Appendix E

Traffic Study

LINSCOTT
LAW &
GREENSPAN
engineers

FOCUSED TRAFFIC ANALYSIS FOR THE 3311 E. WILLOW STREET ADULT DAY CARE FACILITY

Long Beach, California
December 20, 2016

Prepared for:

RINCON CONSULTANTS, INC.
180 North Ashwood Avenue
Ventura, CA 93003

LLG Ref. 2.16.3762.1

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December 20, 2016

Mr. Joe Power
Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

LLG Reference: 2.16.3762.1

Subject: **Focused Traffic Analysis for the 3311 E. Willow Street Adult Day Care Facility**
Long Beach, California

Dear Mr. Power:

Linscott, Law & Greenspan, Engineers (LLG) is pleased to present the findings of a focused traffic analysis for the proposed Adult Day Care facility in the City of Long Beach. The Project site is located generally located north of E. Willow Street, between Redondo Avenue and Temple Avenue at 3311 E. Willow Street. The subject property is currently developed with a 3,960 square-foot (SF) medical office building that was occupied by the Willow Medical Group and Beach Physical Therapy, but is now vacant. Vehicular access to the site is provided via a "right-turn in only" driveway on E. Willow Street and an existing alley that is shared with Allied Circle Moving & Storage to the east.

This focused traffic analysis will determine and evaluate the potential traffic impact needs associated with the proposed Project. Included in this evaluation is a weekday peak hour level of service calculations for the following conditions:

a) Existing traffic conditions;
b) Existing Plus Project traffic conditions;
c) Traffic in (b) plus mitigation, if required.

This following two (2) study intersection have been selected for evaluation in this analysis:

1. Temple Avenue at Willow Street
2. Redondo Avenue at Willow Street

Philip M. Linscott, PE (1924-2000)
Jack M. Greenspan, PE (Ret.)
William A. Law, PE (Ret.)
Paul W. Wilkinson, PE
John P. Keating, PE
David S. Shender, PE
John A. Boarman, PE
Clare M. Look-Jaeger, PE
Richard E. Barretto, PE
Keil D. Maberry, PE

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PROJECT DESCRIPTION

The project site is generally located north of E. Willow Street, between Redondo Avenue and Temple Avenue at 3311 E. Willow Street. ***Figure 1*** presents a vicinity map which illustrates the general location of the Project and depicts the surrounding street system. The subject property is currently developed with a 3,960 square-foot (SF) medical office building that is now vacant. ***Figure 2*** presents an aerial image of the existing site.

Figure 3 presents the proposed site plan for the project. Vehicular access to the site is provided via a "right-turn in only" driveway on E. Willow Street and an existing alley. The Project Applicant, Social Vocational Services (SVS), proposes to modify the interior of the building for use by as an Adult Day Care facility. SVS is a private non-profit California Corporation that provides skills and vocational training to adults with Development Disabilities.

According to information provided by SCS, the adult day program activities are geared toward providing their consumers assistance in exploring such areas as communication, computer skills, interviewing skills, personal appearance and use of adaptive devices. Additional on-site activities include art studio work, music exploration, gardening and physical fitness. Community integration activities might include visiting the library, field trips to businesses of interest to our consumers, employment contracts, bowling and BBQ's in nearby parks.

The Project proposes tenant/interior improvement that would allow for the following uses/areas within 3,960 SF of floor area:

- Three (3) offices
- Media room
- Conference rooms
- Library/IPAD room
- Salon
- Arts & Craft room
- Locker
- Staff Lounge
- Kitchen
- Restrooms – (3),
- Storage space, and
- Reception area.

The proposed Project would serve up to 21 consumers, and employ an administrative staff of three (3), a Program Director, Case Manager and Administrative Assistant, plus up to seven (7) direct service professionals to work with Project's 21 consumers. Consumers would be transported to and from the project site via the use of five (5)

passenger vans that are owned and operated by SVS; these vans will parked overnight on daily basis and on weekends. The Project will operate Monday through Friday from 8:00 AM to 4:00 PM, Monday through Friday, closed evenings, weekends and all holidays.

As we understand it, the preparation of a focused traffic impact study is required as part of the entitlement process for the proposed Project and will be included in the environmental document (*Initial Study (IS)/Mitigated Negative Declaration (MND)* to be prepared for this Project.

EXISTING CONDITIONS

Existing Circulation Network

A comprehensive inventory of the street system within the study area was undertaken to develop a detailed description of existing traffic conditions. ***Figure 4*** illustrates the existing roadway conditions and lane configurations.

Existing Traffic Volumes

Figure 5 illustrates the existing weekday AM and PM peak hour traffic volumes, at the two (2) key study intersection. The weekday AM and PM peak period traffic counts were conducted by National Data and Surveying Services (NDS) in December 2016. The traffic counts are attached at the end of this letter report in ***Appendix A.***

Intersection Peak Hour Level of Service Methodology

Existing AM and PM peak hour operating conditions for the key signalized study intersections were evaluated using the *Intersection Capacity Utilization* (ICU) methodology for signalized intersections.

Intersection Capacity Utilization (ICU) Methodology

In conformance with City of Long Beach and LA County CMP requirements, existing weekday peak hour operating conditions for the key signalized study intersections were evaluated using the Intersection Capacity Utilization (ICU) method. The ICU technique is intended for signalized intersection analysis and estimates the volume to capacity (V/C) relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time, and thus capacity, required by existing and/or future traffic. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

Per LA County CMP requirements, the ICU calculations use a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through, and right-turn lanes, and dual left turn

capacity of 2,880 vph. Per City of Long Beach requirements, a clearance interval of 0.10 is also added to each Level of Service calculation.

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The six qualitative categories of Level of Service have been defined along with the corresponding ICU value range and are shown in ***Table 1***. The ICU value is the sum of the critical volume to capacity ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements.

Minimum LOS Thresholds and Significant Traffic Impact Criteria

According to the City of Long Beach, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, or the current LOS if the existing LOS is worse than LOS D (i.e. LOS E of F).

Impacts to local and regional transportation systems are considered significant if:

- The project causes a study intersection to deteriorate from Level of Service (LOS) D to LOS E or F. The City of Long Beach considers LOS D (ICU = 0.801 - 0.900) to be the minimum acceptable LOS for all intersections; or

- The project increases traffic demand at the study intersection by 2% of capacity (ICU increase ≥ 0.020), causing or worsening LOS E or F (ICU > 0.901) when an intersection is operating at LOS E or F in the baseline condition.

PROJECT TRAFFIC VOLUMES

A multi-step process was utilized to develop Project traffic forecasts. The first step is Project traffic generation, which estimates the total arriving and departing traffic at the Project site. The second step of the forecasting process is Project traffic distribution, which involves the development of a geographic trip distribution pattern that identifies the origins/destinations of Project traffic. The third step is Project traffic assignment, by which Project-generated trips are allocated on the street system.

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Since ITE trip rates do not specifically account for the unique trip making characteristics of the proposed project, project-generated traffic was estimated based on the operational characteristics of the facility.

As noted earlier, the Project is expected to have seven (7) direct service professionals, as well as, three (3) administrative staff members during a typical day. The office will operate from 8:00 AM to 4:00 PM, Monday through Friday and on weekends and

holidays. The adult day care facility will serve up to a maximum of twenty-one (21) consumers on a daily basis. However, as noted previously, all consumers will be transported to and from the facility via a van shuttle system operated by the Project.

Per information provided by SVS, on a typical day, all vans depart between 8:30 AM to 8:45 AM to pick up consumers and return to drop them off at the facility between 9:15 AM to 9:30 AM. At 2:30 PM the vans depart to return the consumers to their homes. Between 3:30 PM to 3:45 PM all vans return to the facility and are parked overnight. It is noted also that on occasion, employees will take vans out into the community as a part of the Project's Community integration activities.

Proposed Project Trip Generation

Table 2 summarizes the proposed Project vehicular trips based on the operational characteristics of the Project. As shown, the proposed Project is forecast to generate 60 daily trips (one half arriving and one half departing) on a typical weekday, with 15 trips (10 inbound, 5 outbound) produced in the AM peak hour and 10 trips (0 inbound, 10 outbound) produced in the PM peak hour.

Existing Land Use

Trip generation was forecasted for the existing medical office building. The lower half of *Table 2* presents the trip generation forecast for the existing site. As shown, the trip generation potential of the existing land use was estimated using trip rates for ITE Land Use 720: Medical-Dental Office Building. The existing land use is forecast to generate 143 daily trips (one half arriving, one half departing) on a typical weekday, with 9 trips (7 inbound, 2 outbound) produced in the AM peak hour and 14 trips (4 inbound, 10 outbound) produced in the PM peak hour.

Proposed Project vs. Existing Land Use

As shown in *Table 2*, a comparison of the proposed Project and the Existing Land use results in 83 fewer daily trips, 6 more AM peak hour trips, and 4 fewer PM peak hour trips. However, to provide a conservative assessment no trip credit was applied.

PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Table 3 summarizes the peak hour Level of Service results at the two (2) key study intersection for Existing and Existing Plus Project traffic conditions. The first column (1) of *Table 3* presents a summary of Existing AM and PM peak hour traffic conditions. The second column (2) lists Existing Plus Project traffic conditions with current intersection geometry/lane configurations. The third column (3) shows the increase in ICU value due to the added peak hour project trips. The fourth column (4) indicates whether the traffic associated with the Project will have a significant impact

based on the significant impact criteria defined in this letter. The fifth column (5) presents recommended improvements if needed.

Existing Traffic Conditions

Column (1) of *Table 3* summarizes the Existing (Year 2016) peak hour levels of service for the key study intersections based on existing traffic volumes and current street geometries. Review of *Table 3* indicates that all key study intersections are forecast to operate at LOS D or better during the weekday AM and PM peak hours.

Existing Plus Project Traffic Conditions

Review of Columns (2), (3) and (4) of *Table 3* indicates that the traffic associated with the proposed project ***will not*** significantly impact any of the key study intersections when compared to the City's impact criteria. Both study intersections are forecast to continue to operate at an acceptable service level (LOS D or better)

The ICU/LOS calculation worksheets are attached at the end of this letter report in ***Appendix B.***

SITE ACCESS

Access to the project site will remain as it currently exists. The site has a right-turn in driveway along Willow Street just to the west of the building. The circulation pattern for the parking lot is a one-way flow in a clockwise direction. Egress from the site is provided via an alley way which connect to Willow Street and provides both left-turn and right-turn movements.

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CONCLUSION

Based on the data presented above, it is concluded that the proposed Project will not create any traffic impacts at the two (2) key study intersections. Additionally, site access to the proposed Project is expected to be adequate and motorists entering and exiting the Project site will be able to do so comfortably, safely, and without undue congestion.

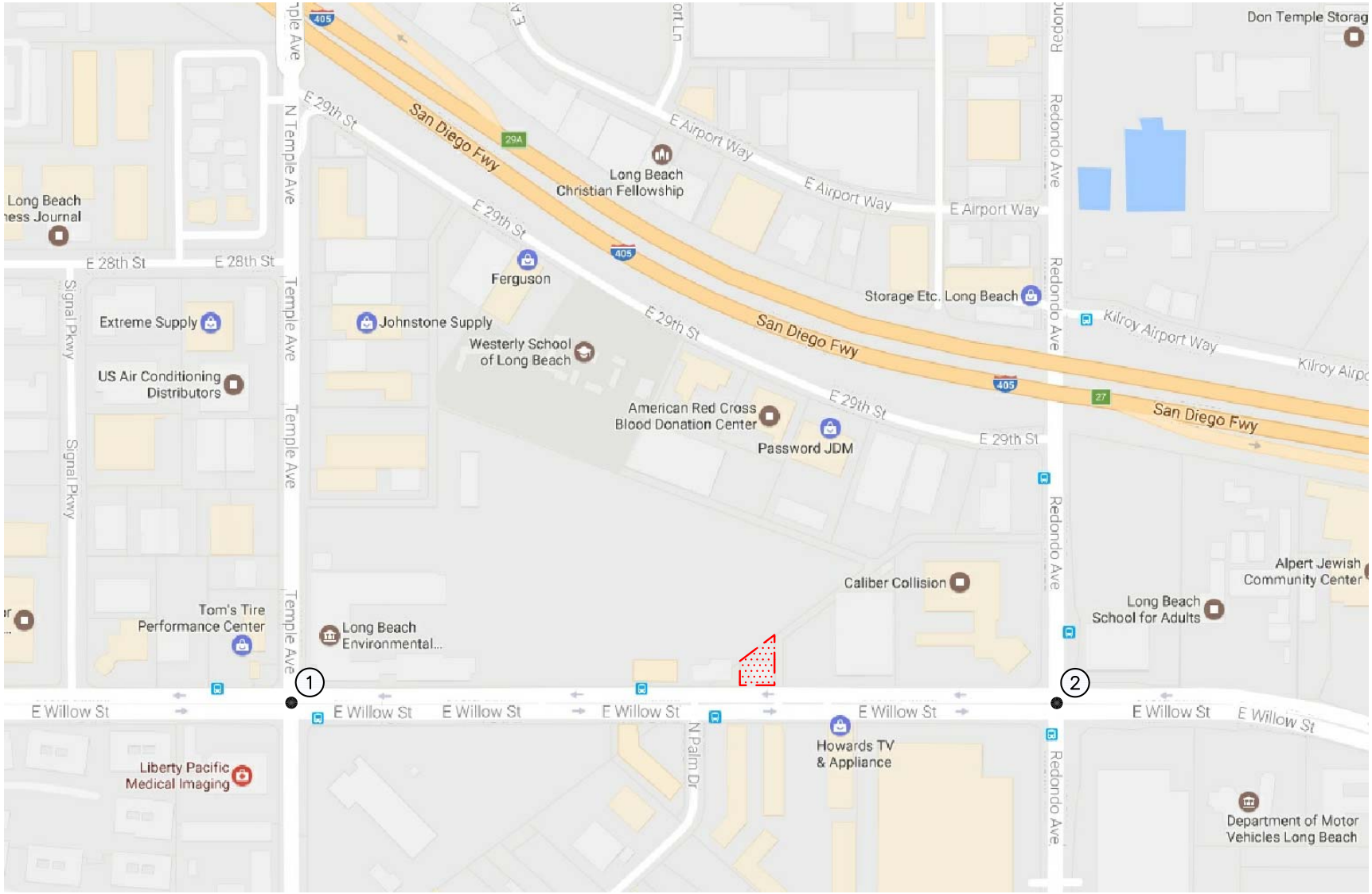
We appreciate the opportunity to work on this project. If you have any questions regarding this letter, please do not hesitate to call me at (949) 825-6175.

Sincerely,
Linscott, Law & Greenspan, Engineers

Richard E. Barretto, P.E.
Principal

REGISTERED PROFESSIONAL ENGINEER
RICHARD E. BARRETTO
No. 2006
Exp. 6/30/17
TRAFFIC
STATE OF CALIFORNIA

cc: Shane S. Green, P.E., Transportation Engineer III



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

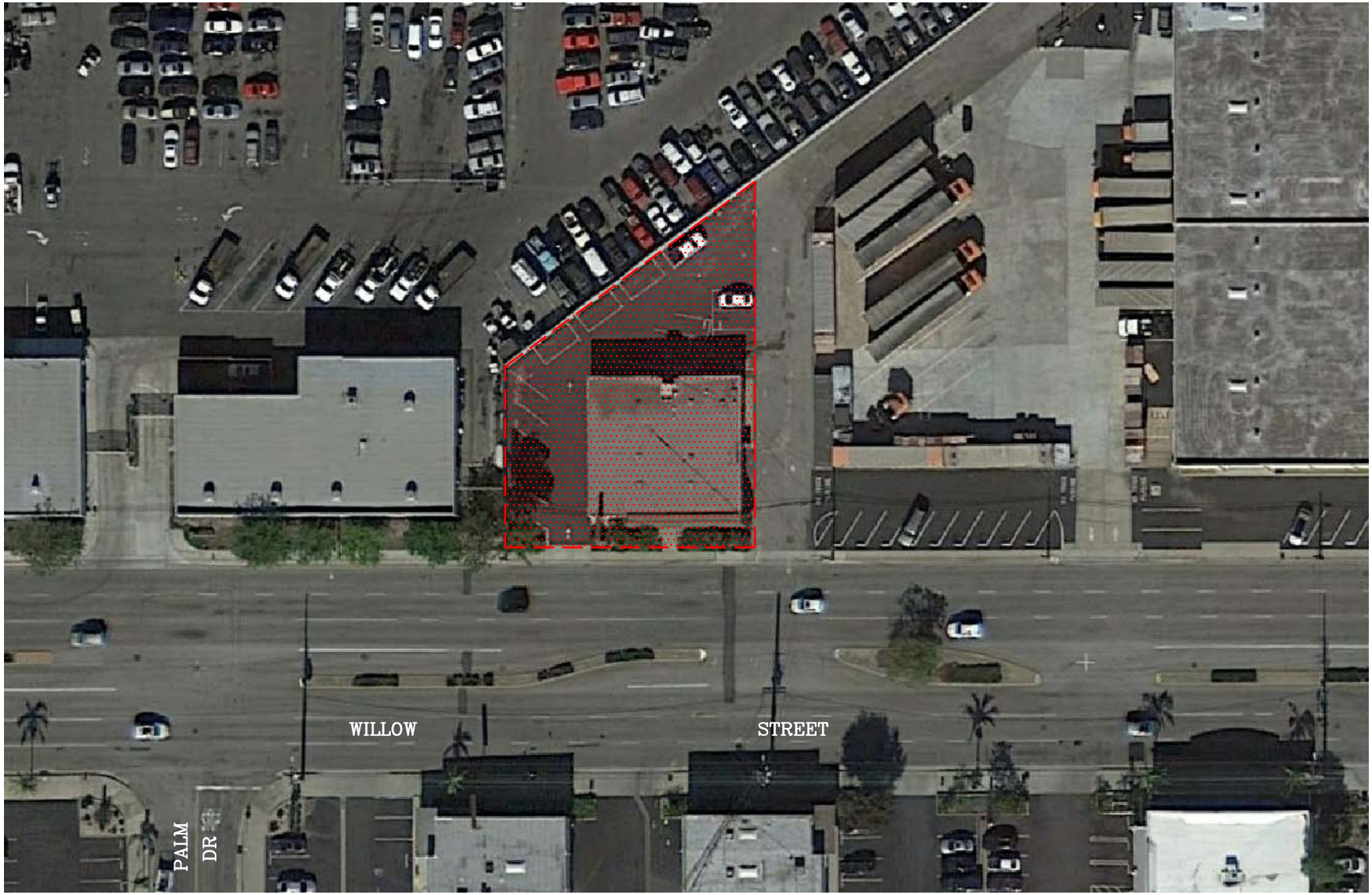
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 1

VICINITY MAP

3311 E. WILLOW ADULT DAY CARE FACILITY, LONG BEACH



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N NO SCALE

SOURCE: GOOGLE

KEY

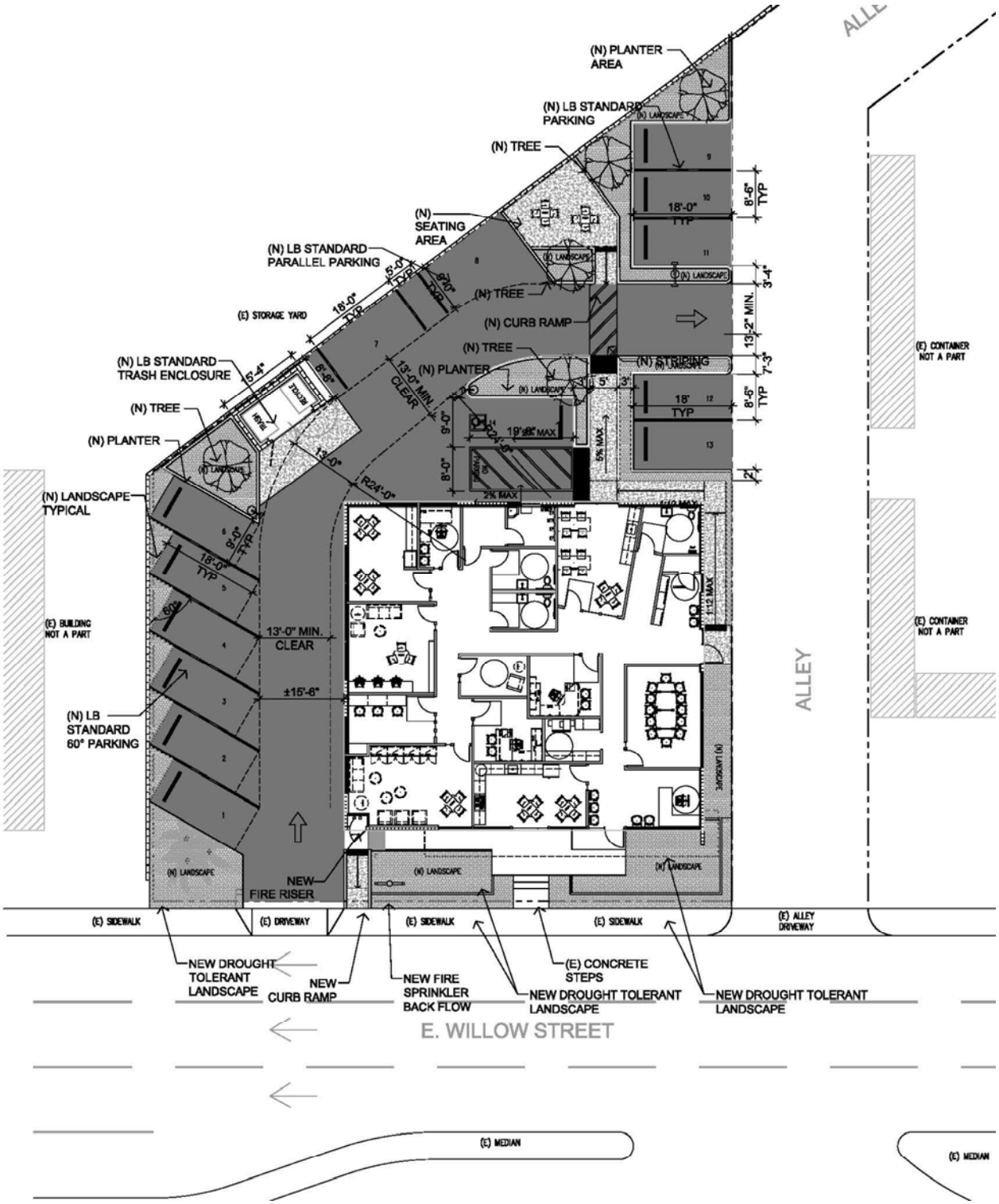
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 2

EXISTING SITE AERIAL

3311 E. WILLOW ADULT DAY CARE FACILITY, LONG BEACH



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SOURCE: KAMUS + KELLER INTERIORS/ARCHITECTURE

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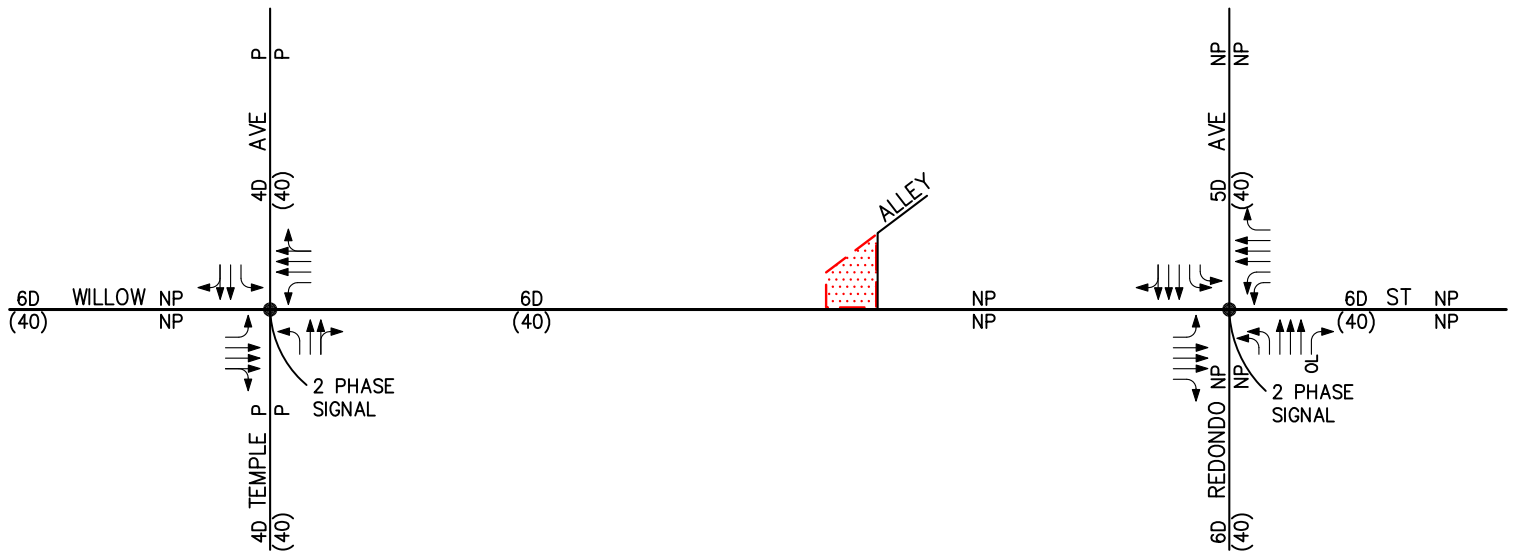
N NO SCALE

FIGURE 3

PROPOSED SITE PLAN

3311 E. WILLOW ADULT DAY CARE FACILITY, LONG BEACH



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N NO SCALE

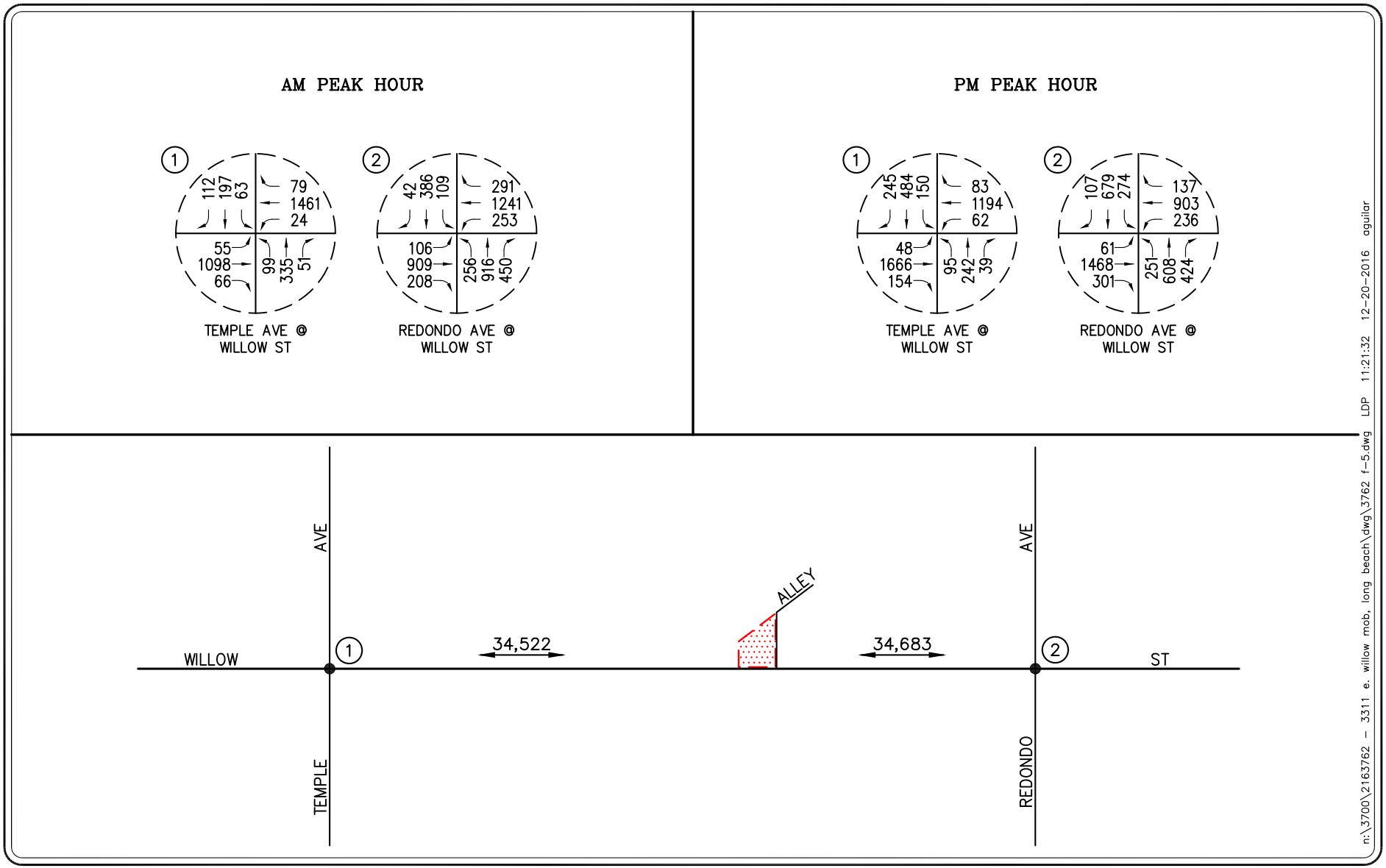
KEY

= APPROACH LANE ASSIGNMENT
= TRAFFIC SIGNAL, = STOP SIGN
P = PARKING, NP = NO PARKING
U = UNDIVIDED, D = DIVIDED
2 = NUMBER OF TRAVEL LANES
(XX)= POSTED SPEED LIMIT (MPH)
OL = OVERLAP
= PROJECT SITE

FIGURE 4

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

3311 E. WILLOW ADULT DAY CARE FACILITY, LONG BEACH



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N NO SCALE

KEY

(#) = STUDY INTERSECTION

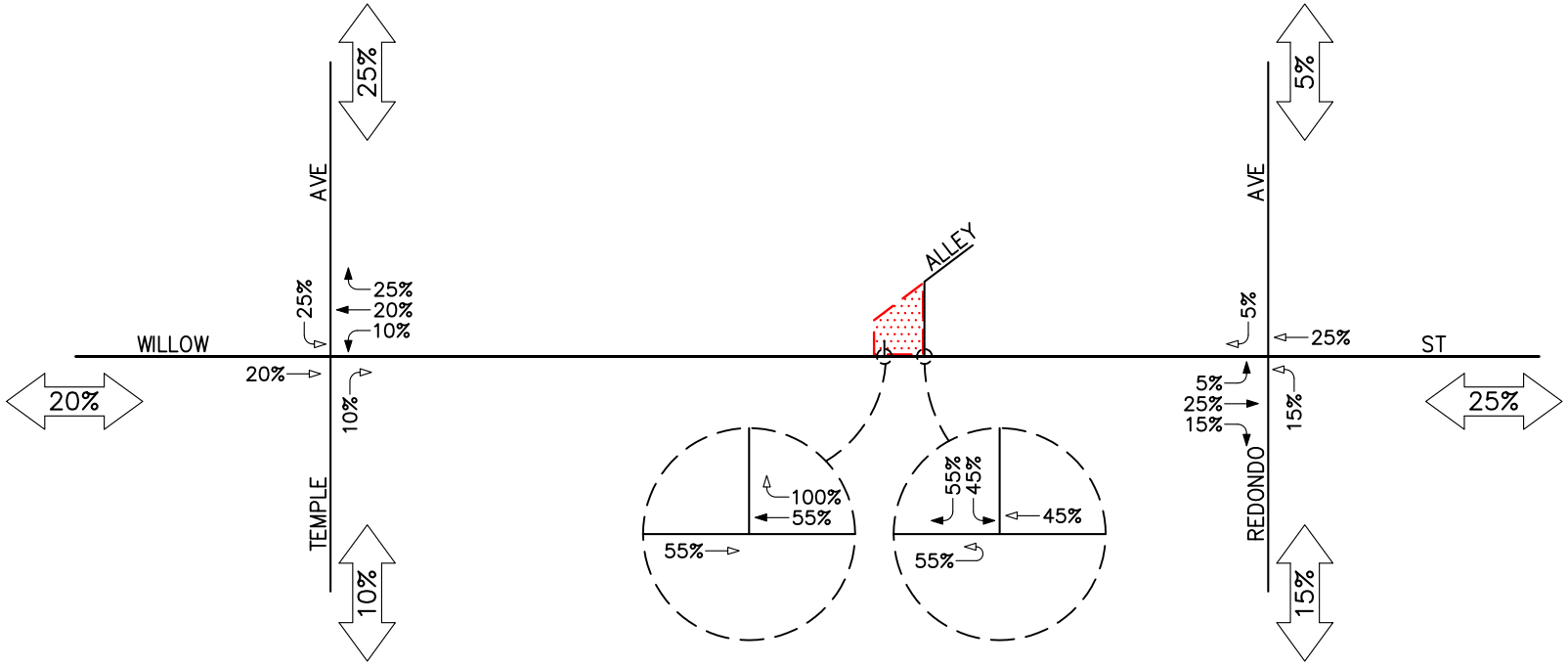
XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

FIGURE 5

EXISTING AM AND PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

3311 E. WILLOW ADULT DAY CARE FACILITY, LONG BEACH



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N NO SCALE

KEY

(#) = STUDY INTERSECTION

⟵ = INBOUND PERCENTAGE

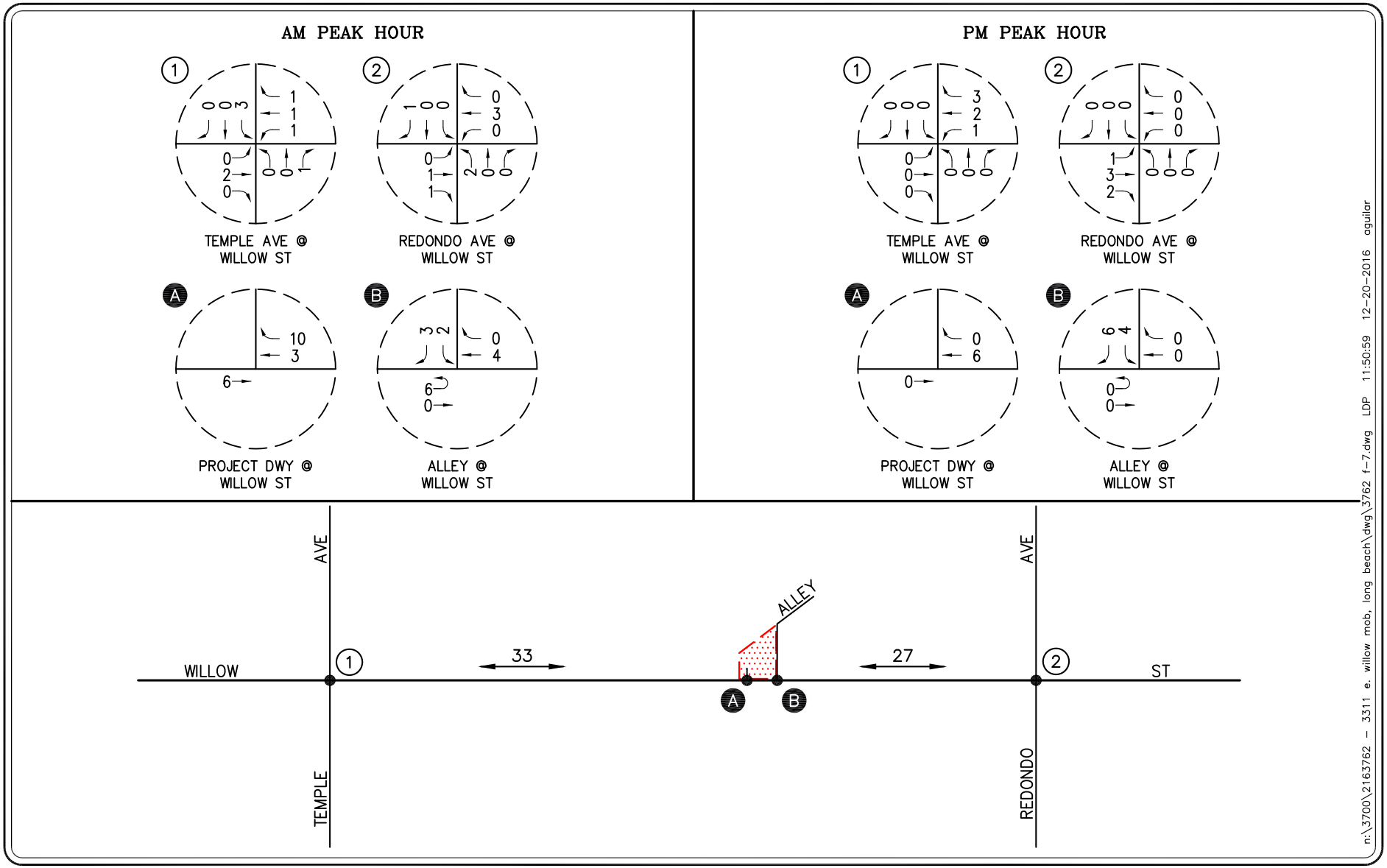
⟵ = OUTBOUND PERCENTAGE

= PROJECT SITE

FIGURE 6

PROJECT TRIP TRAFFIC DISTRIBUTION

3311 E. WILLOW ADULT DAY CARE FACILITY, LONG BEACH



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NO SCALE

KEY

(#) = STUDY INTERSECTION

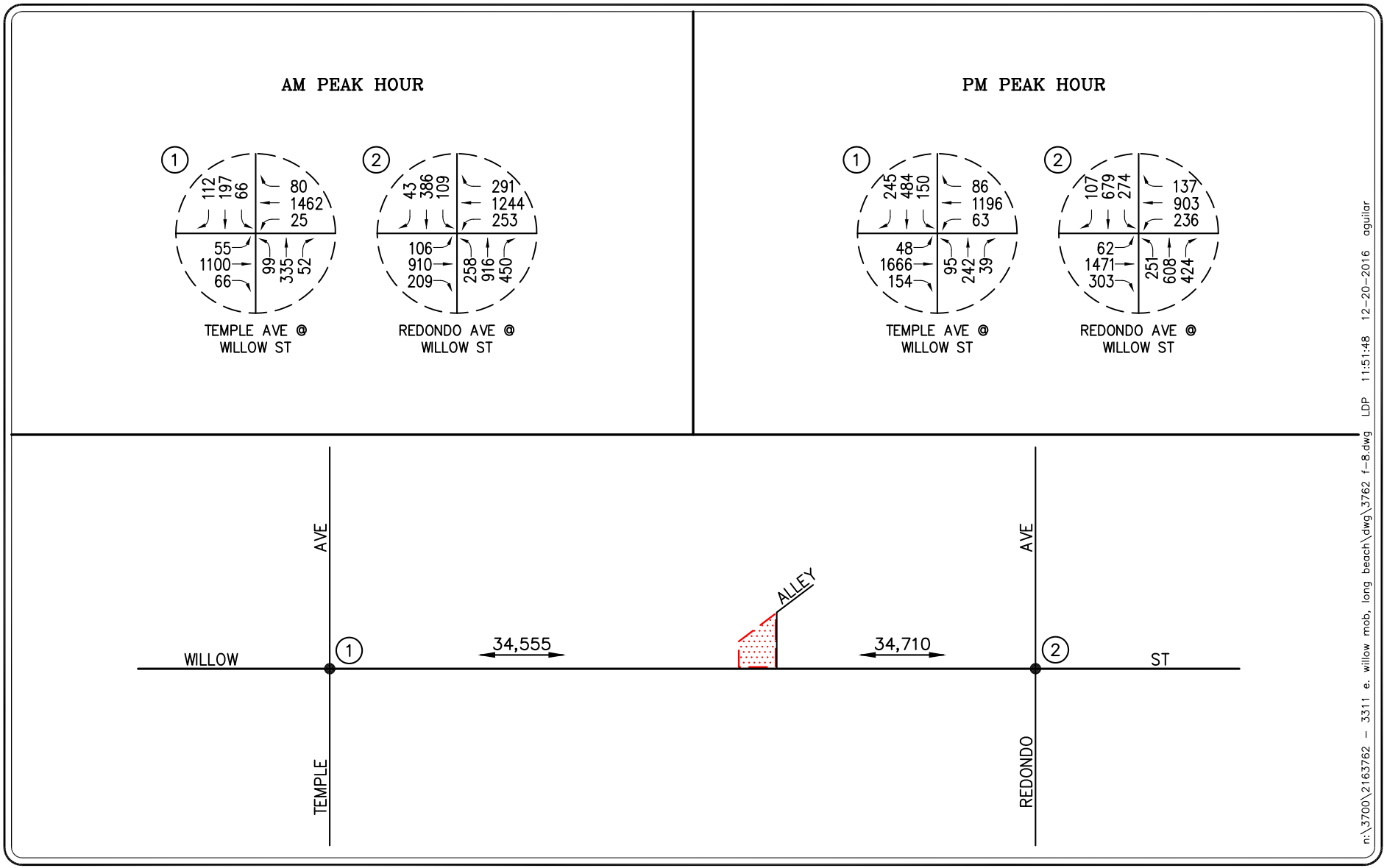
XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

FIGURE 7

AM AND PM PEAK HOUR AND DAILY PROJECT TRAFFIC VOLUMES

3311 E. WILLOW ADULT DAY CARE FACILITY, LONG BEACH



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N NO SCALE

KEY

(#) = STUDY INTERSECTION

XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

FIGURE 8

EXISTING PLUS PROJECT AM AND PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

3311 E. WILLOW ADULT DAY CARE FACILITY, LONG BEACH

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TABLE 1
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (ICU)[1]
3311 E. WILLOW STREET ADULT DAY CARE FACILITY, LONG BEACH

Level of Service (LOS)	Intersection Capacity Utilization Value (ICU)	Level of Service Description
A	≤ 0.600	**EXCELLENT**. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 – 0.700	**VERY GOOD**. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 – 0.800	**GOOD**. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 – 0.900	**FAIR**. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 – 1.000	**POOR**. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	**FAILURE**. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays with continuously increasing queue lengths.

[1] Source: *Transportation Research Board Circular 212 - Interim Materials on Highway Capacity*.

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TABLE 2
PROJECT TRAFFIC GENERATION FORECAST[2]
3311 E. WILLOW STREET ADULT DAY CARE FACILITY, LONG BEACH

Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Rates:							
▪ ITE 720: Medical-Dental Office Building	36.13	79%	21%	2.39	28%	72%	3.57
Generation Forecasts:							
Proposed Project:							
▪ Employees (7 direct service, 3 admin staff)	40	10	0	10	0	10	10
▪ Shuttles (5 vans)	20	0	5	5	0	0	0
Total Project Trip Generation Forecast	**60**	**10**	**5**	**15**	**0**	**10**	**10**
Existing Land Use:							
▪ Medical Office (3,960 SF)	143	7	2	9	4	10	14
Net Difference: Proposed Project vs. Existing Land Use	**-83**	**3**	**3**	**6**	**-4**	**0**	**-4**

[2] Source: Trips are based on the operational characteristics of the site.

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TABLE 3
EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS
3311 E. WILLOW STREET ADULT DAY CARE FACILITY, LONG BEACH

Key Intersection	Peak Hour	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Project Increment	(4) Significant Impact	(5) Existing Plus Project Traffic Conditions with Improvements	
		ICU	LOS	ICU	LOS		Yes/No	ICU	LOS
1. Temple Avenue at Willow Street	AM	0.614	B	0.614	B	0.000	No	--	--
	PM	0.805	D	0.806	D	0.001	No	--	--
2. Redondo Avenue at Willow Street	AM	0.653	B	0.654	B	0.001	No	--	--
	PM	0.766	C	0.767	C	0.001	No	--	--

APPENDIX A

EXISTING TRAFFIC COUNT DATA

APPENDIX A-I

INTERSECTION COUNTS

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5788-001 **Day:** Thursday

City: Long Beach **Date:** 12/1/2016

AM

NS/EW Streets:	Temple Ave			Temple Ave			E Willow St			E Willow St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	3	0	1	3	0	
7:00 AM	22	71	12	9	31	22	10	198	17	0	225	20	637
7:15 AM	25	79	9	13	40	25	13	270	12	7	353	24	870
7:30 AM	18	87	16	14	43	31	10	260	9	4	396	13	901
7:45 AM	31	85	14	16	55	26	22	308	22	5	354	27	965
8:00 AM	25	84	12	20	59	30	10	260	23	8	358	15	904
8:15 AM	19	66	13	14	47	49	14	275	21	4	271	25	818
8:30 AM	37	76	19	12	52	34	17	240	16	7	265	15	790
8:45 AM	23	47	8	13	37	38	16	230	26	4	253	27	722
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	200	595	103	111	364	255	112	2041	146	39	2475	166	6607
APPROACH %'s :	22.27%	66.26%	11.47%	15.21%	49.86%	34.93%	4.87%	88.78%	6.35%	1.46%	92.35%	6.19%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	99	335	51	63	197	112	55	1098	66	24	1461	79	3640
PEAK HR FACTOR :		0.933			0.853			0.866			0.947		0.943

UTURNS			
NB	SB	EB	WB
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	2	1
0	0	0	1
NB	SB	EB	WB
0	0	4	2

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5788-001 **Day:** Thursday

City: Long Beach **Date:** 12/1/2016

PM

NS/EW Streets:	Temple Ave			Temple Ave			E Willow St			E Willow St				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	3	0	1	3	0					
4:00 PM	18	65	15	30	98	66	16	368	35	11	300	28	1050	0	0	1	0
4:15 PM	20	48	9	45	76	59	18	354	40	8	306	23	1006	0	0	3	1
4:30 PM	20	56	10	39	125	57	18	441	36	11	275	17	1105	0	0	0	0
4:45 PM	25	56	7	38	111	55	8	413	37	12	291	30	1083	0	0	0	2
5:00 PM	29	79	11	38	120	75	13	389	45	22	298	25	1144	0	0	0	4
5:15 PM	21	51	11	35	128	58	9	423	36	17	330	11	1130	0	0	0	0
5:30 PM	21	36	13	30	110	66	10	392	41	11	287	18	1035	0	0	2	0
5:45 PM	23	47	7	31	131	76	12	405	45	14	267	15	1073	0	0	2	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	177	438	83	286	899	512	104	3185	315	106	2354	167	8626	0	0	8	7
APPROACH %'s :	25.36%	62.75%	11.89%	16.85%	52.98%	30.17%	2.89%	88.37%	8.74%	4.04%	89.61%	6.36%					
PEAK HR START TIME :	430 PM												TOTAL				
PEAK HR VOL :	95	242	39	150	484	245	48	1666	154	62	1194	83	4462				
PEAK HR FACTOR :		0.790			0.943			0.943			0.935		0.975				

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Temple Ave and E Willow St , Long Beach

Date: 12/1/2016

Day: Thursday

Project #: 16-5788-001

City: Long Beach

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	430 PM

Peak Hour Summary

Southbound Approach (Temple Ave)

Lanes	0	2	1		
AM	112	197	63	469	AM
NOON	0	0	0	0	NOON
PM	245	484	150	373	PM

Eastbound Approach (E Willow St)

Lanes	AM	NOON	PM
	1672	0	1534
1	55	0	48
3	1098	0	1666
0	66	0	154

Westbound Approach

Lanes	AM	NOON	PM
0	79	0	83
3	1461	0	1194
1	24	0	62
	1212	0	1855

Northbound Approach

Lanes	1	2	0	
AM	287	99	335	51
NOON	0	0	0	0
PM	700	95	242	39

CONTROL: Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	AM	NOON	PM
North Leg	372	0	879
	469	0	373
East Leg	1564	0	1339
	1212	0	1855
West Leg	1672	0	1534
	1219	0	1868
South Leg	287	0	700
	485	0	376

Total Volume Per Leg

	AM	NOON	PM
North Leg	841	0	1252
East Leg	2776	0	3194
West Leg	2891	0	3402
South Leg	772	0	1076

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5788-002 **Day:** Thursday

City: Long Beach **Date:** 12/1/2016

AM

NS/EW Streets:	Redondo Ave			Redondo Ave			E Willow St			E Willow St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	3	1	2	3	0	1	3	1	2	3	1	
7:00 AM	52	165	81	10	47	12	21	181	25	27	205	40	866
7:15 AM	56	198	116	16	75	7	17	242	26	46	330	42	1171
7:30 AM	64	212	130	24	72	11	23	270	35	49	366	51	1307
7:45 AM	71	246	126	27	125	12	29	198	64	62	313	68	1341
8:00 AM	59	230	106	35	111	12	29	205	52	67	330	102	1338
8:15 AM	62	228	88	23	78	7	25	236	57	75	232	70	1181
8:30 AM	66	241	104	18	88	17	15	205	49	48	241	62	1154
8:45 AM	60	203	93	17	86	6	22	178	42	48	207	58	1020
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	490	1723	844	170	682	84	181	1715	350	422	2224	493	9378
APPROACH %'s :	16.03%	56.36%	27.61%	18.16%	72.86%	8.97%	8.06%	76.36%	15.58%	13.44%	70.85%	15.71%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	256	916	450	109	386	42	106	909	208	253	1241	291	5167
PEAK HR FACTOR :		0.915			0.819			0.932			0.894		0.963

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	1	0
0	1	0	0
0	0	2	0
0	0	0	0
0	0	2	0
0	0	0	0
0	0	0	0
NB	SB	EB	WB
0	1	5	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5788-002 **Day:** Thursday

City: Long Beach **Date:** 12/1/2016

PM

NS/EW Streets:	Redondo Ave			Redondo Ave			E Willow St			E Willow St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	3	1	2	3	0	1	3	1	2	3	1	
4:00 PM	71	156	112	56	180	22	26	354	73	58	252	30	1390
4:15 PM	65	158	106	62	133	25	10	344	78	47	212	25	1265
4:30 PM	64	161	103	65	187	24	18	343	87	57	220	35	1364
4:45 PM	62	146	94	79	169	25	17	368	87	43	219	38	1347
5:00 PM	60	164	131	72	153	32	11	372	72	53	225	27	1372
5:15 PM	60	141	78	66	173	33	19	350	77	71	227	34	1329
5:30 PM	69	157	121	57	184	17	14	378	65	69	232	38	1401
5:45 PM	42	141	92	61	149	27	20	324	90	44	211	20	1221
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	493	1224	837	518	1328	205	135	2833	629	442	1798	247	10689
APPROACH %'s :	19.30%	47.92%	32.77%	25.26%	64.75%	10.00%	3.75%	78.76%	17.49%	17.77%	72.30%	9.93%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	251	608	424	274	679	107	61	1468	301	236	903	137	5449
PEAK HR FACTOR :		0.904			0.971			0.969			0.941		0.972

UTURNS			
NB	SB	EB	WB
0	1	1	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	2	0
0	0	1	0
0	0	0	0
0	0	2	0
NB	SB	EB	WB
0	1	7	0

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Redondo Ave and E Willow St , Long Beach

Date: 12/1/2016

Day: Thursday

Project #: 16-5788-002

City: Long Beach

AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Peak Hour Summary

Southbound Approach

Redondo Ave

Lanes	0	3	2		
AM	42	386	109	1313	AM
NOON	0	0	0	0	NOON
PM	107	679	274	806	PM

Eastbound Approach

E Willow St

Lanes	AM	NOON	PM
	1539	0	1261
1	106	0	61
3	909	0	1468
1	208	0	301

Westbound Approach

AM	NOON	PM	Lanes
291	0	137	1
1241	0	903	3
253	0	236	2
1468	0	2166	

Northbound Approach

	2	3	1	Lanes
AM	847	256	916	450	AM
NOON	0	0	0	0	NOON
PM	1216	251	608	424	PM

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	537	1313	AM
	0	0	NOON
	1060	806	PM

West Leg			East Leg		
AM	NOON	PM			
1539	0	1261	1785	0	1276
1223	0	1830	1468	0	2166
			AM	NOON	PM

South Leg		
AM	847	1622
NOON	0	0
PM	1216	1283

Total Volume Per Leg

North Leg		
1850	AM
0	NOON
1866	PM

West Leg			East Leg		
AM	NOON	PM			
2762	0	3091	3253	0	3442
			AM	NOON	PM

South Leg	
AM	2469
NOON	0
PM	2499

APPENDIX A-II

ROADWAY SEGMENT COUNTS

Prepared by NDS/ATD

VOLUME

E Willow St Bet. Temple Ave & N Palm Dr

Day: Thursday
Date: 12/1/2016

City: Long Beach
Project #: CA16_5789_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	18,446	16,076	34,522

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			24		25		49		12:00			283		255		538	
00:15			18		24		42		12:15			290		245		535	
00:30			20		19		39		12:30			291		237		528	
00:45			15	77	17	85	32	162	12:45			320	1184	259	996	579	2180
01:00			19		22		41		13:00			294		256		550	
01:15			16		9		25		13:15			268		281		549	
01:30			12		16		28		13:30			288		238		526	
01:45			16	63	15	62	31	125	13:45			325	1175	264	1039	589	2214
02:00			17		8		25		14:00			327		240		567	
02:15			23		10		33		14:15			321		253		574	
02:30			13		11		24		14:30			324		228		552	
02:45			27	80	8	37	35	117	14:45			393	1365	301	1022	694	2387
03:00			15		8		23		15:00			338		295		633	
03:15			14		9		23		15:15			420		304		724	
03:30			21		9		30		15:30			433		305		738	
03:45			25	75	12	38	37	113	15:45			351	1542	319	1223	670	2765
04:00			17		12		29		16:00			432		337		769	
04:15			22		12		34		16:15			415		322		737	
04:30			27		22		49		16:30			480		294		774	
04:45			55	121	23	69	78	190	16:45			431	1758	325	1278	756	3036
05:00			43		31		74		17:00			435		330		765	
05:15			58		51		109		17:15			448		346		794	
05:30			69		60		129		17:30			408		307		715	
05:45			102	272	78	220	180	492	17:45			424	1715	286	1269	710	2984
06:00			114		87		201		18:00			403		280		683	
06:15			155		151		306		18:15			387		209		596	
06:30			152		160		312		18:30			287		224		511	
06:45			164	585	252	650	416	1235	18:45			255	1332	187	900	442	2232
07:00			203		263		466		19:00			245		161		406	
07:15			267		313		580		19:15			213		133		346	
07:30			310		360		670		19:30			196		135		331	
07:45			284	1064	410	1346	694	2410	19:45			155	809	120	549	275	1358
08:00			298		374		672		20:00			128		125		253	
08:15			280		319		599		20:15			150		100		250	
08:30			283		302		585		20:30			123		117		240	
08:45			248	1109	260	1255	508	2364	20:45			113	514	94	436	207	950
09:00			241		314		555		21:00			104		81		185	
09:15			226		259		485		21:15			107		78		185	
09:30			203		237		440		21:30			82		69		151	
09:45			230	900	249	1059	479	1959	21:45			59	352	77	305	136	657
10:00			228		224		452		22:00			55		62		117	
10:15			246		227		473		22:15			55		45		100	
10:30			235		209		444		22:30			44		41		85	
10:45			237	946	226	886	463	1832	22:45			51	205	52	200	103	405
11:00			249		252		501		23:00			41		55		96	
11:15			255		252		507		23:15			35		42		77	
11:30			283		244		527		23:30			25		31		56	
11:45			285	1072	253	1001	538	2073	23:45			30	131	23	151	53	282
TOTALS				6364		6708		13072	TOTALS				12082		9368		21450
SPLIT %				48.7%		51.3%		37.9%	SPLIT %				56.3%		43.7%		62.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	18,446	16,076	34,522

AM Peak Hour			07:30	07:30	07:30	PM Peak Hour		16:30	16:45	16:30
AM Pk Volume			1172	1463	2635	PM Pk Volume		1794	1308	3089
Pk Hr Factor			0.945	0.892	0.949	Pk Hr Factor		0.934	0.945	0.973
7 - 9 Volume	0	0	2173	2601	4774	4 - 6 Volume	0	3473	2547	6020
7 - 9 Peak Hour			07:30	07:30	07:30	4 - 6 Peak Hour		16:30	16:45	16:30
7 - 9 Pk Volume	0	0	1172	1463	2635	4 - 6 Pk Volume	0	1794	1308	3089
Pk Hr Factor	0.000	0.000	0.945	0.892	0.949	Pk Hr Factor	0.000	0.934	0.945	0.973

Prepared by NDS/ATD

VOLUME

E Willow St Bet. N Palm Dr & Redondo Ave

Day: Thursday
Date: 12/1/2016

City: Long Beach
Project #: CA16_5789_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	18,616	16,067	34,683

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			26		20		46		12:00			293		250		543	
00:15			16		22		38		12:15			285		247		532	
00:30			23		23		46		12:30			292		244		536	
00:45			15	80	16	81	31	161	12:45			310	1180	259	1000	569	2180
01:00			17		14		31		13:00			292		258		550	
01:15			18		8		26		13:15			264		276		540	
01:30			13		15		28		13:30			276		237		513	
01:45			16	64	8	45	24	109	13:45			310	1142	267	1038	577	2180
02:00			22		6		28		14:00			324		232		556	
02:15			27		9		36		14:15			311		258		569	
02:30			16		9		25		14:30			330		221		551	
02:45			23	88	7	31	30	119	14:45			401	1366	306	1017	707	2383
03:00			14		9		23		15:00			358		288		646	
03:15			16		8		24		15:15			464		297		761	
03:30			20		9		29		15:30			443		281		724	
03:45			22	72	12	38	34	110	15:45			382	1647	310	1176	692	2823
04:00			19		14		33		16:00			437		321		758	
04:15			18		12		30		16:15			470		318		788	
04:30			25		22		47		16:30			490		281		771	
04:45			36	98	27	75	63	173	16:45			447	1844	318	1238	765	3082
05:00			47		28		75		17:00			437		314		751	
05:15			55		51		106		17:15			445		343		788	
05:30			62		60		122		17:30			408		313		721	
05:45			85	249	86	225	171	474	17:45			436	1726	276	1246	712	2972
06:00			94		104		198		18:00			393		262		655	
06:15			133		161		294		18:15			413		214		627	
06:30			156		190		346		18:30			291		223		514	
06:45			162	545	269	724	431	1269	18:45			243	1340	191	890	434	2230
07:00			218		278		496		19:00			253		152		405	
07:15			277		325		602		19:15			221		134		355	
07:30			311		376		687		19:30			189		122		311	
07:45			274	1080	415	1394	689	2474	19:45			157	820	116	524	273	1344
08:00			294		401		695		20:00			131		127		258	
08:15			286		332		618		20:15			150		99		249	
08:30			279		317		596		20:30			123		112		235	
08:45			286	1145	270	1320	556	2465	20:45			111	515	95	433	206	948
09:00			238		311		549		21:00			102		83		185	
09:15			222		262		484		21:15			101		76		177	
09:30			201		242		443		21:30			80		71		151	
09:45			239	900	215	1030	454	1930	21:45			59	342	75	305	134	647
10:00			248		230		478		22:00			60		56		116	
10:15			244		228		472		22:15			62		47		109	
10:30			236		214		450		22:30			40		45		85	
10:45			231	959	228	900	459	1859	22:45			64	226	53	201	117	427
11:00			245		250		495		23:00			42		55		97	
11:15			260		244		504		23:15			32		38		70	
11:30			279		241		520		23:30			24		30		54	
11:45			275	1059	256	991	531	2050	23:45			31	129	22	145	53	274
TOTALS				6339		6854		13193	TOTALS				12277		9213		21490
SPLIT %				48.0%		52.0%		38.0%	SPLIT %				57.1%		42.9%		62.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	18,616	16,067	34,683

AM Peak Hour			07:30	07:30	07:30	PM Peak Hour	16:00	16:45	16:00
AM Pk Volume			1165	1524	2689	PM Pk Volume	1844	1288	3082
Pk Hr Factor			0.936	0.918	0.967	Pk Hr Factor	0.941	0.939	0.978
7 - 9 Volume	0	0	2225	2714	4939	4 - 6 Volume	0	0	3570	2484	6054
7 - 9 Peak Hour			07:30	07:30	07:30	4 - 6 Peak Hour			16:00	16:45	16:00
7 - 9 Pk Volume	0	0	1165	1524	2689	4 - 6 Pk Volume	0	0	1844	1288	3082
Pk Hr Factor	0.000	0.000	0.936	0.918	0.967	Pk Hr Factor	0.000	0.000	0.941	0.939	0.978

APPENDIX B

INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX B-I

EXISTING TRAFFIC CONDITIONS

AM Existing Traffic Conditions
2-16-3762 3311 E. Willow MOB, Long Beach

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Temple Avenue at Willow Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.614
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	41	Level Of Service:	B

Street Name:	Temple Avenue						Willow Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	99	335	51	63	197	112	55	1098	66	24	1461	79
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	99	335	51	63	197	112	55	1098	66	24	1461	79
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	99	335	51	63	197	112	55	1098	66	24	1461	79
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	99	335	51	63	197	112	55	1098	66	24	1461	79
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	99	335	51	63	197	112	55	1098	66	24	1461	79
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	99	335	51	63	197	112	55	1098	66	24	1461	79
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.74	0.26	1.00	1.28	0.72	1.00	2.83	0.17	1.00	2.85	0.15
Final Sat.:	1600	2777	423	1600	2040	1160	1600	4528	272	1600	4554	246
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.04	0.10	0.10	0.03	0.24	0.24	0.02	0.32	0.32
Crit Moves:	****				****		****				****	

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to LLG Costa Mesa, CA

AM Existing Traffic Conditions
2-16-3762 3311 E. Willow MOB, Long Beach

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Redondo Avenue at Willow Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.653
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	45	Level Of Service:	B

Street Name:	Redondo Avenue						Willow Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	1 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	256	916	450	109	386	42	106	909	208	253	1241	291
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	256	916	450	109	386	42	106	909	208	253	1241	291
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	256	916	450	109	386	42	106	909	208	253	1241	291
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	256	916	450	109	386	42	106	909	208	253	1241	291
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	256	916	450	109	386	42	106	909	208	253	1241	291
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	256	916	450	109	386	42	106	909	208	253	1241	291
OvlAdjVol:			309									
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	0.90	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.71	0.29	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2880	4800	1600	2880	4329	471	1600	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.09	0.19	0.28	0.04	0.09	0.09	0.07	0.19	0.13	0.09	0.26	0.18
OvlAdjV/S:			0.19									
Crit Moves:		****		****			****				****	

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PM Existing Traffic Conditions
2-16-3762 3311 E. Willow MOB, Long Beach

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

****

Intersection #1 Temple Avenue at Willow Street

****

Cycle (sec):	100	Critical Vol./Cap.(X):	0.805
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	68	Level Of Service:	D

****

Street Name:	Temple Avenue						Willow Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	95	242	39	150	484	245	48	1666	154	62	1194	83
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	95	242	39	150	484	245	48	1666	154	62	1194	83
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	95	242	39	150	484	245	48	1666	154	62	1194	83
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	95	242	39	150	484	245	48	1666	154	62	1194	83
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	95	242	39	150	484	245	48	1666	154	62	1194	83
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	95	242	39	150	484	245	48	1666	154	62	1194	83
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.72	0.28	1.00	1.33	0.67	1.00	2.75	0.25	1.00	2.81	0.19
Final Sat.:	1600	2756	444	1600	2125	1075	1600	4394	406	1600	4488	312
Capacity Analysis Module:												
Vol/Sat:	0.06	0.09	0.09	0.09	0.23	0.23	0.03	0.38	0.38	0.04	0.27	0.27
Crit Moves:	****				****			****		****		

****

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PM Existing Traffic Conditions
2-16-3762 3311 E. Willow MOB, Long Beach

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Redondo Avenue at Willow Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.766
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	60	Level Of Service:	C

Street Name:	Redondo Avenue						Willow Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	1 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	251	608	424	274	679	107	61	1468	301	236	903	137
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	251	608	424	274	679	107	61	1468	301	236	903	137
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	251	608	424	274	679	107	61	1468	301	236	903	137
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	251	608	424	274	679	107	61	1468	301	236	903	137
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	251	608	424	274	679	107	61	1468	301	236	903	137
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	251	608	424	274	679	107	61	1468	301	236	903	137
OvlAdjVol:			293									
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	0.90	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2880	4800	1600	2880	4147	653	1600	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.09	0.13	0.27	0.10	0.16	0.16	0.04	0.31	0.19	0.08	0.19	0.09
OvlAdjV/S:			0.18									
Crit Moves:			****	****				****		****		

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APPENDIX B-II

EXISTING WITH PROJECT TRAFFIC CONDITIONS

AM Existing plus Project Traffic Conditions
2-16-3762 3311 E. Willow MOB, Long Beach

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Temple Avenue at Willow Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.614
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	41	Level Of Service:	B

Street Name:	Temple Avenue						Willow Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	99	335	52	66	197	112	55	1100	66	25	1462	80
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	99	335	52	66	197	112	55	1100	66	25	1462	80
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	99	335	52	66	197	112	55	1100	66	25	1462	80
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	99	335	52	66	197	112	55	1100	66	25	1462	80
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	99	335	52	66	197	112	55	1100	66	25	1462	80
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	99	335	52	66	197	112	55	1100	66	25	1462	80
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.73	0.27	1.00	1.28	0.72	1.00	2.83	0.17	1.00	2.84	0.16
Final Sat.:	1600	2770	430	1600	2040	1160	1600	4528	272	1600	4551	249
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.04	0.10	0.10	0.03	0.24	0.24	0.02	0.32	0.32
Crit Moves:	****				****		****				****	

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AM Existing plus Project Traffic Conditions
2-16-3762 3311 E. Willow MOB, Long Beach

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Redondo Avenue at Willow Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.654
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	45	Level Of Service:	B

Street Name:	Redondo Avenue						Willow Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	1 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	258	916	450	109	386	43	106	910	209	253	1244	291
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	258	916	450	109	386	43	106	910	209	253	1244	291
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	258	916	450	109	386	43	106	910	209	253	1244	291
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	258	916	450	109	386	43	106	910	209	253	1244	291
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	258	916	450	109	386	43	106	910	209	253	1244	291
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	258	916	450	109	386	43	106	910	209	253	1244	291
OvlAdjVol:			309									
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	0.90	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.70	0.30	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2880	4800	1600	2880	4319	481	1600	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.09	0.19	0.28	0.04	0.09	0.09	0.07	0.19	0.13	0.09	0.26	0.18
OvlAdjV/S:			0.19									
Crit Moves:		****		****			****				****	

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PM Existing plus Project Traffic Conditions
2-16-3762 3311 E. Willow MOB, Long Beach

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Temple Avenue at Willow Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.806
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	68	Level Of Service:	D

Street Name:	Temple Avenue						Willow Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	95	242	39	150	484	245	48	1666	154	63	1196	86
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	95	242	39	150	484	245	48	1666	154	63	1196	86
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	95	242	39	150	484	245	48	1666	154	63	1196	86
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	95	242	39	150	484	245	48	1666	154	63	1196	86
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	95	242	39	150	484	245	48	1666	154	63	1196	86
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	95	242	39	150	484	245	48	1666	154	63	1196	86
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.72	0.28	1.00	1.33	0.67	1.00	2.75	0.25	1.00	2.80	0.20
Final Sat.:	1600	2756	444	1600	2125	1075	1600	4394	406	1600	4478	322
Capacity Analysis Module:												
Vol/Sat:	0.06	0.09	0.09	0.09	0.23	0.23	0.03	0.38	0.38	0.04	0.27	0.27
Crit Moves:	****				****			****		****		

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PM Existing plus Project Traffic Conditions
2-16-3762 3311 E. Willow MOB, Long Beach

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Redondo Avenue at Willow Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.767
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	60	Level Of Service:	C

Street Name:	Redondo Avenue						Willow Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	1 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	251	608	424	274	679	107	62	1471	303	236	903	137
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	251	608	424	274	679	107	62	1471	303	236	903	137
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	251	608	424	274	679	107	62	1471	303	236	903	137
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	251	608	424	274	679	107	62	1471	303	236	903	137
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	251	608	424	274	679	107	62	1471	303	236	903	137
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	251	608	424	274	679	107	62	1471	303	236	903	137
OvlAdjVol:			293									
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	0.90	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2880	4800	1600	2880	4147	653	1600	4800	1600	2880	4800	1600
Capacity Analysis Module:												
Vol/Sat:	0.09	0.13	0.27	0.10	0.16	0.16	0.04	0.31	0.19	0.08	0.19	0.09
OvlAdjV/S:			0.18									
Crit Moves:			****	****				****		****		

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