting the parking structure would make a left turn out onto Jefferson Boulevard, while the remainder of the vehicles would turn right onto Jefferson Boulevard. These vehicles are assumed to travel to the intersection of La Brea Boulevard and Jefferson Boulevard, turn south on La Brea Avenue and then turn west onto Rodeo Road. Once the vehicles reach La Cienega Boulevard, they would turn south. The analysis assumed that U-turns would be prohibited along Jefferson Boulevard between La Cienega Boulevard and La Brea Avenue.

Downtown Los Angeles Design Options. Not applicable.

La Cienega Parking Options. Under the LPA, there would be an additional parking option for the La Cienega Station. A parking structure would be constructed on the southwest corner of the intersection of La Cienega Boulevard/Jefferson Boulevard. The structure would provide 530 parking spaces and would be a part of an Intermodal Transfer Facility. The parking at this location would allow vehicles to access the facility through right in/right out only movements along Jefferson and La Cienega Boulevards. This scenario is similar to the LPA in all regards except for the location of the aforementioned parking structure. The change in location of the parking structure would affect the traffic analysis with respect to vehicle access to the parking facilities and drop-off areas. These vehicles would arrive at the station by slightly different routes. The trip distribution for this mode of access are provided in Appendix I. The trip generation for both these modes is identical to the LPA.

Table 3.2-9 describes the level of service analysis for the La Cienega Station Parking Options and the traffic volumes are displayed in **Figure 3.2-22.** The table shows that, with the addition of the Project, there would be adverse traffic effects at the following locations:

- Jefferson Boulevard/National Boulevard (AM and PM peak hours)
- Washington Boulevard/National Boulevard (AM and PM peak hours)
- National Boulevard/Venice Boulevard (PM peak hour only)

These traffic impacts could be mitigated using the same measures used to mitigate traffic impacts in the LPA. The results of the mitigation can be seen in **Table 3.2-9**. Other aspects of this design that would need consideration are in relation to the parking access. The analysis assumes that there would be only one entry point on Jefferson Boulevard and La Cienega Boulevard due to the close proximity of the parking structure to the intersection. Additional entry points closer to the intersection could have the net outcome of worsening the operation of this intersection.

Jefferson Boulevard Design Options. The design option at Jefferson Boulevard/National Boulevard would result in the reconfiguration of the intersection. The realignment of National Boulevard with Jefferson Boulevard would result in the addition of a left-turn lane from Jefferson Boulevard northbound to National Boulevard eastbound. In addition, a Medium Bridge Design Option has been developed to alleviate the conflict between the LRT, bicyclists and automobile traffic at this location. This option calls for a longer bridge structure than the LPA bridge and would effectively span Jefferson/National Boulevard, La Cienega Boulevard and Ballona Creek. The operation of the intersection at Jefferson Boulevard/National Boulevard would no longer include an LRT grade crossing, as the LRT would be above grade, hence restoring some vehicular capacity to this intersection.

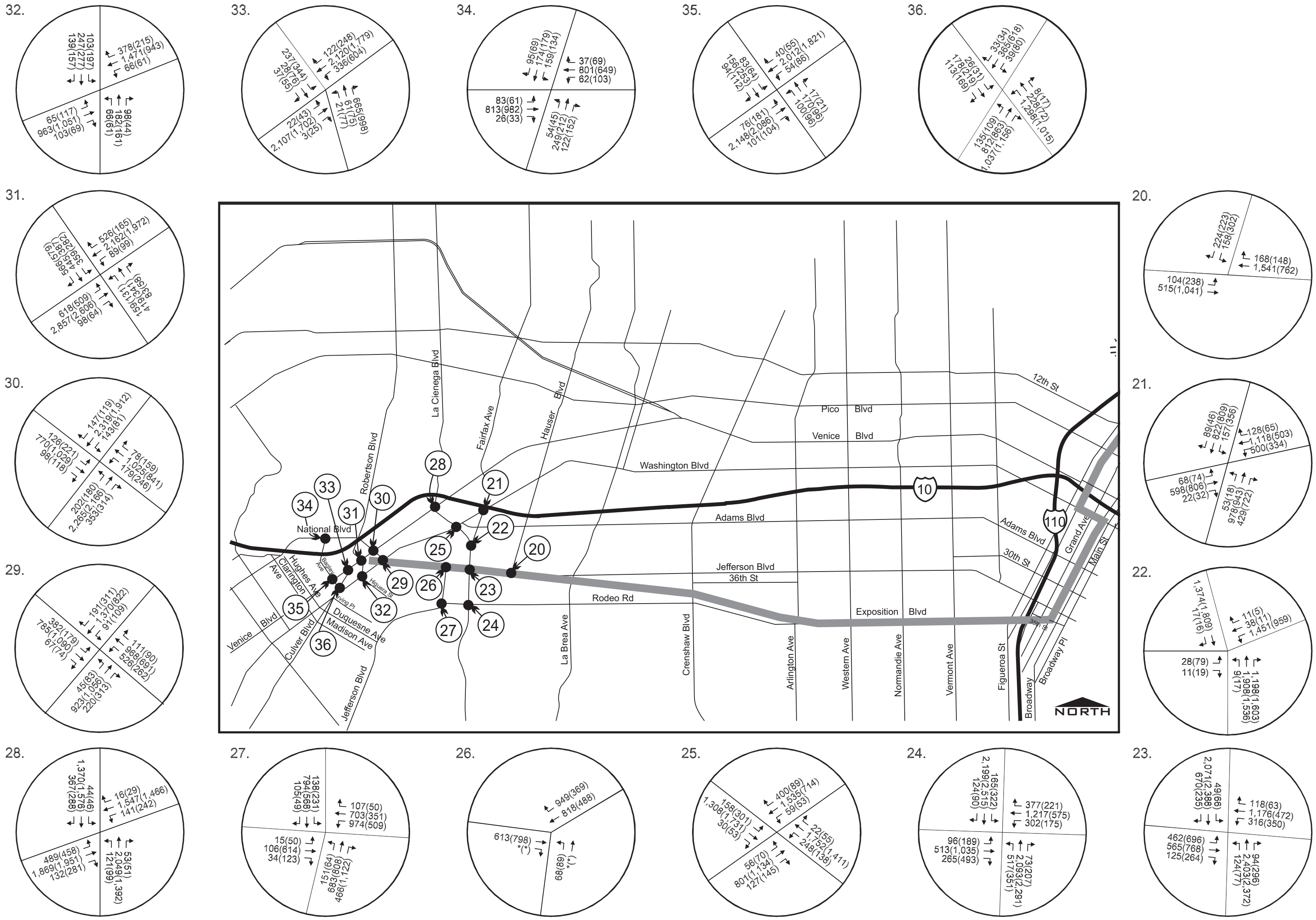
With respect to the traffic analysis at this intersection, LRT operation would be identical to the LPA scenario, except that the Jefferson Boulevard/National Boulevard at-grade crossing would be eliminated. Under this design option the trip distribution is the same as the LPA. The "With Project" scenario is presented in **Table 3.2-10**, showing that this option would result in five adverse traffic effects:

- La Cienega Boulevard/Jefferson Boulevard (AM peak hour only)
- La Cienega Boulevard/Rodeo Road (PM peak hour only)
- Jefferson Boulevard/National Boulevard (AM peak hour only)
- Washington Boulevard/National Boulevard (AM and PM peak hours)
- National Boulevard/Venice Boulevard (PM peak hour only)

To mitigate the impacts under this design option, it would be necessary to implement the same mitigation measures as are described under the LPA scenario. The results of the mitigation can be seen in **Table 3.2-10**. In addition, Appendix I provides the resulting lane configurations at the above intersections following implementation of mitigation measures.

TABLE 3.2-9: 2020 INTERSECTION LOS WITH AND WITHOUT MITIGATION: LA CIENEGA STATION PARKING OPTION												
Intersection	Peak Hour	No Project		With Project		Project Increase in V/C	Significant Project Impact	With Mitigation		Project Increase in V/C	Significant Project Impact
		V/C	LOS	V/C	LOS			V/C	LOS		
20* Hauser Boulevard/Jefferson Boulevard	AM	0.665	B	0.654	B	-0.011	NO				
	PM	0.517	A	0.509	A	-0.008	NO				
21* Fairfax Avenue/Washington Boulevard (LA Methodology)	AM	0.828	D	0.818	D	-0.010	NO				
	PM	0.778	C	0.782	C	0.004	NO				
21* Fairfax Avenue/Washington Boulevard (Culver City Methodology)	AM	0.838	D	0.829	D	-0.009	NO				
	PM	0.818	D	0.821	D	0.003	NO				
22* La Cienega Boulevard/Fairfax Avenue/Blackwelder Street /a/	AM	1.240	F	1.248	F	0.008	NO				
	PM	1.060	F	1.065	F	0.005	NO				
23* La Cienega Boulevard/Jefferson Boulevard	AM	1.148	F	1.139	F	-0.009	NO				
	PM	1.094	F	1.098	F	0.004	NO				
24* La Cienega Boulevard/Rodeo Road	AM	1.219	F	1.212	F	-0.007	NO				
	PM	1.202	F	1.206	F	0.004	NO				
25* La Cienega Boulevard/Washington Boulevard /a/	AM	1.022	F	1.014	F	-0.008	NO				
	PM	0.913	E	0.910	E	-0.003	NO				
26* Jefferson Boulevard/National Boulevard	AM	0.425	A	0.969	E	0.544	YES	0.535	A	0.110	NO
	PM	0.590	A	0.617	B	0.027	NO	0.449	A	-0.141	NO
27* Jefferson Boulevard/Higuera Street/Rodeo Road	AM	0.852	D	0.844	D	-0.008	NO				
	PM	1.304	F	1.291	F	-0.013	NO				
28* La Cienega Boulevard/Venice Boulevard	AM	0.923	E	0.916	E	-0.007	NO				
	PM	1.011	F	0.997	E	-0.014	NO				
29* National Boulevard/Washington Boulevard /a/	AM	0.960	E	1.256	F	0.296	YES	0.970	E	0.010	NO
	PM	0.889	D	1.099	F	0.210	YES	0.892	D	0.003	NO
30* National Boulevard/Venice Boulevard	AM	1.101	F	1.090	F	-0.011	NO	1.026	F	-0.075	NO
	PM	1.046	F	1.079	F	0.033	YES	1.044	F	-0.002	NO
31* Robertson Boulevard/Exposition Boulevard/Venice Boulevard	AM	1.176	F	1.178	F	0.002	NO				
	PM	1.083	F	1.078	F	-0.005	NO				
32* Robertson Boulevard/Higuera Street/Washington Boulevard /a/	AM	0.842	D	0.844	D	0.002	NO				
	PM	0.663	B	0.676	B	0.013	NO				
33* Culver Boulevard/Venice Boulevard	AM	0.743	C	0.731	C	-0.012	NO				
	PM	0.824	D	0.817	D	-0.007	NO				
34* Bagley Avenue/National Boulevard	AM	0.937	E	0.933	E	-0.004	NO				
	PM	1.043	F	1.037	F	-0.006	NO				
35* Bagley Avenue/Venice Boulevard	AM	0.781	C	0.774	C	-0.007	NO				
	PM	0.856	D	0.851	D	-0.005	NO				
36* Washington Boulevard/Culver Boulevard /a/	AM	0.928	E	0.943	E	0.015	NO				
	PM	0.905	E	0.902	E	-0.003	NO				

Notes: * Intersection is currently operating under ATSAC system.
/a/ Intersection located in Culver City.
SOURCE: Kaku Associates



LEGEND:

● Study Intersection

X(X) - AM(PM) Peak Hour Traffic Volumes

SOURCE: Kaku Associates

Metro

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-22

LA CIENEGA STATION PARKING OPTION PEAK HOUR TRAFFIC VOLUMES - WEST END SUBAREA

TABLE 3.2-10: 2020 INTERSECTION LOS WITH AND WITHOUT MITIGATION: JEFFERSON BOULEVARD DESIGN OPTION												
Intersection	Peak Hour	No Project		With Project		Project Increase in V/C	Significant Project Impact	With Mitigation		Project Increase in V/C	Significant Project Impact
		V/C	LOS	V/C	LOS			V/C	LOS		
20* Hauser Boulevard/Jefferson Boulevard	AM	0.665	B	0.655	B	-0.010	NO				
	PM	0.517	A	0.512	A	-0.005	NO				
21* Fairfax Avenue/Washington Boulevard (LA Methodology)	AM	0.828	D	0.818	D	-0.010	NO				
	PM	0.778	C	0.776	C	-0.002	NO				
21* Fairfax Avenue/Washington Boulevard (Culver City Methodology)	AM	0.838	D	0.828	D	-0.010	NO				
	PM	0.818	D	0.816	D	-0.002	NO				
22* La Cienega Boulevard/Fairfax Avenue/Blackwelder Street /a/	AM	1.240	F	1.247	F	0.007	NO				
	PM	1.060	F	1.060	F	0.000	NO				
23* La Cienega Boulevard/Jefferson Boulevard	AM	1.148	F	1.202	F	0.054	YES	1.138	F	-0.010	NO
	PM	1.094	F	1.096	F	0.002	NO	1.038	F	-0.056	NO
24* La Cienega Boulevard/Rodeo Road	AM	1.219	F	1.200	F	-0.019	NO	1.200	F	-0.019	NO
	PM	1.202	F	1.222	F	0.020	YES	1.150	F	-0.052	NO
25* La Cienega Boulevard/Washington Boulevard /a/	AM	1.022	F	1.013	F	-0.009	NO				
	PM	0.913	E	0.906	E	-0.007	NO				
26* Jefferson Boulevard/National Boulevard	AM	0.425	A	0.765	C	0.340	YES	0.524	A	0.099	NO
	PM	0.590	A	0.497	A	-0.093	NO	0.447	A	-0.143	NO
27* Jefferson Boulevard/Higuera Street/Rodeo Road	AM	0.852	D	0.843	D	-0.009	NO				
	PM	1.304	F	1.289	F	-0.015	NO				
28* La Cienega Boulevard/Venice Boulevard	AM	0.923	E	0.916	E	-0.007	NO				
	PM	1.011	F	0.997	E	-0.014	NO				
29* National Boulevard/Washington Boulevard /a/	AM	0.960	E	1.256	F	0.296	YES	0.970	E	0.010	NO
	PM	0.889	D	1.099	F	0.210	YES	0.892	D	0.003	NO
30* National Boulevard/Venice Boulevard	AM	1.101	F	1.090	F	-0.011	NO	1.026	F	-0.075	NO
	PM	1.046	F	1.079	F	0.033	YES	1.044	F	-0.002	NO
31* Robertson Boulevard/Exposition Boulevard/Venice Boulevard	AM	1.176	F	1.178	F	0.002	NO				
	PM	1.083	F	1.078	F	-0.005	NO				
32* Robertson Boulevard/Higuera Street/Washington Boulevard /a/	AM	0.842	D	0.844	D	0.002	NO				
	PM	0.663	B	0.676	B	0.013	NO				
33* Culver Boulevard/Venice Boulevard	AM	0.743	C	0.731	C	-0.012	NO				
	PM	0.824	D	0.817	D	-0.007	NO				
34* Bagley Avenue/National Boulevard	AM	0.937	E	0.933	E	-0.004	NO				
	PM	1.043	F	1.037	F	-0.006	NO				
35* Bagley Avenue/Venice Boulevard	AM	0.781	C	0.774	C	-0.007	NO				
	PM	0.856	D	0.851	D	-0.005	NO				
36* Washington Boulevard/Culver Boulevard /a/	AM	0.928	E	0.943	E	0.015	NO				
	PM	0.905	E	0.902	E	-0.003	NO				

Notes:* Intersection is currently operating under ATSAC system.
/a/ Intersection located in Culver City.
SOURCE: Kaku Associates

Venice/Robertson Design Options. The City of Culver City has expressed concern that an at-grade Venice/Robertson LRT Station would significantly hinder the operation of the intersection of Washington & National Boulevards. To address this, three design options for the terminus station were developed. Two of the design options feature at-grade LRT stations and these occur on the east side of the Washington Boulevard & National Boulevard intersection. The third design option would grade separate the LRT track from the Washington Boulevard & National Boulevard intersection and construct an aerial station at the same location considered for the at-grade Venice/Robertson station under the LPA. The two design options are as follows:

- *Right-of-Way Design Option*. This option would situate the Venice/Robertson Station at grade in the Metro-owned right-of-way (ROW) where Wesley Street dead-ends at the ROW and National Boulevard.
- *North of ROW Design Options*. Under these options, the Venice/Robertson station would be located north of the ROW directly on the northeast corner of the Washington Boulevard & National Boulevard intersection. These design options proposes an at-grade station and would displace a roofing company, a sound studio, or an auto body shop.
- *Aerial Station Design Option*. This option proposes an aerial station. The station would be located on the same site as the LPA Venice/Robertson station. The grade separation would achieve its full height of approximately 20 feet at Wesley Street and hence operational conflicts at the intersection of Washington Boulevard & National Boulevard would be negated.

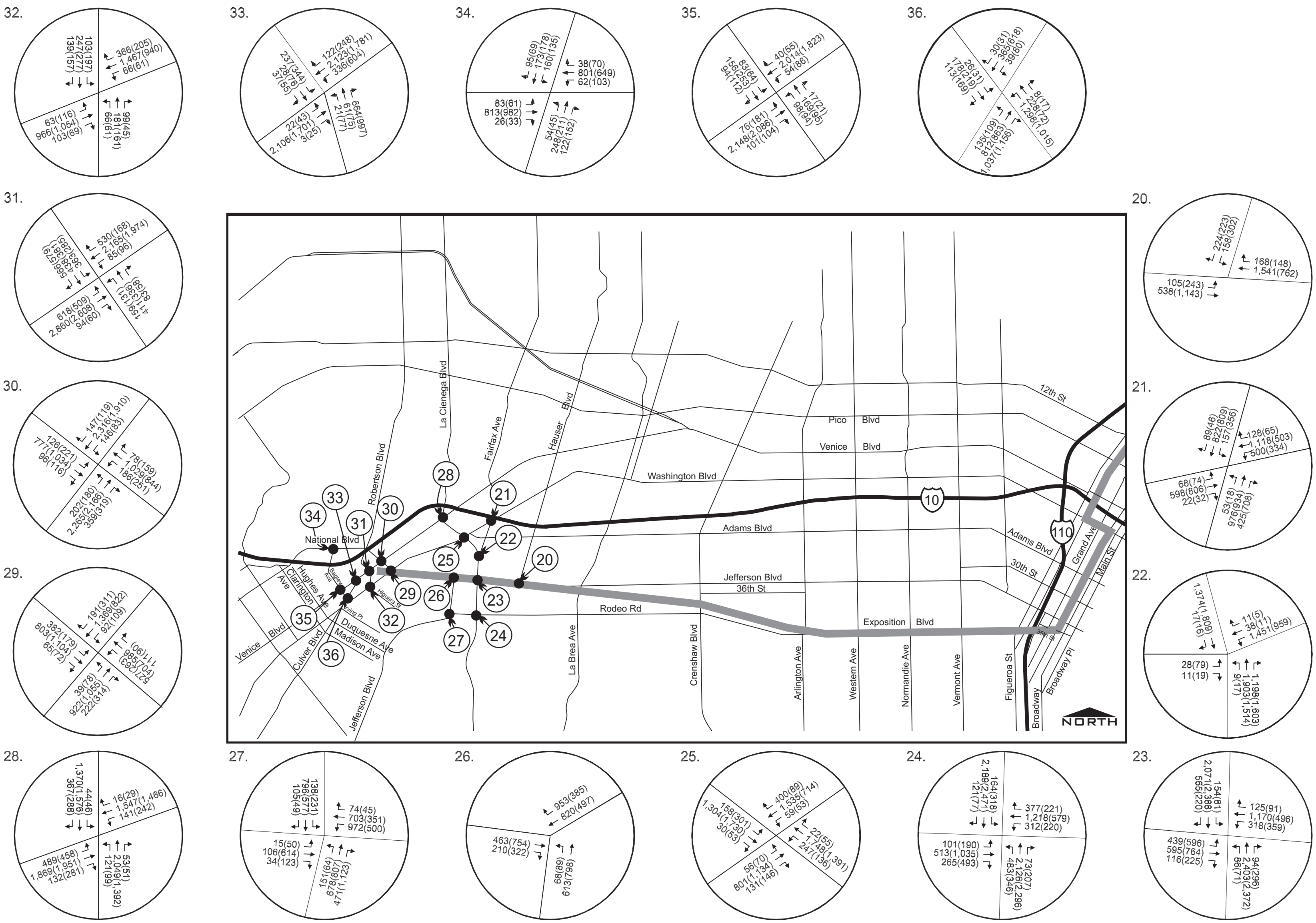
The ROW and North of ROW Design Options were analyzed in exactly the same way because the proposed stations are almost adjacent to one another. They are also very similar to the LPA scenario except for the terminus being located before the intersection of Washington & National Boulevards. The location of the parking facilities would be the same as the LPA but the drop-off locations would differ due to the location of the station. The distribution of the parking facilities and drop-off trips for each option is shown in Appendix I. The "With Project" scenario is presented in **Table 3.2-11** and **Figures 3.2-23** and **3.2-24**. It can be seen that the ROW and North of ROW Design Options would result in five adverse traffic affects:

- La Cienega Boulevard/Jefferson Boulevard (AM peak hour only)
- La Cienega Boulevard/Rodeo Road (PM peak hour only)
- Jefferson Boulevard/National Boulevard (AM peak hour only)
- Washington Boulevard/National Boulevard (AM and PM peak hours)
- National Boulevard/Venice Boulevard (PM peak hour only)

The adverse traffic affects for La Cienega Boulevard/Jefferson Boulevard, La Cienega Boulevard/Rodeo Road, Jefferson Boulevard/National Boulevard and National Boulevard/Venice Boulevard could be mitigated using the same mitigation measures used for the LPA. The intersection of Washington Boulevard/National Boulevard would require a lesser mitigation than used for the LPA. This intersection's traffic problem lies in the critical westbound through movement. In order to mitigate this impact, the westbound approach would require a restriping and would need to be reconfigured with a left-turn lane, two through lanes and a through/right lane. The westbound departure would require a small amount of additional right-of-way to accommodate three departure lanes (the two existing departure lanes are almost wide enough to be restriped into three lanes). In addition, this reconfiguration would require a small number of parking spaces to be removed on the westbound departure leg. The results of the mitigation measures and the lane configurations can be seen in **Table 3.2-11** and Appendix I, respectively.

TABLE 3.2-11: 2020 INTERSECTION LOS WITH AND WITHOUT MITIGATION: VENICE/ROBERTSON ROW AND NORTH OF ROW DESIGN OPTIONS												
Intersection	Peak Hour	No Project		With Project		Project Increase in V/C	Significant Project Impact	With Mitigation		Project Increase in V/C	Significant Project Impact
		V/C	LOS	V/C	LOS			V/C	LOS		
20* Hauser Boulevard/Jefferson Boulevard	AM	0.665	B	0.655	B	-0.010	NO				
	PM	0.517	A	0.512	A	-0.005	NO				
21* Fairfax Avenue/Washington Boulevard (LA Methodology)	AM	0.828	D	0.818	D	-0.010	NO				
	PM	0.778	C	0.776	C	-0.002	NO				
21* Fairfax Avenue/Washington Boulevard (Culver City Methodology)	AM	0.838	D	0.828	D	-0.010	NO				
	PM	0.818	D	0.816	D	-0.002	NO				
22* La Cienega Boulevard/Fairfax Avenue/Blackwelder Street /a/	AM	1.240	F	1.247	F	0.007	NO				
	PM	1.060	F	1.060	F	0.000	NO				
23* La Cienega Boulevard/Jefferson Boulevard	AM	1.148	F	1.202	F	0.054	YES	1.138	F	-0.010	NO
	PM	1.094	F	1.096	F	0.002	NO	1.038	F	-0.056	NO
24* La Cienega Boulevard/Rodeo Road	AM	1.219	F	1.200	F	-0.019	NO	1.200	F	-0.019	NO
	PM	1.202	F	1.222	F	0.020	YES	1.150	F	-0.052	NO
25* La Cienega Boulevard/Washington Boulevard /a/	AM	1.022	F	1.013	F	-0.009	NO				
	PM	0.913	E	0.906	E	-0.007	NO				
26* Jefferson Boulevard/National Boulevard	AM	0.425	A	0.957	E	0.532	YES	0.660	B	0.235	NO
	PM	0.590	A	0.628	B	0.038	NO	0.566	A	-0.024	NO
27* Jefferson Boulevard/Higuera Street/Rodeo Road	AM	0.852	D	0.843	D	-0.009	NO				
	PM	1.304	F	1.289	F	-0.015	NO				
28* La Cienega Boulevard/Venice Boulevard	AM	0.923	E	0.916	E	-0.007	NO				
	PM	1.011	F	0.997	E	-0.014	NO				
29* National Boulevard/Washington Boulevard /a/	AM	0.960	E	0.974	E	0.014	NO				
	PM	0.889	D	0.854	D	-0.035	NO				
30* National Boulevard/Venice Boulevard	AM	1.101	F	1.088	F	-0.013	NO	1.024	F	-0.077	NO
	PM	1.046	F	1.080	F	0.034	YES	1.044	F	-0.002	NO
31* Robertson Boulevard/Exposition Boulevard/Venice Boulevard	AM	1.176	F	1.173	F	-0.003	NO				
	PM	1.083	F	1.075	F	-0.008	NO				
32* Robertson Boulevard/Higuera Street/Washington Boulevard /a/	AM	0.842	D	0.839	D	-0.003	NO				
	PM	0.663	B	0.673	B	0.010	NO				
33* Culver Boulevard/Venice Boulevard	AM	0.743	C	0.732	C	-0.011	NO				
	PM	0.824	D	0.816	D	-0.008	NO				
34* Bagley Avenue/National Boulevard	AM	0.937	E	0.935	E	-0.002	NO				
	PM	1.043	F	1.039	F	-0.004	NO				
35* Bagley Avenue/Venice Boulevard	AM	0.781	C	0.781	C	0.000	NO				
	PM	0.856	D	0.857	D	0.001	NO				
36* Washington Boulevard/Culver Boulevard /a/	AM	0.928	E	0.942	E	0.014	NO				
	PM	0.905	E	0.902	E	-0.003	NO				

Notes:* Intersection is currently operating under ATSAC system.
/a/ Intersection located in Culver City.
SOURCE: Kaku Associates



LEGEND:

● Study Intersection

X(X) - AM(PM) Peak Hour Traffic Volumes

SOURCE: Kaku Associates

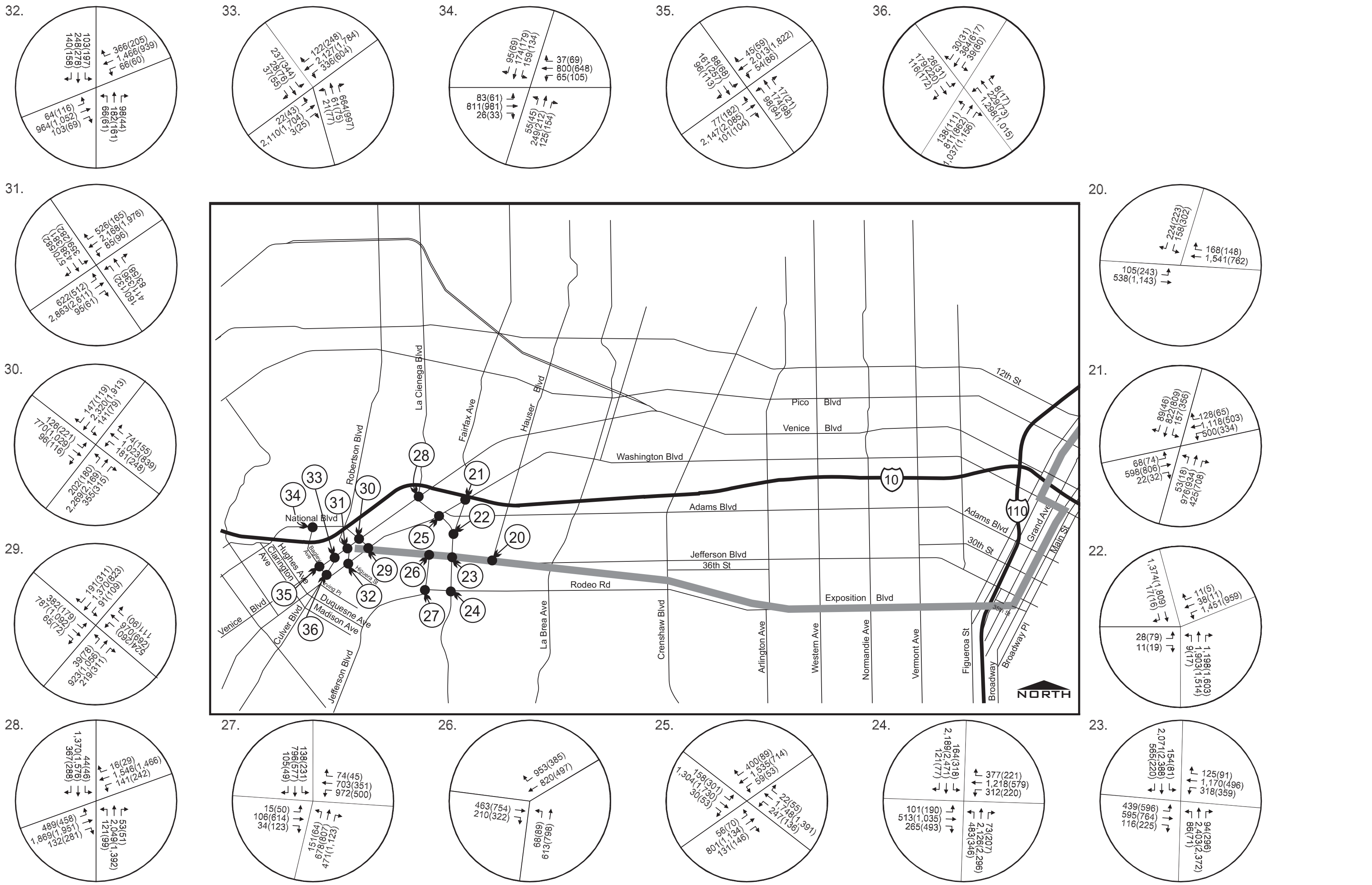
Metro

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-23

VENICE/ROBERTSON ROW DESIGN PEAK HOUR TRAFFIC VOLUMES - WEST END SUBAREA



LEGEND:
● Study Intersection
X(X) - AM(PM) Peak Hour Traffic Volumes

SOURCE: Kaku Associates

Metro

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-24

VENICE/ROBERTSON NORTH OF ROW DESIGN OPTION
PEAK HOUR TRAFFIC VOLUMES - WEST END SUBAREA

The Aerial Station Design Option was analyzed in exactly the same way as the LPA except for the intersection of Washington Boulevard/National Boulevard. The location of the parking facilities and the drop-off area would be the same as the LPA option. The distribution of the parking and drop-off trips for this design option are provided in Appendix I. The "With Project" scenario is presented in **Table 3.2-12** and Appendix I, respectively. It can be seen that this design option would result in five adverse traffic impacts:

- La Cienega Boulevard/Jefferson Boulevard (AM peak hour only)
- La Cienega Boulevard/Rodeo Road (PM peak hour only)
- Jefferson Boulevard/National Boulevard (AM peak hour only)
- Washington Boulevard/National Boulevard (AM and PM peak hours)
- National Boulevard/Venice Boulevard (PM peak hour only)

The adverse traffic effects for La Cienega Boulevard/Jefferson Boulevard, La Cienega Boulevard/Rodeo Road, Jefferson Boulevard/National Boulevard and National Boulevard/Venice Boulevard could be mitigated using the same mitigation measures used for the LPA. The intersection of Washington Boulevard/National Boulevard would require a lesser mitigation than used for the LPA. This intersection's traffic problem lies in the critical westbound through movement. In order to mitigate this impact, the westbound approach would require a restriping and would need to be reconfigured with a left-turn lane, two through lanes and a through/right lane. The westbound departure would require a small amount of additional right-of-way to accommodate three departure lanes (the two existing departure lanes are almost wide enough to be restriped into three lanes). In addition, this reconfiguration would require a small number of parking spaces to be removed on the westbound departure leg. The results of the mitigation measures and the lane configurations can be seen in **Table 3.2-12** and Appendix I, respectively.

Phased Implementation Options. This phased implementation option involves a minimum-operating segment (MOS) LRT alignment. Under this design option, the LRT would terminate on Metro right-of-way east of the intersection of La Cienega Boulevard/Jefferson Boulevard. This alignment would include two different parking options on the southeast and southwest corners of the aforementioned intersection.

La Cienega Segment - Southeast Corner Parking Option. This option involves a parking structure (830 spaces) at the ECIS site with the LRT alignment terminating there. The parking structure would be the same as described for the LPA and the distribution of parking and drop-off trips can be seen in **Figures 3.2.23** and **3.2.24**. The trip generation for this location would be different from the LPA, as the alignment would terminate at La Cienega Boulevard, meaning that this station would be considered the terminus. The Metro travel demand model was used to model this scenario and new mode of access information was developed utilizing the same assumptions as used in the LPA trip generation. The following data was developed: 270 AM peak hour parking facility trips (243 inbound and 27 outbound), 216 PM peak hour parking facility trips (22 inbound and 194 outbound), 34 AM peak hour drop-off trips (17 inbound and 17 outbound) and 26 PM peak hour drop-off trips (13 inbound and 13 outbound). Access to the parking structure would be the same as in the LPA scenario. **Table 3.2-13** describes the traffic effects and LOS analysis for this design option, and traffic volumes are displayed in **Figure 3.2-25.** The table shows that there would be three adversely affected intersections:

- La Cienega Boulevard/Jefferson Boulevard (AM peak hour only)
- La Cienega Boulevard/Rodeo Road (PM peak hour only)
- Jefferson Boulevard/National Boulevard (AM peak hour only)

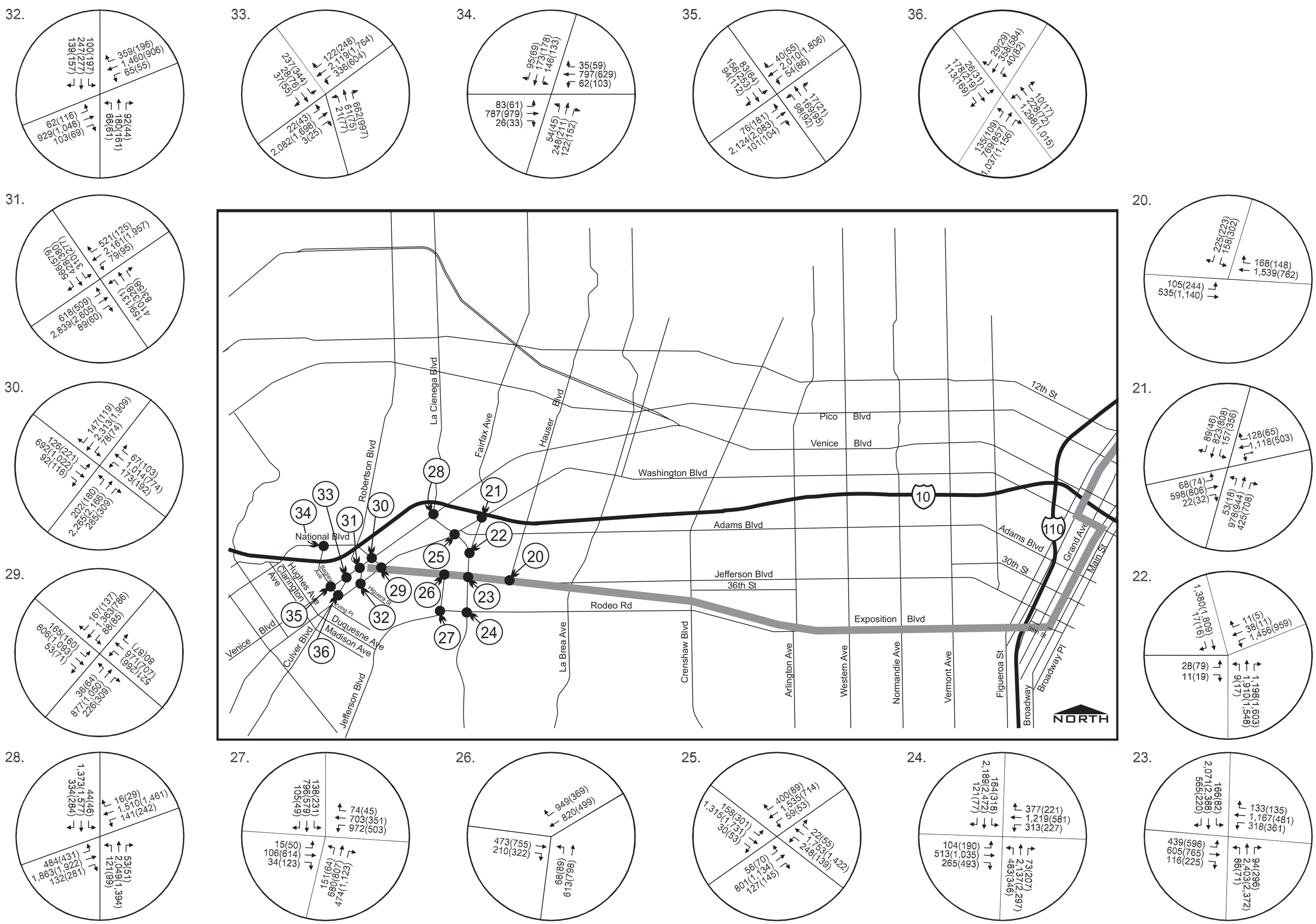
TABLE 3.2-12: 2020 INTERSECTION LOS WITH AND WITHOUT MITIGATION: VENICE/ROBERTSON AERIAL STATION DESIGN OPTION											
Intersection	Peak Hour	No Project		With Project		Project Increase in V/C	Significant Project Impact	With Mitigation		Project Increase in V/C	Significant Project Impact
		V/C	LOS	V/C	LOS			V/C	LOS		
20* Hauser Boulevard/Jefferson Boulevard	AM	0.665	B	0.655	B	-0.010	NO				
	PM	0.517	A	0.512	A	-0.005	NO				
21* Fairfax Avenue/Washington Boulevard (LA Methodology)	AM	0.828	D	0.818	D	-0.010	NO				
	PM	0.778	C	0.776	C	-0.002	NO				
21* Fairfax Avenue/Washington Boulevard (Culver City Methodology)	AM	0.838	D	0.828	D	-0.010	NO				
	PM	0.818	D	0.816	D	-0.002	NO				
22* La Cienega Boulevard/Fairfax Avenue/Blackwelder Street /a/	AM	1.240	F	1.247	F	0.007	NO				
	PM	1.060	F	1.060	F	0.000	NO				
23* La Cienega Boulevard/Jefferson Boulevard	AM	1.148	F	1.202	F	0.054	YES	1.138	F	-0.010	NO
	PM	1.094	F	1.096	F	0.002	NO	1.038	F	-0.056	NO
24* La Cienega Boulevard/Rodeo Road	AM	1.219	F	1.200	F	-0.019	NO	1.200	F	-0.019	NO
	PM	1.202	F	1.222	F	0.020	YES	1.150	F	-0.052	NO
25* La Cienega Boulevard/Washington Boulevard /a/	AM	1.022	F	1.013	F	-0.009	NO				
	PM	0.913	E	0.906	E	-0.007	NO				
26* Jefferson Boulevard/National Boulevard	AM	0.425	A	0.957	E	0.532	YES	0.660	B	0.235	NO
	PM	0.590	A	0.628	B	0.038	NO	0.566	A	-0.024	NO
27* Jefferson Boulevard/Higuera Street/Rodeo Road	AM	0.852	D	0.843	D	-0.009	NO				
	PM	1.304	F	1.289	F	-0.015	NO				
28* La Cienega Boulevard/Venice Boulevard	AM	0.923	E	0.916	E	-0.007	NO				
	PM	1.011	F	0.997	E	-0.014	NO				
29* National Boulevard/Washington Boulevard /a/	AM	0.960	E	1.026	F	0.066	YES	0.918	E	-0.042	NO
	PM	0.889	D	0.899	D	0.010	NO	0.899	D	0.010	NO
30* National Boulevard/Venice Boulevard	AM	1.101	F	1.090	F	-0.011	NO	1.026	F	-0.075	NO
	PM	1.046	F	1.079	F	0.033	YES	1.044	F	-0.002	NO
31* Robertson Boulevard/Exposition Boulevard/Venice Boulevard	AM	1.176	F	1.178	F	0.002	NO				
	PM	1.083	F	1.078	F	-0.005	NO				
32* Robertson Boulevard/Higuera Street/Washington Boulevard /a/	AM	0.842	D	0.844	D	0.002	NO				
	PM	0.663	B	0.676	B	0.013	NO				
33* Culver Boulevard/Venice Boulevard	AM	0.743	C	0.731	C	-0.012	NO				
	PM	0.824	D	0.817	D	-0.007	NO				
34* Bagley Avenue/National Boulevard	AM	0.937	E	0.933	E	-0.004	NO				
	PM	1.043	F	1.037	F	-0.006	NO				
35* Bagley Avenue/Venice Boulevard	AM	0.781	C	0.774	C	-0.007	NO				
	PM	0.856	D	0.851	D	-0.005	NO				
36* Washington Boulevard/Culver Boulevard /a/	AM	0.928	E	0.943	E	0.015	NO				
	PM	0.905	E	0.902	E	-0.003	NO				

Notes:* Intersection is currently operating under ATSAC system.
/a/ Intersection located in Culver City.
SOURCE: Kaku Associates

TABLE 3.2-13: 2020 INTERSECTION LOS WITH AND WITHOUT MITIGATION: PHASED IMPLEMENTATION OPTION: LA CIENEGA SEGMENT - SOUTHEAST CORNER PARKING

Intersection	Peak Hour	No Project		With Project		Project Increase in V/C	Significant Project Impact	With Mitigation		Project Increase in V/C	Significant Project Impact
		V/C	LOS	V/C	LOS			V/C	LOS		
20*Hauser Boulevard/Jefferson Boulevard	AM	0.665	B	0.655	B	-0.010	NO				
	PM	0.517	A	0.513	A	-0.004	NO				
21*Fairfax Avenue/Washington Boulevard (LA Methodology)	AM	0.828	D	0.818	D	-0.010	NO				
	PM	0.778	C	0.779	C	0.001	NO				
21* Fairfax Avenue/Washington Boulevard (Culver City Methodology)	AM	0.838	D	0.829	D	-0.009	NO				
	PM	0.818	D	0.818	D	0.000	NO				
22*La Cienega Boulevard/Fairfax Avenue/Blackwelder Street /a/	AM	1.240	F	1.251	F	0.011	NO				
	PM	1.060	F	1.067	F	0.007	NO				
23*La Cienega Boulevard/Jefferson Boulevard	AM	1.148	F	1.209	F	0.061	YES	1.145	F	-0.003	NO
	PM	1.094	F	1.098	F	0.004	NO	1.040	F	-0.054	NO
24*La Cienega Boulevard/Rodeo Road	AM	1.219	F	1.203	F	-0.016	NO	1.203	F	-0.016	NO
	PM	1.202	F	1.228	F	0.026	YES	1.154	F	-0.048	NO
25*La Cienega Boulevard/Washington Boulevard /a/	AM	1.022	F	1.014	F	-0.008	NO				
	PM	0.913	E	0.913	E	0.000	NO				
26*Jefferson Boulevard/National Boulevard	AM	0.425	A	0.766	C	0.341	YES	0.527	A	0.102	NO
	PM	0.590	A	0.487	A	-0.103	NO	0.448	A	-0.142	NO
27*Jefferson Boulevard/Higuera Street/Rodeo Road	AM	0.852	D	0.844	D	-0.008	NO				
	PM	1.304	F	1.290	F	-0.014	NO				
28*La Cienega Boulevard/Venice Boulevard	AM	0.923	E	0.908	E	-0.015	NO				
	PM	1.011	F	0.991	E	-0.020	NO				
29*National Boulevard/Washington Boulevard /a/	AM	0.960	E	0.951	E	-0.009	NO				
	PM	0.889	D	0.879	D	-0.010	NO				
30*National Boulevard/Venice Boulevard	AM	1.101	F	1.081	F	-0.020	NO				
	PM	1.046	F	1.037	F	-0.009	NO				
31*Robertson Boulevard/Exposition Boulevard/Venice Boulevard	AM	1.176	F	1.161	F	-0.015	NO				
	PM	1.083	F	1.069	F	-0.014	NO				
32*Robertson Boulevard/Higuera Street/Washington Boulevard /a/	AM	0.842	D	0.832	D	-0.010	NO				
	PM	0.663	B	0.658	B	-0.005	NO				
33*Culver Boulevard/Venice Boulevard	AM	0.743	C	0.729	C	-0.014	NO				
	PM	0.824	D	0.815	D	-0.009	NO				
35*Bagley Avenue/Venice Boulevard	AM	0.781	C	0.767	C	-0.014	NO				
	PM	0.856	D	0.845	D	-0.011	NO				
36*Washington Boulevard/Culver Boulevard /a/	AM	0.928	E	0.930	E	0.002	NO				
	PM	0.905	E	0.901	E	-0.004	NO				

Notes: * Intersection is currently operating under ATSAC system.
/a/ Intersection located in Culver City.
SOURCE: Kaku Associates



LEGEND:

● Study Intersection

X(X) - AM(PM) Peak Hour Traffic Volumes

SOURCE: Kaku Associates

Metro

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-25

PHASED IMPLEMENTATION OPTION: LA CIENEGA SEGMENT-SOUTHEAST CORNER PARKING PEAK HOUR TRAFFIC VOLUMES - WEST END SUBAREA

The adverse traffic effects at La Cienega Boulevard/Jefferson Boulevard, La Cienega Boulevard/Rodeo Road and Jefferson Boulevard/National Boulevard could be mitigated adopting the same measures as in the LPA. The results of the mitigation and new lane configurations can be seen in **Table 3.2-13** and Appendix I, respectively.

Other aspects of the design that will require future consideration are in relation to the southeast corner parking structure. The analysis assumes that only a small percentage of vehicles exiting the parking structure would make a left turn out onto Jefferson Boulevard, while the remainder of the vehicles would turn right onto Jefferson Boulevard. These vehicles are assumed to travel to the intersection of La Brea Boulevard and Jefferson Boulevard, turn south on La Brea Avenue and then turn west onto Rodeo Road. Once the vehicles reach La Cienega Boulevard, they would turn south onto it. The analysis assumed that U-turns would be prohibited along Jefferson Boulevard between La Cienega Boulevard and La Brea Avenue.

La Cienega Segment - Southwest Corner Parking Option. This option involves a parking structure (830 spaces) on the southwest corner of La Cienega Boulevard & Jefferson Boulevard, with the LRT alignment terminating at the east side of the intersection. The parking structure would be the same as described for the La Cienega parking option and the distribution of parking facility and drop-off trips can be seen in Appendix I. The trip generation for this location is different from the La Cienega parking option, as the alignment would terminate at La Cienega Boulevard, meaning that this station would be considered the terminus. The Metro travel demand model was used to model this scenario and new mode of access information was developed utilizing the same assumptions as used in the LPA trip generation. The following data was developed: 270 AM peak hour parking facility trips (243 inbound and 27 outbound), 216 PM peak hour parking facility trips (22 inbound and 194 outbound), 34 AM peak hour drop-off trips (17 inbound and 17 outbound) and 26 PM peak hour drop-off trips (13 inbound and 13 outbound). Access to and from the parking structure would be the same as in the La Cienega Station Option.

Table 3.2-14 describes the traffic impacts and LOS analysis for this design option, and the traffic volume are displayed in **Figure 3.2-26.** The table shows that there would be one adversely affected intersection:

- Jefferson Boulevard/National Boulevard (AM peak hour only)

The adverse traffic effect at Jefferson Boulevard/National Boulevard could be mitigated adopting the same measure used for the LPA. The results of the mitigation and lane configurations can be seen in **Table 3.2-14** and Appendix I, respectively.

Other aspects of this design that need consideration are in relation to the parking access. The analysis assumes that there would be only one entry point on Jefferson Boulevard and La Cienega Boulevard due to the close proximity of the parking structure to the intersection. Additional entry points closer to the intersection could have the net outcome of worsening the operation of this intersection.

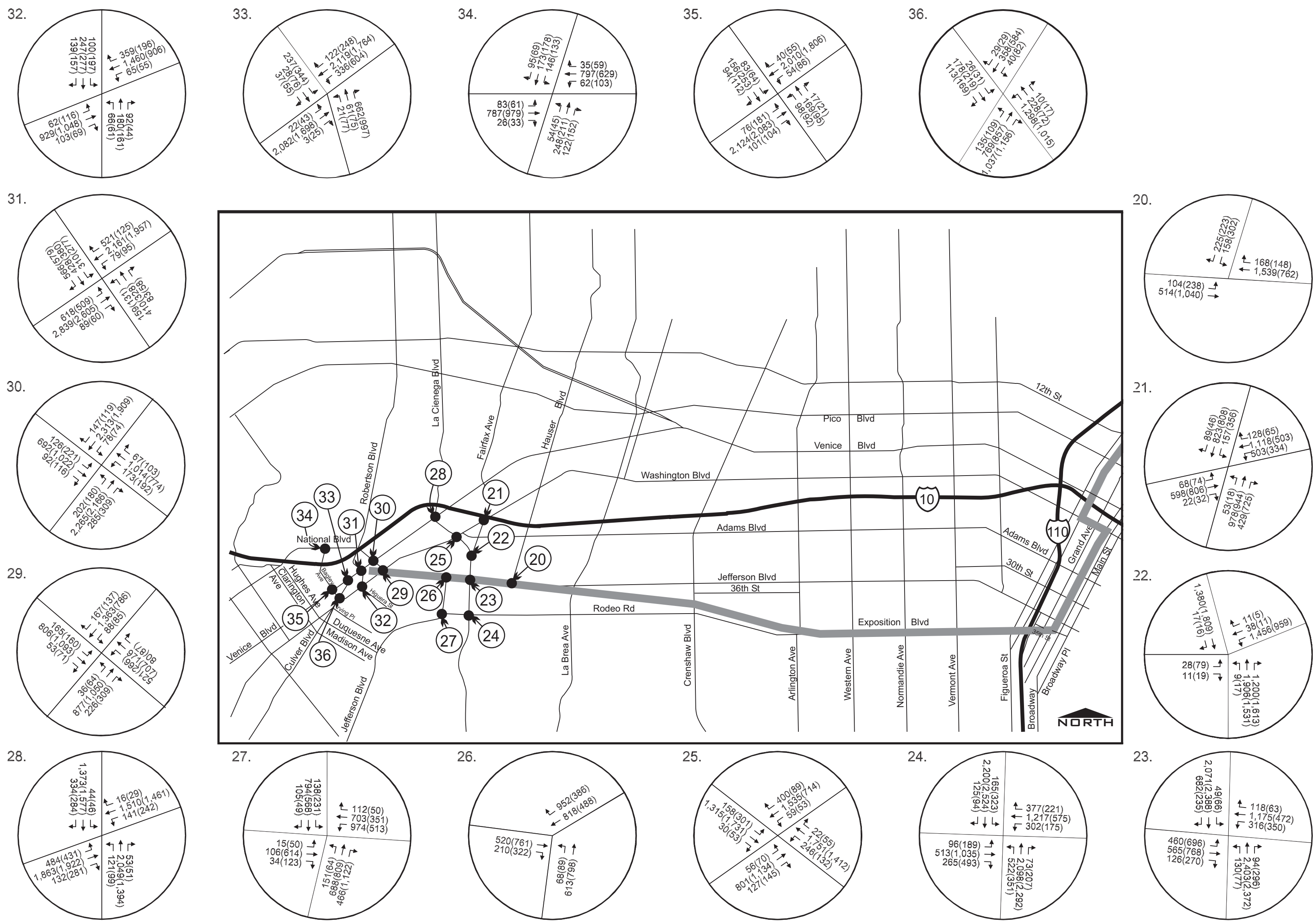
3.2.4.3 Mitigation Measures

T16 La Cienega Boulevard/Jefferson Boulevard (LPA, Jefferson Boulevard Design Option, Venice/Robertson Station Option, Phased Implementation Option: Southeast Corner Parking)

- Metro shall modify signal phasing to permissive for the eastbound and westbound approaches on Jefferson Boulevard.

TABLE 3.2-14: 2020 INTERSECTION LOS WITH AND WITHOUT MITIGATION: PHASED IMPLEMENTATION OPTION: LA CIENEGA SEGMENT - SOUTHWEST CORNER PARKING												
Intersection	Peak Hour	No Project		With Project		Project Increase in V/C	Significant Project Impact	With Mitigation		Project Increase in V/C	Significant Project Impact
		V/C	LOS	V/C	LOS			V/C	LOS		
20*Hauser Boulevard/Jefferson Boulevard	AM	0.665	B	0.654	B	-0.011	NO				
	PM	0.517	A	0.509	A	-0.008	NO				
21*Fairfax Avenue/Washington Boulevard (LA Methodology)	AM	0.828	D	0.818	D	-0.010	NO				
	PM	0.778	C	0.783	C	0.005	NO				
21*Fairfax Avenue/Washington Boulevard (Culver City Methodology)	AM	0.838	D	0.829	D	-0.009	NO				
	PM	0.818	D	0.822	D	0.004	NO				
22*La Cienega Boulevard/Fairfax Avenue/Blackwelder Street /a/	AM	1.240	F	1.250	F	0.010	NO				
	PM	1.060	F	1.065	F	0.005	NO				
23*La Cienega Boulevard/Jefferson Boulevard	AM	1.148	F	1.138	F	-0.010	NO				
	PM	1.094	F	1.100	F	0.006	NO				
24*La Cienega Boulevard/Rodeo Road	AM	1.219	F	1.215	F	-0.004	NO				
	PM	1.202	F	1.209	F	0.007	NO				
25*La Cienega Boulevard/Washington Boulevard /a/	AM	1.022	F	1.013	F	-0.009	NO				
	PM	0.913	E	0.911	E	-0.002	NO				
26*Jefferson Boulevard/National Boulevard	AM	0.425	A	0.783	C	0.358	YES	0.542	A	0.117	NO
	PM	0.590	A	0.501	A	-0.089	NO	0.450	A	-0.140	NO
27*Jefferson Boulevard/Higuera Street/Rodeo Road	AM	0.852	D	0.845	D	-0.007	NO				
	PM	1.304	F	1.293	F	-0.011	NO				
28*La Cienega Boulevard/Venice Boulevard	AM	0.923	E	0.908	E	-0.015	NO				
	PM	1.011	F	0.991	E	-0.020	NO				
29*National Boulevard/Washington Boulevard /a/	AM	0.960	E	0.951	E	-0.009	NO				
	PM	0.889	D	0.879	D	-0.010	NO				
30*National Boulevard/Venice Boulevard	AM	1.101	F	1.081	F	-0.020	NO				
	PM	1.046	F	1.037	F	-0.009	NO				
31*Robertson Boulevard/Exposition Boulevard/Venice Boulevard	AM	1.176	F	1.161	F	-0.015	NO				
	PM	1.083	F	1.069	F	-0.014	NO				
32*Robertson Boulevard/Higuera Street/Washington Boulevard /a/	AM	0.842	D	0.832	D	-0.010	NO				
	PM	0.663	B	0.658	B	-0.005	NO				
33*Culver Boulevard/Venice Boulevard	AM	0.743	C	0.729	C	-0.014	NO				
	PM	0.824	D	0.815	D	-0.009	NO				
34*Bagley Avenue/National Boulevard	AM	0.937	E	0.920	E	-0.017	NO				
	PM	1.043	F	1.034	F	-0.009	NO				
35*Bagley Avenue/Venice Boulevard	AM	0.781	C	0.767	C	-0.014	NO				
	PM	0.856	D	0.845	D	-0.011	NO				
36*Washington Boulevard/Culver Boulevard /a/	AM	0.928	E	0.930	E	0.002	NO				
	PM	0.905	E	0.901	E	-0.004	NO				

Notes: * Intersection is currently operating under ATSAC system.
/a/ Intersection located in Culver City.
SOURCE: Kaku Associates



LEGEND:

● Study Intersection

X(X) - AM(PM) Peak Hour Traffic Volumes

SOURCE: Kaku Associates

MID-CITY/EXPOSITION LRT PROJECT FINAL EIS/EIR

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

FIGURE 3.2-26

PHASED IMPLEMENTATION OPTION: LA CIENEGA SEGMENT-SOUTHWEST CORNER PARKING PEAK HOUR TRAFFIC VOLUMES - WEST END SUBAREA

T17 La Cienega Boulevard/Rodeo Road (LPA, Jefferson Boulevard Design Option, Venice/Robertson Station Options, Phased Implementation Option: Southeast Corner Parking)

- Metro shall ensure that the westbound approach configuration on Rodeo Road are converted to accommodate two left-turn lanes, two through lanes and a right-turn lane.

T18 Jefferson Boulevard/National Boulevard (LPA, La Cienega Station Option, Jefferson Boulevard Design Option, Venice/Robertson Station Options, Phased Implementation Options)

- Metro shall ensure that the southbound approach configuration on Jefferson Boulevard are converted to accommodate a right-turn lane, a through/right-turn lane and one through lane.

T19 Washington Boulevard/National Boulevard (LPA, La Cienega Station Option, Jefferson Boulevard Design Option)

- Metro shall ensure that the westbound approach and departures are converted to accommodate a left-turn lane, two through lanes and a through/right-turn lane. The westbound departure would require additional Metro right of way and the removal of parking to accommodate the new approach configuration.

- Metro shall ensure that the eastbound approach and departures are converted to accommodate a left-turn lane, two through lanes and a through/right-turn lane. The eastbound departure would require the removal of parking to accommodate the approach reconfiguration.

- Metro shall ensure that the southbound approach and departures are converted to accommodate two left-turn lanes, three through lanes and a right-turn lane. Additional right of way would be required to accommodate the southbound right turn lane between Venice Boulevard and Washington Boulevard. The southbound departure on National Boulevard would also require additional right of way (on the southeast corner of Washington & National) to accommodate realignment and three departure lanes.

T20 Washington Boulevard/National Boulevard (Venice/Robertson Station Options)

- Metro shall ensure that the westbound approach and departures are converted to accommodate a left-turn lane, two through lanes and a through/right-turn lane. The westbound departure would require additional Metro right of way and the removal of parking to accomodate the new approach configuration.

T21 Venice Boulevard/National Boulevard (LPA, La Cienega Station Option, Jefferson Boulevard Design Option, Venice/Robertson Station Options)

- Metro shall ensure that the eastbound and westbound approaches on Venice Boulevard are converted to accommodate two left-turn lanes, three through lanes and a right-turn lane. This could be achieved through a widening of the existing pavement utilizing some of the central median and sidewalks on Venice Boulevard.

3.2.5 OTHER TRAFFIC AND RAIL OPERATIONS CONSIDERATIONS

3.2.5.1 Rail Service Reliability

For a light rail Project operating predominantly at grade, the issue of rail service reliability is closely related to the issue of traffic impacts to the surface roadway network. Application of the Metro Grade Crossing Policy has led to grade-separations where such conflict cannot be managed (La Brea Avenue and La Cienega Boulevard for the LPA; and, Flower and Figueroa Streets for the Flower Street Design Option). In other cases, the LRT at grade crossing of major arterials must balance fast and efficient rail service with effects on surface street traffic flow operations.

Table 3.2-15 integrates these effects in the form of a run time analysis for the LPA and the Design Options. As indicated, each of the Design Options offers a quicker and more reliable service to future transit patrons compared to the LPA. The Flower Street Design option is four minutes faster than the LPA, while the Hill Street Couplet Design option is estimated to be about one minute faster.

TABLE 3.2-15: RUN TIME SUMMARY

DOWNTOWN LOS ANGELES TO CULVER CITY (VENICE/ROBERTSON STATION)		
LPA (Minutes)	Hill Street Couplet Design Options (Minutes)	Flower Street Design Option (Minutes)
31	30	27

/a/One hundred seconds delay for at-grade turn at Flower Street and Exposition Boulevard (Estimated by Korve Engineering, 2004).
SOURCE: Booz Allen Hamilton, 2004.

The following discussion highlights the key issues at selected intersections leading to these differences in overall run time from the Metro Center Station to Venice/Robertson Station. It should be noted that this issue affects the overall cost-effectiveness of the Project and does not represent an environmental impact per se. For the LPA and Design Options, the combined effect of joint Metro Blue Line and Mid-City/Exposition LRT Project operations would lead to added effects on rail service reliability in the at-grade segment from the portal (where the trackway comes back to grade) to Washington Boulevard. To assess this effect, four intersections along Flower Street were also analyzed for impacts with implementation of pre-emption control. The Flower Street intersections include Washington, Venice, and Pico Boulevards, and 12th Street. All four controlling intersections would create measurable and adverse impacts on the cross streets if pre-emption control was adopted. Assuming a moderate level of traffic progression, all four intersections would fall under the "Fail" conditions. This effect would pertain to the LPA, the Flower Street Design Option and the Hill Street Couplet Design Option, although only 12th Street and Pico Boulevard would be affected under the Hill Street Couplet Design Option. Thus, signal pre-emption may not be feasible for these intersections.

No Action. The No Action Alternative would not result in any impacts to rail service reliability.

LPA. *Washington Boulevard/Hill Street*– Metro Blue Line trains to and from Long Beach proceed along Washington Boulevard with partial priority provided by the traffic signal system. The LPA would share this segment between Flower and Hill Streets. Traffic signal priority is provided to facilitate LRV movements and avoid LRT trains stopping between stations, as the block lengths are too short for a three-car train to sit on Washington without blocking north-south street intersections. In order to accommodate the proposed LPA branch at Hill Street, Long Beach trains would potentially be impacted: Of the various combinations of train movements at the junction, the inbound Mid-City/Exposition train would conflict with the outbound Long Beach train and inbound trains from the two branches would also be in conflict for priority to move into the Grand Avenue station. Inbound train movements would essentially occur randomly due to the accumulation of time variances associated with upstream conditions such as intersection priorities, varying operating speeds, and station dwells. Therefore, conflicting movements would also occur randomly. In order to resolve the conflicts, the inbound Mid-City/Exposition train would be required to hold south of Washington Boulevard when an inbound or outbound Long Beach train would approach the junction so as to minimize the disruption to train movements along Washington Boulevard. Thus, inbound Mid-City/Exposition trains would be subject to delays of as much as an entire 120-second traffic signal cycle. At the same time, the need to provide time slots for Mid-City/Exposition train movements may result in the need to hold outbound Long Beach trains at the Grand Avenue station and inbound Long Beach trains at the San Pedro station; these delays to the existing Metro Blue Line could also be as much as an entire 120-second traffic signal cycle and would occur randomly. Metro Rail Operations believes that such delays to the Metro Blue Line and the Mid-City/Exposition Line would be very negative to overall system performance and reliability.

Figueroa Street & Flower Street at Exposition Boulevard – LRT trains would traverse both Figueroa Street, as well as Flower Street in the Metro-owned median right-of-way. LRVs would proceed at the same time as east west cross street traffic; no special LRT phase would need to be provided. It may be possible to operate the South Figueroa and South Flower signals in an interconnected fashion so that LRV trains could proceed through both intersections with little or no delay at the second intersection. It may also be possible to provide some degree of LRT priority.

Downtown Los Angeles Connection

<u>Hill Street Couplet Design Option</u>

17th & 18th Streets at Grand Avenue and Olive and Hill Streets – There would be some constraints to rail operations for Mid-City/Exposition trains through the grid of streets along the I-10 freeway segment given the need to provide for north-south roadway movements along Grand Avenue, Olive and Hill Streets, as well as for east-west rail and roadway movements along 17th and 18th Streets. It is likely that all of the traffic and rail movements would need to be accommodated in a fixed-time plan governing roadway as well as rail movements. In which case, it would not be possible to provide transit priority through these intersections. In addition, the outbound Mid-City/Exposition train would need to turn from east to south through the 18th/Hill Street intersection; the inbound Mid-City/Exposition train would need to turn from north to west through the 17th/Hill Street intersection during all-red traffic signal phases. Therefore, inbound Mid-City/Exposition trains may need to hold for a portion of the signal cycle approaching 17th Street northbound along Hill Street. Outbound Mid-City/Exposition line trains may need to hold for a portion of the signal cycle approaching Hill Street from the west along 18th Street as well, resulting in additional delays. Similar conflicts between inbound trains as noted for the Hill Street/LPA alternative at Flower Street/Washington Boulevard would be present at Flower/18th Streets. These conflicts could be resolved by having inbound trains hold up momentarily just south and east of the junction where no extraordinary additional impacts to the traffic signal priority control system would occur. Thus, delays to the Metro Blue Long Beach line would be less.

Washington Boulevard/Hill Street – In terms of rail service reliability, operations at the Washington Boulevard/Hill Street intersection would be simplified compared to the LPA in that trains would operate east and west or north and south with the traffic signal phasing remaining similar to the existing condition. Although there would potentially be delays at this location, they would be significantly less than the LPA.

Flower and Figueroa Streets at Exposition Boulevard – This option would perform the same as the Hill Street LPA alternative at the Flower and Figueroa Streets grade crossings. (Refer to the previous text for the discussion.)

Flower Street Design Option

Flower Street/Washington Boulevard – This option would have the same approximate characteristics as the Flower Street (Westside Design Option) as noted previously.

Flower and Figueroa Street at Exposition Boulevard – Provision of a grade separation beneath Flower Street, as well as Figueroa Street with the first at-grade crossing at Trousdale would eliminate possible rail service delays negotiating the turn between the Flower Street branch and the Exposition Boulevard portion of the line.

La Cienega Station Parking Options. Location of the parking facility for this option would not affect rail service reliability.

Jefferson Boulevard Design Options. Both of the options would grade-separate the National/Jefferson Boulevards intersection, thus beneficially affecting rail service reliability.

Venice/Robertson Design Options. The aerial station option, ROW option and North of ROW options would not require special operations modification, such as synchronized signals. Rail service reliability would not be affected.

Washington/National Boulevards - High traffic volumes at Washington/National Boulevards would require signals to be modified in order to decrease the LRV crossings or synchronize the eastbound and westbound LRVs so that the vehicles cross the intersections at the same time. Accommodation of LRV movements at the National and Washington Boulevards grade crossings would require restricting LRV operations to multi-phase traffic signal cycles.

The grade crossings would be controlled with automatic gates; pre-signals would be installed in the direction approaching the Washington/National Boulevards intersection in order to control queuing. The intersection phasing would provide track clearance phases along both National and Washington Boulevards in order to clear any remaining vehicles from the track area prior to LRV passage. LRV trains would not have priority or pre-emption available during peak periods. Rather, LRV trains would operate as dictated by the local traffic signal timing. LRV operators would respond to count down timers to position the trains for movement through the grade crossings during LRV service cycles. With this type of operation, the intersection would have adequate capacity to accommodate the projected hourly vehicular demand and delay impacts would be minimized. However, this type of operation has the potential to impose substantial delay for LRVs, which would reduce reliability of the LRVs. Thus, adverse affects associated with rail service reliability would be anticipated.

Phased Implementation. Neither of the phased implementation options would result in any changes in rail service reliability compared to the LPA or Design Options.

3.2.5.2 Neighborhood Traffic Circulation and Operational Impacts

The purpose of this assessment is to analyze the effects of minor street closures on traffic impacts and neighborhood circulation.

Traffic Movements

No Action. The No Action Alternative would not have any local roadway traffic circulation and operational changes impacts.

LPA. The Mid-City/Exposition LRT Project would have various impacts on traffic including changes in traffic patterns and operating conditions along the rail corridor roadways and intersections, as well as focused impacts in the vicinity of stations, especially at parking facilities or transit center sites. More specifically, the following types of effects could occur.

At various locations along the trackway, existing roadway and pedestrian movements would be closed to traffic. Vehicular and pedestrian traffic would be directed to planned grade crossing locations (see **Table 3.2-16**). In general, some low-volume vehicular and pedestrian crossings of the right-of-way would be closed and movements would be directed to locations carrying higher volumes.

TABLE 3.2-16: TRIP DISTRIBUTION

Traffic From	Distributed To
Wisconsin/Exposition	Vermont/Exposition
Catalina/Exposition	Vermont/Exposition
Raymond/Exposition	Vermont/Exposition
Budlong/Exposition	Normandie/Exposition
Halldale/Exposition	Normandie/Exposition
LaSalle/Exposition	Normandie/Exposition
Harvard/Exposition	Western/Exposition
Hobart/Exposition	Western/Exposition
2^{nd} /Exposition	Arlington/Exposition
3rd/Exposition	Arlington/Exposition

SOURCE: Korve Engineering 2004

To evaluate the impact of crossing closures, AM and PM counts for the left-turning movements were obtained for the ten locations. Based on the traffic volumes obtained for the four intersections with the closure scenarios, capacity analysis was done to determine new levels of service.

The intersection capacity analysis evaluation addresses the impact of the increase in traffic and changes in operating conditions at the remaining crossings and validates the ability of the proposed grade crossings to function adequately. Traffic that currently uses roadways to be closed would be diverted to the remaining crossings locations and there would be some out-of-direction travel. On the other hand, traffic levels would be reduced on these minor roadways due to the closures at the Metro right-of-way. Since the locations remaining open would have adequate capacity to accommodate the diverted traffic, and the out-of-direction travel to the nearest track way crossing would be minimal, these effects would not be considered to be adverse.

Additional street closures may be identified during the refinement of Project design and engineering. All street closures would be governed by the PUC. Because it is very difficult to precisely predict the way in which traffic would adjust to the Project-related street closures, a “neighborhood traffic control” mitigation measure has been developed. This would be implemented through a monitoring program to determine the need for traffic calming or other remedial measures.

Downtown Los Angeles Connection Options. None of the Downtown Los Angeles Connection Options would have an effect on localized circulation patterns, since there would be no proposed street closures in the Downtown Los Angeles subarea.

La Cienega Station Parking Options. See Section 3.2.4.2.1 for a discussion on neighborhood traffic circulation impacts associated with parking at the Southeast corner of the La Cienega Boulevard/Jefferson Boulevard intersection. Vehicles exiting this parking facility would not be allowed to make left turns. As such, there would be a potential for drivers to make illegal u-turns at Hauser

Boulevard. Mitigation measures would be provided to prevent vehicles for making u-turns at Hauser Boulevard.

Jefferson Boulevard Design Options. Not applicable.

Venice/Robertson Design Options. See Section 3.3 Parking for a discussion of how these options would affect parking. The Aerial Station option would provide a park-and-ride facility along the Exposition ROW (between Durango Drive and Watseka Avenue). The roads that cross this parking facility are residential streets. Thus, this option would force traffic onto these residential streets, which would adversely affect neighborhood traffic circulation.

The North of ROW options and ROW option would result in spillover parking effects at residential streets within close proximity to these stations, such as Helms Avenue and Caroline Avenue. Neighborhood traffic circulation would be adversely affected since drivers would drive around the neighborhood in search for parking in the neighborhood.

Phased Implementation. The Vermont Avenue option would have no localized circulation impacts, since all of the closures would be west of Vermont Avenue. The Crenshaw Boulevard localized impacts would be the same as the LPA.

3.2.5.3 Impact of Special Events Street Closures on Mid-City/Exposition LRT Operations

No Action. The No Action Alternative would not result in any special events street closures impacts.

LPA. Several special events occur in and near the University of Southern California (USC) campus and the Exposition Park area every year. Some of these events currently entail the closure of streets and/or restriction of traffic in the surrounding area for event traffic control, marching band procession, and/or safe pedestrian crossing. According to the Los Angeles Department of Transportation (LADOT), approximately 100 special events occur in the USC/Exposition Park area annually. For over 60 of those events, traffic officers are deployed to help manage traffic flow. More than ten of those events result in a full closure of Exposition Boulevard between Vermont Avenue and Figueroa Street. Two of these closures, the Los Angeles Marathon and the Revlon Run/Walk, are by special events permits or by Los Angeles City Council order. The other closures are initiated or planned by LADOT for traffic management and safety purposes. The following events require the closure of Exposition Boulevard between Figueroa Street and Vermont Avenue:

- Los Angeles Marathon
- Revlon Run/Walk
- USC Football Games at the Coliseum
- World Cup and Other Soccer Events at the Coliseum
- MotorCross Events at the Coliseum

Additional future events may result in the closing of Exposition Boulevard as well. Generally, Exposition Boulevard is closed for USC football games and other major events in the Coliseum attracting 50,000 or more attendees. The rationale for closing the street during major events of greater than 50,000 attendees is to maintain pedestrian safety of those crossing the street and to distribute post-event traffic loads to multiple freeway ramps to ease traffic congestion. This traffic distribution strategy improves parking lot clearance times for both Exposition Park and USC.

Generally, Exposition Boulevard is closed before and after special events to allow people to cross Exposition Boulevard from the parking structures at USC to reach Exposition Park. During USC football games, the street is closed when the band marches from the campus to the stadium and immediately after the game, when pedestrians are crossing the street to return to on-campus parking and residential facilities.

At this point, no significant changes would be expected in regards to the number of times Exposition Boulevard would be closed for special events in the future. LADOT estimates that Exposition Boulevard would be closed ten to fifteen times a year due to special events, primarily on weekends or late in the evening. Exposition Boulevard has not been closed as a result of a special event during any weekday peak-period for more than four years.

When Exposition Boulevard would be closed to traffic during events, the operation of an at-grade LRT alignment would require changes in operating procedures during the closures. During major events, an at-grade LRT would cause impacts to overall event and traffic operations. Some measures have been recommended to allow the LRT to run while Exposition Boulevard would be closed. One possible mitigation strategy would be to create a "Bus Bridge" which would connect the two sides of the operating LRT with express buses. These buses would pick up passengers at one terminus and shuttle them to the other terminus avoiding the street closures.

Another mitigation strategy would allow for the LRT to operate in the USC and Exposition Park vicinity despite an Exposition Boulevard closure. Traffic control personnel from the Department of Transportation would need to be present to stop vehicular or pedestrian traffic. This would allow columns of pedestrians to cross the streets at periodic intervals between LRT trains. Pedestrian barricades (temporary or permanent) would be installed along the median of Exposition Boulevard on both sides of the LRT line to prevent people from crossing the LRT tracks mid block. During the Los Angeles Marathon, or similar running events such as the Revlon Run/Walk, LRT service would require the use of a bus bridge, as the continuous flow of pedestrians crossing the track could not be interrupted.

Downtown Los Angeles Connection Options. At this point, no significant changes would be expected in regards to trip patterns to the Staples Center, Convention Center, and to the Los Angeles Entertainment District project. The Flower Street Design Option would provide superior service to USC venues during special events by grade-separating the LRT at Figueroa Street, Flower Street, and Pardee Way.

La Cienega Station Parking Options. Not applicable.

Jefferson Boulevard Design Options. Not applicable.

Venice/Robertson Design Options. Not applicable. The weekly closure of Main Street for the Farmer's Market in Culver City would not directly affect station area circulation.

Phased Implementations. Not applicable.

3.2.5.4 Mitigation Measures

T22 Neighborhood Traffic Control

- Although no adverse neighborhood traffic effects have been identified, Metro shall monitor traffic conditions on residential streets adjacent to the Exposition Corridor to determine the need for traffic calming measures on residential streets. Metro shall prepare traffic calming programs for each identified neighborhood location in coordination with the affected residents.
- Neighborhood traffic control may be typically achieved by three means:

a) General devices for neighborhood traffic control and protection that convey specific controls to drivers and pedestrians alike, including stop signs, speed limit signs and speed zones, turn prohibition signs, one-way street designation, and other regulatory devices such as flashing signals, yield signs, access regulation signs, truck restrictions, and parking controls;
b) Geometric features of the road that physically restrict and prevent vehicle movement including chokers, traffic circles, median barriers, semi-diverters, forced-turn channelization, and cul-de-sacs at intersections or mid block. Other measures shall be considered to reduce vehicle speed such as pavement undulations and dips or raised intersections;
c) Complete street closures to divert traffic to alternate routes and accomplish a desired goal.

T23 Special Event Strategies

- Metro shall develop "Bus Bridge" plan (with non-continuous LRT operations).
- Metro shall develop "Traffic Control" plan (with LRT operation) with the City of Los Angeles.

3.2.6 CEQA DETERMINATION

The preceding analysis indicates that there would be no significant traffic impacts remaining after implementation of mitigation measures. This CEQA determination is based on the following thresholds of significance for grade crossing traffic impacts (i.e.,Downtown Connection and Mid-Corridor Subareas):

- An intersection is considered to be significantly affected if the Project will cause a deterioration in LOS to E or worse, or results in an increase in the average vehicle delay of 5.0 seconds or more at an intersection projected to operate at LOS E or worse under No Project conditions.

For station area traffic impacts (i.e., West End Subarea), this CEQA determination is based on the following significance thresholds:

- *City of Los Angeles*. The City of Los Angeles established threshold criteria that determine whether a project has a significant traffic impact at a specific intersection. Under the city's guidelines, a project impact would be considered significant if the following conditions are met:

Intersection Conditions with Project Traffic		Project-related Increase in V/C Ratio
LOS	V/C Ratio	
C	> 0.700 - 0.800	Equal to or greater than 0.040
D	> 0.800 - 0.900	Equal to or greater than 0.020
E, F	> 0.900	Equal to or greater than 0.010

Using these criteria, for example, a project would not have a significant impact at an intersection if it is operating at LOS C after the addition of project traffic and the incremental change in the volume to capacity (V/C) ratio is less than 0.040. If the intersection, however, is operating at LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.010 or greater, the project would be considered to have a significant impact

- For the study intersections that are located within Culver City, the City has established threshold criteria that determine if a project has a significant traffic impact at a specific intersection. According to the City's criteria, a project impact would be considered significant if the following conditions are met:

Intersection Conditions with Project Traffic		Project-related Increase in V/C Ratio
LOS	V/C Ratio	
D	0.801 to 0.900	Equal to or greater than 0.040
E, F	0.901 or more	Equal to or greater than 0.020

No Action. The No Action alternative would result in continued delays and congestion on regional freeways due to general traffic growth and no reduction in such traffic.

At the Downtown Connection Subarea, intersections would operate at LOS D or better.

Within the Mid-Corridor Subarea, the Crenshaw Boulevard/Rodeo Road intersection would operate at LOS E during the PM peak, and the Crenshaw Boulevard/36th Street intersection will operate at LOS F during the AM and PM peak. Overflow would be anticipated at the Crenshaw Boulevard/36th Street intersection.

Within the West End Subarea, 11 of the 17 intersections operate at LOS E or F during one or more of the peak hours. The remaining six intersections operate at LOS D or better during one or more of the peak hours.

LPA. Significant impacts would be anticipated at the I-110 Hope Street on-ramp. Mitigation measure **T2** would reduce impacts to less-than-significant levels. No significant impacts would be anticipated at the Robertson Boulevard/I-10 ramps.

With "good practice" and "best practice" designs, all of the study intersections within the Downtown Connection Subarea would operate at LOS D or better in year 2020. No significant impacts would be anticipated within this subarea.

Within the Mid-Corridor Subarea, one intersection (Crenshaw Boulevard/Rodeo Road) will operate at LOS E. At this intersection, average delay would incrementally increase by 4.4 seconds, which would be below the significance threshold of a five second increase for grade-crossing traffic impacts. Thus, less than significant impacts would be anticipated at this intersection.

Within the West End Subarea, significant impacts would be anticipated at the intersection of National Boulevard/Washington Boulevard and National Boulevard/Venice Boulevard. This impact can be mitigated to less-than-significant levels.

Downtown Los Angeles Connection Options. The Hill Street Design Couplet Design Option would result in significant impacts as the passage of the LRT along 18th Street and 17th Street between Flower Street and Hill Streets would temporarily block the ramps. Mitigation measures would reduce impacts to less-than-significant levels.

The Flower Street Design Option would not result in a significant freeway ramp impact as issues associated with this option can be resolved in the final design.

The Downtown Los Angeles Connection Options would operate at LOS D or better in year 2020. Thus, no significant impacts would be anticipated.

La Cienega Station Parking Options. Freeway ramps would not be significantly affected by this option.

Significant traffic impacts would be anticipated at the following locations. However, implementation of mitigation measures would reduce impacts to less-than-significant levels:

- Jefferson Boulevard/National Boulevard (AM and PM peak hours)
- Washington Boulevard/National Boulevard (AM and PM peak hours)
- National Boulevard/Venice Boulevard (PM peak hour only)

Jefferson Boulevard Design Options. Freeway ramps would not be significantly affected by this option.

Significant traffic impacts would be anticipated at the following locations. However, implementation of mitigation measures would reduce impacts to less-than-significant levels:

- La Cienega Boulevard/Jefferson Boulevard (AM peak hour only)
- La Cienega Boulevard/Rodeo Road (PM peak hour only)
- Jefferson Boulevard/National Boulevard (AM peak hour only)
- Washington Boulevard/National Boulevard (AM and PM peak hours)
- National Boulevard/Venice Boulevard (PM peak hour only)

Venice/Robertson Design Options. Impacts associated with the I-10/Robertson ramps would be the same as the LPA. Implementation of mitigation measures would reduce impacts to less-than-significant levels.

The ROW and North of ROW Design Options would result in five significant traffic impacts:

- La Cienega Boulevard/Jefferson Boulevard (AM peak hour only)
- La Cienega Boulevard/Rodeo Road (PM peak hour only)
- Jefferson Boulevard/National Boulevard (AM peak hour only)
- Washington Boulevard/National Boulevard (AM and PM peak hours)
- National Boulevard/Venice Boulevard (PM peak hour only)

The adverse traffic affects for La Cienega Boulevard/Jefferson Boulevard, La Cienega Boulevard/Rodeo Road, Jefferson Boulevard/National Boulevard and National Boulevard/Venice Boulevard could be mitigated using the same mitigation measures used for the LPA.

The Aerial Station Design Option would result in five significant traffic impacts:

- La Cienega Boulevard/Jefferson Boulevard (AM peak hour only)
- La Cienega Boulevard/Rodeo Road (PM peak hour only)
- Jefferson Boulevard/National Boulevard (AM peak hour only)
- Washington Boulevard/National Boulevard (AM and PM peak hours)
- National Boulevard/Venice Boulevard (PM peak hour only)

The significant impact at La Cienega Boulevard/Jefferson Boulevard, La Cienega Boulevard/Rodeo Road, Jefferson Boulevard/National Boulevard and National Boulevard/Venice Boulevard could be mitigated using the same mitigation measures used for the LPA.

Phased Implementation. Impacts associated with freeway ramps would be the same as the LPA.

For the La Cienega Segment - Southeast Corner Parking Option, three intersections would be significantly impacted:

- La Cienega Boulevard/Jefferson Boulevard (AM peak hour only)
- La Cienega Boulevard/Rodeo Road (PM peak hour only)
- Jefferson Boulevard/National Boulevard (AM peak hour only)

The significant traffic impact at La Cienega Boulevard/Jefferson Boulevard, La Cienega Boulevard/Rodeo Road and Jefferson Boulevard/National Boulevard could be mitigated adopting the same measures as in the LPA.

For the La Cienega Segment - Southwest Corner Parking Option, one intersection would be significantly impacted:

- Jefferson Boulevard/National Boulevard (AM peak hour only)

The significant traffic impact at Jefferson Boulevard/National Boulevard could be mitigated adopting the same measure used for the LPA.

Significant Impacts Remaining after Mitigation. With implementation of mitigation measures, less-than-significant impacts would be anticipated.

3.3 PARKING

This section provides information relative to parking issues affected by the proposed Project. The section assesses existing on-street parking conditions relative to proposals for the elimination of such parking in order to accommodate the Mid-City/Exposition LRT Project. Additionally, it discusses the proposed parking facilities (park-and-ride lots) needed to adequately serve transit patrons attracted to the proposed high-capacity transit service. Finally, this section discusses parking management measures and parking replacement strategies designed to mitigate the impact of removing on-street parking.

3.3.1 AFFECTED ENVIRONMENT

3.3.1.1 Off-Street Parking

A variety of land uses exist along the entire length of the Exposition Corridor, including commercial, industrial, residential, recreational, and institutional. As mandated by zoning codes relative to parking requirements, these uses provide off-street parking accommodations typically by using private parking lots/structures. The proposed Project would affect various locations along the Corridor where the Metro ROW is currently used for parking by nearby schools and businesses. In addition, the demand for off-street parking could increase in areas where the on-street parking is removed or is insufficient to accommodate new transit users who drive to their boarding stations. **Table 3.3-1** provides a summary of various locations along the Locally Preferred Alternative (LPA) currently used for parking within Metro-owned ROW near schools and businesses and the estimated removal of parking spaces, based on an average land requirement of 400 square feet per parking space.

TABLE 3.3-1: LOSS OF OFF-STREET PARKING WITHIN METRO-OWNED RIGHT-OF-WAY

Location	Area (sf)	Land Use	Estimated Parking Spaces to be Removed /a/
DOWNTOWN LOS ANGELES CONNECTION			
Hill Street & 35th Street /b/	22,800	Employee Parking	57
Sub Total	22,800		57
MID-CORRIDOR			
Arlington Avenue & Gramercy Place	56,100	Beautification & Parking	5
	2,500	Employee & Truck Parking	6
Exposition Boulevard & La Brea Avenue	5,000	Employee & Invitee Parking	12
Exposition Boulevard & Sycamore Avenue	2,452	Vehicle Parking	6
La Cienega Avenue & Jefferson Boulevard	19,239	Auto and Business Parking	48
Sub Total	85,291		77
WEST END			
National Boulevard & Hayden Avenue/ Wesley Street	25,980	Auto Parking	65
National Boulevard & Washington Boulevard	31,437	Vehicle Parking	79
Sub Total	57,417		144
Grand Total - LPA and Hill Street Couplet	**165,508**		**278**
Grand Total - Flower Street Design Option	**142,708**		**221**

/a/ Calculated based on an average land requirement of 400 square feet per parking space
/b/ Impact to Hill Street Alignments only (LPA and Hill Street Couplet Design Option)
SOURCE: Metro lease data and Korve Engineering, 2004

3.3.1.2 On-Street Parking

Construction of the Mid-City/Exposition LRT Project would result in the removal of on-street parking spaces along the corridor. **Table 3.3-2** summarizes the number of existing spaces along the alignment from Hill Street to Venice Boulevard (where new trackway would be constructed) and how many spaces would be removed due to the Project. The summary included spaces on both sides of the street. **Table 3.3-3** provides a more detailed description of where the parking loss would occur along the alignment.

TABLE 3.3-2: SUMMARY OF ON-STREET PARKING LOSS

	LPA		Hill Street Couplet Design Option		Flower Street Design Option /a/	
Subarea	Existing	Removed	Existing	Removed	Existing	Removed
Downtown Los Angeles Connection	328	242	381	290	269	181/b/
Mid-Corridor	1,010	512	1,010	512	1,010	512
West End	156	5	156	5	156	5
TOTAL	1,494	759	1,547	807	1,435	698

/a/ Parking loss would be identical for the three undercrossing design options at USC/Exposition Park.
/b/ Only 91 spaces in the Downtown portion of the route would be removed. The remaining 90 spaces would be available for parking, but only during off-peak traffic hours.
SOURCE: Kaku Associates, Inc., 2005

TABLE 3.3-3: EXISTING ON-STREET PARKING AND PARKING LOSS MITIGATION PLAN

Street	From	To	West/North Side Adj Land Use	West/North Side Existing Parking	West/North Side Parking Loss	West/North Side Daytime Peak Use	West/North Side Nighttime Peak Use	East/South Side Adj Land Use	East/South Side Existing Parking	East/South Side Parking Loss	East/South Side Daytime Peak Use	East/South Side Nighttime Peak Use	Current Parking Use and Parking Loss Mitigation Plan
DOWNTOWN LOS ANGELES CONNECTION													
Flower Street Design Option													
Flower St	17th St	Washington Bl	Com	10	0	30%	20%	Fwy	0	0	0%	0%	No loss of parking.
Flower St	Washington Bl	Jefferson Bl	Com	94	75 /b/	80%	86%	Ind/Com	33	33	91%	94%	All east side parking serves LATTC. LRT use to offset loss. On west side, part-time parking restrictions only - parking loss during p.m. peak period only.
Flower St	Jefferson Bl	Exposition Bl	Com	15	15 /b/	100%	80%	Ind/Com	20	20	95%	50%	No adjacent commercial uses. Off-street parking lot adjacent on west side and fwy on east.
Exposition Bl	Vemont Av	Watt Wy	Univ	11	0	100%	100%	Park	9	0	100%	94%	No loss of parking.
Exposition Bl	Watt Wy	Flower St	Univ	38	38	100%	100%	Park	39	0	100%	94%	New parking structure nearby to absorb loss.
		SUBTOTAL:		**168**	**128**	**85%**	**86%**		**101**	**53**	**96%**	**85%**	
Hill Street Couplet Design Option													
17th St	Flower St	Hill St	Ind/Com	16	16	75%	100%	Ind/Com	3	3	0%	100%	Substantial additional public parking spaces available below I-10 freeway structure. Private adjacent parking garages also available.
18th St	Flower St	Hill St	Ind/Com	11	11	36%	0%	Ind/Com	15	0	27%	27%	
		SUBTOTAL:		**27**	**27**	**59%**	**59%**		**18**	**3**	**22%**	**39%**	
Hill St	17th St	18th St	Ind/Com	0	0	0%	0%	Ind/Com	0	0	0%	0%	Substantial additional public parking spaces available below I-10 freeway structure. Private adjacent parking garages also available.
Hill St	18th St	Washington Bl	Ind/Com	9	9	89%	33%	Ind/Com	9	9	100%	56%	
Hill St	Washington Bl	Exposition Bl	Ind/Com	96	96	91%	53%	Ind/Com	125	125	84%	49%	Metro shall work with local business owners and vendors to provide alternative on-street parking and loading spaces.
Exposition Bl	Vemont Av	Watt Wy	Univ	11	0	100%	100%	Park	9	0	100%	94%	No loss of parking.
Exposition Bl	Watt Wy	Flower St	Univ	38	0	100%	100%	Park	39	0	100%	94%	New parking structure nearby to absorb loss.
Exposition Bl	Flower St	Hill St	Ind/Comm	0	0	0%	0%	Ind/Com	0	0	0%	0%	

TABLE 3.3-3: EXISTING ON-STREET PARKING AND PARKING LOSS MITIGATION PLAN													
			West/North Side					East/South Side					
Street	From	To	Adj Land Use	Existing Parking	Parking Loss	Daytime Peak Use	Nighttime Peak Use	Adj Land Use	Existing Parking	Parking Loss	Daytime Peak Use	Nighttime Peak Use	Current Parking Use and Parking Loss Mitigation Plan
		SUBTOTAL:		154	105	94%	67%		182	155	89%	61%	
LPA													
Flower St	17^{th} St	Washington Bl	Com	10	0	30%	20%	Fwy	0	0	0%	0%	No loss of parking
Hill St	Washington Bl	Exposition Bl	Ind/Com	96	96	91%	53%	Ind/Com	125	125	84%	49%	Metro shall work with local business owners and vendors to provide alternative on-street parking and loading spaces.
Exposition Blvd	Vermont Av	Watt Wy	Univ	11	0	100%	100%	Park	9	0	100%	94%	No loss of parking.
	Watt Wy	Flower St	Univ	38	0	100%	100%	Park	39	21	100%	94%	New parking structure nearby under construction to absorb loss.
	Flower St	Hill St	Ind/Comm	0	0	0%	0%	Ind/Com	0	0	0%	0%	
		SUBTOTAL		155	96	90%	66%		173	146	88%	61%	
MID-CITY CORRIDOR (LPA and all Design Options)													
Jefferson Blvd	La Cienega Bl	Carmona Av	Resd	52	52 /a/	37%	52%	Ind	62	62 /a/	11%	11%	Off-street parking at La Cienega Station and additional 75 spaces to be provided on southeast corner to absorb loss.
Exposition Blvd	Carmona Av	La Brea Av	Ind/Comm	77	77/a/	42%	6%	Ind/Comm	89	56	30%	10%	Mostly industrial - low utilization. Over 40 unoccupied spaces observed on side streets within 1 block north.
Exposition Blvd	Dunsmuir Av	La Brea Av	Tracks	0	0	0%	0%	Resd	61	0	28%	30%	No loss of on-street parking.
Exposition Blvd	La Brea Av	Farmdale Av	Ind.	66	66	77%	42%	Tracks	111	6	50%	26%	Loss to be absorbed by south side (low utilization) unused spaces. Also over 26 unoccupied spaces observed on side streets within 1 block north.
Exposition Blvd	Farmdale Av	Crenshaw Bl	Resd	76	17	45%	47%	Tracks	106	106	30%	17%	Low utilization on south side - loss to be absorbed by north side spaces. Also, over 130 unoccupied spaces observed along side streets within 1 block north.
Exposition Blvd	Crenshaw Bl	Western Av	Resd	0	0	0%	0%	Resd	0	0	0%	0%	No on-street parking.

TABLE 3.3-3: EXISTING ON-STREET PARKING AND PARKING LOSS MITIGATION PLAN

			West/North Side					East/South Side					
Street	From	To	Adj Land Use	Existing Parking	Parking Loss	Daytime Peak Use	Nighttime Peak Use	Adj Land Use	Existing Parking	Parking Loss	Daytime Peak Use	Nighttime Peak Use	Current Parking Use and Parking Loss Mitigation Plan
Exposition Blvd	Western Av	Vermont Av	Resd	121	49	82%	62%	Resd	120	21	74%	68%	Minimal loss to be absorbed by unused spaces.
Exposition Place	Farmdale Av	Crenshaw Bl	Tracks	0	0	0%	0%	Resd	69	0	36%	28%	No loss of on-street parking.
		SUBTOTAL:		392	261	60%	44%		618	251	41%	29%	
WEST END (LPA and all Design Options)													
Exposition Blvd	Venice Bl	Washington Bl	Ind/Com	20	0	100%	10%	Ind/Com	24	0	100%	29%	No loss of on-street parking.
National Blvd	Washington Bl	Jefferson Bl	Com/ School	0	0			Com	93	0	52%	28%	
Jefferson Blvd	National Bl	La Cienega Bl	Ind	14	0	86%	43%	Ind	5	5	80%	20%	Off-street parking to be provided at La Cienega Blvd LRT station.
		SUBTOTAL:		34	0	94%	24%		122	5	62%	28%	

/a/ Parking loss not due to LRT tracks but due to roadway reconfiguration with implementation of bicycle lanes.
/b/ These spaces would not be physically removed; their use would be restricted to off-peak traffic hours.
SOURCE:: Kaku Associates, Inc. November, 2004.

3.3.2 IMPACT ASSESSMENT

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 conditions 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. In addition, the evaluation assesses the potential use of the three parking facilities proposed at Venice/Robertson, La Cienega, and Crenshaw Stations for replacement parking during "off-peak" conditions.

3.3.2.1 Loss of Off-Street Parking

No Action. The No Action Alternative would not result in any off-street parking impacts.

LPA. The proposed Project would remove off-street parking at various locations along the alignment, which are currently leased and used for parking by nearby schools and businesses. As tabulated in **Table 3.3-1**, a total of approximately 278 parking spaces would be eliminated from the Metro ROW as a result of the proposed Project. This would affect the convenience of parking access to the tenants leasing the affected ROW. Longer term leases have termination provisions of 30 to 180 days. However, it should be noted that most Metro leases are month-to-month and can be terminated with a 30-day or 90-day notice.

Downtown Los Angeles Connection Options. As shown in **Table 3.3-1**, 57 parking spaces are located on the ROW at Hill and 35th Streets. The Flower Street Design Option would not run on Hill Street and, thus, would not remove these parking spaces.

La Cienega Station Parking Options. Impacts to existing off-street parking would be the same as the LPA for either parking option.

Jefferson Boulevard Design Options. All of the 48 ROW parking spaces at La Cienega and Jefferson Boulevards would be removed under any design option. Impacts would be the same as the LPA for either design option selected.

Venice/Robertson Design Options. Impacts would be the same as the LPA for any of the design options selected.

Phased Implementation. Implementing the Vermont Segment would result in the same off-street parking removal as the LPA . The 57 spaces at 35th and Hill Streets shown in **Table 3.3-1** would also be removed for the Vermont Segment. In implementing the Crenshaw Segments, the same off-street parking impacts as the LPA up until Crenshaw Boulevard would occur. This means that the 11 parking spaces between Arlington Avenue and Gramercy Place would be lost. Implementing the La Cienega Segment would result in the same off-street parking impacts as the LPA. Forty-eight parking spaces from the ROW would be lost.

3.3.2.2 Loss of On-Street Parking

No Action. The No Action Alternative would not result in any on-street parking impacts.

LPA. *Downtown Los Angeles Connections* - As shown in **Table 3.3-2**, the LPA would result in the total removal of 242 on-street spaces in the Downtown Los Angeles Connection segment. In the eastern-most portions of the LPA, the Mid-City/Exposition LRT would run in the center of Hill Street as a semi-exclusive alignment. Two lanes of traffic would be provided in the southbound and northbound directions, and all on-street parking on Hill Street would be removed. Recent observations of peak daytime parking utilization on Hill Street between Washington Boulevard and Exposition Boulevard indicate an occupancy rate of 84 to 91 percent of the available 221 on-street spaces.

In addition to the removal of on-street parking, curb loading zones would also be removed. This would significantly affect the convenience of parking access to businesses along both sides of Hill Street, especially between 25th Street and 33rd Street. The loss of parking adjacent to businesses along Hill Street would result in an impediment to patron access, an inconvenience for deliveries, and an overall adverse impact. The loss of on-street parking in the Downtown Los Angeles Connection portion (Hill Street) of the Exposition Corridor would result in an adverse impact.

The loss of parking on Hill Street could be addressed by three different strategies. One approach would be to widen Hill Street to allow parking to remain. Widening Hill Street would require extensive costly property acquisition along Hill Street, on both sides of the street for approximately one mile. A second approach would be to create a mixed-operation lane for LRT and vehicular traffic. Metro does not currently operate any of its LRT in shared lanes as they typically introduce notable time delays for LRT operations. These time penalties would inhibit Metro's ability to provide time-effective service between Downtown Los Angeles and Culver City which would likely affect ridership. Furthermore, shared lanes introduce greater safety concerns. A third strategy for mitigating the Hill Street parking loss would be to implement a parking management program to assist local businesses with relocating parking for employees and identifying feasible customer parking or loading zone alternatives. Because of the cost prohibitive nature of the first approach, and the significant time and safety concerns of the second approach, the third strategy is therefore the one feasible method of mitigating the parking loss. See mitigation measure **P6** described below. This measure would offset impacts of the Hill Street parking loss.

Along Exposition Boulevard, 21 on-street spaces would be removed between Flower Street and Vermont Avenue.

There is some supplemental parking in the areas neighboring the proposed alignment. Adjacent to University of Southern California, several new parking structures would be able to absorb some of the loss of parking on Exposition Boulevard and on the southern portion of Hill Street. Supplemental parking spaces are available on Broadway Avenue although parking is prohibited during peak hours. Some supplemental parking spaces are also available on the cross streets, but the supply is low due to short block faces and numerous curb cuts. Available parking spaces exist at the parking lots near Washington Boulevard, but this is an area where on-street parking demand is low.

Mid-Corridor - West of Vermont Avenue to Venice Boulevard, the LRT would be located off-street within the Metro ROW. In some areas, however, the Metro ROW is limited so that it cannot provide enough space to accommodate the Exposition Transit Parkway LRT trackway, safety provisions and clearances, bikeway facility, and landscaping required for the proposed Project. As a result, realignment of the curb line at the adjacent Exposition Boulevard and Jefferson Boulevard is required, thus eliminating on-street parking spaces in certain areas currently serving the surrounding land uses. As shown in **Table 3.3-2**, 512 on-street parking spaces along the adjacent Exposition Boulevard and Jefferson Boulevard would be removed within the Mid-Corridor segment.

Field observations indicate that sufficient available off-street parking, current on-street parking prohibitions and minimal on-street parking utilization (40 percent or less) are occurring at some areas along the corridor, and therefore, would have limited parking impacts. Other areas, however, should be given specific attention as they would affect the convenience of parking access to the surrounding properties as identified in the discussion below.

Crenshaw Boulevard to Farmdale Avenue (Exposition Boulevard): Along this portion of the corridor, 123 out of 182 on-street parking spaces would be eliminated. On the north side of the street, 17 out of 76 on-street parking spaces would be eliminated as a result of the Project. Along the south side of the Exposition Boulevard in this segment, all of the on-street parking would be removed. Recent field observations indicate that the highest on-street parking utilization within these two blocks is 47 percent, occurring at night along the north side of the street. The loss of the parking would be partially absorbed by spaces that would remain on the north side of the street. Additionally, 130 unoccupied spaces were observed on side streets within one block north of this segment that could absorb demand from the lost spaces.

Farmdale to La Brea Avenue (Exposition Boulevard): An estimated 72 on-street parking spaces out of an existing 177 would be lost in this segment of the route. Parking spaces on the north side of the street experience high utilization, 77 percent during the daytime peak hour. Although the parking on the north side of the street would be removed, 105 on-street parking spaces (out of 111) would remain on the south side of the street where utilization rates are lower. These spaces could absorb some demand from the north side of the street. Additionally, 26 unoccupied spaces were observed on side streets within the one block north of this segment that could absorb demand from the lost spaces.

La Brea Avenue to Carmona (Jefferson Boulevard): Of the existing 166 parking spaces, 133 spaces would be eliminated in this segment. Land uses adjacent to the north and south sides of the street are mostly industrial therefore there is not a high demand for parking. Peak utilization was observed to be 42 percent on the north side of the street during daytime peak hour. However, a reconfiguration of the street design would replace 50 spaces. Additionally, 40 unoccupied spaces were observed within the one block north of the this segment that could absorb demand from the lost spaces.

Carmona Avenue to La Cienega Boulevard (Jefferson Boulevard): In this segment, all of the existing 114 on-street parking spaces would be removed. Though the peak utilization of spaces in this segment was observed at only 52 percent, removal of all on-street parking would impact the convenience of parking access to the adjacent properties. However, the elimination of on-street parking in this segment would be off-set by the proposed parking structure at La Cienega Station. Furthermore, a surface parking lot with an additional 75 spaces is proposed for the southeast corner of Jefferson and La Cienega Boulevards. These additional spaces and availability of spaces at the new structure could absorb the loss of on-street parking due to the Project.

West End - The proposed Project would remove a total of five of the existing on-street parking spaces within this segment.

Downtown Los Angeles Connection Options. As shown in **Table 3.3-2**, the Hill Street Couplet Design Option would remove a total of 290 spaces in the Downtown Los Angeles Connection. Compared to the LPA, this design option would remove an additional 48 spaces.

Along Flower Street, 53 spaces on east side of the street between 17th Street and Exposition Boulevard would be removed. However, on the west side of the street, the parking spaces would remain and their use would be restricted to off-peak traffic hours. Therefore, the existing 90 spaces on the west side of Flower Street in this segment of the route would remain available for parking during off-peak hours.

In order to implement any of the three USC/Exposition Park Undercrossing options, 38 on-street parking spaces on the north side of Exposition Boulevard between Watt Way and Vermont Avenue would be removed. In total, the Flower Street Design Option would remove 91 on-street parking spaces and place restrictions on another 90 spaces in the Downtown Los Angeles Connection as compared to the 242 spaces that would be removed by the LPA. The parking loss adjacent to USC and Exposition Park would be offset by the availability of off-street parking around campus and the park.

La Cienega Station Parking Options. There is no on-street parking adjacent to the site of the proposed parking structure at Jefferson and La Cienega Boulevards. Neither parking option would affect on-street parking.

Jefferson Boulevard Design Options. For both bridge design options, only five of 156 parking spaces would be eliminated on Jefferson Boulevard between La Cienega and National Boulevards.

Venice/Robertson Design Options. No on-street parking along National Boulevard between Venice Boulevard and Jefferson Boulevard would be lost. None of the station design options would affect on-street parking in the West End.

Phased Implementation. Implementation of the Vermont Segment would result in the same removal of 242 on-street parking spaces removal in the Downtown Los Angeles Connection as described for the LPA. Implementation of the Crenshaw Segment would remove the same 312 on-street parking spaces as the LPA as far west as Crenshaw Boulevard. Implementing the La Cienega Segment would result in the same parking loss as the LPA for this area. The La Cienega Segment would remove a total of 754 spaces.

3.3.2.3 Addition of Station Area Parking

No Action. The No Action Alternative would not result in any additional station area parking impacts.

LPA. Parking facilities are proposed at three locations along the LPA route: Venice/Robertson Station, La Cienega Station, and Crenshaw Station. The facilities would be designed to accommodate both vehicular and bicycle parking. The proposed station parking would provide sufficient capacity to accommodate the anticipated opening day (2010) demand for approximately 1,490 spaces as indicated from the results of the Metro's Travel Demand Model. Parking at Venice/Robertson Station would be provided within the Metro-owned ROW west of National Boulevard in a surface lot configuration. At La Cienega Station, a multi-level parking structure would be constructed, and at Crenshaw Station, parking would be provided through a shared-use agreement with an existing property owner (West Angeles Cathedral) that has an underutilized parking structure during weekdays.[1] **Table 3.3-4** illustrates that the expected parking supply is sufficient to meet opening day parking demand.

According to the Metro Travel Demand Model, the 2020 parking demand along the LPA route would increase to approximately 2,240 spaces. If the route is extended further westward during this period the ultimate parking demand would likely decrease as the parking would be distributed at other stations further west. Should the route not be extended westward, Metro would re-evaluate each of the three stations to increase parking supply to meet this demand. Under these circumstances, it is expected that Venice/Robertson Station parking can be increased by further extending the surface parking in the Metro-owned ROW or through shared use agreements with likely transit-oriented developments within the station area. At La Cienega, the MTA would coordinate with property owners of adjacent underutilized parcels or parking lots within the station area to add additional surface parking spaces. At Crenshaw, if ultimate demand warrants, Metro could enter into a shared-use agreement to construct

[1]It should be noted that parking demand at Crenshaw Station represents cumulative demand resulting from the shift of La Brea Station parking demand, since no viable opening day parking facilities location could be identified near the La Brea Station.

an additional parking structure on the West Angeles Cathedral property. In sum, sufficient parking spaces would be provided to meet the ultimate demand and no adverse station parking impacts are anticipated.

TABLE 3.3-4 LPA PARKING SUPPLY AND DEMAND, 2010 AND 2020

Station	2010 Demand Opening Day	2010 Supply Opening Day	2020 Demand Ultimate /a/	2020 Supply Ultimate
Crenshaw	350	500	590	600
La Cienega	530	530	750	750
Venice/Robertson	600	600	900	900
Total	**1,490**	**1,630**	**2,240**	**2,250**

/a/ Demand would likely decrease if route is extended westward.
SOURCE. Metro Travel Demand Model and Station Area Parking Supply Analysis

The three parking facilities at the Venice/Robertson, La Cienega, and Crenshaw Stations would provide adequate parking to accommodate the forecasted parking demand. Therefore, impacts associated with spillover parking to the adjacent streets would be minimal. However, parking restrictions along the adjacent streets are recommended to discourage parking by transit patrons. The implementation of the Clean Mobility Center at the Venice/Robertson Station would assist in providing a higher mode split at the station, thus reducing single occupancy automobile trip generation and thereby reducing parking demand.

At other stations along the corridor where off-street parking would not be provided, spillover parking to the adjacent streets may occur. Spill-over parking would result in parking impacts to surrounding neighborhoods. Although, the lack of parking supply may result in slightly reduced ridership, it may also would encourage transit patrons to use other modes of access such as walking, bicycling, transit and kiss-and-ride (drop-off). This impact is more likely a long-term issue when the proposed Project is extended to the City of Santa Monica.

Downtown Los Angeles Connection Options. No station parking is proposed in the downtown segment of the Project. It is not anticipated that patrons of the Mid-City/Exposition LRT would drive to this portion of the alignment.

La Cienega Parking Options. The Southwest Corner option would construct a 530-space parking structure. This structure would more than accommodate the expected opening day demand associated with boardings at the La Cienega Station. The No Parking option would mean that the La Cienega Station parking demand would be shifted to other station locations where parking is provided, eg. Venice/Robertson Station and the Crenshaw Station. At both locations, the proposed parking facilities would have to be increased. At the Venice/Robertson Station, the north of Venice Boulevard parking would be further extended west of Bagley Avenue. At Crenshaw Station, the Metro would likely need to enter into an agreement with the West Angeles Cathedral to construct an additional parking structure. The structure could be built in the eastern portion of the church property, not currently used for parking. Failure to provide station parking at La Cienega would likely increase the probability of spillover parking in areas west and east of the La Cienega Station, as well as at the La Brea station. To avoid an adverse effect, local neighborhood parking controls would have to be implemented (see mitigation measures). With the implementation of parking restrictions and the lack of station parking, it is expected that there would be some decline in ridership combined with patrons shifting to other modes such as auto drop-off, bus transit, bicycles and/or walking.

Jefferson Boulevard Design Options. Under the LPA, the adjacent La Cienega Station would include a parking structure. The bridge design options would not affect the new parking facility nor would they introduce a source of spillover parking.

Venice/Robertson Design Options. As described for the LPA, a parking facility for the Venice/Robertson station would be provided to accommodate parking demand at the station. The primary parking facility would be located north of Venice Boulevard and provided regardless of the design option selected.

Phased Implementation. Of the three Phased Implementation Options under consideration, only two options would have a discernible parking demand. Because of its near-downtown location, and because of the extensive supply off-street parking in the Exposition Park area, no parking is proposed for the Vermont Segment of the Project. The Metro Travel Demand Model does not forecast that transit patrons would drive to this station. For the Crenshaw Segment, the parking demand is expected to be approximately 650 spaces in 2010 and 970 spaces in 2020. As is the case for the LPA, parking would be provided within the Crenshaw Station area through a shared-use agreement to use an existing parking structure. Additional parking facilities would be constructed as needed on the same property. For the La Cienega Segment, there would be an opening day demand for approximately 1,100 spaces and a 2020 demand for almost 1,600 spaces. Parking would be provided at two stations (Crenshaw and La Cienega). Parking at Crenshaw Station would be provided as discussed above. At La Cienega Station, parking would be provided through the construction of a multi-level parking structure as well as through use of the MTA-owned ROW between La Cienega Boulevard and Hayden Avenue. In both cases sufficient parking supply would be provided to meet the ultimate demand, and no adverse parking impacts are anticipated.

3.3.3 MITIGATION MEASURES

P1 The following mitigation measures shall be implemented in the areas adjacent to the LRT station where no station parking facility is provided, and local jurisdictions determine that spillover parking is causing a significant impact. Some combination of the following four basic control approaches shall be implemented to reduce impacts of Metro patron parking in neighborhoods:

- Prohibit on-street parking
- Time-limited parking
- Resident permit parking
- Non-resident permits for registered car-poolers who work in the zone

P2 In the event that either Flower Street Design Option is selected as part of the Mid-City/Exposition LRT Project, parking restrictions shall be implemented on the west side of Flower Street between 17th Street and Exposition Boulevard. The restrictions shall prohibit parking during PM peak traffic hours.

P3 To absorb the parking loss associated with the removal of on-street parking along north side of Jefferson Boulevard between Carmona Avenue and La Cienega Boulevard, approximately 75 spaces in the proposed La Cienega Station parking facility shall be dedicated to local residents' use.

P4 The street configuration on Exposition Boulevard between Carmona Avenue and La Brea Avenue shall be redesigned to accommodate an additional 50 on-street parking spaces.

P5 Year 2020 parking demand at the Venice/Robertson Station, La Cienega Station and Crenshaw Station parking facilities shall be re-evaluated after opening day of the Project based on actual parking utilization and the overall operational characteristics of the Mid-City/Exposition LRT. The re-evaluation shall take into account bus feeder service and the potential extension of the line to Santa Monica. As part of this re-evaluation, the Metro shall consider expanding parking supply (if warranted) at the Crenshaw and La Brea station areas by entering into shared use agreements with local property owners such as the West Angeles Cathedral and/or the City of Los Angeles Department of Parks and Recreation.

P6 Metro shall coordinate with the City of Los Angeles and local business owners to identify available off-street replacement parking locations for employees displaced by the loss of on-street public parking along Hill Street. For businesses that rely on on-street customer parking and loading, side street locations shall be identified for conversion to metered, short-term parking and to designated loading zones.

3.3.4 CEQA DETERMINATION

No Action. CEQA Guidelines state that a significant impact would occur if the proposed Project results in inadequate parking supply. The parking analysis presented in Section 3.3.2 indicates that the No Action Alternative would not remove existing parking and would not result in inadequate parking.

LPA. The LPA would result in a significant parking impact along Hill Street where all of the parking serving local businesses would be removed. Mitigation measure **P6** would offset the loss of parking on Hill Street and would reduce the level of impact to less-than-significant. In all other segments of the project where the loss of on-street parking would be less than significant there is adequate on-street parking options on nearby streets, substantial off-street parking, or replacement parking is provided as a mitigation measure (See mitigation measures **P3** and **P4**).

Specifically in the Mid-Corridor segment, the loss of on-street parking would be generally offset by the supply of available street parking on surrounding side streets. In the West End, only five parking spaces out of an existing 156 spaces would be removed.

For the LPA, the potential for spillover station-related parking is expected to be less than significant. Adequate parking to meet opening day demand would be provided at Venice/Robert, La Cienega, and Crenshaw stations. Long-term demand would be satisified by implementaion of mitigation measure **P5**. The possibility of spillover parking on to local streets would exist at those stations where no parking facility is provided. This effect would be reduced to a less-than-significant level by implementation of mitigation measure **P1**. In addition, the lack of parking would encourage LRT patrons to shift to alternate modes of travel to reach their desired station and further reduce this spillover parking potential.

Downtown Los Angeles Connection Options. For the Downtown Los Angeles Connection Design Options, "3.3.2 Impact Assessment" indicates that 30 of the 45 existing curb spaces would be removed along the Hill Street Couplet (17^{th} and 18^{th} Streets), and as a result there would be a significant impact. Measure **P6** would address this impact.

Along the Flower Street Option, on-street parking spaces would be removed from Flower Street between Washington Boulevard and Exposition Boulevard, similar to the loss of parking spaces on Hill Street for the LPA. The loss of spaces on Flower Street, however, can be mitigated by implementation of mitigation measure **P2** where parking would be removed only during the peak hour and at all other times on-street parking would be allowed. This peak hour restriction-only measure would reduce the parking loss impact on Flower Street to a less-than-significant level.

La Cienega Parking Options. The preceding analysis indicates that the option to construct a 530-space parking structure on the southwest corner of La Cienega and Jefferson would satisfy the parking demand at the La Cienega Station, and there would be no significant parking impact at this location. In contrast, the La Cienega Station No Parking option would not meet the station demand and would require that patrons find parking either at the Venice/Robertson Station or at the Crenshaw Station. While additional spaces could be potentially provided at these stations by expanding existing facilities, the greatest likelihood is that patrons would attempt to park in areas surrounding the La Cienega Station as well as the La Brea station. Local parking restrictions in all station areas would thus be required to alleviate spillover parking problems.

Jefferson Boulevard Design Options. The Jefferson Boulevard options would not affect existing on-street parking. No significant parking impacts are anticipated.

The Venice Robertson Design Options. In the case of each of the station locations under consideration, the supply and location of parking areas would not change from the LPA. Thus, parking would be adequate to satisfy expected demand. It should be noted however, that the ROW and North of ROW station options are located on the east side of the Washington Boulevard and National Boulevard intersection and would be a considerable distance from the main supply of station parking site north of Venice Boulevard. The distance between the stations and the parking would require a shuttle system. Even with this measure, there is a strong likelihood that the pressure of spillover parking supply would increase on local streets in East Culver City, particularly east and south east of the Washington Boulevard and National Boulevard intersection. Mitigation measure P1 would be necessary to reduce this potential problem.

Phased Implementation. The Phased Implementation options would have parking effects similar to the LPA. Thus, significant on-street parking loss would occur along Hill Street where there is no replacement option. This significant effect would apply to each of the Phased Implementation options. It is expected that for each Phased Implementation option there would be patrons who would access the station via automobile. However, the demand at each of the terminal locations would be less than the LPA due to the shortened route length and reduced ridership. At Vermont, there is an adequate supply of off-street parking in the Exposition Park/USC area to address any incremental demand. Parking provided at Crenshaw and La Cienega Stations would be adequate also to meet the expected demand of each option, and no significant adverse impacts are anticipated.

Significant Impacts Remaining After Mitigation. Implementation of mitigation measures **P1** and **P5** would reduce spill-over parking impacts to less-than-significant levels. Mitigation measure **P2** would reduce parking impacts on Flower Street to less-than-significant levels in the event either Flower Street design option is selected for the Downtown Los Angeles Connection. Mitigation measures **P3** and **P4** would reduce impacts related to removal of on-street parking in the Mid-Corridor to less-than-significant levels. Mitigation measure **P6** would reduce the impact of loss of parking on Hill Street in the Downtown Los Angeles Connection to a less-than-significant level. However, a significant impact on Hill Street would remain.