







TRAFFIC IMPACT STUDY  
**2005 JAMES M. WOOD BOULEVARD**  
**HOTEL PROJECT**  
City of Los Angeles, California  
February 17, 2017

*Prepared for:*  
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TRAFFIC IMPACT STUDY  
**2005 JAMES M. WOOD BOULEVARD HOTEL PROJECT**  
City of Los Angeles, California  
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## 1.0 INTRODUCTION

This traffic analysis has been conducted to identify and evaluate the potential traffic impacts generated by the proposed hotel project (the “Project”) located at 2005 James M. Wood Boulevard in the Westlake area of the City of Los Angeles. The Project proposes the construction of a hotel that will provide up to 100 guestrooms. The proposed Project site is located at the northwest corner of the Westlake Avenue and James M. Wood Boulevard intersection. The Project site location and general vicinity are shown in *Figure 1-1*.

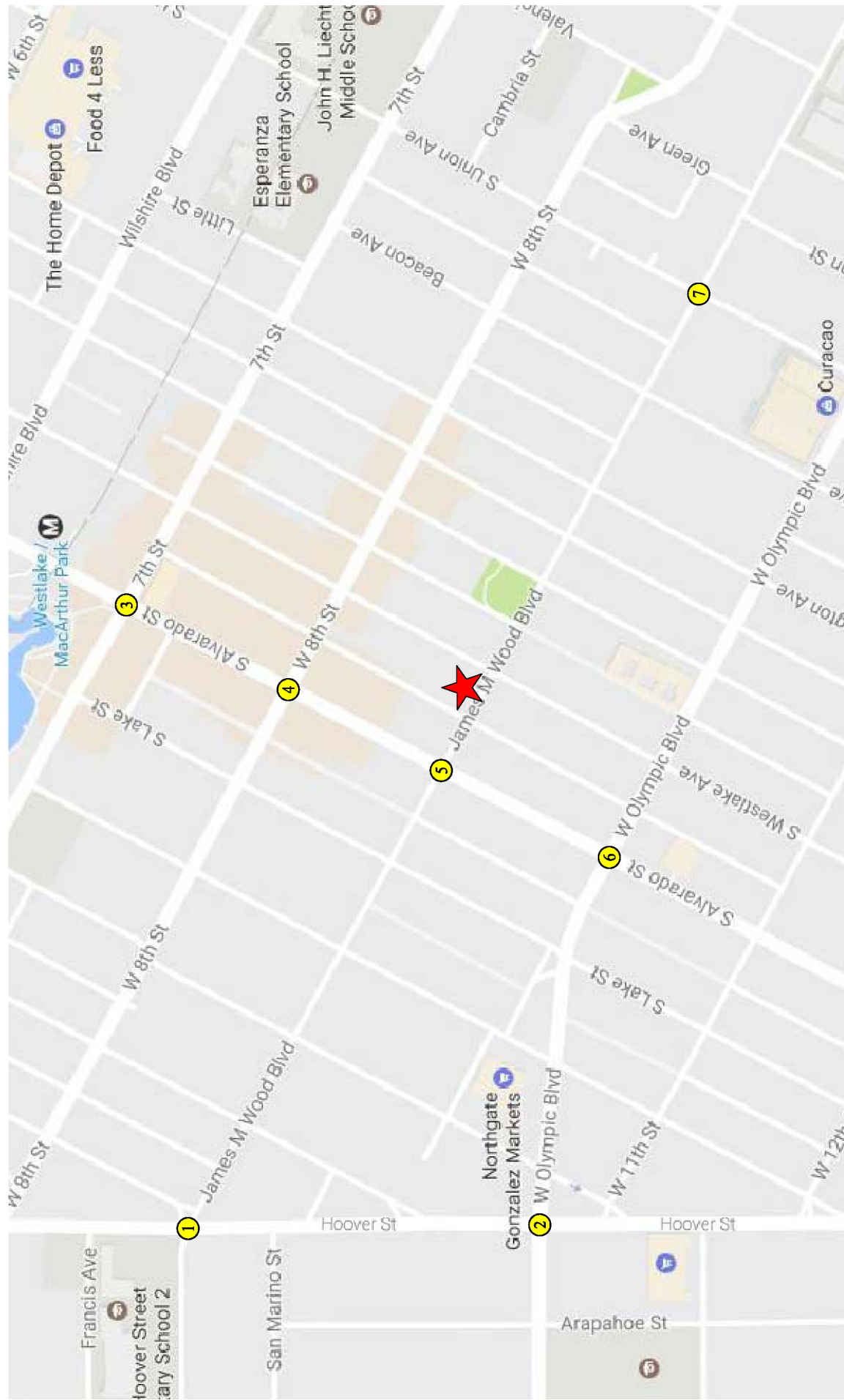
The traffic analysis follows City of Los Angeles traffic study guidelines<sup>1</sup> and is consistent with traffic impact assessment guidelines set forth in the Los Angeles County Congestion Management Program<sup>2</sup>. This traffic analysis evaluates potential Project-related impacts at seven key intersections in the vicinity of the Project site. The study intersections were determined in consultation with City of Los Angeles Department of Transportation (LADOT) staff. The Critical Movement Analysis method was used to determine Volume-to-Capacity ratios and corresponding Levels of Service for all seven study intersections. A review also was conducted of Los Angeles County Metropolitan Transportation Authority freeway and intersection monitoring stations to determine if a Congestion Management Program transportation impact assessment analysis is required for the Project.

This study (i) presents existing traffic volumes, (ii) includes existing traffic volumes with the forecast net new traffic volumes from the Project, (iii) recommends mitigation measures, where necessary, (iv) forecasts future cumulative baseline traffic volumes, (v) forecasts future traffic volumes with the Project, (vi) determines future forecast with Project-related impacts, and (vii) recommends mitigation measures, where necessary.

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<sup>1</sup> *Traffic Study Policies and Procedures*, City of Los Angeles Department of Transportation, August 2014.

<sup>2</sup> *2010 Congestion Management Program for Los Angeles County*, Los Angeles County Metropolitan Transportation Authority, 2010.



**FIGURE 1-1**  
**VICINITY MAP**

MAP SOURCE: GOOGLE MAPS  
PROJECT SITE  
STUDY INTERSECTION



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## 1.1 Study Area

Upon coordination with LADOT staff, seven study intersections have been identified for evaluation. All of the intersections were analyzed during both the weekday morning and afternoon peak hours. The seven study intersections provide local access to the study area and define the extent of the boundaries for this traffic impact analysis. Further discussion of the existing street system and study area is provided in Section 3.0.

The general location of the Project in relation to the study locations and surrounding street system is presented in *Figure 1-1*. The traffic analysis study area is generally comprised of those locations which have the greatest potential to experience significant traffic impacts due to the Project as defined by the Lead Agency. In the traffic engineering practice, the study area generally includes those intersections that are:

- a. Immediately adjacent or in close proximity to the Project site;
- b. In the vicinity of the Project site that are documented to have current or projected future adverse operational issues; and
- c. In the vicinity of the Project site that are forecast to experience a relatively greater percentage of Project-related vehicular turning movements (e.g., at freeway ramp intersections).

The locations selected for analysis were based on the above criteria, the proposed Project peak hour vehicle trip generation, the anticipated distribution of Project vehicular trips, and existing intersection/corridor operations.

## 2.0 PROJECT DESCRIPTION

### 2.1 Site Location

The site of the Project is located at 2005 James M. Wood Boulevard and is within the Westlake Community Plan Area of the City of Los Angeles, California. The Project site is located at the northwest corner of the Westlake Avenue and James M. Wood Boulevard intersection. The Project site location and general vicinity are shown in *Figure 1-1*.

### 2.2 Existing Project Site

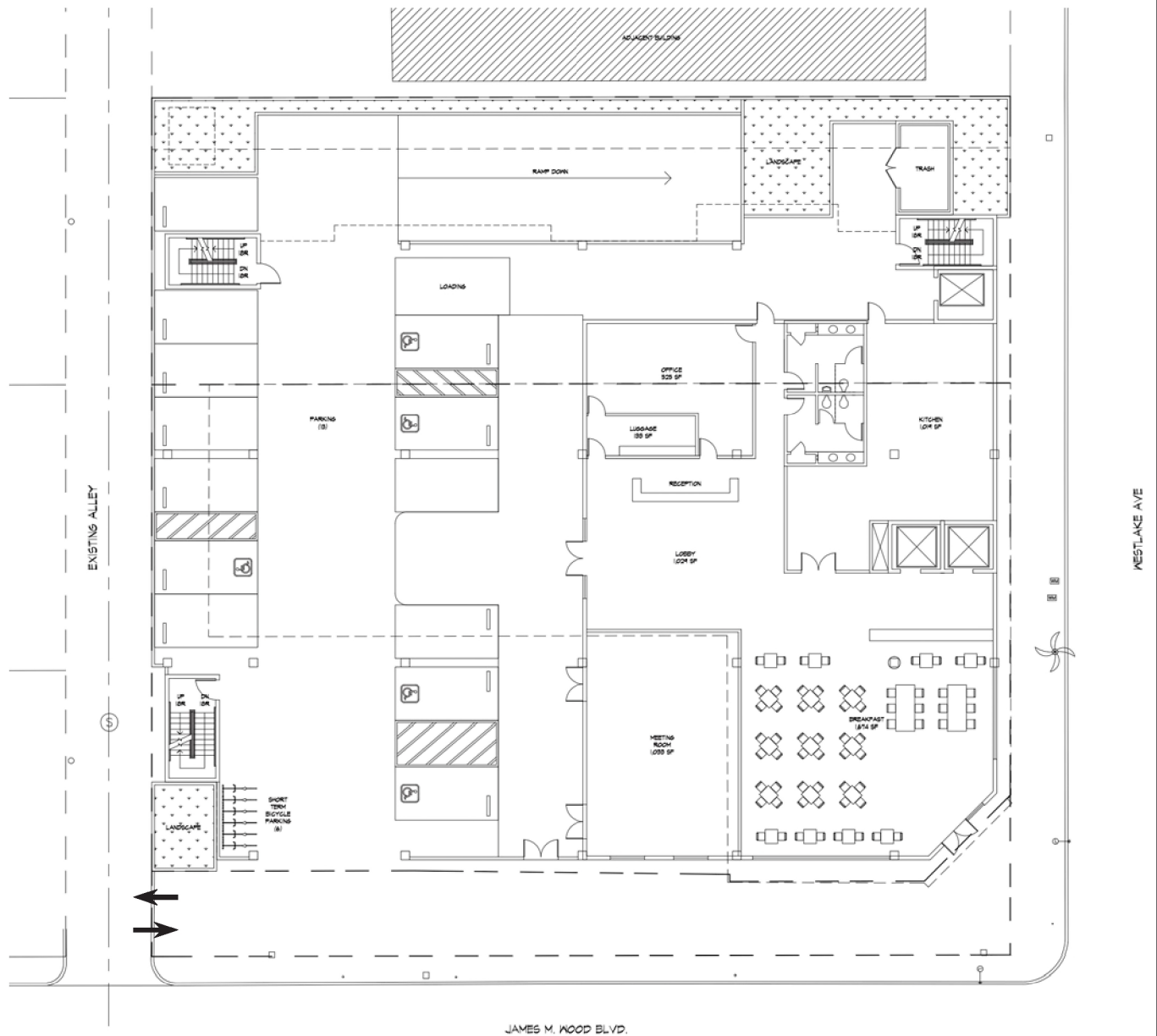
The existing Project site is currently occupied by retail space. The building area of the retail space is 8,228 square feet. Vehicular access to the existing Project site is provided via two driveways located off James M. Wood Boulevard and Westlake Avenue. Additionally, vehicular access is provided via the existing north-south alley located along the property's westerly frontage.

### 2.3 Proposed Project Description

The Project applicant proposes to construct a hotel that will provide up to 100 guestrooms. Parking for the Project will be provided on-site within a subterranean parking garage. A small number of at-grade parking will also be provided. Construction and occupancy of the Project is planned to be completed by the year 2019. The site plan for the Project is illustrated in *Figure 2-1*.

Vehicular access to the site will be provided via the existing north-south alley. Further discussion of the Project site access and circulation schemes is provided in Section 3.0.

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SOURCE: JWDA-MS ARCHITECTS

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## FIGURE 2-1 PROJECT SITE PLAN GROUND FLOOR

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## 3.0 SITE ACCESS AND CIRCULATION

The proposed site access scheme for the Project is displayed in *Figure 2-1*. A description of the proposed site access and circulation scheme is provided in the following subsections.

### 3.1 Existing Vehicular Site Access

Vehicular access to the existing site is provided via one driveway located off the north side of James M. Wood Boulevard and one driveway located off the west side of Westlake Avenue. Additionally, vehicular access is available via the existing alley that is adjacent to the property's westerly frontage.

### 3.2 Vehicular Project Site Access

Vehicular access to the Project site will be provided via the north-south alley located along the Project site's westerly frontage. The north-south alley will provide access to both the ground floor parking and loading area, as well as the subterranean parking levels of the on-site parking garage.

The north-south alley intersects 8<sup>th</sup> Street to the north and James M. Wood Boulevard to the south. Traffic movements at the alley intersections with 8<sup>th</sup> Street and James M. Wood Boulevard are assumed to accommodate full vehicular access (i.e., left-turn and right-turn ingress and egress turning movements).

## 4.0 EXISTING STREET SYSTEM

### 4.1 Regional Highway System

Regional access to the Project site is provided by the I-10 (Santa Monica) Freeway, US-101 (Hollywood) Freeway, and I-110 (Pasadena/Harbor) Freeway. Brief descriptions of the I-10, US-101, and I-110 Freeways are provided in the following paragraphs.

*I-10 (Santa Monica) Freeway* is an east-west freeway connecting the City of Santa Monica with the City of Los Angeles and the municipalities of the San Gabriel Valley and San Bernardino County to the east. In the Project vicinity, three to four mixed-flow freeway lanes are generally provided in each direction on the I-10 Freeway with auxiliary merge/weave lanes provided between some interchanges. Eastbound and westbound ramps are provided at Hoover Street on the I-10 Freeway in the Project area.

*US-101 (Hollywood) Freeway* is a north-south freeway that extends across northern and southern California. In the Project vicinity, four mixed-flow freeway lanes are provided in each direction on the US-101 Freeway. Northbound and southbound ramps are provided at Alvarado Street on the US-101 Freeway in the Project area.

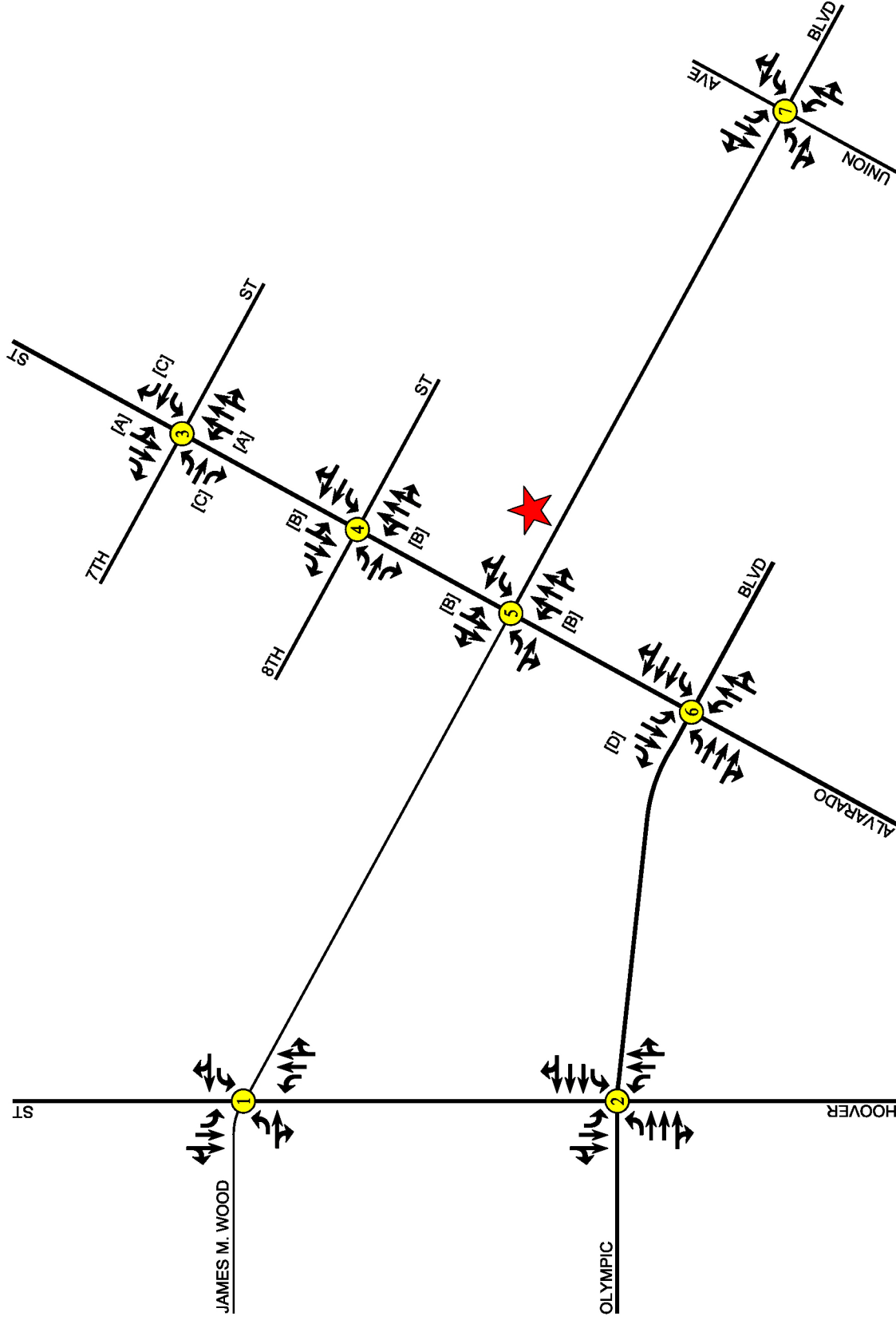
*I-110 (Pasadena/Harbor) Freeway* is a north-south oriented freeway connecting the San Gabriel area to the north with the San Pedro area to the south. In the Project vicinity, three to four mixed-flow freeway lanes are generally provided in each direction on the I-110 Freeway with auxiliary merge/weave lanes provided between some interchanges. Northbound and southbound ramps are provided at 8<sup>th</sup> Street on the I-110 Freeway in the Project area.

### 4.2 Local Roadway System

Immediate access to the Project site is provided via James M. Wood Boulevard and the existing north-south alley. The following study intersections were selected in consultation with LADOT staff for analysis of potential impacts due to the Project:

1. Hoover Street / James M. Wood Boulevard
2. Hoover Street / Olympic Boulevard
3. Alvarado Street / 7th Street
4. Alvarado Street / 8th Street
5. Alvarado Street / James M. Wood Boulevard
6. Alvarado Street / Olympic Boulevard
7. Union Avenue / James M. Wood Boulevard

All seven study intersections selected for analysis are presently controlled by traffic signals. The existing lane configurations at the study intersections are displayed in **Figure 4-1**.



**FIGURE 4-1**  
**EXISTING LANE**  
**CONFIGURATIONS**

2005 JAMES M. WOOD BLVD HOTEL PROJECT

★ PROJECT SITE    ⑤ STUDY INTERSECTION  
NOTE: ALL STUDY INTERSECTIONS ARE SIGNALIZED  
[A] = NO LEFT-TURN [7AM-7PM]  
[B] = NO LEFT-TURN [7-9AM, 4-7PM]  
[C] = DEFAC TO RIGHT-TURN  
[D] = RIGHT-TURN OVERLAP

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### 4.3 Roadway Descriptions

A brief description<sup>3</sup> of the important roadways in the Project vicinity is provided in the following paragraphs.

*Hoover Street* is a north-south oriented roadway located west of the Project Site. Within the Project study area, Hoover Street is designated as a Major Highway Class II/Avenue II north of Alvarado Street and as a Major Highway Class II/Boulevard II south of Alvarado Street by the City of Los Angeles. Two through travel lanes are generally provided in both directions on Hoover Street in the Project study area. Separate exclusive left-turn lanes are provided on Hoover Street at major intersections. Hoover Street is posted for a 35 miles per hour speed limit in the Project vicinity.

*Alvarado Street* is a north-south oriented roadway located west of the Project Site. Within the Project study area, Alvarado Street is designated as a Major Highway Class II/Avenue II by the City of Los Angeles. Two through travel lanes are generally provided in the southbound direction and three through travel lanes are generally provided in the northbound direction on Alvarado Street in the Project study area. Separate exclusive left-turn lanes are provided on Alvarado Street at the Olympic Boulevard intersection. Separate southbound right-turn only lanes are provided on Alvarado Street at major intersections. Alvarado Street is posted for a 35 miles per hour speed limit in the Project vicinity.

*Westlake Avenue* is a north-south oriented roadway that borders the Project site to the east. Within the Project study area, Westlake Avenue is designated as a Local Street by the City of Los Angeles. One through travel lane is generally provided in both directions on Westlake Avenue in the Project study area. There is no speed limit posted on Westlake Avenue in the Project vicinity, thus a prima facie speed limit of 25 miles per hour is assumed, consistent with the State of California Vehicle Code.

*Union Avenue* is a north-south oriented roadway located east of the Project site. Within the Project study area, Union Avenue is designated as a Secondary Highway /Avenue III by the City of Los Angeles. One to two through travel lanes are generally provided in both directions on Union Avenue within the Project study area. Separate exclusive left-turn lanes are provided on Union Avenue at the James M. Wood Boulevard intersection. There is no speed limit posted on Union Avenue in the Project vicinity, thus a prima facie speed limit of 25 miles per hour is assumed, consistent with the State of California Vehicle Code.

*7<sup>th</sup> Street* is an east-west oriented roadway that is located north of the Project site. Within the Project study area, 7<sup>th</sup> Street is designated as a Secondary Highway/Avenue II by the City of Los Angeles. One through travel lane is generally provided in both directions on 7<sup>th</sup> Street within the Project study area. Separate exclusive left-turn lanes are provided on 7<sup>th</sup> Street at the Alvarado Street intersection. 7<sup>th</sup> Street is posted for a 30 miles per hour speed limit in the Project vicinity.

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<sup>3</sup> For reference, the street descriptions provided include both the designations under the prior City Transportation Element (e.g., Major Highway, Secondary Highway, etc.) and Mobility Plan 2035 (e.g., Boulevard, Avenue, etc.) adopted by the Los Angeles City Council in August 2015).

*8<sup>th</sup> Street* is an east-west oriented roadway that is located north of the Project site. Within the Project study area, 8<sup>th</sup> Street is designated as a Secondary Highway/Avenue II by the City of Los Angeles. One to two through travel lanes are generally provided in both directions on 8<sup>th</sup> Street within the Project study area. Separate exclusive left-turn lanes are provided on 8<sup>th</sup> Street at the Alvarado Street intersection. A separate eastbound right-turn only lane is provided on 8<sup>th</sup> Street at the Alvarado Street intersection. 8<sup>th</sup> Street is posted for a 35 miles per hour speed limit in the Project vicinity.

*James M. Wood Boulevard* is an east-west oriented roadway that borders the Project site to the south. Within the Project study area, James M. Wood Boulevard is designated as a Collector Street west of Alvarado Street and as a Secondary Highway/Avenue III east of Alvarado Street by the City of Los Angeles. One through travel lane is generally provided in both directions on James M. Wood Boulevard within the Project study area. Separate exclusive left-turn lanes are provided on James M. Wood Boulevard at the Alvarado Street intersection. James M. Wood Boulevard is posted for a 25 miles per hour speed limit in the Project vicinity.

*Olympic Boulevard* is an east-west oriented roadway that is located south of the Project site. Within the Project study area, Olympic Boulevard is designated as a Major Highway Class II/Boulevard II by the City of Los Angeles. Three through travel lanes are generally provided in both directions on Olympic Boulevard within the Project study area. Separate exclusive left-turn lanes are provided on Olympic Boulevard at the Alvarado Street intersection. Olympic Boulevard is posted for a 35 miles per hour speed limit in the Project vicinity.

#### **4.4 Public Bus Transit Services**

Public bus/rail transit service within the Project study area is currently provided by Los Angeles County Metropolitan Transit Authority (Metro) and LADOT Transit (DASH). A summary of the existing transit service, including the transit route, destinations, and peak hour headways is presented in **Table 4-1**. The existing public transit routes in the Project site vicinity are illustrated in **Figure 4-2**. The Project site is located within one-quarter a mile of a Metro RapidBus stop.

Table 4-1  
EXISTING PUBLIC TRANSIT ROUTES [1]

16-Feb-17

ROUTE	DESTINATIONS	ROADWAY(S) NEAR SITE	NO. OF BUSES/TRAINS DURING PEAK HOUR		
			DIR	AM	PM
Metro 28	Downtown LA/Eagle Rock to Downtown LA/Century City (via Olympic Boulevard & Eagle Rock Boulevard)	Olympic Boulevard	EB WB	5 6	5 5
Metro 51/52/351	Wilshire Center to M.L. King Jr. Transit Center (via Avalon Boulevard)	7th Street	NB SB	15 10	8 13
Metro 66	Downtown LA/Montebello to Downtown LA/Wilshire Center (via 8th Street & Olympic Boulevard)	8th Street	EB WB	8 4	4 4
Metro 200	Echo Park to Exposition Park (via Alvarado Street & Hoover Street)	Alvarado Street	NB SB	8 8	8 7
Metro 603	Glendale Galleria to Grand/LATTC Station (via San Fernando Road, Rampart Boulevard, & Hoover Street)	6th Street	NB SB	4 5	4 4
Metro Rapid 728	Downtown Los Angeles to Century City (via West Olympic Boulevard)	Olympic Boulevard	EB WB	5 5	5 4
DASH Pico Union / Echo Park	Pico Union to Echo Park (via Washington Boulevard, Union Avenue & Echo Park Avenue)	Union Avenue	NB SB	4 4	5 5
<b>Total</b>				<b>91</b>	<b>81</b>

[1] Sources: Los Angeles County Metropolitan Transportation Authority (Metro) website, 2017.  
Los Angeles Department of Transportation (DASH) website, 2017.



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SOURCE: METROPOLITAN TRANSPORTATION AUTHORITY  
★ PROJECT SITE

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## FIGURE 4-2 EXISTING PUBLIC TRANSIT ROUTES

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## 5.0 TRAFFIC COUNTS

Manual traffic counts of vehicular turning movements were conducted at each of the seven study intersections during the weekday morning and afternoon commuter periods to determine the peak hour traffic volumes. The manual traffic counts at the study intersections were conducted from 7:00 AM to 10:00 AM and 3:00 PM to 6:00 PM to determine the respective peak commuter hours.

The weekday AM and PM peak period manual counts of vehicle movements at the study intersections are summarized in *Table 5-1*. The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are shown in *Figures 5-1* and *5-2*, respectively. Summary data worksheets of the manual traffic counts at the study intersections are contained in *Appendix A*.

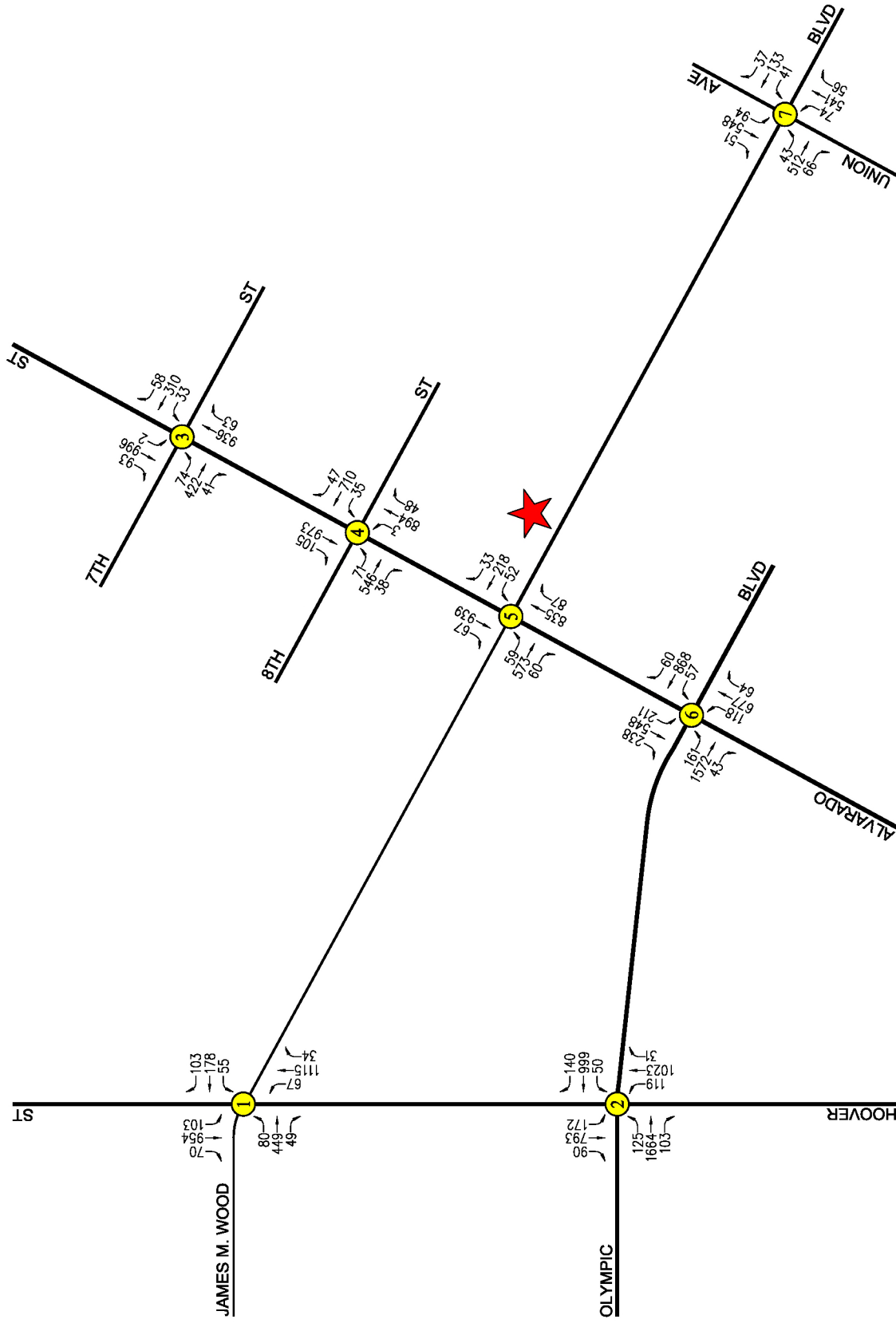


**Table 5-1  
EXISTING TRAFFIC VOLUMES [1]**

16-Feb-17

NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR		PM PEAK HOUR	
				BEGAN	VOLUME	BEGAN	VOLUME
1	Hoover Street / James M. Wood Boulevard	02/08/2017	NB SB EB WB	7:30	1,216 1,127 578 336	4:45	1,172 1,296 531 457
2	Hoover Street / Olympic Boulevard	02/08/2017	NB SB EB WB	8:00	1,173 1,055 1,892 1,189	4:45	1,056 1,143 1,674 1,370
3	Alvarado Street / 7th Street	02/08/2017	NB SB EB WB	7:15	999 1,091 537 401	4:45	1,129 1,164 624 487
4	Alvarado Street / 8th Street	02/08/2017	NB SB EB WB	7:15	945 1,078 655 792	5:00	1,093 1,109 637 896
5	Alvarado Street / James M. Wood Boulevard	02/08/2017	NB SB EB WB	7:30	922 1,006 692 303	5:00	1,081 1,134 616 500
6	Alvarado Street / Olympic Boulevard	02/08/2017	NB SB EB WB	7:45	859 997 1,776 985	5:00	886 1,195 1,507 1,327
7	Union Avenue / James M. Wood Boulevard	02/08/2017	NB SB EB WB	7:30	671 693 621 211	4:45	675 1,040 631 268

[1] National Data & Surveying Services

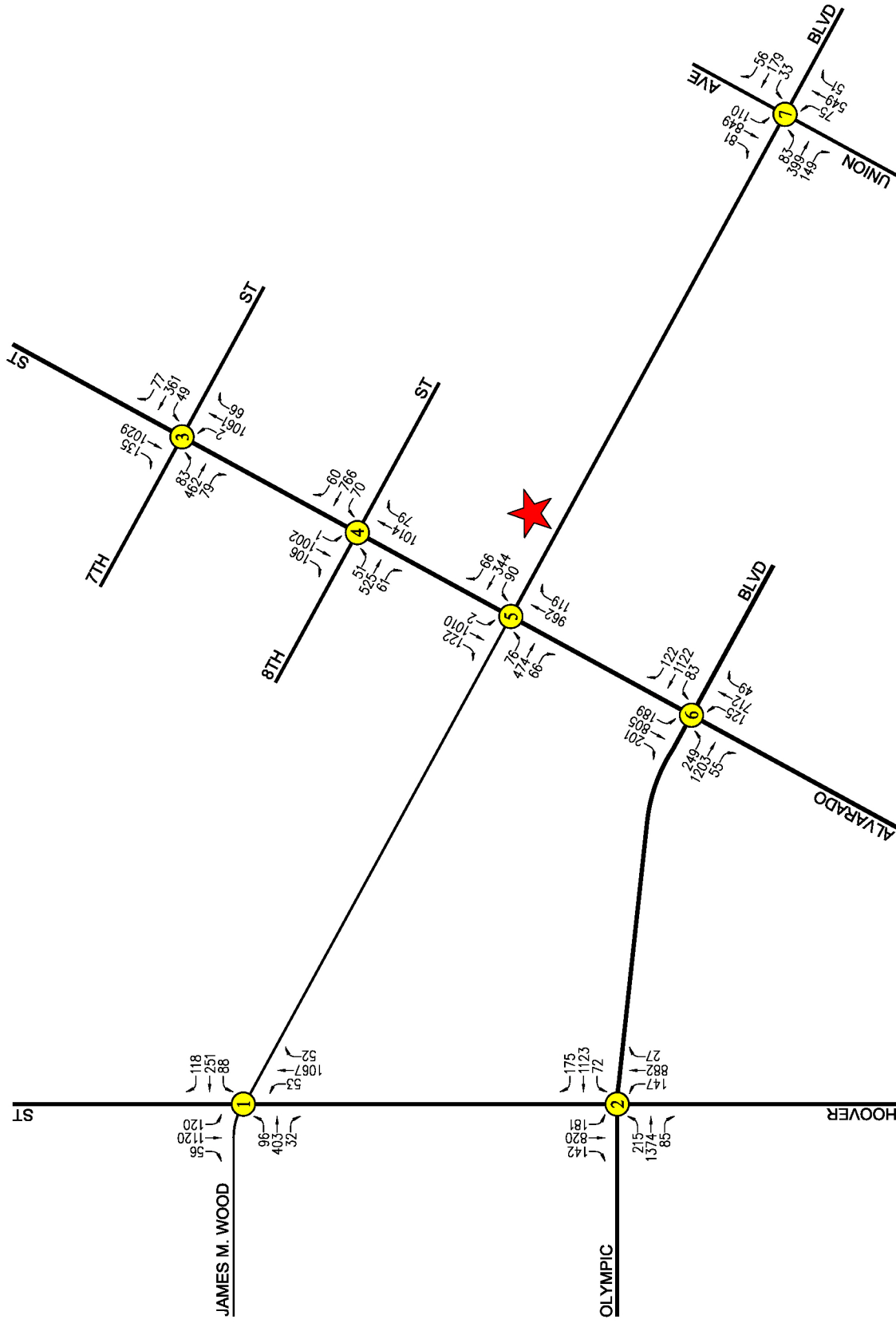


**FIGURE 5-1**  
**EXISTING TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

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**PROJECT SITE**  
**STUDY INTERSECTION**

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**FIGURE 5-2**  
**EXISTING TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

**NOT TO SCALE**

PROJECT SITE  
 STUDY INTERSECTION

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## 6.0 CUMULATIVE DEVELOPMENT PROJECTS

The forecast of future pre-Project conditions was prepared in accordance to procedures outlined in Section 15130 of the CEQA Guidelines. Specifically, the CEQA Guidelines provide two options for developing the future traffic volume forecast:

“(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the [lead] agency, or

(B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.”

Accordingly, the traffic analysis provides a highly conservative estimate of future pre-Project traffic volumes as it incorporates both the “A” and “B” options outlined in CEQA Guidelines for purposes of developing the forecast.

### 6.1 Related Projects

A forecast of on-street traffic conditions prior to occupancy of the Project was prepared by incorporating the potential trips associated with other known development projects (related projects) in the area. With this information, the potential impact of the Project can be evaluated within the context of the cumulative impact of all ongoing development. The related projects research was based on information on file at the City of Los Angeles Departments of Transportation and Planning. The list of related projects in the project site area is presented in **Table 6-1**. The location of the related projects is shown in **Figure 6-1**.

Traffic volumes expected to be generated by the related projects were calculated using rates provided in the Institute of Transportation Engineers’ (ITE) *Trip Generation* manual<sup>4</sup>. The related projects’ respective traffic generation for the weekday AM and PM peak hours, as well as on a daily basis for a typical weekday, is summarized in **Table 6-1**. The distribution of the related projects traffic volumes to the study intersections during the weekday AM and PM peak hours are displayed in **Figures 6-2** and **6-3**, respectively.

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<sup>4</sup> Institute of Transportation Engineers *Trip Generation* manual, 9<sup>th</sup> Edition, Washington, D.C., 2012.

Table 6-1

16-Feb-17

Table 6-1 (Continued)  
RELATED PROJECTS LIST AND TRIP GENERATION [1]

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2]	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
17	Beverly + Lucas Project 1430 W. Beverly Boulevard	Proposed	Apartment	144 DU		780	13	49	62	47	25	72
18	Oak Village Residences Project 902 W. Washington Boulevard	Proposed	Condominium	142 DU	[6]	482	2	25	27	35	16	51
19	Wilshire Grand Redevelopment Project 900 W. Wilshire Boulevard	Construction	Condominium Hotel Fitness Facility Office Retail/Restaurant	100 DU 560 Rooms 20 KSF 1,500 KSF 50 KSF	[7]	3,624	725	75	800	94	764	858
20	2100 S. Figueroa Street	Proposed	Condominium Retail	291 DU 7,134 GSF	[3]	870	(82)	66	(16)	67	(28)	39
21	Southwestern Law School Expansion 3050 W. Wilshire Boulevard	Proposed	Apartment Administration Office Lecture Hall	133 DU 43,400 GSF 450 Seats	[3]	(1,337)	(35)	(16)	(51)	(45)	(52)	(97)
22	Westlake Theater Apartments Project 619 S. Westlake Avenue	Proposed	Apartment	52 DU	[8]	254	3	17	20	16	8	24
23	1435 W. 3rd Street	Proposed	Specialty Retail Apartment	3,500 GSF 122 DU	[9]	711	11	42	53	41	25	66
24	Metropolis Mixed-Use 899 S. San Francisco Street	Construction	Condominium Office Hotel Retail/Restaurant	836 DU 988,225 GSF 480 Rooms 46,000 GSF		8,010	307	318	625	387	512	899
25	1027 S. Olive Street	Construction	Apartment	100 DU		632	9	39	48	38	21	59
26	1300 S. Hope Street	Proposed	Apartment Retail	419 DU 42,000 GSF		4,280	88	105	193	136	102	238
27	928 S. Broadway	Construction	Apartment Condominium Retail	670 DU 17 DU 58,800 GSF		4,715	21	229	250	272	109	381
28	G12 Mixed-Use 1200 S. Grand Avenue	Proposed	Apartment Retail	640 DU 45,000 GSF		4,886	92	148	240	181	134	315
29	1329 W. 7th Street	Construction	Apartment Retail	94 DU 2,000 GSF		662	16	37	53	39	22	61
30	840 S. Olive Street		Condominium Restaurant Retail	303 DU 9,680 GSF 1,500 GSF		3,071	81	166	247	174	96	270
31	968 S. Berendo Street	Construction	Church	85,308 GSF		535	23	8	31	3	9	12
32	1700 W. Olympic Hotel 1700 W. Olympic Boulevard	Proposed	Hotel	160 Rooms	[10]	1,157	44	32	76	45	42	87

Table 6-1 (Continued)  
RELATED PROJECTS LIST AND TRIP GENERATION [1]

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2]	AM PEAK HOUR VOLUMES [2]		PM PEAK HOUR VOLUMES [2]			
			LAND-USE	SIZE			IN	OUT	IN	OUT	TOTAL	TOTAL
33	1001 S. Olive Street	Construction	Apartment Quality Restaurant	225 DU 5,000 GSF	[11]	1,581	22	79	101	94	51	145
34	Hill Street Mixed-Use 920 S. Hill Street	Proposed	Apartment Retail	239 DU 5,400 GSF		1,476	23	84	107	87	50	137
35	Broadway Mixed-Use 955 S. Broadway	Proposed	Apartment Retail	201 DU 6,000 GSF		1,275	21	72	93	74	43	117
36	801 S. Olive Street	Construction	Apartment Restaurant Retail	363 DU 7,500 GSF 2,500 GSF		2,557	33	129	162	149	83	232
37	1212 W. Flower Street	Proposed	Condominium Retail Office	730 DU 10,500 GSF 70,465 GSF	[12]	3,956	78	233	311	229	121	350
38	820 S. Olive Street	Proposed	Apartment Retail	589 DU 4,500 GSF		3,309	63	202	265	195	106	301
39	The Herald Examiner Mixed-Use Project 1111 S. Broadway	Proposed	Condominium Retail Office	587 DU 32,560 GSF 41,140 GSF		5,304	137	213	350	274	262	536
40	1148 S. Broadway	Proposed	Apartment Retail	94 DU 2,500 GSF		553	8	30	38	32	18	50
41	2850 W. 7th Street	Proposed	Condominium Hotel Retail	160 DU 40 Rooms 3,600 GSF	[13]	1,057	20	72	92	72	42	114
42	1120 S. Grand Avenue	Proposed	High-Rise Apartment Retail	666 DU 20,690 GSF		2,730	42	127	169	136	93	229
43	1230 S. Olive Street	Proposed	Apartment Retail	362 DU 4,000 GSF		2,114	31	126	157	127	69	196
44	2929 W. Leeward Avenue	Proposed	Condominium	80 DU		476	7	33	40	44	21	65
45	1247 S. Grand Avenue	Proposed	Apartment Retail	118 DU 5,125 GSF	[14]	763	10	41	51	42	25	67
46	1400 S. Figueroa Street Residential Project 1400 S. Figueroa Street	Proposed	Apartment Retail	106 DU 4,834 GSF		647	10	38	48	39	22	61
47	6th & Virgil 2968 W. 6th Street	Proposed	Apartment High-Turnover Restaurant Health Club	399 DU 12,000 GSF 8,000 GSF		2,943	73	154	227	168	93	261
48	Legal Aid Foundation of L.A 1550 W. 8th Street	Construction	Office	33,957 GSF		230	29	4	33	6	26	32

Table 6-1 (Continued)  
RELATED PROJECTS LIST AND TRIP GENERATION [1]

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2]	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
49	Variety Arts Mixed-Use 940 S. Figueroa Street	Proposed	Theatre Restaurant Bar	1,942 Seats 10,056 GSF 3,119 GSF		2,237	5	4	9	99	35	134
50	1036 S. Grand Avenue	Proposed	Restaurant	7,149 GSF		492	2	3	5	27	14	41
51	1335 W. 1st Street	Proposed	Apartment Retail	101 DU 3,514 GSF		714	10	40	50	42	24	66
52	1150 W. Wilshire Boulevard	Proposed	Apartment Restaurant	80 DU 4,589 GSF	[3]	511	(22)	26	4	39	(5)	34
53	1218 W. Ingham Street	Proposed	Apartment	80 DU		532	8	33	41	33	17	50
54	742 S. Hartford Avenue	Construction	Apartment	58 DU		333	5	21	26	20	11	31
55	1728 W. 7th Street	Proposed	Restaurant Bar	9,600 GSF 3,500 GSF	[3]	362	(30)	(40)	(70)	50	14	64
56	1145 W. 7th Street	Proposed	Condominium Apartment Retail	126 DU 100 DU 7,200 GSF		1,084	4	66	70	67	35	102
57	3076 W. Olympic Boulevard	Proposed	Apartment Retail	226 DU 16,907 GSF		1,567	25	78	103	90	56	146
58	3350 W. Wilshire Boulevard	Proposed	Apartment	121 DU		728	11	43	54	47	25	72
59	1011 S. Park View Street	Proposed	Apartment	108 DU		594	9	38	47	38	19	57
60	2965 W. 6th Street	Proposed	Hotel	99 Rooms		688	26	18	44	25	25	50
61	422 S. Lake Street	Construction	Apartment	80 DU		532	8	33	41	33	17	50
62	1302 W. Washington Boulevard	Proposed	Pharmacy/Drug Store	16,572 GSF	[3]	414	(33)	(18)	(51)	21	12	33
63	1929 W. Pico Boulevard	Proposed	Charter High School	480 Students	[15]	821	140	66	206	29	33	62
64	2789 W. Olympic Boulevard	Proposed	Office Retail	2,781 GSF 20,607 GSF		612	16	8	24	25	29	54
65	1255 E. Elden Avenue	Proposed	Apartment	93 DU		376	0	32	32	28	10	38
66	3100 W. 8th Street	Proposed	Apartment	100 DU		100	10	41	51	10	41	51
67	3330 W. Beverly Boulevard	Proposed	Apartment Child Care	40 DU 4,237 GSF		495	26	34	60	35	32	67
68	326 S. Reno Street	Proposed	Apartment	65 DU		326	5	20	25	20	11	31
69	2335 W. Temple Street	Proposed	Apartment	71 DU		554	8	31	39	37	20	57
70	1017 S. Mariposa Avenue	Proposed	Apartment	79 DU		373	5	23	28	23	12	35



Table 6-1 (Continued)  
RELATED PROJECTS LIST AND TRIP GENERATION [1]

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2]	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
71	The Alexan Project 850 S. Hill Street	Proposed	Apartment Retail Restaurant	305 DU 3,499 GSF 3,500 GSF	[16]	1,998	29	108	137	117	67	184
72	427 S. Berendo Street	Proposed	Apartment	85 DU		288	5	17	22	17	10	27
73	2405 W. 8th St	Proposed	Apartment Retail	144 DU 4,406 GSF	[3]	333	(20)	48	28	42	(15)	27
74	340 N. Patton Street	Proposed	Apartment	43 DU		267	4	16	20	17	8	25
75	1625 W. Palo Alto Street	Proposed	Hotel	89 Rooms		727	28	19	47	27	26	53
76	2859 W. Francis Avenue	Proposed	Apartment	81 DU		492	7	28	35	31	5	36
77	Apex II Mixed-Use 700 W. 9th Street	Proposed	Condominium Retail	341 DU 11,687 GSF	[17]	1,365	20	77	97	72	48	120
78	649 S. Olive Street	Proposed	Hotel	241 Rooms		1,674	6	44	50	63	60	123
79	605 S. Vermont Avenue	Proposed	Apartment Museum	103 DU 30,937 GSF		755	17	39	56	42	37	79
80	Sapphire Mixed-Use 1111 W. 6th Street	Proposed	Apartment Shopping Center Quality Restaurant Coffee Shop	369 DU 18,600 GSF 2,200 GSF 1,200 GSF	[3]	587	(71)	117	46	104	(51)	53
81	815 S. Kingsley Drive	Proposed	Apartment	90 DU		521	7	32	39	30	18	48
82	1633 W. 11th Street Charter Project 1633 W. 11th Street	Proposed	Charter School (K-5)	460 Students	[18]	970	194	158	352	29	37	66
83	Grand Residence 1229 S. Grand Avenue	Proposed	Condominium Restaurant	161 DU 3,000 GSF		1,116	23	62	85	62	33	95
84	675 S. Bixel Street	Proposed	Apartment Hotel Retail	425 DU 126 Rooms 4,874 GSF		3,461	74	173	247	184	116	300
85	740 S. Hartford Avenue	Proposed	Apartment	80 DU		479	7	30	37	29	15	44
86	2900 W. Wilshire Boulevard	Proposed	Retail Fast-Food Restaurant High-Rise Apartment	10,000 GSF 5,500 GSF 644 DU		3,482	81	135	216	137	81	218
87	616 S. Westmoreland Avenue	Proposed	Apartment Retail Restaurant	77 DU 745 GSF 2,360 GSF		446	1	30	31	31	5	36
88	Lifan Tower Mixed-Use 1235 W. 7th Street	Proposed	Condominium Retail	303 DU 5,960 GSF		1,725	23	95	118	100	54	154

Table 6-1 (Continued)  
RELATED PROJECTS LIST AND TRIP GENERATION [1]

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2]	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
89	940 S. Hill Street	Proposed	Apartment Restaurant	232 DU 14,000 GSF	[19]	1,881	20	80	100	115	53	168
90	2649 W. San Marino Avenue	Proposed	Apartment	45 DU		246	4	15	19	15	8	23
91	1322 Linwood Apartments 1322 W. Linwood Avenue	Proposed	Apartment	84 DU		449	5	30	35	28	14	42
92	14th & Olive Mixed-Use 1340 S. Olive Street	Proposed	Apartment Retail High-Turnover Restaurant	156 DU 5,000 GSF 10,000 GSF		1,700	51	82	133	89	57	146
93	1334 S. Flower Street Residential Project 1334 S. Flower Street	Proposed	Apartment Retail/Restaurant	188 DU 10,096 GSF	[20]	1,038	(3)	63	60	67	22	89
94	1020 S. Figueroa Street Project 1020 S. Figueroa Street	Proposed	High-Rise Condominium Hotel Retail Restaurant	650 DU 300 Rooms 40 KSF 40 KSF		6,583	204	274	478	312	227	539
95	Zion Market 888 S. Vermont Avenue	Proposed	Office Retail	4,400 GSF 47,208 GSF	[3]	2,526	45	19	64	171	169	340
96	2972 W. 7th Street	Proposed	Apartment Retail	304 DU 9,735 GSF		1,018	17	99	116	76	23	99
97	720 W. Washington Boulevard	Proposed	Senior Apartment	105 DU		350	7	12	19	13	12	25
98	1400 S. Flower Street Residential Project 1400 S. Flower Street	Proposed	Apartment Retail	147 DU 6,921 GSF		801	(1)	49	48	51	17	68
99	3240 W. Wilshire Boulevard	Proposed	Hotel Apartment Retail	162 Rooms 545 DU 5,222 GSF	[3]	1,353	15	173	188	89	23	112
100	1930 W. Wilshire Boulevard		Apartment Theater Classroom Hotel	478 DU 850 Seats 50 Students 220 Rooms		1,355	(44)	128	84	103	(41)	62
101	1000 S. Vermont Avenue	Proposed	Apartment Retail	236 DU 60,300 GSF		2,655	39	94	133	137	102	239
102	2870 W. Olympic Boulevard	Proposed	Hotel Retail	121 Rooms 17,850 GSF		1,178	34	23	57	44	40	84
103	Beaudry Ave & 2nd St Mixed-Use 130 S. Beaudry Avenue	Proposed	Apartment Retail/Restaurant	230 DU 9,000 GSF		1,159	8	76	84	76	29	105
104	Urban View Lofts Project 495 S. Hartford Avenue	Proposed	Apartment	220 DU		1,033	16	63	79	62	34	96

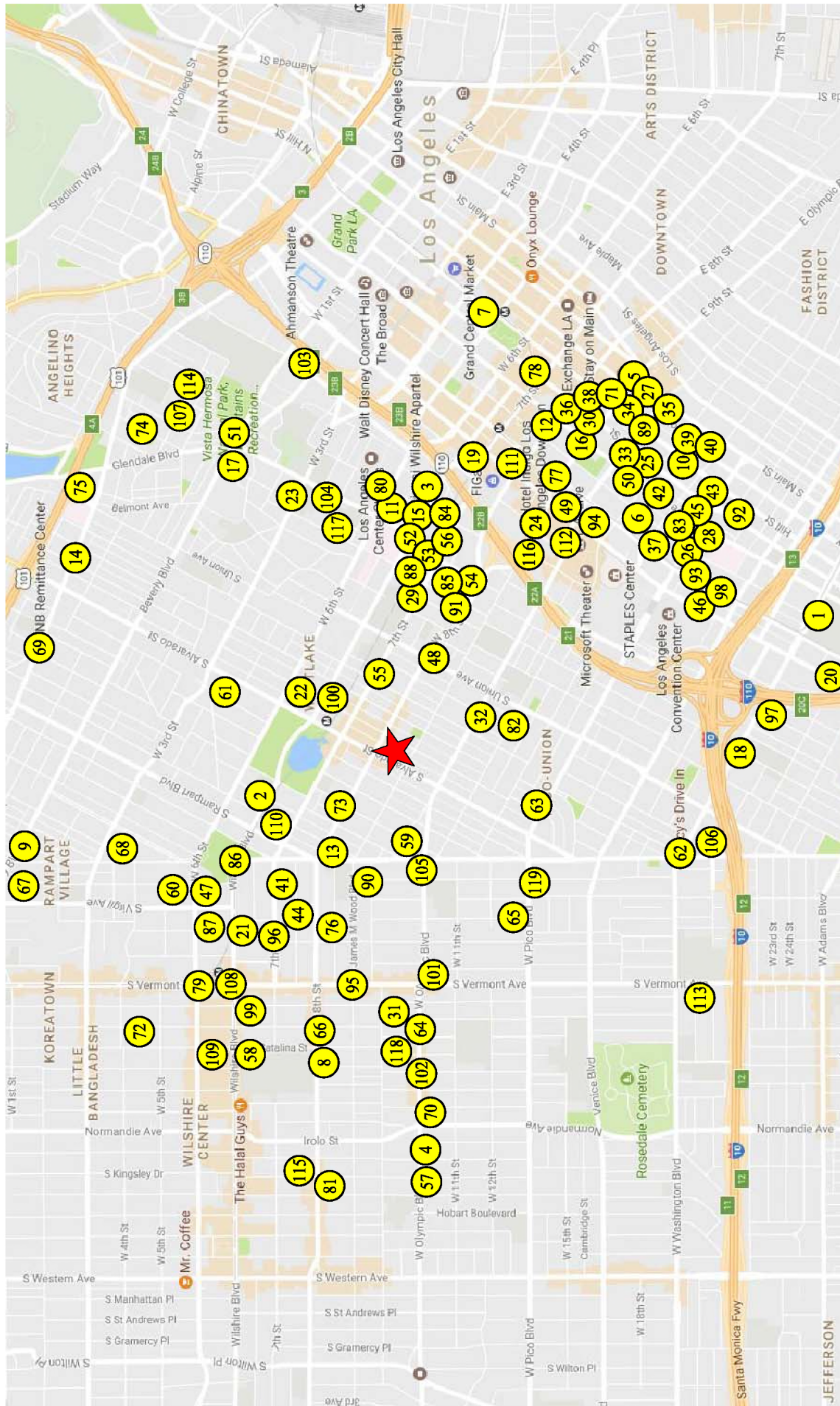
Table 6-1 (Continued)

nom. = nominal

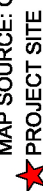
[2] Trips are one-way traffic movements, entering or leaving.

potential of the proposed use.

- [4] Source: *Traffic Analysis for The Good Samaritan Mixed-Use Development*, Crain & Associates, October 2008.
- [5] Source: *Traffic Impact Analysis for a Proposed Mixed Use Development Temple Street and Bonnie Brae Street*, Overland Traffic Consultants, Inc., May 2008.
- [6] Source: *Traffic Impact Study for the Oak Village Residences Project*, LLG Engineers, July 2009.
- [7] Source: *Transportation Study for the Wilshire Grand Redevelopment Project*, Gibson Transportation Consulting Inc., April 2010.
- [8] Source: *Technical Memorandum - Potential Traffic Impacts for the Proposed Residential / Public Parking Development, 619 to 633 S. Westlake Avenue*, Arthur L. Kassam, P.E., March 2011.
- [9] Source: *Traffic Impact Study for 1435 W. Third Street*, Overland Traffic Consultants, Inc., May 2008.
- [10] Source: *Traffic Impact Study for 1700 W. Olympic*, LLG Engineers, August 2013.
- [11] Source: *Traffic Review for 801 South Olive Street Project*, The Mobility Group, Revised September 2013.
- [12] Source: *Traffic Analysis for The Herald Examiner Mixed-Use Project*, Crain & Associates, Revised July 2006.
- [13] Source: *Traffic Impact Study for 1400 S. Figueroa Project*, LLG Engineers, March 2014.
- [14] Source: *Traffic Study 6th & Virgil Project*, LLG Engineers, April 2014.
- [15] Source: *Traffic Impact Study for 1929 W. Pico Boulevard Charter School*, KOA Corporation, May 2015.
- [16] Source: *Supplemental Traffic Review Memorandum for 850 S. Hill Street Project*, The Mobility Group, January 2016.
- [17] Source: *Traffic Review for Apex Phase II (9th & Figueroa) Project*, The Mobility Group, Revised November 2015.
- [18] Source: *Traffic Impact Study for 1633 W. 11th Street Charter School Project*, LLG Engineers, January 2016.
- [19] Source: *Traffic Impact Study for 1334 S. Flower Street Residential Project*, LLG Engineers, June 2016.
- [20] Source: *Traffic Study for the 1020 S. Figueroa Street Project*, Gibson Transportation Consulting Inc., May 2016.
- [21] Source: *Traffic Impact Study for Wilshire Gate Project*, LLG Engineers, September 2016.
- [22] Source: *Traffic Impact Study for 1620 W. Cordova Street Charter School Project*, LLG Engineers, November 2016.
- [23] Source: *Traffic Impact Study for 2250-2270 W. Pico Blvd Hotel Project*, LLG Engineers, 2017.



MAP SOURCE: GOOGLE MAPS



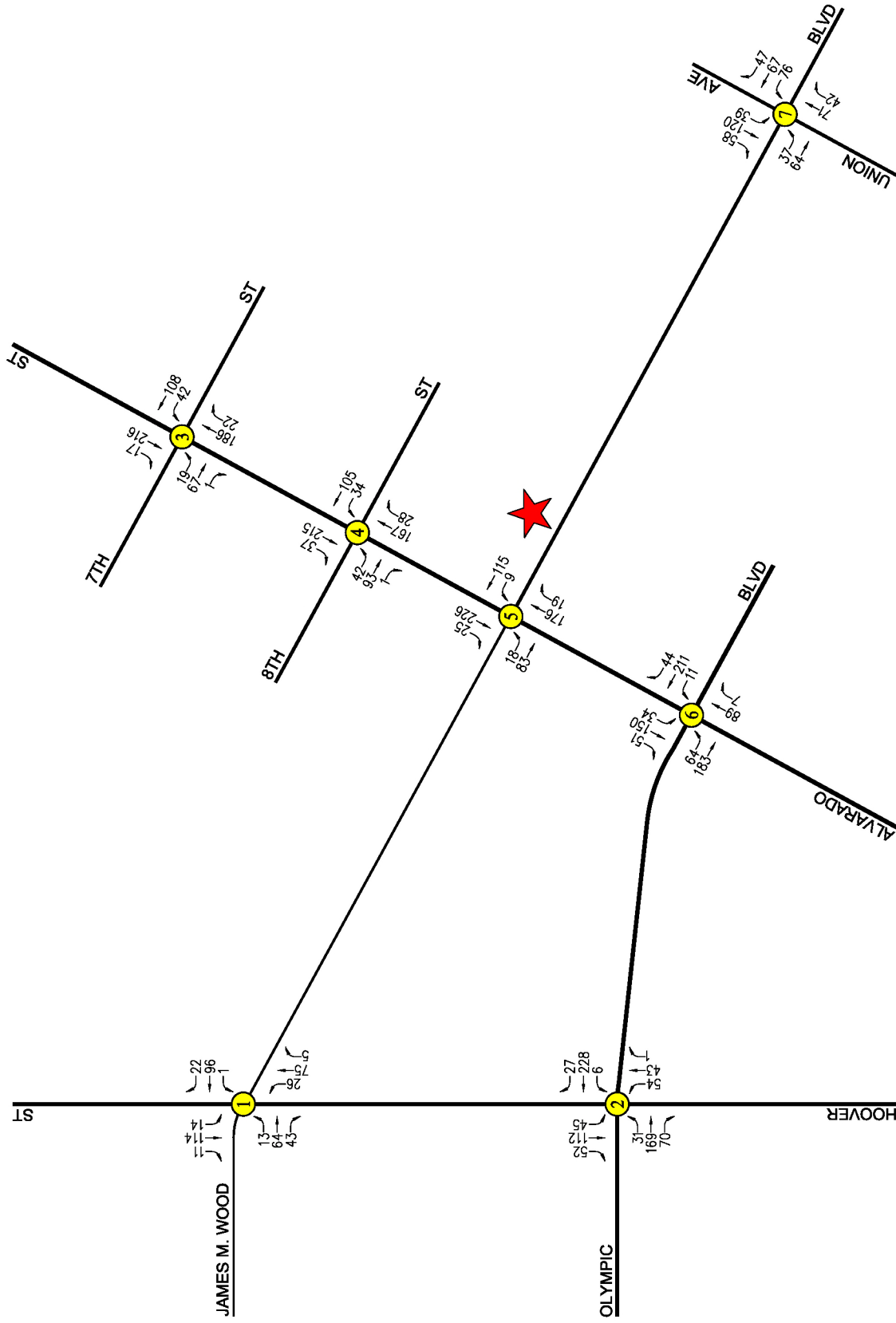
PROJECT SITE






RELATED PROJECT

NOT TO SCALE

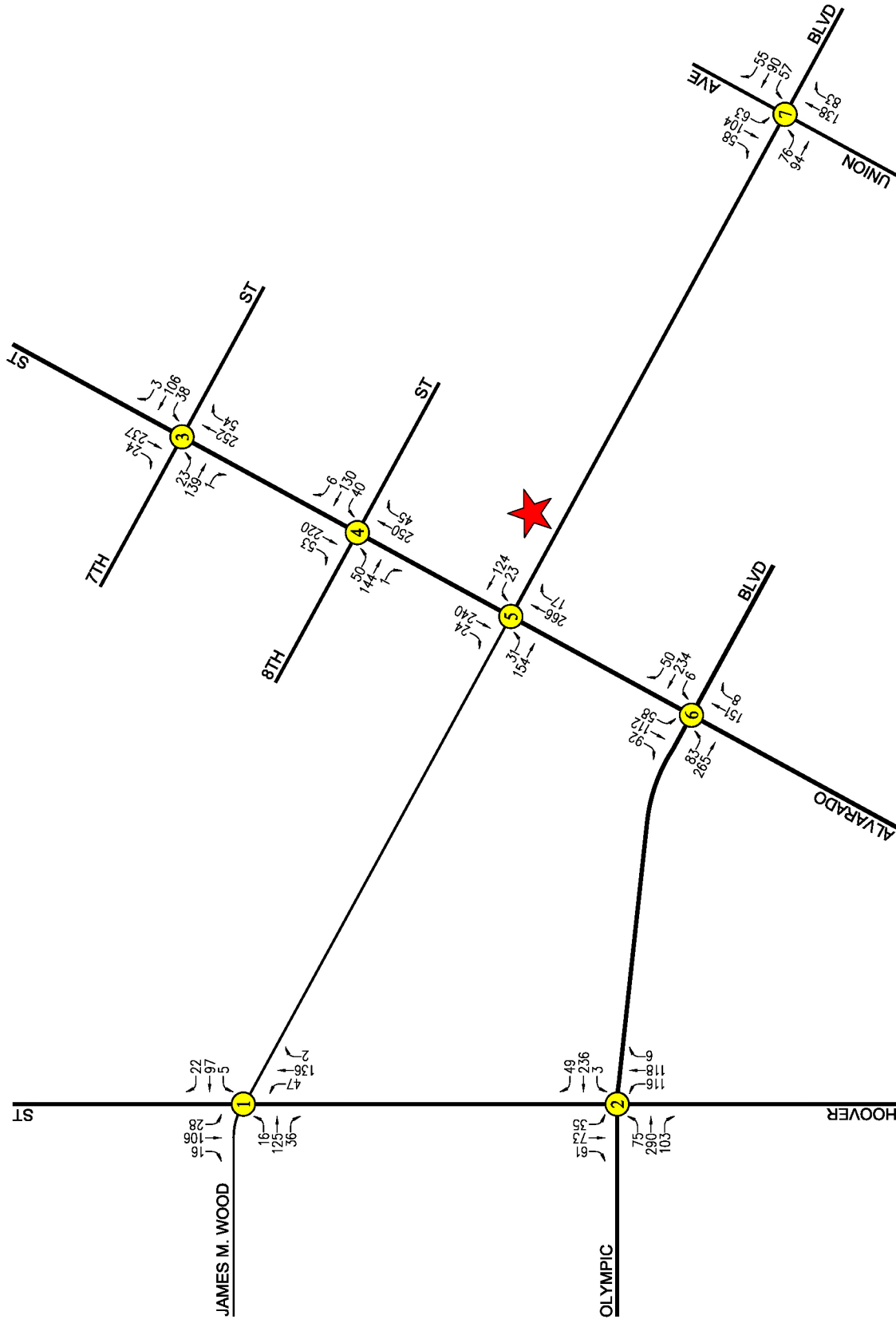
**FIGURE 6-1**  
**LOCATION OF RELATED PROJECTS**



**FIGURE 6-2**  
**RELATED PROJECTS TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

 **NOT TO SCALE**  
 **PROJECT SITE**  
 **STUDY INTERSECTION**  
 LINSOTT, LAW & GREENSPAN, engineers





**FIGURE 6-3**  
**RELATED PROJECTS TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

**NOT TO SCALE**  
**PROJECT SITE**  
**STUDY INTERSECTION**  
 LINSOTT, LAW & GREENSPAN, engineers

## 6.2 Ambient Traffic Growth Factor

In order to account for unknown related projects not included in this analysis, the existing traffic volumes were increased at an annual rate of 1.0 percent (1.0%) per year to the year 2019 (i.e., the anticipated year of Project build-out). The ambient growth factor was based on general traffic growth factors provided in the *2010 Congestion Management Program for Los Angeles County* (the “CMP manual”) and determined in consultation with LADOT staff. It is noted that based on review of the general traffic growth factors provided in the CMP manual for the Downtown L.A. area, it is anticipated that the existing traffic volumes are expected to increase at an annual rate of less than 0.2% per year between the years 2015 and 2020. Thus, application of an annual growth factor of 1.0% allows for a conservative, worst case forecast of future traffic volumes in the area. Further, it is noted that the CMP manual’s traffic growth rate is intended to anticipate future traffic generated by development projects in the Project vicinity. Therefore, the inclusion in this traffic analysis of both a forecast of traffic generated by known related projects plus the use of an ambient growth traffic factor based on CMP traffic model data results in a conservative estimate of future traffic volumes at the study intersections.



## 7.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the Project, a multi-step process has been utilized. The first step is trip generation, which estimates the total arriving and departing traffic volumes on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

The second step of the forecasting process is trip distribution, which identifies the origins and destinations of inbound and outbound Project traffic volumes. These origins and destinations are typically based on demographics and existing/anticipated travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the impact of the Project is isolated by comparing operational (i.e., Levels of Service) conditions at the selected key intersections using existing and expected future traffic volumes without and with forecast Project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the Project's impacts identified.

### 7.1 Project Traffic Generation

Traffic volumes expected to be generated by the proposed Project during the weekday AM and PM peak hours, as well as on a daily basis, were estimated using rates published in the ITE *Trip Generation* manual. The following trip generation rates were used to forecast the traffic volumes expected to be generated by the Project:

- Hotel: ITE Land Use Code 310 (Hotel) trip generation average rates were used to forecast the traffic volumes expected to be generated by the hotel component of the Project. Note that this analysis assumes that any external vehicle trips related to the site's ancillary uses such as the restaurant and meeting room within the hotel are accounted for within the ITE hotel trip rate as these uses are expected to primarily support the hotel guests. Therefore, a separate and additive trip forecast related to the hotel's on-site restaurant and meeting room is not required in the trip generation calculation.<sup>5</sup>

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<sup>5</sup> The ITE *Trip Generation* manual description of a Hotel (Land Use Code 310) is as follows: "Hotels are places of lodging that provide sleeping accommodations and supporting facilities such as restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, limited recreational facilities (pool, fitness room), and/or other retail and service shops." The trip generation rates provided by ITE are based on traffic counts conducted at existing land uses, including hotels. Thus, while the independent variable provided in the ITE hotel trip rate is the number of guestrooms, the ITE trip rate is intended to account for all vehicle trips generated by the hotel building, including trips by hotel guests, staff, service vehicles, any "external" visitors to the on-site food and beverage facilities, etc.

In addition to the trip generation forecasts for the Project land use components (which are essentially an estimate of the number of vehicles that could be expected to enter and exit the site access points), a forecast was made of transit trips. The transit reduction is based on the site's proximity to the various bus and rail lines, as well as the land use characteristics of the Project. As shown in *Table 4-1* and *Figure 4-2*, the Project site is well served by public transit, including a Metro RapidBus stop at the intersection of Alvarado Street and Olympic Boulevard. A transit adjustment of 15% has been utilized.

An adjustment was also made to the trip generation forecast based on the Project site's existing land use. The existing retail center (8,228 square feet of building area) would be removed as part of the Project. The ITE Land Use Code 820 (Shopping Center) trip generation average rates were used to estimate the trip reduction related to the removal of the existing use from the Project site.

Lastly, a forecast was made of likely pass-by trips. Pass-by trips are made as intermediate stops on the way from an origin to a primary destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the site. In this instance, the adjacent roadways to the Project site include James M. Wood Boulevard, Westlake Avenue, and the existing north-south alley. Based on the *LADOT Policy on Pass-By Trips*, a 50% pass-by reduction adjustment was applied to the existing retail land use.

The trip generation forecast for the Project was submitted for review and approval by LADOT staff. As presented in *Table 7-1*, the Project is expected to generate 42 net new vehicle trips (24 inbound trips and 18 outbound trips) during the AM peak hour. During the PM peak hour, the Project is expected to generate 38 net new vehicle trips (20 inbound trips and 18 outbound trips). Over a 24-hour period, the Project is forecast to generate a net increase of 545 daily trip ends (approximately 273 inbound trips and 272 outbound trips) during a typical weekday.

## 7.2 Project Traffic Distribution and Assignment

Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- The site's proximity to major traffic corridors (i.e. Hoover Street, Alvarado Street, Olympic Boulevard, I-10 Freeway, US-101 Freeway, I-110 Freeway etc.);
- Expected localized traffic flow patterns based on adjacent roadway channelization and presence of traffic signals;
- Existing intersection traffic volumes;
- Ingress/egress availability at the Project site assuming the site access and circulation scheme described in Section 3.0;

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Accordingly, it is not required or appropriate to separately and additively estimate trip generation related to the hotel's ancillary uses such as the on-site restaurant and meeting room facilities as this would result in a substantial overstatement of the hotel's trip generation potential.

Table 7-1  
PROJECT TRIP GENERATION [1]

23-Jan-17

LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]		PM PEAK HOUR VOLUMES [2]	
			IN	OUT	IN	OUT
<i>Proposed Project</i> Hotel [3]	100 Rooms	817	31	22	31	29
<i>Proposed Transit Trips [4]</i> Hotel (15%)		(123)	(5)	(3)	(5)	(4)
<i>Existing Site</i> Retail [5]	(8,228) GLSF	(351)	(5)	(3)	(15)	(16)
<i>Existing Transit Trips [4]</i> Retail (15%)		53	1	0	2	2
<b>Net Project Driveway Subtotal</b>		<b>396</b>	<b>22</b>	<b>16</b>	<b>13</b>	<b>11</b>
<i>Existing Pass-By Trips [6]</i> Retail (50%)		149	2	2	7	7
<b>NET PROJECT TRIPS</b>		<b>545</b>	<b>24</b>	<b>18</b>	<b>20</b>	<b>18</b>
						<b>38</b>

[1] Source: ITE "Trip Generation", 9th Edition, 2012.

[2] Trips are one-way traffic movements, entering or leaving.

[3] ITE Land Use Code 310 (Hotel) trip generation average rates.

- Daily Trip Rate: 8.17 trips/Rooms; 50% inbound/50% outbound

- AM Peak Hour Trip Rate: 0.53 trips/Rooms; 59% inbound/41% outbound

- PM Peak Hour Trip Rate: 0.60 trips/Rooms; 51% inbound/49% outbound

[4] The Project site is located within 1/4 mile of a Metro Rapid bus stop. The trip reduction for transit trips has been applied to the project based on the "LADOT Traffic Study Policies and Procedures", August 2014 for developments within a 1/4 mile walking distance of a transit station or a RapidBus stop.

[5] ITE Land Use Code 820 (Shopping Center) trip generation average rates.

- Daily Trip Rate: 42.70 trips/1000 GLSF; 50% inbound/50% outbound

- AM Peak Hour Trip Rate: 0.96 trips/1000 GLSF; 62% inbound/38% outbound

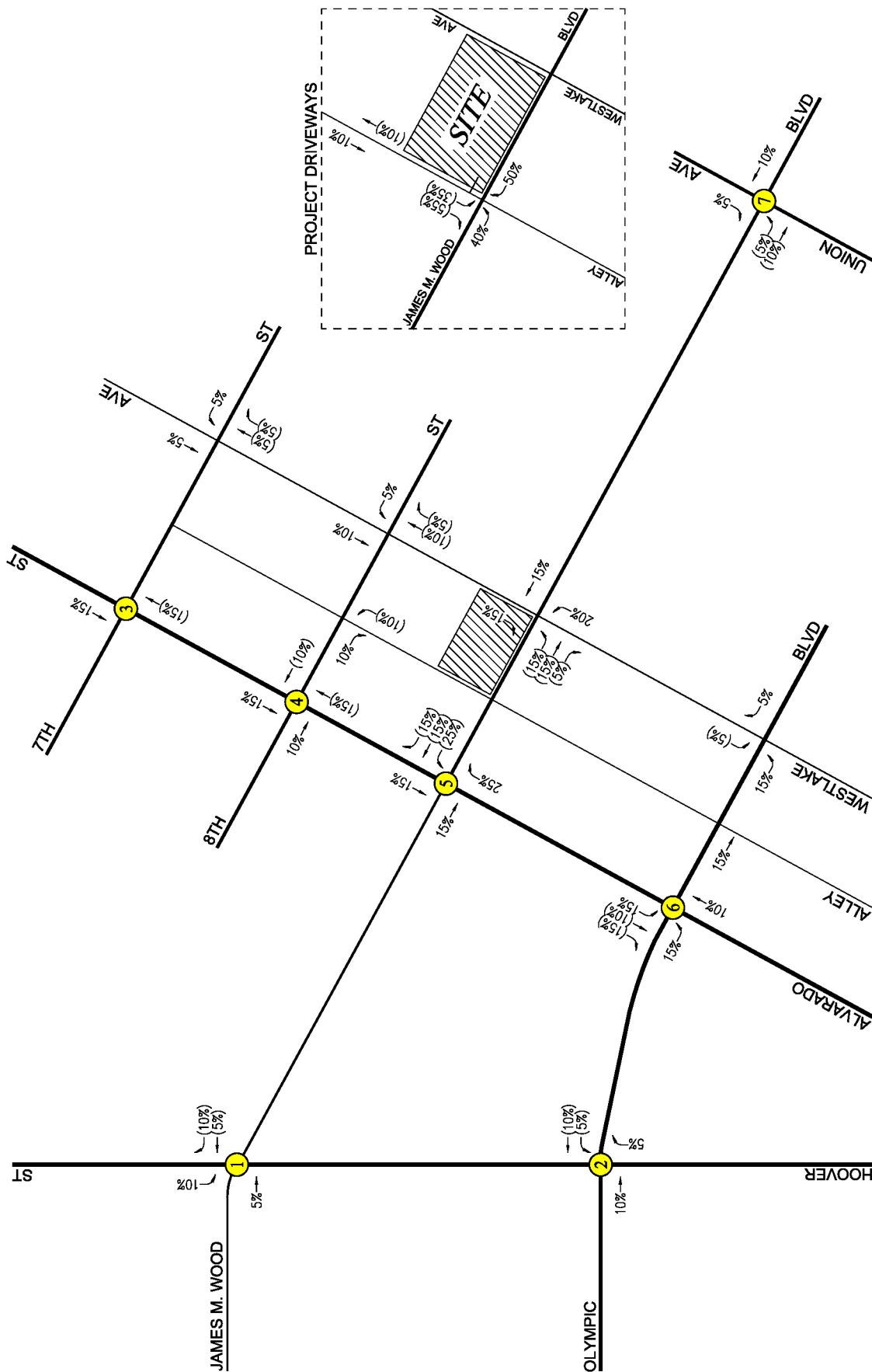
- PM Peak Hour Trip Rate: 3.71 trips/1000 GLSF; 48% inbound/52% outbound

[6] Pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the site.

The trip reduction for pass-by trips has been applied to the commercial component of the Project based on the "LADOT Traffic Study Policies and Procedures", August 2014 for Shopping Center less than 50,000 sf.

- The location of existing and proposed parking areas;
- Nearby population and employment centers as well as adjacent residential neighborhoods;
- Input from LADOT staff.

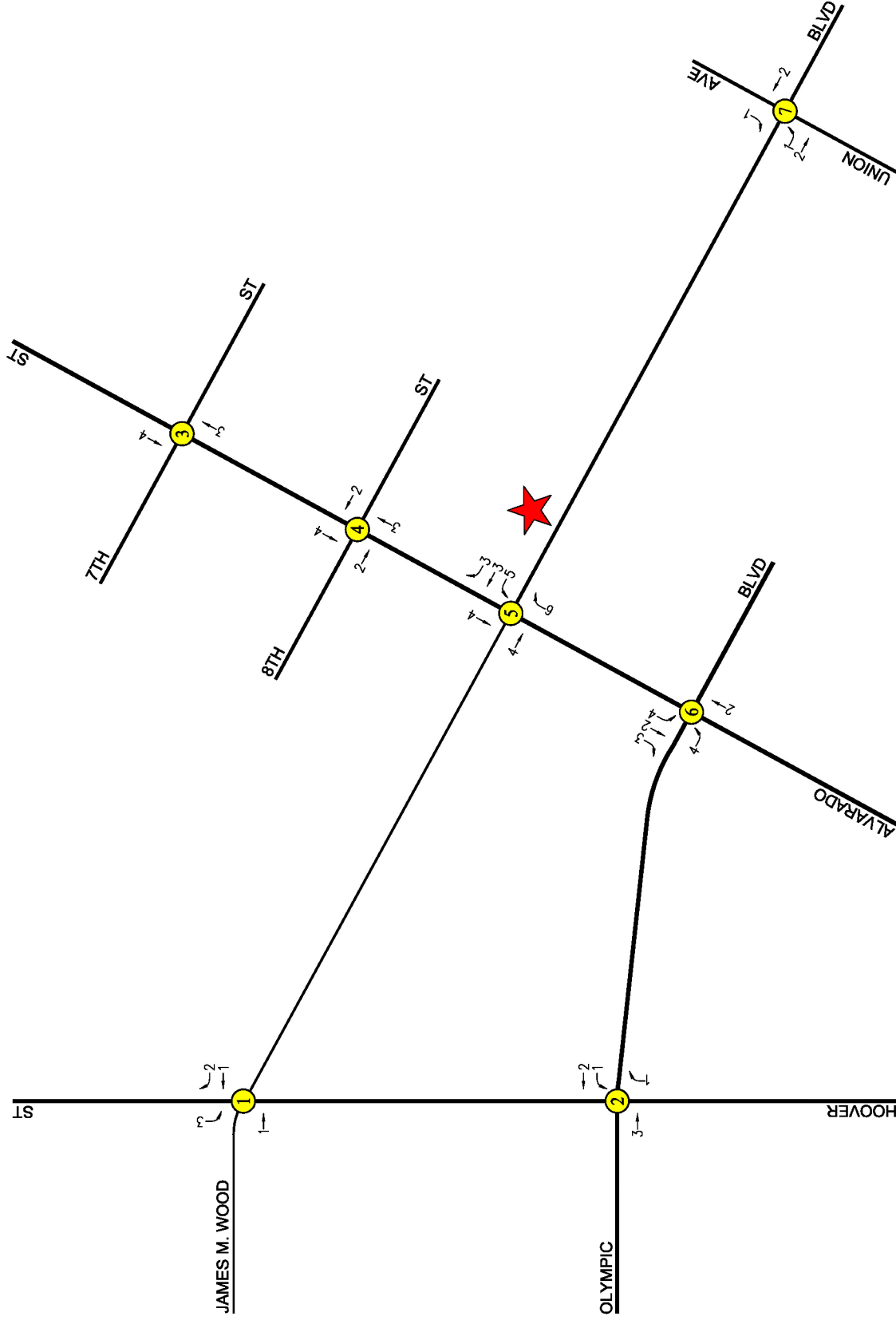
The general, directional traffic distribution patterns for the Project are presented in *Figure 7-1*. The forecast net new weekday AM and PM peak hour Project traffic volumes at the study intersections associated with the Project are presented in *Figures 7-2* and *7-3*, respectively. The traffic volume assignments presented in *Figures 7-2* and *7-3* reflect the traffic distribution characteristics shown in *Figure 7-1* and the Project traffic generation forecast presented in *Table 7-1*.



**FIGURE 7-1**  
**PROJECT TRIP DISTRIBUTION**

**NOT TO SCALE**

PROJECT SITE  
STUDY INTERSECTION  
## = INBOUND PERCENTAGES  
(##) = OUTBOUND PERCENTAGES



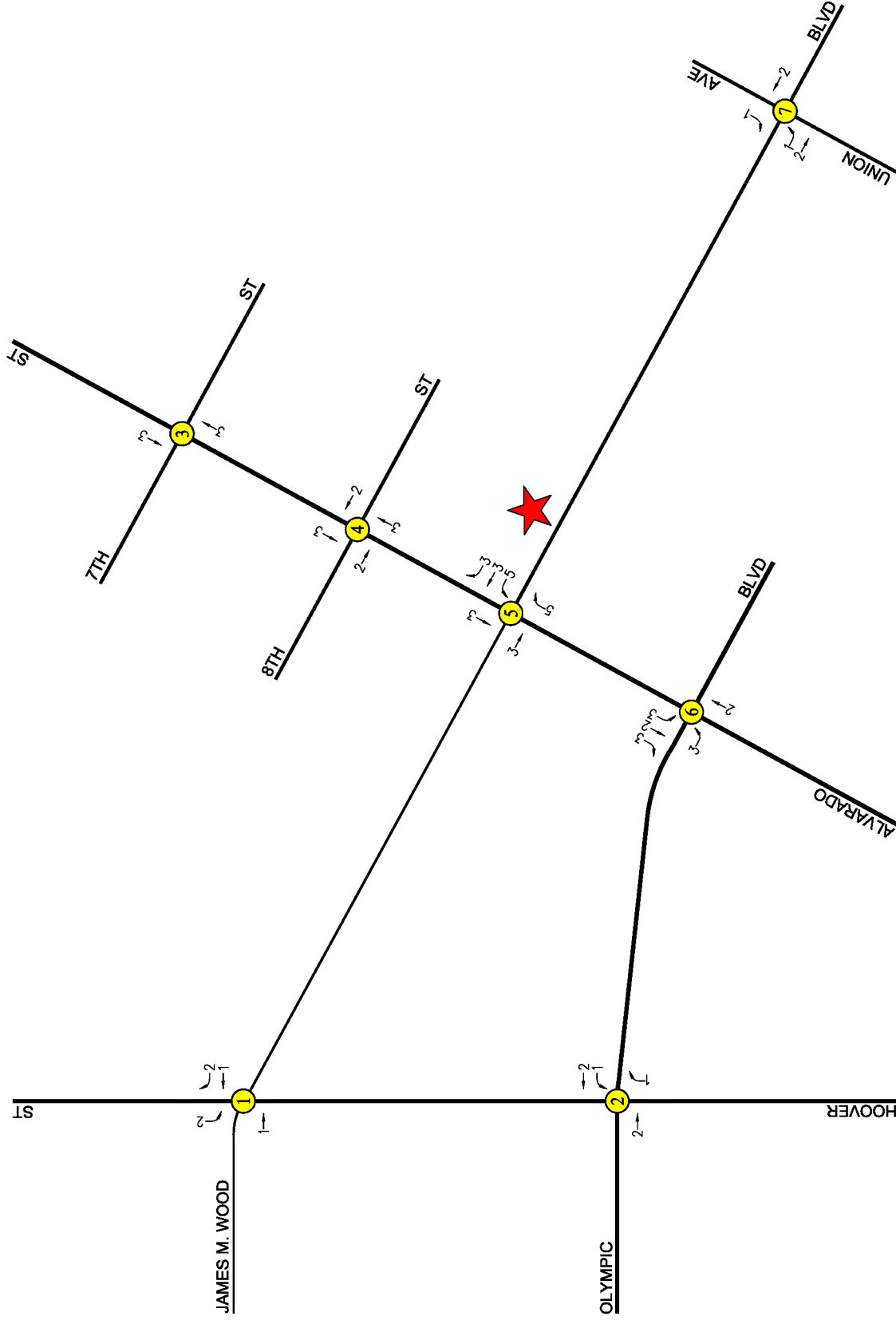
**FIGURE 7-2**  
**NET NEW PROJECT TRAFFIC VOLUMES**

WEEKDAY AM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

★ PROJECT SITE  
 Ⓢ STUDY INTERSECTION

NOT TO SCALE

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**FIGURE 7-3**  
**NET NEW PROJECT TRAFFIC VOLUMES**

WEEKDAY PM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

★ PROJECT SITE  
 ● STUDY INTERSECTION

NOT TO SCALE

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## 8.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

The study intersections were evaluated using the Critical Movement Analysis (CMA) method of analysis that determines Volume-to-Capacity ( $v/c$ ) ratios on a critical lane basis. The overall intersection  $v/c$  ratio is subsequently assigned a Level of Service (LOS) value to describe intersection operations. Level of Service varies from LOS A (free flow) to LOS F (jammed condition). A description of the CMA method and corresponding Level of Service is provided in *Appendix B*.

### 8.1 Impact Criteria and Thresholds

The relative impact of the added traffic volumes to be generated by the Project during the AM and PM peak hours was evaluated based on analysis of future operating conditions at the study intersections, without and with the Project. The previously discussed capacity analysis procedures were utilized to evaluate the future  $v/c$  relationships and service level characteristics at each study intersection.

The significance of the potential impacts of Project generated traffic was identified using the traffic impact criteria set forth in LADOT's *Traffic Study Policies and Procedures*, August 2014. According to the City's published traffic study guidelines, the impact is considered significant if the Project-related increase in the  $v/c$  ratio is equal to or exceeds the thresholds presented in *Table 8-1*.

Table 8-1 CITY OF LOS ANGELES INTERSECTION IMPACT THRESHOLD CRITERIA		
Final $v/c$	Level of Service	Project Related Increase in $v/c$
> 0.701 - 0.800	C	equal to or greater than 0.040
> 0.801 - 0.900	D	equal to or greater than 0.020
> 0.901	E or F	equal to or greater than 0.010

The City's Sliding Scale Method requires mitigation of Project traffic impacts whenever traffic generated by the proposed development causes an increase of the analyzed intersection  $v/c$  ratio by an amount equal to or greater than the values shown above.



## 8.2 LADOT ATSAC/ATCS

The City of Los Angeles Automated Traffic Surveillance and Control (ATSAC) and Adaptive Traffic Control System (ATCS) provides computer control of traffic signals allowing automatic adjustment of signal timing plans to reflect changing traffic conditions, identification of unusual traffic conditions caused by accidents, the ability to centrally implement special purpose short term traffic timing changes in response to incidents, and the ability to quickly identify signal equipment malfunctions. ATCS provides real time control of traffic signals and includes additional loop detectors, closed-circuit television, an upgrade in the communications links and a new generation of traffic control software. LADOT estimates that the ATSAC system reduces the critical  $v/c$  ratios by seven percent (0.07). The ATCS system upgrade further reduces the critical  $v/c$  ratios by three percent (0.03) for a total of 10 percent (0.10). According to the City of Los Angeles, ATSAC/ATCS system upgrades for all seven study intersections have been implemented. As such, the Level of Service calculations reflect a 0.10 adjustment for all analysis scenarios evaluated.

## 8.3 Traffic Impact Analysis Scenarios

Pursuant to LADOT's traffic study, Level of Service calculations have been prepared for the following scenarios for the study intersections:

- (a) Existing (2017) conditions;
- (b) Condition (a) with completion and occupancy of the Project;
- (c) Condition (b) with implementation of Project mitigation measures, where necessary;
- (d) Condition (a) plus one percent (1.0%) annual ambient traffic growth through year 2019 and with completion and occupancy of the related projects (i.e., future cumulative baseline);
- (e) Condition (d) with completion and occupancy of the Project;
- (f) Condition (e) with implementation of Project mitigation measures where necessary.

The traffic volumes for each new condition were added to the volumes in the prior condition to determine the change in capacity utilization at the study intersections.

## 9.0 TRAFFIC ANALYSIS

The traffic impact analysis prepared for the seven study intersections using the CMA methodology and application of the City of Los Angeles significant traffic impact criteria is summarized in **Table 9-1**. The CMA data worksheets for the seven analyzed intersections are contained in *Appendix B*.

### 9.1 Existing Conditions

#### 9.1.1 Existing Conditions

As indicated in column [1] of *Table 9-1*, all seven study intersections are presently operating at LOS D or better during the weekday AM and PM peak hours under existing conditions. The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 5-1* and *5-2*, respectively.

#### 9.1.2 Existing With Project Conditions

As shown in column [2] of *Table 9-1*, application of the City's threshold criteria to the "Existing With Project" scenario indicates that the Project is not expected to create a significant impact at any of the seven study intersections. Incremental, but not significant, impacts are noted at the study intersections due to the Project. The existing with Project traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in **Figures 9-1** and **9-2**, respectively.

### 9.2 Future Conditions

#### 9.2.1 Future Cumulative Baseline Conditions

The future cumulative baseline conditions were forecast based on the addition of traffic generated by the plus completion and occupancy of related projects, as well as the growth in traffic due to the combined effects of continuing development, intensification of existing developments and other factors (i.e., ambient growth). The  $v/c$  ratios at all of the study intersections are incrementally increased with the addition of ambient traffic and traffic generated by the related projects listed in *Table 6-1*.

As presented in column [3] of *Table 9-1*, three of the seven study intersections are expected to operate at LOS D or better during the weekday AM and PM peak hours with the addition of growth in ambient traffic and related project traffic under the future cumulative baseline condition. The following intersections are expected to operate at LOS E or worse during the peak hours shown below under future cumulative baseline conditions:

- Int. No. 2: Hoover Street /  
Olympic Boulevard  
AM Peak Hour:  $v/c = 1.003$ , LOS F  
PM Peak Hour:  $v/c = 1.104$ , LOS F
- Int. No. 5: Alvarado Street /  
James M. Wood Boulevard  
PM Peak Hour:  $v/c = 0.923$ , LOS E

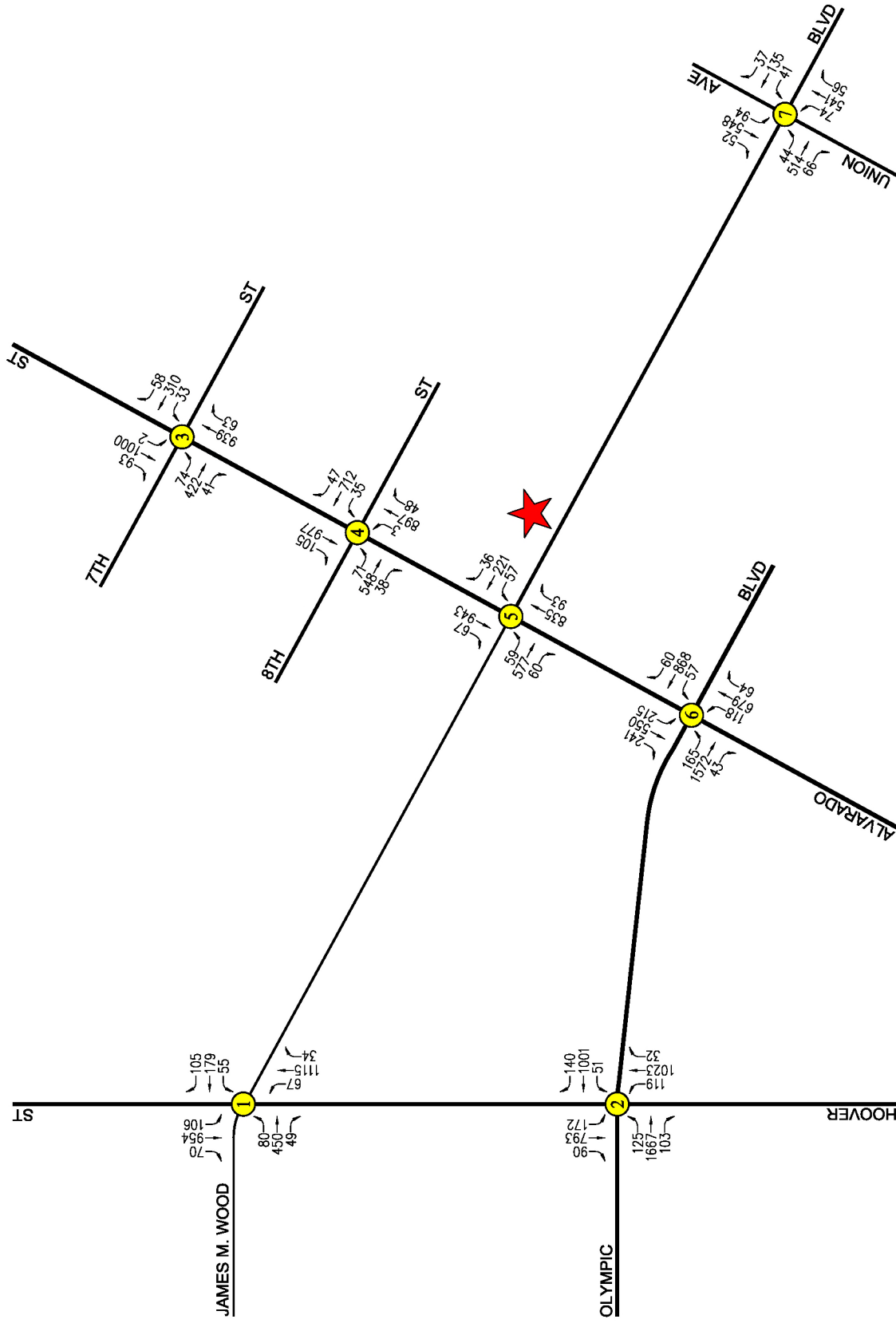
Table 9-1  
SUMMARY OF VOLUME TO CAPACITY RATIOS  
AND LEVELS OF SERVICE  
AM AND PM PEAK HOURS

16-Feb-17

NO.	INTERSECTION	PEAK HOUR	[1]		[2]		[3]		[4]						
			YEAR 2017 EXISTING V/C	LOS	YEAR 2017 EXISTING W/PROJECT V/C	LOS	CHANGE V/C [(2)-(1)]	SIGNIF. IMPACT [a]	YEAR 2019 FUTURE PRE-PROJECT V/C	LOS	YEAR 2019 FUTURE W/PROJECT V/C	LOS	CHANGE V/C [(4)-(3)]	SIGNIF. IMPACT [a]	
1	Hoover Street / James M. Wood Boulevard	AM PM	0.721 0.702	C C	0.723 0.704	C C	0.002 0.002	NO NO	0.845 0.893	D D	0.847 0.895	D D	0.002 0.002	NO NO	
2	Hoover Street / Olympic Boulevard	AM PM	0.873 0.834	D D	0.875 0.834	D D	0.002 0.000	NO NO	1.003 1.104	F F	1.005 1.104	F F	0.002 0.000	NO NO	
3	Alvarado Street / 7th Street	AM PM	0.538 0.585	A A	0.541 0.586	A A	0.003 0.001	NO NO	0.697 0.796	B C	0.698 0.797	B C	0.001 0.001	NO NO	
4	Alvarado Street / 8th Street	AM PM	0.614 0.633	B B	0.617 0.635	B B	0.003 0.002	NO NO	0.785 0.843	C D	0.787 0.846	C D	0.002 0.003	NO NO	
5	Alvarado Street / James M. Wood Boulevard	AM PM	0.692 0.701	B C	0.699 0.708	B C	0.007 0.007	NO NO	0.853 0.923	D E	0.861 0.930	D E	0.008 0.007	NO NO	
6	Alvarado Street / Olympic Boulevard	AM PM	0.756 0.797	C C	0.760 0.803	C D	0.004 0.006	NO NO	0.885 1.045	D F	0.888 1.050	D F	0.003 0.005	NO NO	
7	Union Avenue / James M. Wood Boulevard	AM PM	0.773 0.761	C C	0.775 0.762	C C	0.002 0.001	NO NO	0.985 1.068	E F	0.987 1.069	E F	0.002 0.001	NO NO	

[a] According to LADOT's "Traffic Study Policies and Procedures", August 2014, a transportation impact on an intersection shall be deemed significant in accordance with the following table:

Final v/c	LOS	Project Related Increase in v/c
0.701 - 0.800	C	equal to or greater than 0.040
0.801 - 0.900	D	equal to or greater than 0.020
> 0.901	E, F	equal to or greater than 0.010

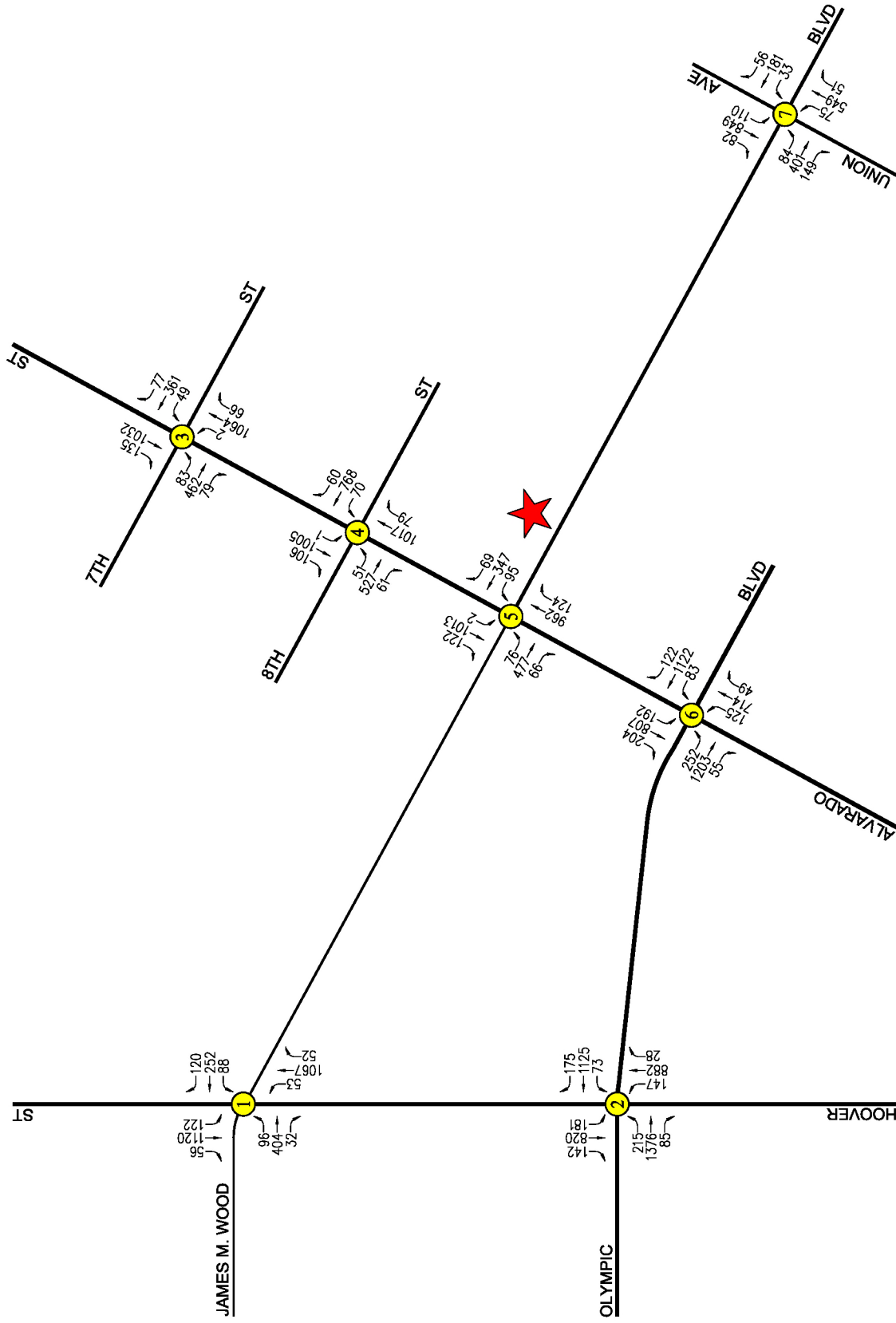


**FIGURE 9-1**  
**EXISTING WITH PROJECT TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

**PROJECT SITE** (Red Star)  
**STUDY INTERSECTION** (Yellow Circle)

**NOT TO SCALE**

LINSCOTT, LAW & GREENSPAN, engineers



**FIGURE 9-2**  
**EXISTING WITH PROJECT TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

**PROJECT SITE** (Red Star)  
**STUDY INTERSECTION** (Yellow Circle)

**NOT TO SCALE**

LINSCOTT, LAW & GREENSPAN, engineers

- Int. No. 6: Alvarado Street / Olympic Boulevard PM Peak Hour:  $v/c = 1.045$ , LOS F
- Int. No. 5: Union Avenue / James M. Wood Boulevard AM Peak Hour:  $v/c = 0.985$ , LOS E  
PM Peak Hour:  $v/c = 1.068$ , LOS F

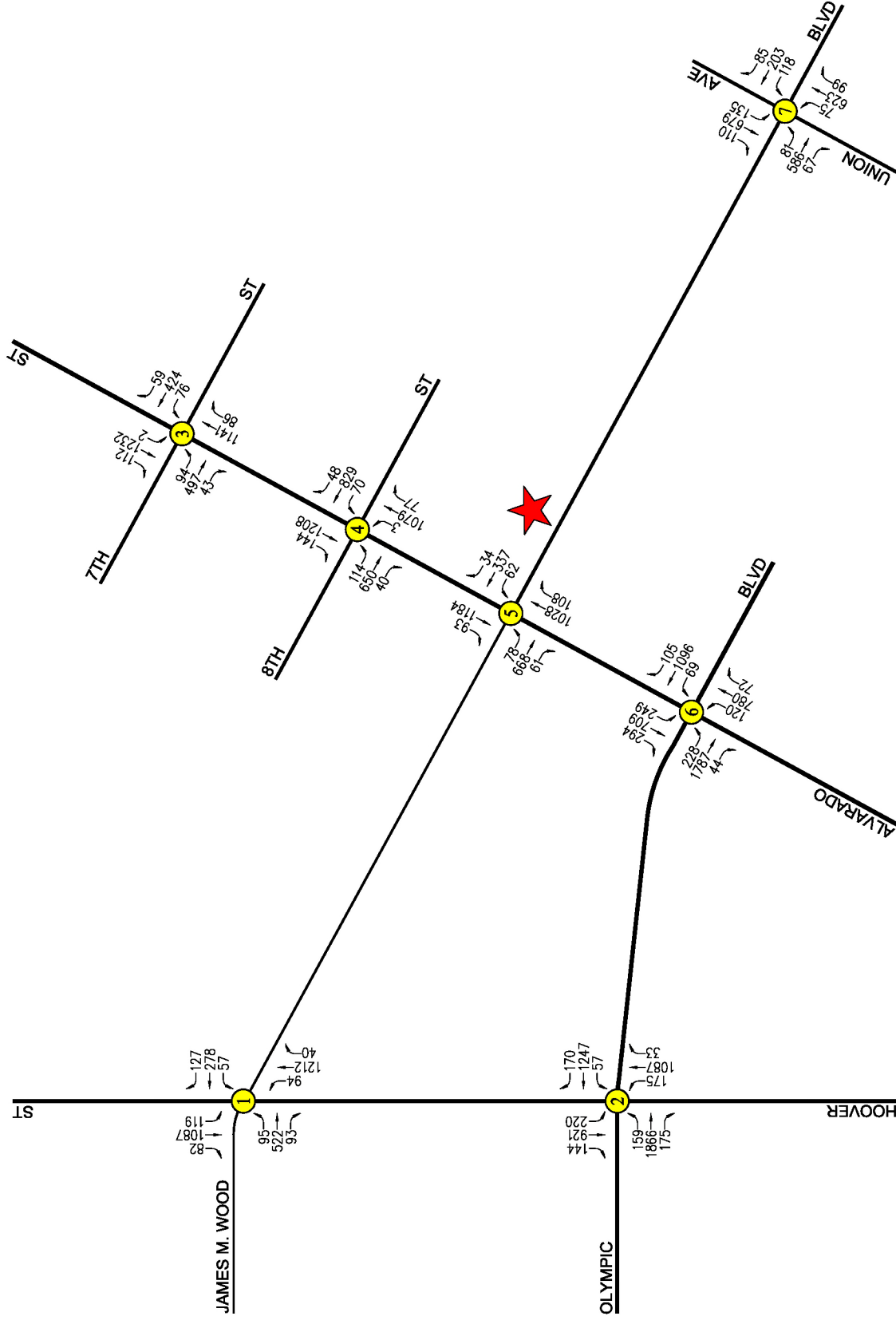
The future cumulative baseline (existing, ambient growth and related projects) traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in **Figures 9–3** and **9–4**, respectively.

### 9.2.2 *Future Cumulative With Project Conditions*

The future cumulative with Project conditions were forecast based on the addition of traffic generated by the Project plus completion and occupancy of related projects. As shown in column [4] of *Table 9–1*, application of the City’s threshold criteria to the “Future With Project” scenario indicates that the Project is not expected to create a significant impact at any of the seven study intersections.

As indicated in column [4] of *Table 9–1*, incremental, but not significant, impacts are noted at all seven study intersections during the weekday AM and PM peak hours with the addition of ambient growth in traffic, related project traffic, and Project traffic, as presented in *Table 9–1*. As no significant impacts are expected due to the Project, no traffic mitigation measures are required or recommended for the study intersections.

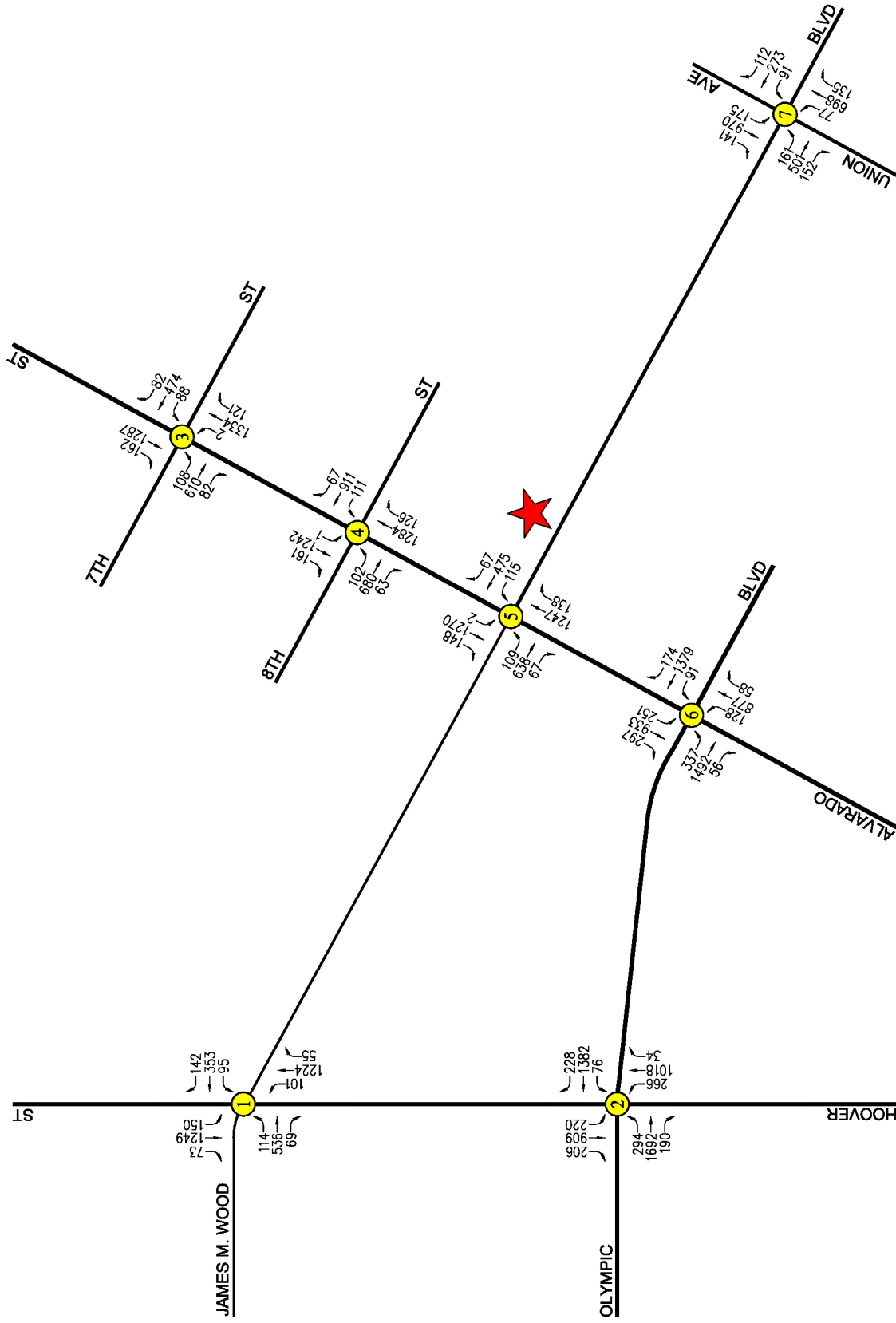
The future cumulative with Project (existing, ambient growth, related projects and Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in **Figures 9–5** and **9–6**, respectively.



**FIGURE 9-3**  
**FUTURE CUMULATIVE BASELINE TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

**NOT TO SCALE**  
 PROJECT SITE  
 STUDY INTERSECTION

LINSCOTT, LAW & GREENSPAN, engineers



**FIGURE 9-4**

**FUTURE CUMULATIVE BASELINE TRAFFIC VOLUMES**

WEEKDAY PM PEAK HOUR

2005 JAMES M. WOOD BLVD HOTEL PROJECT

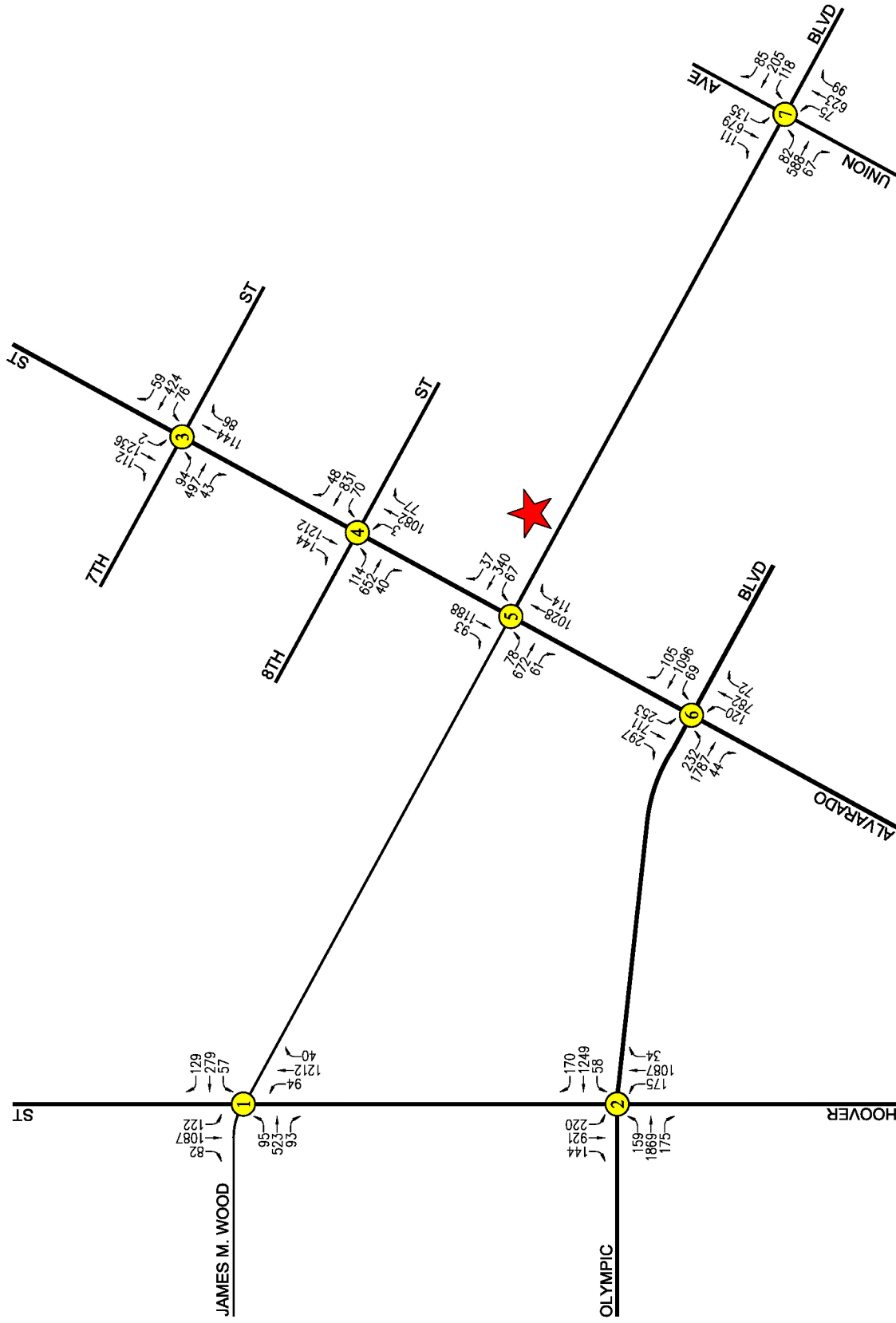
**PROJECT SITE**

**STUDY INTERSECTION**

**NOT TO SCALE**

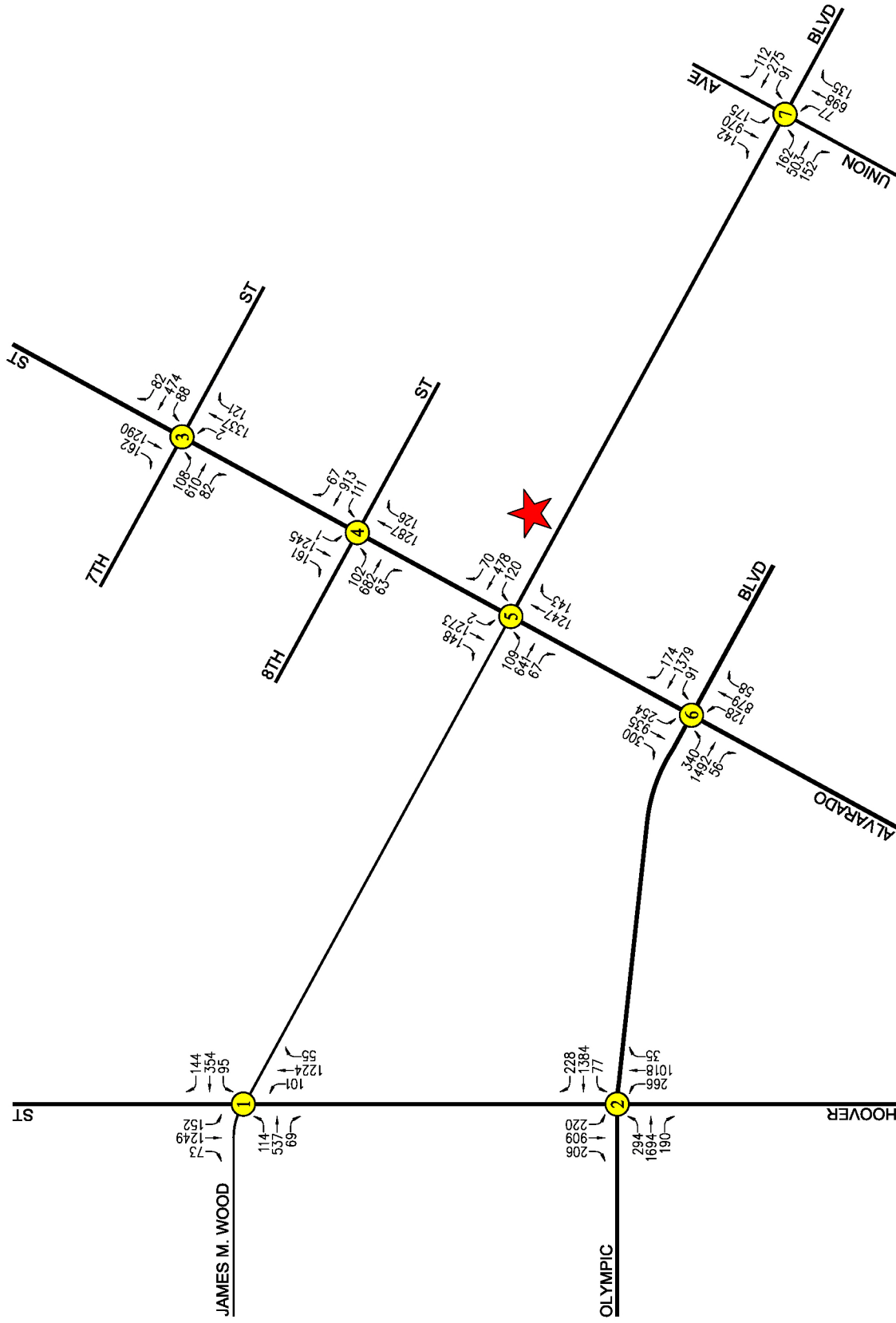
LINSCOTT, LAW & GREENSPAN, engineers





**FIGURE 9-5**  
**FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

**PROJECT SITE**  
 ★  
**STUDY INTERSECTION**  
 ●  
**NOT TO SCALE**  
 LINSKOTT, LAW & GREENSPAN, engineers



**FIGURE 9-6**  
**FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 2005 JAMES M. WOOD BLVD HOTEL PROJECT

**NOT TO SCALE**

**PROJECT SITE** (Red Star)  
**STUDY INTERSECTION** (Yellow Circle)

LINSCOTT, LAW & GREENSPAN, engineers

## 10.0 CONGESTION MANAGEMENT PROGRAM TRAFFIC IMPACT ASSESSMENT

The Congestion Management Program (CMP) is a state-mandated program that was enacted by the California State Legislature with the passage of Proposition 111 in 1990. The program is intended to address the impact of local growth on the regional transportation system.

As required by the 2010 Congestion Management Program for Los Angeles County, a Traffic Impact Assessment (TIA) has been prepared to determine the potential impacts on designated monitoring locations on the CMP highway system. The analysis has been prepared in accordance with procedures outlined in the *2010 Congestion Management Program for Los Angeles County*, County of Los Angeles Metropolitan Transportation Authority, 2010.

According to Section D.9.1 (Appendix D, page D-6) of the 2010 CMP manual, the criteria for determining a significant transportation impact is listed below:

“A significant transportation impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity ( $V/C \geq 0.02$ ), causing or worsening LOS F ( $V/C > 1.00$ ).”

The CMP impact criteria apply for analysis of both intersection and freeway monitoring locations.

### 10.1 Intersections

The following CMP intersection monitoring locations in the Project vicinity have been identified:

- | <u>CMP Station</u> | <u>Intersection</u>                     |
|--------------------|-----------------------------------------|
| No. 85             | Wilshire Boulevard / Alvarado Boulevard |

The CMP TIA guidelines require that intersection monitoring locations must be examined if the Project will add 50 or more trips during either the AM or PM weekday peak hours. As shown in *Figure 7-2* and *Figure 7-3*, the proposed Project would not add 50 or more trips during the AM or PM peak hours at the CMP monitoring location. Specifically, the proposed Project is expected to add only 7 AM peak hour trips and 6 PM peak hour trips to the Wilshire Boulevard / Alvarado Boulevard intersection. Therefore, no further review of potential impacts to intersection monitoring locations that are part of the CMP highway system is required.

## 10.2 Freeways

The following CMP freeway monitoring locations have been identified in the Project vicinity:

<u>CMP Station</u>	<u>Location</u>
No. 1013	I-10 Freeway at Budlong Avenue
No. 1048	I-110 Freeway south of SR-101 Freeway

The CMP TIA guidelines require that freeway monitoring locations must be examined if the Project will add 150 or more trips (in either direction) during either the AM or PM weekday peak periods. The Project will not add 150 or more trips (in either direction) during either the AM or PM weekday peak hours to CMP freeway monitoring locations which is the threshold for preparing a traffic impact assessment, as stated in the CMP manual. Therefore, no further review of potential impacts to freeway monitoring locations that are part of the CMP highway system is required.

## 10.3 Transit Impact Review

As required by the *2010 Congestion Management Program for Los Angeles County*, a review has been made of the potential impacts of the Project on transit service. As discussed in Subsection 4.5 herein, existing transit service is provided in the vicinity of the proposed Project.

The Project trip generation, as shown in *Table 7-1*, was adjusted by values set forth in the CMP (i.e., person trips equal 1.4 times vehicle trips, and transit trips equal 10 percent of the total person trips) to estimate transit trip generation. Pursuant to the CMP guidelines, the Project is forecast to generate demand for 6 transit trips during the AM peak hour and 6 transit trips during the PM peak hour. Over a 24-hour period, the Project is forecast to generate demand for 77 daily transit trips. Therefore, the calculations are as follows:

- AM Peak Hour =  $42 \times 1.4 \times 0.1 = 6$  Transit Trips
- PM Peak Hour =  $38 \times 1.4 \times 0.1 = 6$  Transit Trips
- Daily Trips =  $545 \times 1.4 \times 0.1 = 77$  Transit Trips

As shown in *Table 4-1*, 7 transit lines are provided adjacent to or in close proximity the Project site. As outlined in *Table 4-1*, under the “No. of Buses/Trains During Peak Hour” column, these 7 transit lines provide services for an average of (i.e., average of the directional number of buses/trains during the peak hours) generally 91 buses/trains during the AM peak hour and 81 buses/trains during the PM peak hour. Therefore, based on the above calculated AM and PM peak hour trips, this would correspond to an insignificant number of additional Project-generated transit trips per bus/train. It is anticipated that the existing transit service in the Project area will adequately accommodate the increase of Project-generated transit trips.

## 11.0 CONCLUSIONS

This traffic impact analysis has been prepared to evaluate the potential impacts to the local street system due to the proposed hotel project at 2005 James M. Wood Boulevard. Seven (7) intersections were identified and analyzed in order to determine changes in operations following construction and occupancy of the Project. Application of the impact threshold criteria from the City of Los Angeles to the “With Proposed Project” scenarios indicates that the seven study intersections are not anticipated to be significantly impacted by the Project. Incremental, but not significant, impacts are noted at the seven study intersections evaluated in this analysis. As no significant impacts are expected due to the Project, no traffic mitigation measures are required or recommended for the study intersections.

# APPENDIX A

## MANUAL TRAFFIC COUNT DATA



City Of Los Angeles  
Department Of Transportation  
MANUAL TRAFFIC COUNT SUMMARY

STREET:

North/South

Hoover St

East/West

James M Wood Blvd

Day: Wednesday Date: February 8, 2017 Weather: SUNNY

Hours: 7-10 & 3-6 Checkrs: NDS

School Day: YES District: I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	150	137	69	67
BIKES	19	24	19	16
BUSES	37	34	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	309	8.45	294	8.15	158	8.15	94	7.45
PM PK 15 MIN	303	17.15	339	16.45	142	17.30	149	17.45
AM PK HOUR	1218	7.15	1127	7.30	577	7.30	326	7.15
PM PK HOUR	1187	16.30	1307	16.15	528	15.15	476	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	65	1112	21	1198
8-9	42	1107	39	1188
9-10	60	991	31	1082
15-16	52	958	36	1046
16-17	47	1068	33	1148
17-18	55	1044	49	1148
TOTAL	321	6280	209	6810

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	84	885	57	1026
8-9	100	927	53	1080
9-10	76	770	35	881
15-16	96	982	49	1127
16-17	124	1119	45	1288
17-18	114	1088	56	1258
TOTAL	594	5771	295	6660

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
2224	56	27	51	43
2268	18	2	23	3
1963	20	2	16	1
2173	40	11	12	12
2436	33	5	15	11
2406	33	3	33	9
13470	200	50	150	79

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	58	318	51	427
8-9	67	427	41	535
9-10	51	283	43	377
15-16	69	368	65	502
16-17	82	372	41	495
17-18	99	383	33	515
TOTAL	426	2151	274	2851

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	63	149	104	316
8-9	41	138	89	268
9-10	51	139	73	263
15-16	69	154	83	306
16-17	87	187	102	376
17-18	80	264	132	476
TOTAL	391	1031	583	2005

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
743	142	103	56	44
803	34	4	22	2
640	24	0	12	1
808	86	43	40	5
871	57	34	30	1
991	52	26	35	0
4856	395	210	195	53

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-001

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

AM

NS/EW Streets:		Hoover St			Hoover St			James M Wood Blvd			James M Wood Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
7:00 AM		11	267	6	17	197	9	10	40	7	15	28	24	631
7:15 AM		13	285	4	20	215	12	11	66	13	15	29	29	712
7:30 AM		22	285	1	26	231	18	20	105	14	19	33	30	804
7:45 AM		19	275	10	21	242	18	17	107	17	14	59	21	820
8:00 AM		13	280	11	26	235	16	20	111	8	8	41	28	797
8:15 AM		13	275	11	30	246	18	23	125	10	12	36	24	823
8:30 AM		9	259	8	20	223	12	11	95	10	6	28	18	699
8:45 AM		7	293	9	24	223	7	13	96	13	15	33	19	752
9:00 AM		16	241	5	18	183	9	20	84	13	17	23	18	647
9:15 AM		20	276	8	25	179	5	7	60	12	14	42	18	666
9:30 AM		13	234	10	22	214	11	13	65	10	7	39	14	652
9:45 AM		11	240	8	11	194	10	11	74	8	13	35	23	638
TOTAL VOLUMES :		167	3210	91	260	2582	145	176	1028	135	155	426	266	8641
APPROACH %'s :		4.82%	92.56%	2.62%	8.70%	86.44%	4.85%	13.14%	76.77%	10.08%	18.30%	50.30%	31.40%	
PEAK HR START TIME :		730 AM												TOTAL
PEAK HR VOL :		67	1115	33	103	954	70	80	448	49	53	169	103	3244
PEAK HR FACTOR :		0.986			0.958			0.913			0.864			0.985

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-001

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

NS/EW Streets:		PM												
		Hoover St			Hoover St			James M Wood Blvd			James M Wood Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	
3:00 PM	10	250	8	13	240	11	15	69	15	16	34	28	709	
3:15 PM	13	231	8	26	213	3	18	97	25	16	40	24	714	
3:30 PM	15	233	8	23	271	18	19	96	14	23	41	17	778	
3:45 PM	14	244	12	34	258	17	17	106	11	14	39	14	780	
4:00 PM	8	261	6	32	271	9	17	95	13	22	46	21	801	
4:15 PM	13	263	10	32	281	15	18	102	10	18	39	26	827	
4:30 PM	16	274	7	26	275	8	23	78	10	21	51	26	815	
4:45 PM	10	270	10	34	292	13	24	97	8	26	51	29	864	
5:00 PM	17	270	10	21	293	17	22	93	6	23	55	25	852	
5:15 PM	17	274	12	30	280	15	17	107	10	16	50	33	861	
5:30 PM	9	253	17	35	255	11	33	101	8	20	74	31	847	
5:45 PM	12	247	10	28	260	13	27	82	9	21	85	43	837	
TOTAL VOLUMES :	NL 154	NT 3070	NR 118	SL 334	ST 3189	SR 150	EL 250	ET 1123	ER 139	WL 236	WT 605	WR 317	TOTAL 9685	
APPROACH %'s :	4.61%	91.86%	3.53%	9.09%	86.82%	4.08%	16.53%	74.27%	9.19%	20.38%	52.25%	27.37%		
PEAK HR START TIME :	445 PM													TOTAL
PEAK HR VOL :	53	1067	49	120	1120	56	96	398	32	85	230	118	3424	
PEAK HR FACTOR :	0.965			0.956			0.926			0.866			0.991	

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-101

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

AM

NS/EW Streets:		Hoover St/Coronado St			Hoover St/Coronado St			James M Wood Blvd			James M Wood Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 2	NR 0	SL 0	ST 0	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
7:00 AM		0	0	0	0	0	0	0	0	0	0	0	1	1
7:15 AM		0	0	0	0	0	1	0	0	0	0	0	3	4
7:30 AM		0	0	0	0	0	3	0	0	0	0	0	6	9
7:45 AM		0	0	0	0	0	3	0	0	0	0	0	4	7
8:00 AM		0	1	0	0	2	0	1	0	0	0	0	5	9
8:15 AM		0	0	0	0	0	3	0	0	0	0	0	4	7
8:30 AM		0	0	0	0	1	2	1	0	0	0	0	2	6
8:45 AM		0	0	0	0	0	2	0	0	0	0	0	3	5
9:00 AM		0	0	0	0	0	2	0	0	0	0	0	7	9
9:15 AM		0	0	0	0	0	1	0	0	0	0	0	6	7
9:30 AM		0	0	0	0	1	0	0	0	0	0	0	2	3
9:45 AM		0	0	0	0	0	2	1	0	0	0	0	2	5
TOTAL VOLUMES :		0	1	0	0	4	19	3	0	0	0	0	45	72
APPROACH %'s :		0.00%	100.00%	0.00%	0.00%	17.39%	82.61%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	
PEAK HR START TIME :		730 AM												TOTAL
PEAK HR VOL :		0	1	0	0	2	9	1	0	0	0	0	19	32
PEAK HR FACTOR :		0.250			0.917			0.250			0.792			0.889

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-101

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

PM														
NS/EW Streets:	Hoover St/Coronado St			Hoover St/Coronado St			James M Wood Blvd			James M Wood Blvd				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 1	NT 2	NR 0	SL 0	ST 0	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	
3:00 PM	0	1	0	0	0	2	0	0	0	0	0	3	6	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	3	3	
3:30 PM	0	0	0	0	0	4	0	0	0	0	0	7	11	
3:45 PM	0	0	0	0	0	1	0	0	0	0	0	7	8	
4:00 PM	0	1	0	0	0	3	0	0	0	0	0	7	11	
4:15 PM	0	1	0	0	1	2	0	0	0	0	0	5	9	
4:30 PM	0	0	0	0	0	5	0	0	0	0	0	4	9	
4:45 PM	0	1	0	0	0	6	0	0	0	0	0	5	12	
5:00 PM	0	1	0	0	3	5	3	0	0	0	0	4	16	
5:15 PM	0	1	0	0	0	5	2	0	0	0	0	6	14	
5:30 PM	0	0	0	0	1	1	0	0	0	0	0	4	6	
5:45 PM	0	0	0	0	0	6	0	0	0	0	0	5	11	
TOTAL VOLUMES :	NL 0	NT 6	NR 0	SL 0	ST 5	SR 40	EL 5	ET 0	ER 0	WL 0	WT 0	WR 60	TOTAL 116	
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	11.11%	88.89%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%		
PEAK HR START TIME :	430 PM													TOTAL
PEAK HR VOL :	0	3	0	0	3	21	5	0	0	0	0	19	51	
PEAK HR FACTOR :	0.750			0.750			0.417			0.792			0.797	

CONTROL : Signalized



City Of Los Angeles  
Department Of Transportation  
MANUAL TRAFFIC COUNT SUMMARY

STREET:  
North/South Hoover St

East/West Olympic Blvd

Day: Wednesday Date: February 8, 2017 Weather: SUNNY

Hours: 7-10 & 3-6 Chckrs: NDS

School Day: YES District:  I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	172	145	179	235
BIKES	29	28	49	62
BUSES	38	33	58	54

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	320	7.30	282	7.30	489	8.15	322	7.15
PM PK 15 MIN	314	16.30	313	16.30	461	16.15	394	17.15
AM PK HOUR	1215	7.15	1086	7.30	1892	8.00	1221	7.00
PM PK HOUR	1125	16.30	1201	16.15	1689	17.00	1385	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	118	1055	17	1190
8-9	119	1023	31	1173
9-10	112	910	30	1052
15-16	111	814	34	959
16-17	128	936	33	1097
17-18	148	858	25	1031
TOTAL	736	5596	170	6502

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	165	767	94	1026
8-9	172	793	90	1055
9-10	114	653	104	871
15-16	172	828	108	1108
16-17	175	881	114	1170
17-18	185	771	154	1110
TOTAL	983	4693	664	6340

TOTAL

N-S
2216
2228
1923
2067
2267
2141
12842

XING S/L

Ped	Sch
64	27
77	5
70	2
112	26
118	34
116	17
557	111

XING N/L

Ped	Sch
62	7
47	0
38	1
78	9
90	14
95	7
410	38

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	146	1200	94	1440
8-9	125	1664	103	1892
9-10	108	1269	109	1486
15-16	154	1219	90	1463
16-17	173	1363	109	1645
17-18	232	1381	76	1689
TOTAL	938	8096	581	9615

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	35	1070	116	1221
8-9	50	999	140	1189
9-10	48	954	97	1099
15-16	51	898	159	1108
16-17	73	942	153	1168
17-18	67	1153	165	1385
TOTAL	324	6016	830	7170

TOTAL

E-W
2661
3081
2585
2571
2813
3074
16785

XING W/L

Ped	Sch
64	9
45	1
30	0
85	11
89	23
78	7
391	51

XING E/L

Ped	Sch
43	7
59	0
52	1
71	13
88	29
111	16
424	66

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-002

Day: Wednesday

City: Los Angeles

Date: 2/8/2017

## TOTALS

AM

NS/EW Streets:		Hoover St			Hoover St			Olympic Blvd			Olympic Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL
7:00 AM		27	261	6	38	185	24	38	206	22	6	268	25	1106
7:15 AM		23	281	3	31	189	19	30	272	23	8	278	36	1193
7:30 AM		36	280	4	52	206	24	33	340	22	9	258	22	1286
7:45 AM		32	233	4	44	187	27	45	382	27	12	266	33	1292
8:00 AM		33	276	10	47	212	22	34	392	30	14	241	26	1337
8:15 AM		30	236	7	50	194	21	33	428	28	11	275	36	1349
8:30 AM		24	250	6	43	194	21	24	425	26	11	237	30	1291
8:45 AM		32	261	8	32	193	26	34	419	19	14	246	48	1332
9:00 AM		24	229	9	31	177	25	28	328	28	12	221	24	1136
9:15 AM		26	235	3	21	151	15	26	348	26	17	272	30	1170
9:30 AM		34	242	5	32	175	36	26	283	28	9	214	26	1110
9:45 AM		28	204	13	30	150	28	28	310	27	10	247	17	1092
TOTAL VOLUMES :		NL 349	NT 2988	NR 78	SL 451	ST 2213	SR 288	EL 379	ET 4133	ER 306	WL 133	WT 3023	WR 353	TOTAL 14694
APPROACH %'s :		10.22%	87.50%	2.28%	15.28%	74.97%	9.76%	7.87%	85.78%	6.35%	3.79%	86.15%	10.06%	
PEAK HR START TIME :		800 AM												TOTAL
PEAK HR VOL :		119	1023	31	172	793	90	125	1664	103	50	999	140	5309
PEAK HR FACTOR :		0.919			0.939			0.967			0.923			0.984

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-002

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

NS/EW Streets:		PM												
		Hoover St			Hoover St			Olympic Blvd			Olympic Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL	
3:00 PM	32	220	9	39	211	34	42	298	22	14	207	40	1168	
3:15 PM	30	184	7	44	177	23	34	289	20	9	221	45	1083	
3:30 PM	23	212	7	41	236	27	39	303	25	14	214	35	1176	
3:45 PM	26	198	11	48	204	24	39	329	23	14	256	39	1211	
4:00 PM	43	237	5	41	205	32	44	340	24	14	207	34	1226	
4:15 PM	18	203	10	45	219	32	50	377	34	21	246	40	1295	
4:30 PM	28	276	10	44	247	22	38	274	26	16	219	30	1230	
4:45 PM	39	220	8	45	210	28	41	372	25	22	270	49	1329	
5:00 PM	40	253	7	44	234	31	46	324	22	10	220	37	1268	
5:15 PM	37	201	6	45	190	38	65	358	23	19	327	48	1357	
5:30 PM	31	208	6	47	186	45	63	320	15	21	306	41	1289	
5:45 PM	40	196	6	49	161	40	58	379	16	17	300	39	1301	
TOTAL VOLUMES :		387	2608	92	532	2480	376	559	3963	275	191	2993	477	14933
APPROACH %'s :		12.54%	84.48%	2.98%	15.70%	73.20%	11.10%	11.65%	82.61%	5.73%	5.22%	81.75%	13.03%	
PEAK HR START TIME :		445 PM												TOTAL
PEAK HR VOL :		147	882	27	181	820	142	215	1374	85	72	1123	175	5243
PEAK HR FACTOR :		0.880			0.925			0.938			0.869			0.966

CONTROL : Signalized





City Of Los Angeles  
Department Of Transportation  
MANUAL TRAFFIC COUNT SUMMARY

STREET:  
North/South Alvarado St

East/West 7th St

Day: Wednesday Date: February 8, 2017 Weather: SUNNY

Hours: 7-10 & 3-6 Chckrs: NDS

School Day: YES District:  I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	181	206	78	53
BIKES	53	40	115	102
BUSES	44	78	83	57

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	267	7.15	295	7.30	161	7.45	106	7.45
PM PK 15 MIN	293	17.45	303	16.45	183	17.00	133	17.15
AM PK HOUR	999	7.15	1091	7.15	578	7.30	401	7.15
PM PK HOUR	1131	17.00	1164	16.30	662	16.15	494	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	917	67	984
8-9	1	869	63	933
9-10	1	789	45	835
15-16	2	968	67	1037
16-17	0	1022	81	1103
17-18	2	1068	61	1131
TOTAL	6	5633	384	6023

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	3	988	93	1084
8-9	0	878	104	982
9-10	3	902	86	991
15-16	10	909	98	1017
16-17	1	992	122	1115
17-18	0	1010	131	1141
TOTAL	17	5679	634	6330

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
2068	259	42	172	16
1915	202	2	199	4
1826	208	7	217	4
2054	447	39	388	38
2218	495	8	444	24
2272	489	38	479	20
12353	2100	136	1899	106

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	73	377	30	480
8-9	40	421	43	504
9-10	45	281	32	358
15-16	84	395	62	541
16-17	71	487	79	637
17-18	83	448	72	603
TOTAL	396	2409	318	3123

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	36	285	57	378
8-9	13	253	48	314
9-10	29	239	44	312
15-16	55	322	66	443
16-17	34	321	64	419
17-18	40	380	74	494
TOTAL	207	1800	353	2360

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
858	171	4	321	2
818	167	0	347	0
670	205	6	319	0
984	351	2	527	0
1056	380	3	586	6
1097	465	17	817	23
5483	1739	32	2917	31

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-003

Day: Wednesday

City: Los Angeles

**TOTALS**

Date: 2/8/2017

AM													
NS/EW Streets:	Alvarado St			Alvarado St			7th St			7th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 3	NR 0	SL 0	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	0	197	14	1	248	24	10	61	3	9	47	10	624
7:15 AM	0	252	15	0	237	18	13	77	6	9	80	15	722
7:30 AM	0	239	19	2	265	28	21	119	9	9	76	17	804
7:45 AM	0	229	19	0	238	23	29	120	12	9	82	15	776
8:00 AM	0	216	10	0	256	24	11	106	14	6	72	11	726
8:15 AM	0	191	20	0	224	23	12	115	10	2	68	9	674
8:30 AM	0	223	18	0	193	30	10	108	10	2	56	15	665
8:45 AM	1	239	15	0	205	27	7	92	9	3	57	13	668
9:00 AM	0	199	11	1	217	24	14	65	6	4	58	8	607
9:15 AM	0	205	9	2	239	20	10	62	5	6	69	9	636
9:30 AM	1	191	7	0	245	26	10	74	11	9	46	13	633
9:45 AM	0	194	18	0	201	16	11	80	10	10	66	14	620
<b>TOTAL VOLUMES :</b>	2	2575	175	6	2768	283	158	1079	105	78	777	149	8155
<b>APPROACH %'s :</b>	0.07%	93.57%	6.36%	0.20%	90.55%	9.26%	11.77%	80.40%	7.82%	7.77%	77.39%	14.84%	
<b>PEAK HR START TIME :</b>	715 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	936	63	2	996	93	74	422	41	33	310	58	3028
<b>PEAK HR FACTOR :</b>	0.935			0.925			0.834			0.946			0.942

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-003

Day: Wednesday

City: Los Angeles

**TOTALS**

Date: 2/8/2017

NS/EW Streets:		PM												
		Alvarado St			Alvarado St			7th St			7th St			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 3	NR 0	SL 0	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	
3:00 PM	1	226	13	2	203	18	30	98	9	12	79	15	706	
3:15 PM	0	259	17	4	222	20	18	86	17	19	85	19	766	
3:30 PM	1	222	20	0	236	26	13	95	17	15	83	20	748	
3:45 PM	0	261	17	4	248	34	23	116	19	9	75	12	818	
4:00 PM	0	252	28	1	237	22	18	119	21	3	102	17	820	
4:15 PM	0	239	19	0	235	16	17	122	17	9	66	11	751	
4:30 PM	0	258	16	0	255	46	16	132	24	10	67	20	844	
4:45 PM	0	273	18	0	265	38	20	114	17	12	86	16	859	
5:00 PM	1	246	15	0	248	36	27	132	24	15	81	19	844	
5:15 PM	0	275	14	0	249	27	20	110	16	12	99	22	844	
5:30 PM	1	267	19	0	267	34	16	106	22	10	95	20	857	
5:45 PM	0	280	13	0	246	34	20	100	10	3	105	13	824	
TOTAL VOLUMES :		NL 4	NT 3058	NR 209	SL 11	ST 2911	SR 351	EL 238	ET 1330	ER 213	WL 129	WT 1023	WR 204	TOTAL 9681
APPROACH %'s :		0.12%	93.49%	6.39%	0.34%	88.94%	10.72%	13.36%	74.68%	11.96%	9.51%	75.44%	15.04%	
PEAK HR START TIME :		445 PM												TOTAL
PEAK HR VOL :		2	1061	66	0	1029	135	83	462	79	49	361	77	3404
PEAK HR FACTOR :		0.970			0.960			0.852			0.915			0.991

CONTROL : Signalized



City Of Los Angeles  
Department Of Transportation  
MANUAL TRAFFIC COUNT SUMMARY

STREET:  
North/South Alvarado St

East/West 8th St

Day: Wednesday Date: February 8, 2017 Weather: SUNNY

Hours: 7-10 & 3-6 Chckrs: NDS

School Day: YES District:  I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	179	207	83	91
BIKES	63	63	50	51
BUSES	44	48	39	34

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	253	8.45	278	8.00	176	7.45	218	7.30
PM PK 15 MIN	292	17.45	297	17.30	176	17.00	264	17.45
AM PK HOUR	945	7.15	1078	7.15	682	7.45	792	7.15
PM PK HOUR	1093	17.00	1136	16.45	668	16.15	896	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	4	885	42	931
8-9	0	857	77	934
9-10	27	746	61	834
15-16	33	896	64	993
16-17	2	981	73	1056
17-18	0	1014	79	1093
TOTAL	66	5379	396	5841

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	941	105	1046
8-9	1	840	98	939
9-10	35	809	104	948
15-16	26	854	117	997
16-17	3	1015	75	1093
17-18	1	1002	106	1109
TOTAL	66	5461	605	6132

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1977	150	77	203	61
1873	106	34	133	6
1782	101	5	113	4
1990	173	54	186	25
2149	182	9	186	25
2202	284	15	296	26
11973	996	194	1117	147

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	77	481	35	593
8-9	48	570	28	646
9-10	47	416	21	484
15-16	91	462	55	608
16-17	66	516	59	641
17-18	51	525	61	637
TOTAL	380	2970	259	3609

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	36	699	44	779
8-9	36	613	36	685
9-10	42	539	47	628
15-16	49	538	75	662
16-17	52	551	73	676
17-18	70	766	60	896
TOTAL	285	3706	335	4326

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
1372	199	65	231	77
1331	133	10	154	27
1112	113	3	158	11
1270	190	34	326	46
1317	198	43	360	19
1533	311	26	448	12
7935	1144	181	1677	192

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-004

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

AM													
NS/EW Streets:	Alvarado St			Alvarado St			8th St			8th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 3	NR 0	SL 0	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	1	199	7	0	223	23	17	80	4	9	146	8	717
7:15 AM	0	223	11	0	232	33	25	110	9	4	187	14	848
7:30 AM	1	236	11	0	249	20	19	143	10	12	197	9	907
7:45 AM	2	227	13	0	237	29	16	148	12	11	169	13	877
8:00 AM	0	208	13	0	255	23	11	145	7	8	157	11	838
8:15 AM	0	197	18	0	210	24	14	148	8	8	147	12	786
8:30 AM	0	217	28	0	193	26	15	149	9	15	150	7	809
8:45 AM	0	235	18	1	182	25	8	128	4	5	159	6	771
9:00 AM	5	194	16	4	204	23	11	109	5	10	158	7	746
9:15 AM	10	187	13	13	209	25	13	92	1	11	152	11	737
9:30 AM	7	189	19	8	211	33	8	102	11	12	109	10	719
9:45 AM	5	176	13	10	185	23	15	113	4	9	120	19	692
TOTAL VOLUMES :	31	2488	180	36	2590	307	172	1467	84	114	1851	127	9447
APPROACH %'s :	1.15%	92.18%	6.67%	1.23%	88.31%	10.47%	9.98%	85.14%	4.88%	5.45%	88.48%	6.07%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	3	894	48	0	973	105	71	546	38	35	710	47	3470
PEAK HR FACTOR :	0.953			0.969			0.930			0.908			0.956

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-004

Day: Wednesday

City: Los Angeles

**TOTALS**

Date: 2/8/2017

PM													
NS/EW Streets:	Alvarado St			Alvarado St			8th St			8th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 3	NR 0	SL 0	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
3:00 PM	8	206	12	12	180	28	20	97	15	10	128	15	731
3:15 PM	7	242	17	5	226	23	26	104	15	8	125	21	819
3:30 PM	11	194	14	3	221	35	26	130	10	17	134	21	816
3:45 PM	7	254	21	6	227	31	19	131	15	14	151	18	894
4:00 PM	1	232	22	0	250	16	17	123	9	12	134	26	842
4:15 PM	0	231	19	0	226	24	16	141	15	13	125	18	828
4:30 PM	0	251	18	3	259	22	18	129	15	14	119	13	861
4:45 PM	1	267	14	0	280	13	15	123	20	13	173	16	935
5:00 PM	0	237	17	0	248	30	14	136	26	17	150	16	891
5:15 PM	0	260	20	0	244	24	11	143	16	20	191	10	939
5:30 PM	0	247	20	0	269	28	9	123	7	20	194	14	931
5:45 PM	0	270	22	1	241	24	17	123	12	13	231	20	974
<b>TOTAL VOLUMES :</b>	35	2891	216	30	2871	298	208	1503	175	171	1855	208	10461
<b>APPROACH %'s :</b>	1.11%	92.01%	6.87%	0.94%	89.75%	9.32%	11.03%	79.69%	9.28%	7.65%	83.03%	9.31%	
<b>PEAK HR START TIME :</b>	500 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	1014	79	1	1002	106	51	525	61	70	766	60	3735
<b>PEAK HR FACTOR :</b>	0.936			0.934			0.905			0.848			0.959

CONTROL : Signalized



City Of Los Angeles  
Department Of Transportation  
MANUAL TRAFFIC COUNT SUMMARY

STREET:  
North/South Alvarado St

East/West James M Wood Blvd

Day: Wednesday Date: February 8, 2017 Weather: SUNNY

Hours: 7-10 & 3-6 Chckrs: NDS

School Day: YES District:  I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	169	203	80	50
BIKES	71	71	43	42
BUSES	44	48	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	259	8.45	273	8.00	181	7.45	83	8.00
PM PK 15 MIN	282	17.45	300	16.45	166	17.15	150	17.45
AM PK HOUR	938	7.15	1033	7.15	692	7.30	308	7.15
PM PK HOUR	1081	17.00	1153	16.45	616	16.45	500	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	1	826	83	910
8-9	0	854	80	934
9-10	22	753	73	848
15-16	17	845	84	946
16-17	0	943	103	1046
17-18	0	962	119	1081
TOTAL	40	5183	542	5765

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	1	934	68	1003
8-9	1	845	62	908
9-10	58	755	54	867
15-16	19	849	63	931
16-17	2	1018	101	1121
17-18	2	1010	122	1134
TOTAL	83	5411	470	5964

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1913	55	5	77	9
1842	29	0	55	0
1715	24	0	37	1
1877	56	16	98	15
2167	63	4	83	11
2215	72	19	112	4
11729	299	44	462	40

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	67	453	62	582
8-9	51	533	53	637
9-10	60	343	45	448
15-16	76	389	62	527
16-17	65	427	73	565
17-18	76	474	66	616
TOTAL	395	2619	361	3375

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	67	196	36	299
8-9	46	195	52	293
9-10	35	155	46	236
15-16	62	210	66	338
16-17	72	250	77	399
17-18	90	344	66	500
TOTAL	372	1350	343	2065

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
881	81	11	114	14
930	56	1	78	3
684	52	7	60	14
865	98	9	171	13
964	145	9	184	15
1116	164	8	213	19
5440	596	45	820	78

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-005

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

AM

NS/EW Streets:		Alvarado St			Alvarado St			James M Wood Blvd			James M Wood Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 3	NR 0	SL 0	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
7:00 AM		1	186	21	1	221	21	17	74	11	21	40	13	627
7:15 AM		0	206	16	0	234	12	17	92	19	18	50	9	673
7:30 AM		0	221	27	0	253	10	20	141	10	17	43	8	750
7:45 AM		0	213	19	0	226	25	13	146	22	11	63	6	744
8:00 AM		0	213	23	0	257	16	12	139	12	11	66	6	755
8:15 AM		0	188	18	0	203	16	14	147	16	13	46	13	674
8:30 AM		0	214	19	1	201	14	14	132	11	10	38	18	672
8:45 AM		0	239	20	0	184	16	11	115	14	12	45	15	671
9:00 AM		7	197	24	14	190	15	13	94	7	7	36	10	614
9:15 AM		3	185	27	12	190	16	19	87	6	6	41	13	605
9:30 AM		5	191	9	21	196	13	16	81	17	12	40	9	610
9:45 AM		7	180	13	11	179	10	12	81	15	10	38	14	570
TOTAL VOLUMES :		23	2433	236	60	2534	184	178	1329	160	148	546	134	7965
APPROACH %'s :		0.85%	90.38%	8.77%	2.16%	91.22%	6.62%	10.68%	79.72%	9.60%	17.87%	65.94%	16.18%	
PEAK HR START TIME :		730 AM												TOTAL
PEAK HR VOL :		0	835	87	0	939	67	59	573	60	52	218	33	2923
PEAK HR FACTOR :		0.929			0.921			0.956			0.913			0.968

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-005

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

NS/EW Streets:		PM												
		Alvarado St			Alvarado St			James M Wood Blvd			James M Wood Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 3	NR 0	SL 0	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	
3:00 PM	7	199	20	7	184	19	18	89	13	23	54	25	658	
3:15 PM	2	216	23	5	216	17	17	90	15	13	54	13	681	
3:30 PM	7	191	19	4	224	12	19	93	15	9	53	16	662	
3:45 PM	1	239	22	3	225	15	22	117	19	17	49	12	741	
4:00 PM	0	225	29	0	258	30	17	104	21	18	46	11	759	
4:15 PM	0	218	25	1	221	20	19	120	17	20	58	19	738	
4:30 PM	0	241	27	0	263	28	11	98	20	20	70	29	807	
4:45 PM	0	259	22	1	276	23	18	105	15	14	76	18	827	
5:00 PM	0	242	18	2	267	27	19	116	12	23	59	17	802	
5:15 PM	0	227	40	0	245	17	19	131	16	23	91	8	817	
5:30 PM	0	238	34	0	263	32	19	123	23	23	86	20	861	
5:45 PM	0	255	27	0	235	46	19	104	15	21	108	21	851	
TOTAL VOLUMES :		17	2750	306	23	2877	286	217	1290	201	224	804	209	9204
APPROACH %'s :		0.55%	89.49%	9.96%	0.72%	90.30%	8.98%	12.70%	75.53%	11.77%	18.11%	65.00%	16.90%	
PEAK HR START TIME :		500 PM												TOTAL
PEAK HR VOL :		0	962	119	2	1010	122	76	474	66	90	344	66	3331
PEAK HR FACTOR :		0.958			0.958			0.928			0.833			0.967

CONTROL : Signalized



City Of Los Angeles  
Department Of Transportation  
MANUAL TRAFFIC COUNT SUMMARY

STREET:  
North/South Alvarado St

East/West Olympic Blvd

Day: Wednesday Date: February 8, 2017 Weather: SUNNY

Hours: 7-10 & 3-6 Chckrs: NDS

School Day: YES District:  I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	162	191	174	196
BIKES	62	64	66	67
BUSES	46	48	58	54

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	242	7.30	279	7.30	501	8.30	275	7.00
PM PK 15 MIN	234	15.45	317	17.00	406	17.45	388	17.15
AM PK HOUR	897	7.15	1072	7.15	1802	8.00	1010	8.30
PM PK HOUR	906	15.45	1217	16.45	1507	17.00	1327	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	125	684	67	876
8-9	120	696	53	869
9-10	85	651	70	806
15-16	106	679	72	857
16-17	132	727	43	902
17-18	125	712	49	886
TOTAL	693	4149	354	5196

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	201	618	234	1053
8-9	192	502	236	930
9-10	142	503	190	835
15-16	170	624	179	973
16-17	213	765	191	1169
17-18	189	805	201	1195
TOTAL	1107	3817	1231	6155

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1929	70	11	52	0
1799	83	7	61	0
1641	70	2	50	0
1830	125	21	61	2
2071	141	20	76	1
2081	118	8	77	4
11351	607	69	377	7

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	145	1166	39	1350
8-9	162	1598	42	1802
9-10	129	1160	32	1321
15-16	190	1109	51	1350
16-17	214	1194	56	1464
17-18	249	1203	55	1507
TOTAL	1089	7430	275	8794

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	56	878	62	996
8-9	55	872	71	998
9-10	59	822	68	949
15-16	69	817	78	964
16-17	84	851	90	1025
17-18	83	1122	122	1327
TOTAL	406	5362	491	6259

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
2346	50	4	92	9
2800	47	1	99	3
2270	64	1	96	0
2314	90	9	149	22
2489	120	5	157	12
2834	110	9	165	8
15053	481	29	758	54

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-006

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

AM													
NS/EW Streets:	Alvarado St			Alvarado St			Olympic Blvd			Olympic Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL
7:00 AM	31	150	13	47	135	68	34	209	8	15	242	18	970
7:15 AM	32	172	13	44	165	53	35	258	10	9	205	10	1006
7:30 AM	28	196	18	56	162	61	33	348	10	16	225	22	1175
7:45 AM	34	166	23	54	156	52	43	351	11	16	206	12	1124
8:00 AM	23	179	13	56	137	76	42	407	4	16	218	15	1186
8:15 AM	29	167	15	51	129	60	30	370	17	16	216	13	1113
8:30 AM	32	165	13	50	126	50	46	444	11	9	228	20	1194
8:45 AM	36	185	12	35	110	50	44	377	10	14	210	23	1106
9:00 AM	18	194	19	36	128	37	26	316	5	11	217	16	1023
9:15 AM	18	155	11	30	117	59	36	303	7	17	225	20	998
9:30 AM	24	149	24	42	131	48	38	274	8	19	201	17	975
9:45 AM	25	153	16	34	127	46	29	267	12	12	179	15	915
TOTAL VOLUMES :	330	2031	190	535	1623	660	436	3924	113	170	2572	201	12785
APPROACH %'s :	12.94%	79.62%	7.45%	18.99%	57.59%	23.42%	9.75%	87.73%	2.53%	5.78%	87.39%	6.83%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	118	677	64	211	548	238	161	1572	43	57	868	60	4617
PEAK HR FACTOR :	0.963			0.927			0.886			0.958			0.967

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-006

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

PM

NS/EW Streets:		Alvarado St			Alvarado St			Olympic Blvd			Olympic Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL
3:00 PM		27	143	17	37	139	33	51	277	10	15	208	20	977
3:15 PM		33	177	18	46	159	45	46	257	16	22	178	23	1020
3:30 PM		23	164	21	40	160	46	34	276	13	14	216	20	1027
3:45 PM		23	195	16	47	166	55	59	299	12	18	215	15	1120
4:00 PM		33	183	15	57	194	51	56	294	17	15	198	17	1130
4:15 PM		39	174	13	48	178	40	53	318	15	25	213	15	1131
4:30 PM		26	181	8	54	199	47	48	287	14	23	222	28	1137
4:45 PM		34	189	7	54	194	53	57	295	10	21	218	30	1162
5:00 PM		28	183	13	49	225	43	58	317	14	18	250	26	1224
5:15 PM		37	186	10	41	194	48	51	285	12	31	330	27	1252
5:30 PM		32	168	14	47	214	55	67	280	17	18	268	31	1211
5:45 PM		28	175	12	52	172	55	73	321	12	16	274	38	1228
TOTAL VOLUMES :		363	2118	164	572	2194	571	653	3506	162	236	2790	290	13619
APPROACH %'s :		13.72%	80.08%	6.20%	17.14%	65.75%	17.11%	15.11%	81.14%	3.75%	7.12%	84.14%	8.75%	
PEAK HR START TIME :		500 PM												TOTAL
PEAK HR VOL :		125	712	49	189	805	201	249	1203	55	83	1122	122	4915
PEAK HR FACTOR :		0.951			0.942			0.928			0.855			0.981

CONTROL : Signalized



City Of Los Angeles  
Department Of Transportation  
MANUAL TRAFFIC COUNT SUMMARY

STREET:  
North/South Union Ave

East/West James M Wood Blvd

Day: Wednesday Date: February 8, 2017 Weather: SUNNY

Hours: 7-10 & 3-6 Chckrs: NDS

School Day: YES District:  I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	96	85	58	37
BIKES	41	55	74	48
BUSES	29	31	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	182	8.45	194	7.45	170	7.45	62	7.15
PM PK 15 MIN	179	17.00	273	16.45	171	17.30	85	17.45
AM PK HOUR	700	8.00	693	7.30	625	7.45	231	7.15
PM PK HOUR	707	16.15	1040	16.45	631	16.45	307	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	76	531	42	649
8-9	78	563	59	700
9-10	49	514	40	603
15-16	59	521	47	627
16-17	72	573	52	697
17-18	83	530	48	661
TOTAL	417	3232	288	3937

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	69	476	33	578
8-9	66	478	61	605
9-10	41	448	60	549
15-16	49	632	67	748
16-17	88	749	63	900
17-18	113	799	87	999
TOTAL	426	3582	371	4379

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1227	50	17	55	34
1305	31	5	33	2
1152	14	0	16	2
1375	46	9	33	8
1597	34	8	32	0
1660	43	9	55	7
8316	218	48	224	53

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	44	422	61	527
8-9	36	509	57	602
9-10	38	343	68	449
15-16	51	376	120	547
16-17	57	371	145	573
17-18	85	382	152	619
TOTAL	311	2403	603	3317

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	34	138	42	214
8-9	30	119	32	181
9-10	18	83	27	128
15-16	34	102	20	156
16-17	15	134	35	184
17-18	37	215	55	307
TOTAL	168	791	211	1170

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
741	108	35	113	55
783	86	0	52	13
577	67	1	26	0
703	125	34	83	62
757	113	7	42	9
926	178	24	58	21
4487	677	101	374	160

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-007

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

AM

NS/EW Streets:		Union Ave			Union Ave			James M Wood Blvd			James M Wood Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 1	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
7:00 AM		26	111	8	13	100	8	7	73	17	2	29	7	401
7:15 AM		17	149	13	8	102	6	10	94	10	12	39	11	471
7:30 AM		13	145	11	12	125	10	12	112	22	12	33	13	520
7:45 AM		20	126	10	36	149	9	15	143	12	8	37	11	576
8:00 AM		20	130	20	26	140	12	8	123	18	9	37	9	552
8:15 AM		21	140	15	20	134	20	8	134	14	12	26	4	548
8:30 AM		15	145	12	12	101	17	8	130	12	5	24	8	489
8:45 AM		22	148	12	8	103	12	12	122	13	4	32	11	499
9:00 AM		9	141	10	10	114	12	7	89	19	3	20	8	442
9:15 AM		11	120	5	10	104	18	13	82	15	4	27	7	416
9:30 AM		13	123	10	14	112	12	5	81	21	6	19	6	422
9:45 AM		16	130	15	7	118	18	13	91	13	5	17	6	449
TOTAL VOLUMES :		203	1608	141	176	1402	154	118	1274	186	82	340	101	5785
APPROACH %'s :		10.40%	82.38%	7.22%	10.16%	80.95%	8.89%	7.48%	80.74%	11.79%	15.68%	65.01%	19.31%	
PEAK HR START TIME :		730 AM												TOTAL
PEAK HR VOL :		74	541	56	94	548	51	43	512	66	41	133	37	2196
PEAK HR FACTOR :		0.953			0.893			0.913			0.909			0.953

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5070-007

Day: Wednesday

City: Los Angeles

TOTALS

Date: 2/8/2017

PM

NS/EW Streets:		Union Ave			Union Ave			James M Wood Blvd			James M Wood Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 1	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
3:00 PM	13	117	7	11	151	17	11	82	27	8	30	10	484	
3:15 PM	13	128	13	14	162	19	9	94	30	7	31	3	523	
3:30 PM	18	130	20	9	154	15	13	98	30	11	21	4	523	
3:45 PM	15	146	7	15	165	16	18	102	33	8	20	3	548	
4:00 PM	16	145	8	18	158	17	12	96	41	5	32	6	554	
4:15 PM	20	140	16	14	179	15	12	94	36	4	32	8	570	
4:30 PM	21	141	13	29	183	14	17	81	30	2	40	9	580	
4:45 PM	15	147	15	27	229	17	16	100	38	4	30	12	650	
5:00 PM	23	141	15	29	204	27	23	95	39	5	45	17	663	
5:15 PM	24	140	9	31	207	14	17	96	36	14	53	15	656	
5:30 PM	13	121	12	23	209	23	27	108	36	10	51	12	645	
5:45 PM	23	128	12	30	179	23	18	83	41	8	66	11	622	
TOTAL VOLUMES :		214	1624	147	250	2180	217	193	1129	417	86	451	110	7018
APPROACH %'s :		10.78%	81.81%	7.41%	9.44%	82.36%	8.20%	11.10%	64.92%	23.98%	13.29%	69.71%	17.00%	
PEAK HR START TIME :		445 PM												TOTAL
PEAK HR VOL :		75	549	51	110	849	81	83	399	149	33	179	56	2614
PEAK HR FACTOR :		0.943			0.952			0.923			0.817			0.986

CONTROL : Signalized

## **APPENDIX B**

### **CMA AND LEVELS OF SERVICE EXPLANATION CMA DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS**



## CRITICAL MOVEMENT ANALYSIS (CMA) DESCRIPTION

Level of Service is a term used to describe prevailing conditions and their effect on traffic. Broadly interpreted, the Level of Service concept denotes any one of a number of differing combinations of operating conditions which may take place as a roadway is accommodating various traffic volumes. Level of Service is a qualitative measure of the effect of such factors as travel speed, travel time, interruptions, freedom to maneuver, safety, driving comfort and convenience.

Six Levels of Service, A through F, have been defined in the 1965 *Highway Capacity Manual*. Level of Service A describes a condition of free flow, with low traffic volumes and relatively high speeds, while Level of Service F describes forced traffic flow at low speeds with jammed conditions and queues which cannot clear during the green phases.

Critical Movement Analysis (CMA) is a procedure which provides a capacity and level of service geometry and traffic signal operation and results in a level of service determination for the intersection as a whole operating unit.

The per lane volume for each movement in the intersection is determined and the per lane intersection capacity based on the Transportation Research Board (TRB) Report 212 (*Interim Materials on Highway Capacity*). The resulting CMA represents the ratio of the intersection's cumulative volume over its respective capacity (V/C ratio). Critical Movement Analysis takes into account lane widths, bus and truck operations, pedestrian activity and parking activity, as well as number of lanes and geometrics.

The Level of Service (abbreviated from the *Highway Capacity Manual*) are listed here with their corresponding CMA and Load Factor equivalents. Load Factor is that proportion of the signal cycles during the peak hour which are fully loaded; i.e. when all of the vehicles waiting at the beginning of green are not able to clear on that green phase.

Critical Movement Analysis Characteristics		
Level of Service	Load Factor	Equivalent CMA
A (free flow)	0.0	0.00 - 0.60
B (rural design)	0.0 - 0.1	0.61 - 0.70
C (urban design)	0.1 - 0.3	0.71 - 0.80
D (maximum urban design)	0.3 - 0.7	0.81 - 0.90
E (capacity)	0.7 - 1.0	0.91 - 1.00
F (force flow)	Not Applicable	Not Applicable

### SERVICE LEVEL A

There are no loaded cycles and few are even close to loaded at this service level. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.

### SERVICE LEVEL B

This level represents stable operation where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.

### SERVICE LEVEL C

At this level stable operation continues. Loading is still intermittent but more frequent than at Level B. Occasionally drivers may have to wait through more one red signal indication and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.

### SERVICE LEVEL D

This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak hour, but enough cycles with lower demand occur to permit periodic clearance of queues, thus preventing excessive backups. Drivers frequently have to wait through more than one red signal. This level is the lower limit of acceptable operation to most drivers.

### SERVICE LEVEL E

This represents near capacity and capacity operation. At capacity (CMA = 1.0) it represents the most vehicles that the particular intersection can accommodate. However, full utilization of every signal cycle is seldom attained no matter how great the demand. At this level all drivers wait through more than one red signal, and frequently through several.

### SERVICE LEVEL F

Jammed conditions. Traffic backed up from a downstream location on one of the street restricts or prevents movement of traffic through the intersection under consideration.

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Hoover Street	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMAQ1	East-West Street:	James M. Wood Boulevard	Projection Year:	2019	Peak Hour:	AM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases	2	0	0	2	0	NB--	0	NB--	0
		0	0	0	0	0	EB--	0	EB--	0
	SB--	0	0	0	0	0	WB--	0	WB--	0
	WB--	0	0	0	0	0				
MOVEMENT	Left	67	1	67	26	94	1	1	94	1
	Left-Through	1115	1	575	75	1212	1	1	626	1
	Through-Right	34	0	34	5	40	0	0	40	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
NORTHBOUND	Left	103	1	103	14	119	1	1	122	1
	Left-Through	954	1	512	114	1087	1	1	585	1
	Through-Right	70	0	70	11	82	0	0	82	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
SOUTHBOUND	Left	80	1	80	13	95	1	1	95	1
	Left-Through	449	0	498	64	522	0	0	616	0
	Through-Right	49	0	0	43	93	0	0	93	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
EASTBOUND	Left	55	1	55	1	57	1	1	57	1
	Left-Through	178	0	281	96	278	0	0	408	0
	Through-Right	103	0	0	22	127	0	0	129	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
WESTBOUND	Left	678	1	678	1	57	1	1	57	1
	Left-Through	553	0	553	96	278	0	0	408	0
	Through-Right	1231	0	1231	22	127	0	0	129	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
CRITICAL VOLUMES		North-South: 678 East-West: 553 SUM: 1231	North-South: 681 East-West: 554 SUM: 1235	North-South: 745 East-West: 672 SUM: 1417	North-South: 748 East-West: 673 SUM: 1421	North-South: 748 East-West: 673 SUM: 1421				
VOLUME/CAPACITY (V/C) RATIO:		0.821	0.823	0.945	0.947	0.947				
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.721	0.723	0.845	0.847	0.847				
LEVEL OF SERVICE (LOS):		C	C	D	D	D				

## REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.002**  
Significant impacted? **NO**

Δv/c after mitigation: **0.002**  
Fully mitigated? **N/A**

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Hoover Street	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMAQ1	East-West Street:	James M. Wood Boulevard	Projection Year:	2019	Peak Hour:	PM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases	2	2	2						
	NB--	0	0	0	NB--	0	NB--	0	NB--	0
	EB--	0	0	0	EB--	0	EB--	0	EB--	0
	SB--	0	0	0	SB--	0	SB--	0	SB--	0
MOVEMENT	Left	53	53	53	47	101	0	101	0	101
	Left-Through	1067	1067	1067	136	1224	0	1224	0	1224
	Through-Right	52	52	52	2	55	0	55	0	55
	Left-Through-Right	0	0	0	0	0	0	0	0	0
NORTHBOUND	Left	120	120	122	28	150	2	152	0	152
	Left-Through	1120	1120	1120	106	1249	0	1249	0	1249
	Through-Right	56	56	56	16	73	0	73	0	73
	Left-Through-Right	0	0	0	0	0	0	0	0	0
SOUTHBOUND	Left	96	96	96	16	114	0	114	0	114
	Left-Through	403	403	404	125	536	1	537	0	537
	Through-Right	32	32	32	36	69	0	69	0	69
	Left-Through-Right	0	0	0	0	0	0	0	0	0
EASTBOUND	Left	88	88	88	5	95	0	95	0	95
	Left-Through	251	252	252	97	353	1	354	0	354
	Through-Right	118	120	120	22	142	2	144	0	144
	Left-Through-Right	0	0	0	0	0	0	0	0	0
WESTBOUND	Left	680	680	682	5	95	0	95	0	95
	Left-Through	523	523	524	97	353	1	354	0	354
	Through-Right	1203	1203	1206	22	142	2	144	0	144
	Left-Through-Right	0	0	0	0	0	0	0	0	0
CRITICAL VOLUMES		North-South: 680 East-West: 524 SUM: 1206	North-South: 682 East-West: 524 SUM: 1206	North-South: 790 East-West: 700 SUM: 1490	North-South: 792 East-West: 701 SUM: 1493	North-South: 792 East-West: 701 SUM: 1493				
VOLUME/CAPACITY (V/C) RATIO:		0.802	0.804	0.993	0.995	0.995				
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.702	0.704	0.893	0.895	0.895				
LEVEL OF SERVICE (LOS):		C	C	D	D	D				

## REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project:	0.002	Δv/c after mitigation:	0.002
Significant impacted?	NO	Fully mitigated?	N/A

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Hoover Street	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMAQ2	East-West Street:	Olympic Boulevard	Projection Year:	2019	Peak Hour:	AM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?		No. of Phases	4	0		4				4
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB--	0	0	NB--	0	NB--	0	NB--	0
		EB--	0	0	EB--	0	EB--	0	EB--	0
ATSAC-1 or ATSAC+ATCS-2?		WB--	0	0	WB--	0	WB--	0	WB--	0
Override Capacity			2	0		2				2
			0	0		0				0
MOVEMENT			EXISTING PLUS PROJECT				FUTURE CONDITION W/O PROJECT			
			Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Lane Volume
NORTHBOUND	Left	119	0	119	119	54	175	1	175	175
	Left-Through	0	0	0	0	43	1087	0	1087	1087
	Through-Right	1023	0	1023	528	0	0	1	561	561
	Right	31	1	32	32	1	33	0	34	34
	Left-Through-Right	0	0	0	0	0	0	0	0	0
SOUTHBOUND	Left	172	0	172	172	45	220	1	220	220
	Left-Through	0	0	0	0	112	921	1	533	533
	Through-Right	793	0	793	442	0	0	1	144	144
	Right	90	0	90	90	52	144	0	144	144
	Left-Through-Right	0	0	0	0	0	0	0	0	0
EASTBOUND	Left	125	0	125	125	31	159	1	159	159
	Left-Through	0	3	1667	590	169	1866	2	681	681
	Through-Right	1664	0	103	103	70	175	0	175	175
	Right	103	0	103	103	0	0	0	0	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
WESTBOUND	Left	50	1	51	51	6	57	1	58	58
	Left-Through	0	2	1001	380	228	1247	2	473	473
	Through-Right	999	0	140	140	27	170	0	170	170
	Right	140	0	0	0	0	0	0	0	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
CRITICAL VOLUMES			North-South: 700	East-West: 641	780	North-South: 781	East-West: 739	North-South: 781	East-West: 739	781
SUM:			1341	1517	1517	1341	1517	1520	1520	1520
VOLUME/CAPACITY (V/C) RATIO:			0.975	0.875	1.103	0.975	1.103	1.005	1.005	1.005
LEVEL OF SERVICE (LOS):			D	D	F	D	F	F	F	F

REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.002** Δv/c after mitigation: **0.002**  
Significant impacted? **NO** Fully mitigated? **N/A**



# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Hoover Street	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMAQ2	East-West Street:	Olympic Boulevard	Projection Year:	2019	Peak Hour:	PM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases	4	0	4		4				4
	NB--	0	0	0	NB--	0	NB--	0	NB--	0
	SB--	0	0	0	SB--	0	SB--	0	SB--	0
	EB--	0	0	0	EB--	0	EB--	0	EB--	0
MOVEMENT	ATSAC-1 or ATSAC+ATCS-2?	2	0	2		2				2
	Override Capacity	0	0	0		0				0
NORTHBOUND	Left	147	1	147	116	266	0	1	266	1
	Left-Through	882	0	455	118	1018	0	0	1018	0
	Through-Right	27	1	28	6	34	1	0	35	1
	Left-Through-Right	0	0	0	0	0	0	0	0	0
SOUTHBOUND	Left	181	1	181	35	220	0	1	220	1
	Left-Through	820	1	481	73	909	0	0	909	0
	Through-Right	142	0	142	61	206	0	0	206	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
EASTBOUND	Left	215	1	215	75	294	0	1	294	1
	Left-Through	1374	2	486	290	1692	2	0	1694	2
	Through-Right	85	0	85	103	190	0	0	190	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
WESTBOUND	Left	72	1	72	3	76	1	1	77	1
	Left-Through	1123	2	433	236	1382	2	0	1384	2
	Through-Right	175	0	175	49	228	0	0	228	0
	Left-Through-Right	0	0	0	0	0	0	0	0	0
CRITICAL VOLUMES		North-South: 636 East-West: 648 SUM: 1284	North-South: 824 East-West: 831 SUM: 1655	North-South: 824 East-West: 831 SUM: 1655						
VOLUME/CAPACITY (V/C) RATIO:		0.934	0.834	1.204						
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.834	0.834	1.104						
LEVEL OF SERVICE (LOS):		D	D	F						

REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project:	0.000	Δv/c after mitigation:	0.000
Significant impacted?	NO	Fully mitigated?	N/A

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Alvarado Street	Year of Count:		Ambient Growth: (%)		Conducted by:		Date:	2/16/2017					
CMAQ3	East-West Street:	7th Street	Projection Year:		Peak Hour:		Reviewed by:		Project: 5-17-0316-1 2005 James M. Wood						
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases		2		2		2		2						
	NB-- 0 SB-- 0		NB-- 0 SB-- 0		NB-- 0 SB-- 0		NB-- 0 SB-- 0		NB-- 0 SB-- 0						
	EB-- 0 WB-- 0		EB-- 0 WB-- 0		EB-- 0 WB-- 0		EB-- 0 WB-- 0		EB-- 0 WB-- 0						
	2		2		2		2		2						
	0		0		0		0		0						
MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT			FUTURE CONDITION W/ PROJECT			FUTURE W/ PROJECT W/ MITIGATION		
	Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Left-Through	936	1	333	3	939	186	1141	1	409	3	1144	1	410	
	Through-Right	63	1	333	0	63	22	86	1	409	0	86	1	410	
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Left-Through-Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
SOUTHBOUND	Left	2	0	2	0	2	0	2	0	2	0	2	0	2	
	Left-Through	996	1	502	4	1000	216	1232	1	622	4	1236	1	624	
	Through-Right	93	1	56	0	93	17	112	1	65	0	112	1	65	
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Left-Through-Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
EASTBOUND	Left	74	1	74	0	74	19	94	1	94	0	94	1	94	
	Left-Through	422	1	422	0	422	67	497	1	497	0	497	1	497	
	Through-Right	41	1	41	0	41	1	43	1	43	0	43	1	43	
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Left-Through-Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
WESTBOUND	Left	33	1	33	0	33	42	76	1	76	0	76	1	76	
	Left-Through	310	1	310	0	310	108	424	1	424	0	424	1	424	
	Through-Right	58	1	58	0	58	0	59	1	59	0	59	1	59	
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Left-Through-Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
CRITICAL VOLUMES		North-South: 502 East-West: 455 SUM: 957	506 455 961	North-South: 622 East-West: 573 SUM: 1195	624 573 1197	North-South: 624 East-West: 573 SUM: 1197	624 573 1197	North-South: 624 East-West: 573 SUM: 1197	624 573 1197	North-South: 624 East-West: 573 SUM: 1197					
VOLUME/CAPACITY (V/C) RATIO:		0.638	0.641	0.797	0.697	0.798	0.698	0.798	0.698	0.798					
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.538	0.541	0.697	0.697	0.698	0.698	0.698	0.698	0.698					
LEVEL OF SERVICE (LOS):		A	A	B	B	B	B	B	B	B					

## REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.001**  
Significant impacted? **NO**

Δv/c after mitigation: **0.001**  
Fully mitigated? **N/A**

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Alvarado Street	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMAQ3	East-West Street:	7th Street	Projection Year:	2019	Peak Hour:	PM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?		No. of Phases	2	2	2	2	NB--	0	NB--	0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB--	0	0	0	0	SB--	0	SB--	0
ATSAC-1 or ATSAC+ATCS-2?		EB--	0	0	0	0	WB--	0	WB--	0
Override Capacity		2	2	2	2	2	2	2	2	2
		0	0	0	0	0	0	0	0	0
MOVEMENT		EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT		
		Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes
NORTHBOUND	Left	2	0	2	0	0	2	0	0	2
	Left-Through	1061	1	380	3	1064	381	252	1334	1
	Through-Right		1							
	Right	66	0	380	0	66	381	54	121	0
	Left-Through-Right		0							
SOUTHBOUND	Left	0	0	0	0	0	0	0	0	0
	Left-Through	1029	1	515	3	1032	516	237	1287	1
	Through-Right		0							
	Right	135	1	94	0	135	94	24	162	1
	Left-Through-Right		0							
EASTBOUND	Left	83	1	83	0	83	83	23	108	1
	Left-Through	462	0	462	0	462	462	139	610	0
	Through-Right		0							
	Right	79	1	79	0	79	79	1	82	1
	Left-Through-Right		0							
WESTBOUND	Left	49	1	49	0	49	49	38	88	1
	Left-Through	361	0	361	0	361	361	106	474	0
	Through-Right		0							
	Right	77	1	77	0	77	77	3	82	1
	Left-Through-Right		0							
CRITICAL VOLUMES		North-South: 517	East-West: 511	518	North-South: 511	East-West: 511	518	North-South: 647	East-West: 698	647
V/C LESS ATSAC/ATCS ADJUSTMENT:		SUM: 1028	SUM: 1029	1029	SUM: 1029	SUM: 1029	1029	SUM: 1345	SUM: 1345	1345
LEVEL OF SERVICE (LOS):		0.685	0.585	A	0.686	0.796	C	0.897	0.797	C

REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.001**  
 Significant impacted? **NO**  
 Δv/c after mitigation: **0.001**  
 Fully mitigated? **N/A**

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Alvarado Street	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMA04	East-West Street:	8th Street	Projection Year:	2019	Peak Hour:	AM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases NB-- 0 SB-- 0 EB-- 0 WB-- 0		2	0	0	0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	2	0	0
	NB-- 0 SB-- 0 EB-- 0 WB-- 0		0	0	0	0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	0	0	0
	NB-- 0 SB-- 0 EB-- 0 WB-- 0		0	0	0	0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	0	0	0
	NB-- 0 SB-- 0 EB-- 0 WB-- 0		0	0	0	0	NB-- 0 SB-- 0 EB-- 0 WB-- 0	0	0	0
MOVEMENT	EXISTING CONDITION		EXISTING PLUS PROJECT				FUTURE CONDITION W/O PROJECT			
	Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes
NORTHBOUND	Left	3	3	0	3	0	3	0	3	0
	Left-Through	894	1	3	897	321	391	167	1064	1
	Through-Right									
	Right	48	0	0	48	321	391	28	77	0
	Left-Through-Right									
SOUTHBOUND	Left	0	0	0	0	0	0	0	0	0
	Left-Through	973	1	4	977	489	604	215	1208	1
	Through-Right									
	Right	105	1	0	105	70	87	37	144	1
	Left-Through-Right									
EASTBOUND	Left	71	1	0	71	71	114	42	114	1
	Left-Through	546	1	2	548	548	650	93	652	1
	Through-Right									
	Right	38	1	0	38	38	40	1	40	1
	Left-Through-Right									
WESTBOUND	Left	35	1	0	35	35	70	34	70	1
	Left-Through	710	1	2	712	380	439	105	831	1
	Through-Right									
	Right	47	0	0	47	47	48	0	48	0
	Left-Through-Right									
CRITICAL VOLUMES		North-South: 490 East-West: 581 SUM: 1071	492	North-South: 583 East-West: 1075 SUM: 1658	607	607	North-South: 609 East-West: 722 SUM: 1331	609	722	1331
VOLUME/CAPACITY (V/C) RATIO:		0.714	0.717	0.885	0.885	0.887	0.887	0.887	0.887	0.887
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.614	0.617	0.785	0.785	0.787	0.787	0.787	0.787	0.787
LEVEL OF SERVICE (LOS):		B	B	C	C	C	C	C	C	C

REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.002**  
 Significant impacted? **NO**  
 Δv/c after mitigation: **0.002**  
 Fully mitigated? **N/A**



# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Alvarado Street	Year of Count:		2017	Ambient Growth: (%)		1.0	Conducted by:		NDS	Date:	2/16/2017		
CMA04	East-West Street:	8th Street	Projection Year:		2019	Peak Hour:		PM	Reviewed by:		MB	Project:	5-17-0316-1 2005 James M. Wood		
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases		2	0	2	0	2	0	2	0	2	0	2		
	NB-- 0 SB-- 0		NB-- 0	SB-- 0	NB-- 0	SB-- 0	NB-- 0	SB-- 0	NB-- 0	SB-- 0	NB-- 0	SB-- 0	0		
	EB-- 0 WB-- 0		EB-- 0	WB-- 0	EB-- 0	WB-- 0	EB-- 0	WB-- 0	EB-- 0	WB-- 0	EB-- 0	WB-- 0	0		
			2	0	2	0	2	0	2	0	2	0	2		
			0	0	0	0	0	0	0	0	0	0	0		
MOVEMENT	EXISTING CONDITION			EXISTING PLUS PROJECT			FUTURE CONDITION W/O PROJECT			FUTURE CONDITION W/ PROJECT			FUTURE W/ PROJECT W/ MITIGATION		
	Volume	No. of Lanes	Lane Volume	Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1014	1	364	3	1017	365	250	1284	1	470	3	1287	1	471	
	79	0	364	0	79	365	45	126	0	470	0	126	0	471	
NORTHBOUND	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Left-Through	1	1	1	3	365	250	1284	1	470	3	1287	1	471	
	Through-Right	1	1	1	0	365	45	126	1	471	0	126	1	471	
	Right	79	0	364	0	365	45	126	0	471	0	126	0	471	
	Left-Through-Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
SOUTHBOUND	Left	1	0	1	0	1	0	1	0	1	0	1	0	1	
	Left-Through	1	1	1	3	1005	220	1242	1	624	3	1245	1	626	
	Through-Right	1002	0	504	3	1005	220	1242	0	624	3	1245	0	626	
	Right	106	1	81	0	106	53	161	1	110	0	161	1	110	
	Left-Through-Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
EASTBOUND	Left	51	1	51	0	51	50	102	1	102	0	102	1	102	
	Left-Through	0	0	0	2	527	144	680	0	680	2	682	0	682	
	Through-Right	525	1	525	2	527	144	680	1	680	2	682	1	682	
	Right	61	0	61	0	61	1	63	0	63	0	63	0	63	
	Left-Through-Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
WESTBOUND	Left	70	1	70	0	70	40	111	1	111	0	111	1	111	
	Left-Through	0	0	0	2	768	130	911	0	489	2	913	0	490	
	Through-Right	766	1	413	2	768	130	911	1	489	2	913	1	490	
	Right	60	0	60	0	60	6	67	0	67	0	67	0	67	
	Left-Through-Right	0	0	0	0	0	0	0	0	0	0	0	0	0	
CRITICAL VOLUMES			North-South: 504 East-West: 595 SUM: 1099	North-South: 506 East-West: 597 SUM: 1103	North-South: 624 East-West: 791 SUM: 1415	North-South: 626 East-West: 793 SUM: 1419	North-South: 626 East-West: 793 SUM: 1419								
VOLUME/CAPACITY (V/C) RATIO:			0.733	0.735	0.943	0.946	North-South: 626 East-West: 793 SUM: 1419								
V/C LESS ATSAC/ATCS ADJUSTMENT:			0.633	0.635	0.843	0.846	North-South: 626 East-West: 793 SUM: 1419								
LEVEL OF SERVICE (LOS):			B	B	D	D	North-South: 626 East-West: 793 SUM: 1419								

## REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.003**      Δv/c after mitigation: **0.003**  
Significant impacted? **NO**      Fully mitigated? **N/A**

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Alvarado Street	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMA05	East-West Street:	James M. Wood Boulevard	Projection Year:	2019	Peak Hour:	AM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases	2	0	0	2	0	NB--	0	NB--	0
		0	0	0	0	0	EB--	0	EB--	0
	SB--	0	0	0	0	0	WB--	0	WB--	0
	WB--	0	0	0	0	0				
MOVEMENT	Left	0	0	0	0	0				
	Left-Through	835	1	307	176	379				
	Through-Right	87	0	309	19	379				
	Right	0	0	0	0	0				
NORTHBOUND	Left-Through-Right	0	0	0	0	0				
	Left-Right	0	0	0	0	0				
	Left	0	0	0	0	0				
	Left-Through	939	1	503	226	639				
SOUTHBOUND	Through-Right	67	0	503	25	639				
	Right	0	0	0	0	0				
	Left-Through-Right	0	0	0	0	0				
	Left-Right	0	0	0	0	0				
EASTBOUND	Left	59	1	59	18	78				
	Left-Through	573	0	633	83	729				
	Through-Right	60	0	0	0	0				
	Right	0	0	0	0	0				
WESTBOUND	Left-Through-Right	52	1	52	9	62				
	Left-Right	218	0	251	115	371				
	Left	33	0	0	0	0				
	Left-Through	0	0	0	0	0				
CRITICAL VOLUMES		North-South: 503 East-West: 685 SUM: 1188	North-South: 505 East-West: 694 SUM: 1199	North-South: 639 East-West: 791 SUM: 1430	North-South: 641 East-West: 800 SUM: 1441	North-South: 641 East-West: 800 SUM: 1441				
VOLUME/CAPACITY (V/C) RATIO:		0.792	0.799	0.953	0.961	0.961				
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.692	0.699	0.853	0.861	0.861				
LEVEL OF SERVICE (LOS):		B	B	D	D	D				

## REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.008**  
Significant impacted? **NO**

Δv/c after mitigation: **0.008**  
Fully mitigated? **N/A**

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Alvarado Street	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMA05	East-West Street:	James M. Wood Boulevard	Projection Year:	2019	Peak Hour:	PM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases	2	0	0	2	0	NB--	0	NB--	0
		NB--	0	0	NB--	0	EB--	0	EB--	0
		SB--	0	0	SB--	0	WB--	0	WB--	0
		WB--	0	0	WB--	0				
MOVEMENT	Left	0	0	0	0	0	0	0	0	0
	Left-Through	962	1	362	266	1247	0	1	0	1
	Through-Right	119	0	362	17	138	5	1	0	1
	Left-Through-Right	0	0	0	0	0	0	0	0	0
NORTHBOUND	Left	2	0	2	0	2	0	0	0	0
	Left-Through	1010	0	572	240	1270	3	1	0	1
	Through-Right	122	0	572	24	148	0	1	0	1
	Left-Through-Right	0	0	0	0	0	0	0	0	0
SOUTHBOUND	Left	76	1	76	31	109	0	1	0	1
	Left-Through	474	0	543	154	638	3	0	0	0
	Through-Right	66	0	0	0	67	0	1	0	1
	Left-Through-Right	0	0	0	0	0	0	0	0	0
EASTBOUND	Left	90	1	90	23	115	5	1	0	1
	Left-Through	344	0	410	124	475	3	0	0	0
	Through-Right	66	0	0	0	67	3	1	0	1
	Left-Through-Right	0	0	0	0	0	0	0	0	0
WESTBOUND	Left	715	1	715	240	1270	3	1	0	1
	Left-Through	1010	0	572	240	1270	3	0	0	0
	Through-Right	122	0	572	24	148	0	1	0	1
	Left-Through-Right	0	0	0	0	0	0	0	0	0
CRITICAL VOLUMES		North-South: 715 East-West: 820 SUM: 1535	North-South: 715 East-West: 820 SUM: 1535	North-South: 715 East-West: 820 SUM: 1535	North-South: 715 East-West: 820 SUM: 1535	North-South: 715 East-West: 820 SUM: 1535	North-South: 715 East-West: 820 SUM: 1535	North-South: 715 East-West: 820 SUM: 1535	North-South: 715 East-West: 820 SUM: 1535	North-South: 715 East-West: 820 SUM: 1535
VOLUME/CAPACITY (V/C) RATIO:		0.801	0.808	0.808	0.808	0.808	0.808	0.808	0.808	0.808
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.701	0.708	0.708	0.708	0.708	0.708	0.708	0.708	0.708
LEVEL OF SERVICE (LOS):		C	C	C	C	C	C	C	C	C

REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project:	0.007	Δv/c after mitigation:	0.007
Significant impacted?	NO	Fully mitigated?	N/A

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Alvarado Street	Year of Count:		2017	Ambient Growth: (%)		1.0	Conducted by:		NDS	Date:	2/16/2017								
CMAQ6	East-West Street:	Olympic Boulevard	Projection Year:		2019	Peak Hour:		AM	Reviewed by:		MB	Project:	5-17-0316-1 2005 James M. Wood								
NORTHBOUND		No. of Phases	4		4		4				4		4								
		NB--	0	SB--	0	NB--	0	SB--	0	NB--	0	SB--	0								
		EB--	0	WB--	3	EB--	0	WB--	3	EB--	0	WB--	3								
			2		0		2		0		2		0								
			0		0		0		0		0		0								
SOUTHBOUND		EXISTING CONDITION		EXISTING PLUS PROJECT		FUTURE CONDITION W/O PROJECT		FUTURE CONDITION W/ PROJECT		FUTURE W/ PROJECT W/ MITIGATION											
		Volume	118	Lane Volume	118	Project Traffic	0	Total Volume	120	No. of Lanes	1	Lane Volume	120	Added Volume	0	Total Volume	120	No. of Lanes	1	Lane Volume	120
			677		371		2	679	372		0	780	426		2	782	427		0	782	427
			64		64		0	64	64		0	72	72		0	72	72		0	72	72
EASTBOUND		Volume	161	Lane Volume	161	Project Traffic	4	Total Volume	228	No. of Lanes	1	Lane Volume	228	Added Volume	4	Total Volume	232	No. of Lanes	1	Lane Volume	232
			1572		538		2	550	275		0	709	355		2	711	356		0	711	356
			238		77		3	241	76		0	294	66		3	297	65		0	297	65
WESTBOUND		Volume	57	Lane Volume	57	Project Traffic	0	Total Volume	69	No. of Lanes	1	Lane Volume	69	Added Volume	0	Total Volume	69	No. of Lanes	1	Lane Volume	69
			868		309		0	868	309		0	1096	400		0	1096	400		0	1096	400
			60		60		0	60	60		0	105	105		0	105	105		0	105	105
CRITICAL VOLUMES			North-South: 582 East-West: 595 SUM: 1177		North-South: 587 East-West: 595 SUM: 1182		North-South: 675 East-West: 679 SUM: 1354		North-South: 680 East-West: 679 SUM: 1359		North-South: 680 East-West: 679 SUM: 1359										
VOLUME/CAPACITY (V/C) RATIO:			0.856		0.860		0.985		0.988		0.988										
V/C LESS ATSAC/ATCS ADJUSTMENT:			0.756		0.760		0.885		0.888		0.888										
LEVEL OF SERVICE (LOS):			C		C		D		D		D										

## REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.003** Δv/c after mitigation: **0.003**  
Significant impacted? **NO** Fully mitigated? **N/A**



# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Alvarado Street	Year of Count:		2017	Ambient Growth: (%)		1.0	Conducted by:		NDS	Date:	2/16/2017					
CMAQ6	East-West Street:	Olympic Boulevard	Projection Year:		2019	Peak Hour:		PM	Reviewed by:		MB	Project:	5-17-0316-1 2005 James M. Wood					
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity			No. of Phases		4			4				4	4					
			NB-- 0 SB-- 3		NB-- 0 SB-- 3	0			0			0	0					
			EB-- 0 WB-- 0		EB-- 0 WB-- 0	0			0			0	0					
			2		2	0			0			0	0					
			0		0	0			0			0	0					
MOVEMENT			EXISTING PLUS PROJECT				FUTURE CONDITION W/O PROJECT				FUTURE CONDITION W/ PROJECT				FUTURE W/ PROJECT W/ MITIGATION			
			Project Traffic	Total Volume	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	Added Volume	Total Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	125	0	125	125	0	128	1	128	0	128	1	128	0	128	1	128	
	Left-Through	0						0				0				0		
	Through	712	2	714	382	151	877	1	468	2	879	1	469	0	879	1	469	
	Through-Right	1						1				1				1		
	Right	49	0	49	49	8	58	0	58	0	58	0	58	0	58	0	58	
SOUTHBOUND	Left-Through-Right	0						0				0				0		
	Left-Right	0						0				0				0		
	Left	189	3	192	192	58	251	1	251	3	254	1	254	0	254	1	254	
	Left-Through	0						0				0				0		
	Through	805	2	807	404	112	933	2	467	2	935	2	468	0	935	2	468	
EASTBOUND	Through-Right	0						0				0				0		
	Right	201	3	204	0	92	297	1	0	3	300	1	0	0	300	1	0	
	Left-Through-Right	0						0				0				0		
	Left-Right	0						0				0				0		
	Left	249	3	252	252	83	337	1	337	3	340	1	340	0	340	1	340	
WESTBOUND	Left-Through	0						0				0				0		
	Through	1203	0	1203	419	265	1492	2	516	0	1492	2	516	0	1492	2	516	
	Through-Right	1						1				1				1		
	Right	55	0	55	55	0	56	0	56	0	56	0	56	0	56	0	56	
	Left-Through-Right	0						0				0				0		
WESTBOUND	Left-Through	0						0				0				0		
	Left-Through	83	0	83	83	6	91	1	91	0	91	1	91	0	91	1	91	
	Through	1122	0	1122	415	234	1379	2	518	0	1379	2	518	0	1379	2	518	
	Through-Right	1						1				1				1		
	Right	122	0	122	122	50	174	0	174	0	174	0	174	0	174	0	174	
CRITICAL VOLUMES	North-South:		570	574	719	North-South:		723	North-South:		723	North-South:		723				
	East-West:		664	667	855	East-West:		858	East-West:		858	East-West:		858				
VOLUME/CAPACITY (V/C) RATIO:			SUM:		1241	SUM:		1574	SUM:		1581	SUM:		1581				
V/C LESS ATSAC/ATCS ADJUSTMENT:			SUM:		1.145	SUM:		1.145	SUM:		1.150	SUM:		1.150				
LEVEL OF SERVICE (LOS):			SUM:		0.897	SUM:		1.045	SUM:		1.050	SUM:		1.050				
			SUM:		C	SUM:		F	SUM:		F	SUM:		F				

## REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.005** Δv/c after mitigation: **0.005**  
Significant impacted? **NO** Fully mitigated? **N/A**

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Union Avenue	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMA07	East-West Street:	James M. Wood Boulevard	Projection Year:	2019	Peak Hour:	AM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases	2	0	0	0	0	0	0	0	0
	NB--	0	0	0	0	0	NB--	0	NB--	0
	EB--	0	0	0	0	0	EB--	0	EB--	0
	WB--	0	0	0	0	0	WB--	0	WB--	0
MOVEMENT	Left	74	0	74	0	75	0	75	0	75
	Left-Through	541	0	597	71	623	0	623	0	623
	Through-Right	56	0	0	42	99	0	99	0	99
	Left-Through-Right	0	0	0	0	0	0	0	0	0
NORTHBOUND	Left	94	1	94	39	135	0	135	0	135
	Left-Through	548	1	300	120	679	0	679	0	679
	Through-Right	51	0	52	58	110	1	111	0	111
	Left-Through-Right	0	0	0	0	0	0	0	0	0
SOUTHBOUND	Left	43	1	44	37	81	1	82	0	82
	Left-Through	512	0	580	64	586	2	588	0	588
	Through-Right	66	0	0	0	67	0	67	0	67
	Left-Through-Right	0	0	0	0	0	0	0	0	0
EASTBOUND	Left	41	1	41	76	118	0	118	0	118
	Left-Through	133	0	172	67	203	2	205	0	205
	Through-Right	37	0	0	47	85	0	85	0	85
	Left-Through-Right	0	0	0	0	0	0	0	0	0
WESTBOUND	Left	691	1	691	0	857	0	857	0	857
	Left-Through	619	0	621	0	771	0	773	0	773
	Through-Right	1310	0	1312	0	1628	0	1630	0	1630
	Left-Through-Right	0	0	0	0	0	0	0	0	0
CRITICAL VOLUMES		North-South: 691 East-West: 621 SUM: 1312	North-South: 857 East-West: 771 SUM: 1628	North-South: 857 East-West: 773 SUM: 1630						
VOLUME/CAPACITY (V/C) RATIO:		0.873	0.875	1.085						
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.773	0.775	0.985						
LEVEL OF SERVICE (LOS):		C	C	E						

REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project:	0.002	Δv/c after mitigation:	0.002
Significant impacted?	NO	Fully mitigated?	N/A

# Level of Service Worksheet (Circular 212 Method)



I/S #:	North-South Street:	Union Avenue	Year of Count:	2017	Ambient Growth: (%)	1.0	Conducted by:	NDS	Date:	2/16/2017
CMA07	East-West Street:	James M. Wood Boulevard	Projection Year:	2019	Peak Hour:	PM	Reviewed by:	MB	Project:	5-17-0316-1 2005 James M. Wood
Opposed Ø'ing: N/S-1, E/W-2 or Both-3? Right Turns: FREE-1, NRTOR-2 or OLA-3? ATSAC-1 or ATSAC+ATCS-2? Override Capacity	No. of Phases	2	0	0	0	0	0	0	0	0
	NB--	0	0	0	0	0	NB--	0	NB--	0
	EB--	0	0	0	0	0	EB--	0	EB--	0
	WB--	0	0	0	0	0	WB--	0	WB--	0
MOVEMENT	Left	75	1	75	0	77	0	77	0	77
	Left-Through	549	0	600	138	698	0	698	0	698
	Through-Right	51	0	0	83	135	0	135	0	135
	Left-Through-Right	0	0	0	0	0	0	0	0	0
NORTHBOUND	Left	110	1	110	63	175	0	175	0	175
	Left-Through	849	1	465	104	970	0	970	0	970
	Through-Right	81	0	82	58	141	1	142	0	142
	Left-Through-Right	0	0	0	0	0	0	0	0	0
SOUTHBOUND	Left	83	1	84	76	161	1	162	0	162
	Left-Through	399	0	550	94	501	2	503	0	503
	Through-Right	149	0	0	0	152	0	152	0	152
	Left-Through-Right	0	0	0	0	0	0	0	0	0
EASTBOUND	Left	33	1	33	57	91	0	91	0	91
	Left-Through	179	0	237	90	273	2	275	0	275
	Through-Right	56	0	0	55	112	0	112	0	112
	Left-Through-Right	0	0	0	0	0	0	0	0	0
WESTBOUND	Left	710	1	710	1008	1008	0	1008	0	1008
	Left-Through	581	0	583	744	746	0	746	0	746
	Through-Right	1291	0	1293	1752	1754	0	1754	0	1754
	Left-Through-Right	0	0	0	0	0	0	0	0	0
CRITICAL VOLUMES		North-South: 710 East-West: 583 SUM: 1293	North-South: 710 East-West: 583 SUM: 1293	North-South: 1008 East-West: 744 SUM: 1752	North-South: 1008 East-West: 746 SUM: 1754	North-South: 1008 East-West: 746 SUM: 1754	North-South: 1008 East-West: 746 SUM: 1754	North-South: 1008 East-West: 746 SUM: 1754	North-South: 1008 East-West: 746 SUM: 1754	North-South: 1008 East-West: 746 SUM: 1754
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.861	0.862	1.168	1.169	1.169	1.169	1.169	1.169	1.169
LEVEL OF SERVICE (LOS):		C	C	F	F	F	F	F	F	F

## REMARKS:

Version: 1i Beta; 8/4/2011

## PROJECT IMPACT

Change in v/c due to project: **0.001**  
Significant impacted? **NO**

Δv/c after mitigation: **0.001**  
Fully mitigated? **N/A**