Appendix F: Traffic Analysis

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INFRASTRUCTURE GROUP, INC.

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TRAFFIC IMPACT ANALYSIS

CARNEGIE AVENUE HOMES

COSTA MESA, CALIFORNIA

Prepared by:

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June 28, 2016 First Submittal
September 20, 2016 Second Submittal

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1.0 INTRODUCTION

Purpose and Study Objectives

This traffic impact analysis (TIA) has been prepared to evaluate and assess the traffic and circulation impacts of the proposed Carnegie Homes project (proposed project). The purpose of this report is to provide an analysis of the traffic impacts resulting from the development of 28 dwelling units, and identify potential traffic mitigation measures to maintain an acceptable level of service (LOS).

Site Location

The project site is located at 440 Fair Drive (northwest corner of Fair Drive and Carnegie Avenue) in the City of Costa Mesa (City). The project site is currently developed with 20,750 square feet of retail/service uses. Adjacent land uses include an apartment complex to the south, an automobile dealer lot to the north, a gas station to the west, and single family residential homes to the east. Access to the project site will be provided via a new project driveway along Carnegie Avenue. **Figure 1** illustrates the location of the project site and the surrounding transportation network.

Project Description

The project proposes to construct 28 dwelling units on a 1.66 acre lot. 20 units will be 3 story duplexes, and 8 units will be 2 story detached. The project site is currently developed with retail/service uses. The units will range from three to four bedroom units. Access to the project site will be provided along Carnegie Avenue. 117 parking spaces will be provided on-site. 112 parking stalls are required by city code. The expected opening year for the project is 2017. **Figure 2** provides a site plan of the proposed project.

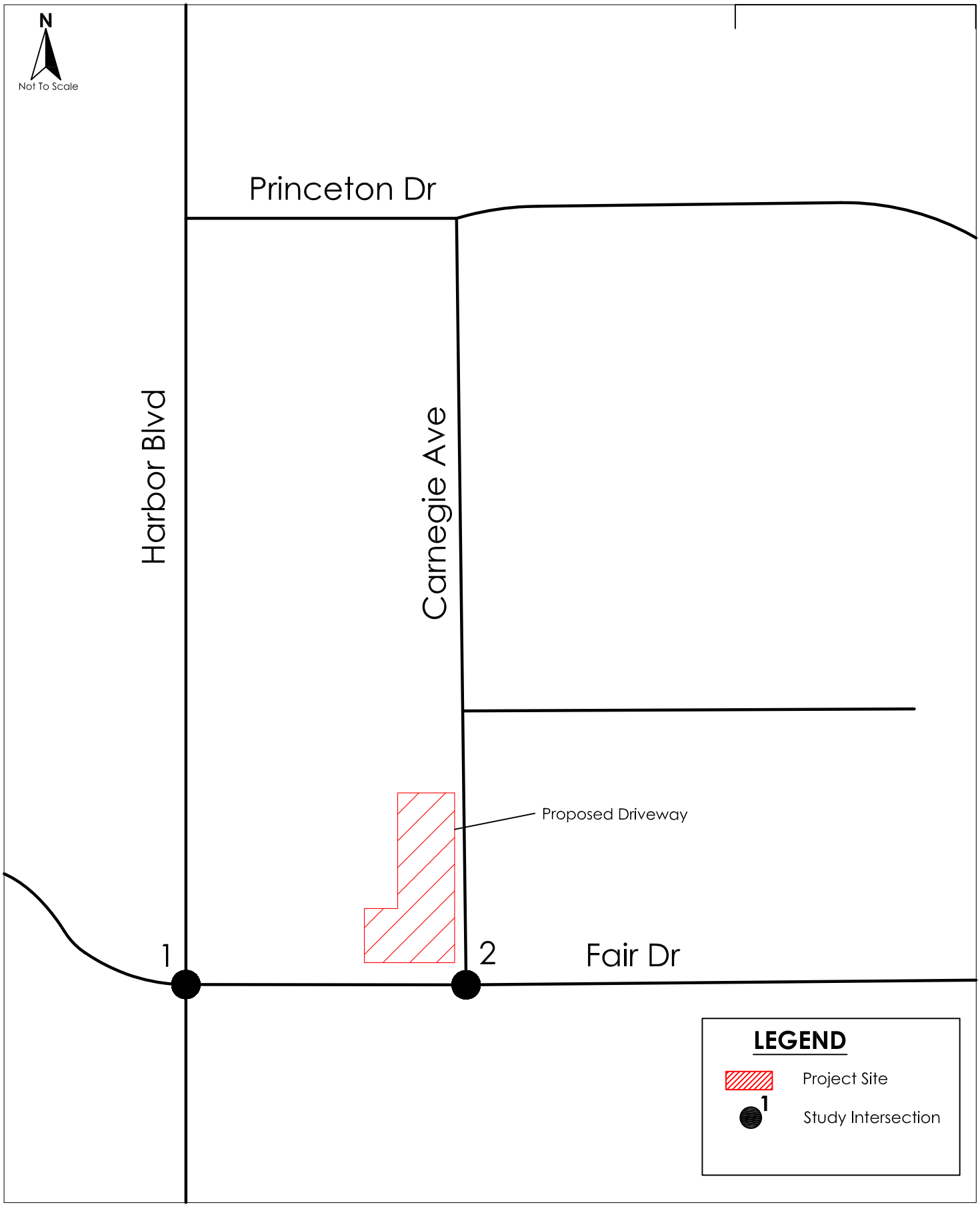

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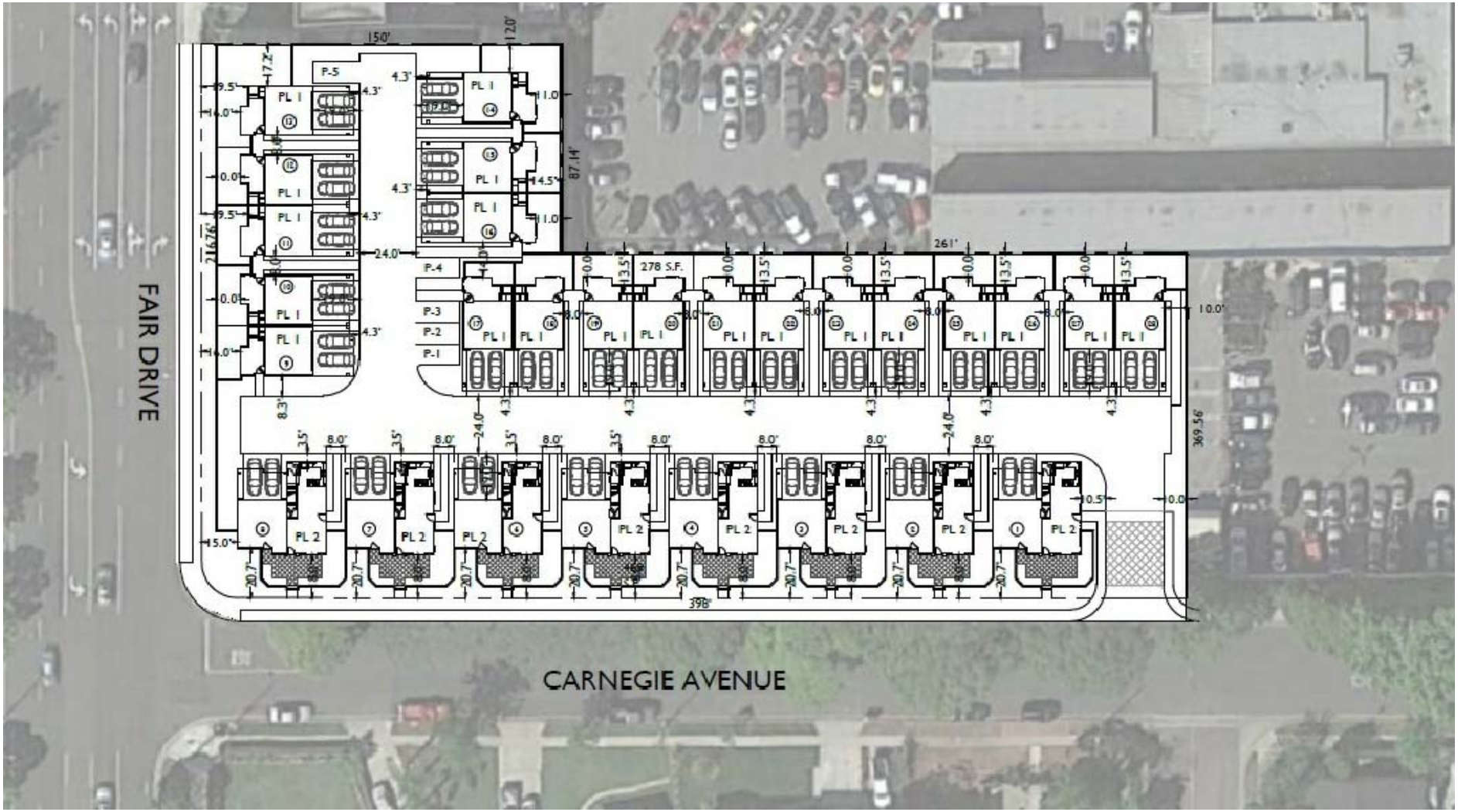
Figure 1
Project Site Location and Study Area



Not To Scale

Source: Summa Architecture, May 2016.

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Figure 2
Site Plan

2.0 EXISTING CONDITIONS

To determine the scope of work for this traffic impact analysis, Infrastructure Group Inc. consulted with City staff on the study area intersections.

Intersection Level of Service Analysis

The study area includes the following intersections:

1. Harbor Boulevard/Fair Drive
2. Carnegie Avenue/Fair Drive

Existing Circulation System

Figure 3 provides the locations of the study area intersections and the existing traffic control devices and intersection geometrics.

Existing Traffic Volumes

Existing traffic counts were collected by National Data Services on Tuesday May 10th, 2016 at the study area intersections. Both local educational institutions, Orange Coast Community College & Vanguard University of Southern California, were is session at the time. **Figure 4** provides the existing traffic volumes at the study area intersections. Appendix A provides the raw existing traffic count sheets that performed by National Data Services.

Existing Intersection Level of Service

Existing AM and PM peak hour operating conditions for the two (2) study intersections were evaluated using the Intersection Capacity Utilization (ICU) methodology for signalized intersection and the methodology outlined in Chapter 17 of the Highway Capacity Manual 2000 (HCM2000) for the unsignalized intersection.

Intersection Capacity Utilization (ICU) Method of Analysis. In conformance with City of Costa Mesa requirements, existing AM and PM peak hour operating conditions for the signalized study intersection was evaluated using the 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 City of Costa Mesa requirements, the ICU calculations use a lane capacity of 1,600 vehicles per hour (vph) for left-turn lanes, through lanes and right-turn lanes. No adjustments for clearance intervals are made since the assumed lane capacity reflects the effect of lost time.

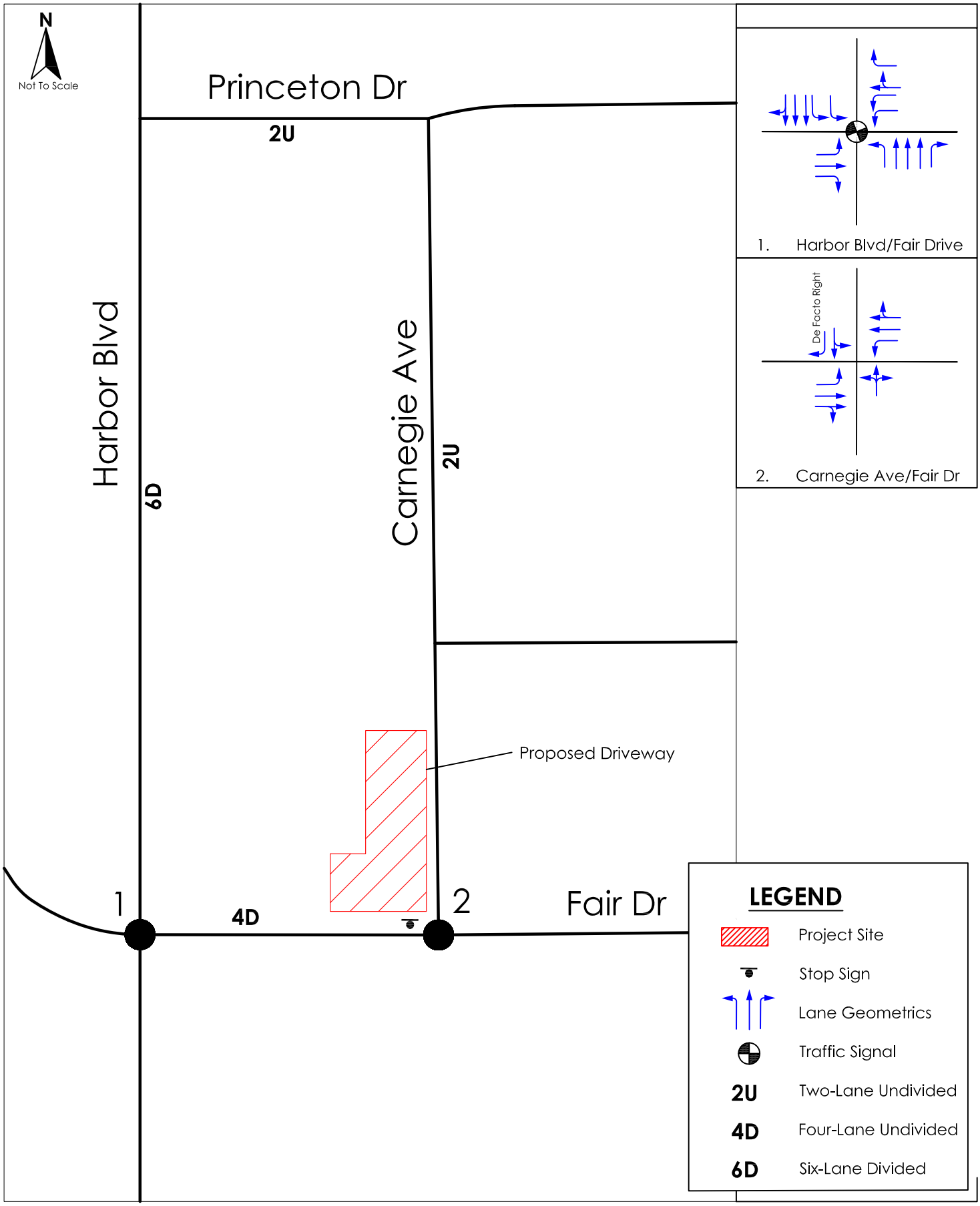

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Figure 3
Existing Geometrics and Traffic Controls

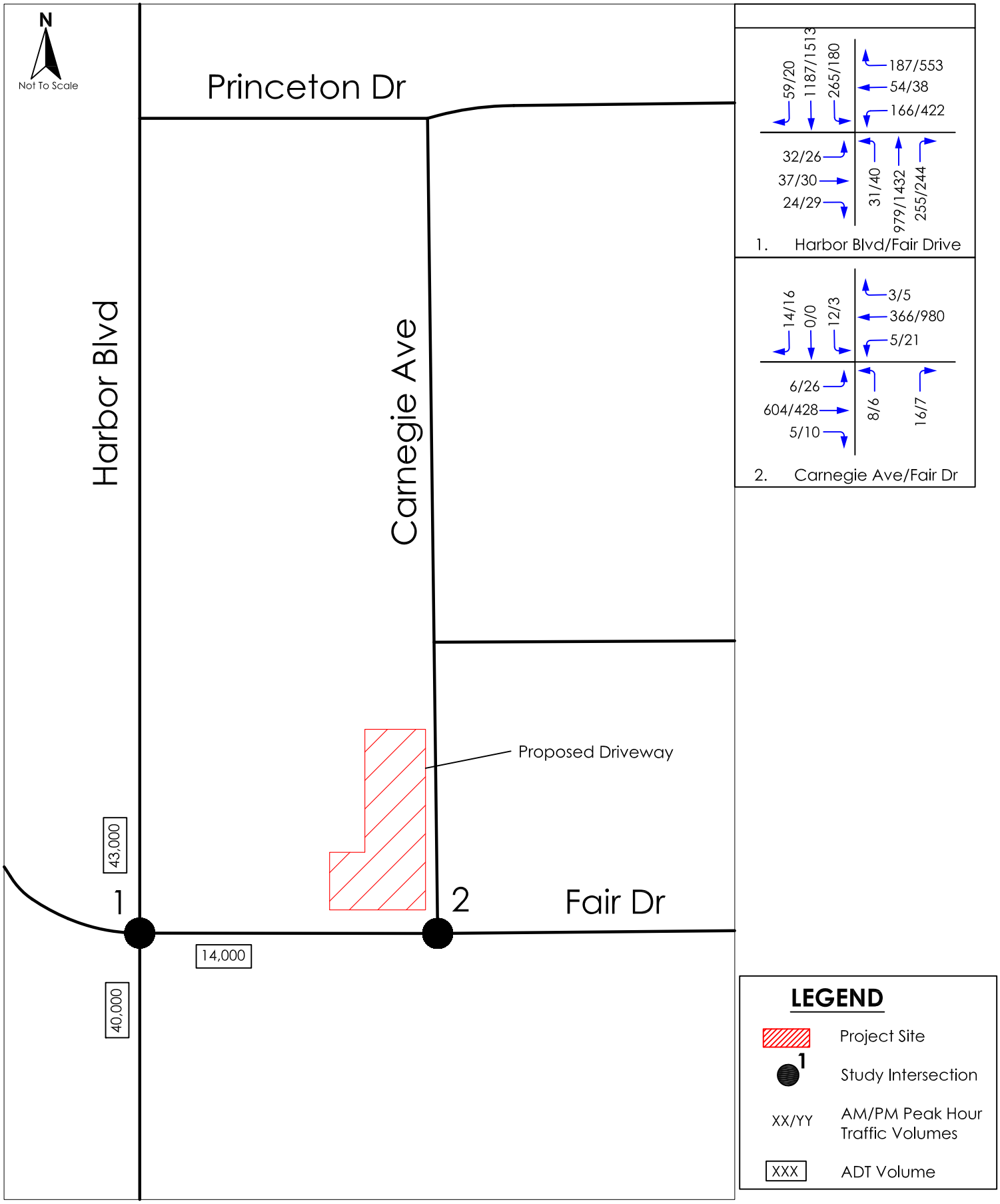

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Figure 4
Existing Traffic Volumes

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. 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. The six qualitative categories of Level of Service have been defined along with the corresponding ICU value range and are shown in **Table A**.

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. According to City of Costa Mesa criteria, LOS D (ICU = 0.801 – 0.900) is the minimum acceptable condition that should be maintained during the morning and evening peak commute hours.

Table A - Level of Service Definition for Signalized Intersections Based on the ICU Methodology

Level of Service	V/C Ratio or ICU	Level of Service Description
A	0.00 – 0.60	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.61 – 0.70	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles
C	0.71 – 0.80	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.81 – 0.90	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	0.91 – 1.00	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles
F	1.01 or greater	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.

Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections). The 2000 HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. This methodology estimates the average control delay for each of the subject movements and determines the level of service for each movement. For all-way stop controlled intersections, the overall average control delay measured in seconds per vehicle, and level of service is then calculated for the entire intersection. For one-way and two-way stop controlled (minor street stop-

controlled) intersections, this methodology estimates the worst side street delay, measured in seconds per vehicle and determines the level of service for that approach. The HCM control delay 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 HCM control delay value range, as shown in **Table B**.

Table B – Level of Service Definition for Unsignalized Intersections Based on the HCM Methodology

Level of Service	Delay per Vehicle (seconds)	Level of Service Description
A	≤ 10	Little or no delay
B	> 10 – 15	Short traffic delays
C	> 15 – 25	Average traffic delays
D	> 25 – 35	Long traffic delays
E	> 35 – 50	Very long traffic delays
F	> 50	Severe congestion

SOURCE: Highway Capacity Manual, Transportation Research Board, Special Report No. 209, Washington, D.C., 2000.

The City of Costa Mesa General Plan states that the acceptable peak hour LOS at an intersection is LOS D or better. A significant impact occurs when the ICU value increases by greater than 0.01 and achieves unacceptable LOS (LOS E or F). The City does not have significant impact criteria for unsignalized intersections. If the proposed project's traffic causes the LOS/delay values to exceed at unacceptable LOS (LOS E or F), feasible improvements would need to be identified that will mitigate the intersection LOS back to acceptable LOS (LOS D or better).

Table C provides the results of the existing LOS analysis during the AM and PM peak hours. As shown in the table, all study area intersections currently operate at acceptable LOS (LOS D or better). Appendix B provides the LOS calculation worksheets.

Table C – Existing Level of Service Summary

	AM Peak Hour		PM Peak Hour	
Signalized Intersection (ICU)	**ICU**	**LOS**	**ICU**	**LOS**
1. Harbor Boulevard/Fair Drive	0.382	A	0.556	A
Unsignalized Intersection (HCM)	**Delay (sec)**		**Delay (sec)**	
2. Carnegie Avenue/Fair Drive	13.4	B	16.8	C

Transit Service

The study area is currently served by the Orange County Transportation Authority, Route 43, along Harbor Boulevard.

3.0 PROJECTED FUTURE TRAFFIC

The project proposes to construct 28 dwelling units on a 1.66 acre lot. 20 units will be 3 story duplexes, and 8 units will be 2 story detached. The project site is currently developed with retail/service uses. The units will range from three to four bedroom units. Access to the project site will be provided along Carnegie Avenue.

Project Trip Generation

The project trip generation represents the amount of trips entering and exiting the project site during the AM and PM peak hours. Trip generation rates used for the project are taken from the Trip Generation Manual from the Institute of Transportation Engineers (ITE), 9th Edition. **Table D** provides the trip generation for the existing uses and the proposed project.

Table D - Existing & Proposed Trip Generation

	Building Size	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Existing Use	20,750 SF	697	16	4	20	30	42	72
Proposed Residential Units	28 Units	213	3	16	19	14	7	21
Net Trip Generation		-484	-13	12	-1	-16	-35	-51

ADT Trip Rates from the Institute of Transportation Engineers, 9th Edition.
Existing Peak Hour trips based on actual counts performed in May 2016.
Proposed Peak Hour trips based on Institute of Transportation Engineers, 9th Edition (ITE 230) Fitted Curve Equations:
AM Ln(T)= 0.80 Ln(X) + 0.26 17% Inbound 83% Outbound
PM Ln(T)= 0.82 Ln(X) + 0.32 67% Inbound 33% Outbound

As the table illustrates, the existing uses generate approximately 697 daily trips, 20 AM peak hour trips (16 entering and 4 exiting), and 72 PM peak hour trips (30 entering and 42 exiting). The existing AM and PM peak hour trips were calculated using existing driveway counts conducted in May 2016. The proposed project would generate 213 daily trips, 19 AM peak hour trips (3 entering and 16 exiting), and 21 PM peak hour trips (14 entering and 7 exiting). Since the proposed project would demolish the existing site uses, the proposed project can take credit for the existing trips on-site. As such, the proposed project would generate 484 less daily trips, one less AM peak hour trip (13 less entering and 12 more exiting) and 51 less PM peak hour trips (16 less entering and 35 less exiting).

Project Trip Distribution and Assignment

Trip distribution is the origin and destination of traffic from the project site. Trip distribution is determined based on the geographic location of the project site, the

adjacent land uses in the study area, and the proximity to major arterials and freeways. The trip distribution for the proposed project was based on the existing roadway system, existing traffic patterns, and proximity to local attractions. As such, approximately 35 percent of the project traffic is distributed north on Harbor Boulevard and 10 percent north on Carnegie Avenue, 15 percent south on Harbor Boulevard and 40 percent is distributed east on Fair Drive.

The trip distribution was used to assign project trips to the local roadways. The trip assignment is determined by applying the trip distribution percentages to the inbound and outbound trips calculated from the project trip generation. **Figure 5** illustrates the project trip distribution percentages. **Figure 6** illustrates the existing site trip assignment. **Figure 7** illustrates the proposed project trip assignment. **Figure 8** illustrates the net project trip assignment (existing trips – proposed trips).

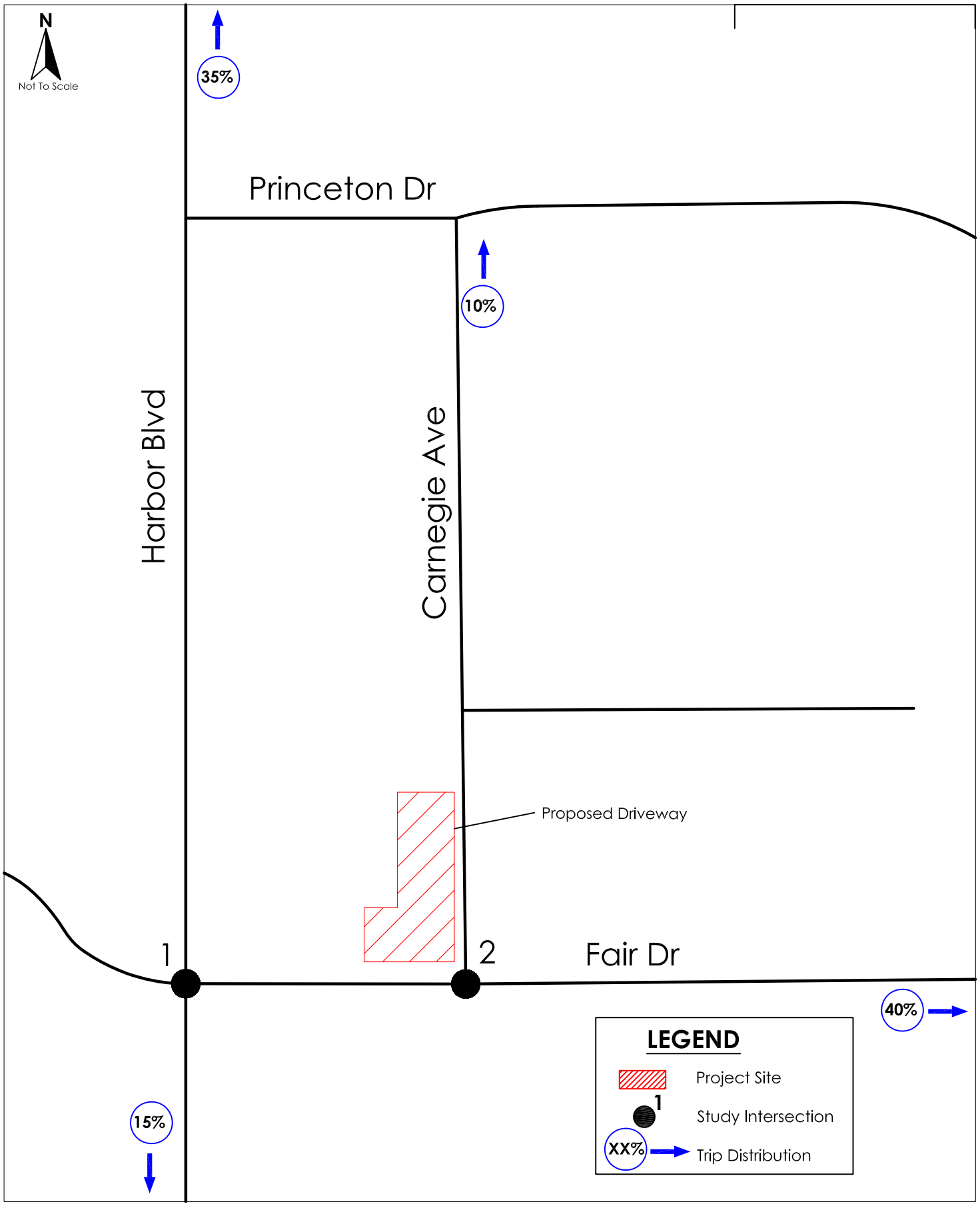

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Figure 5
Project Trip Distribution

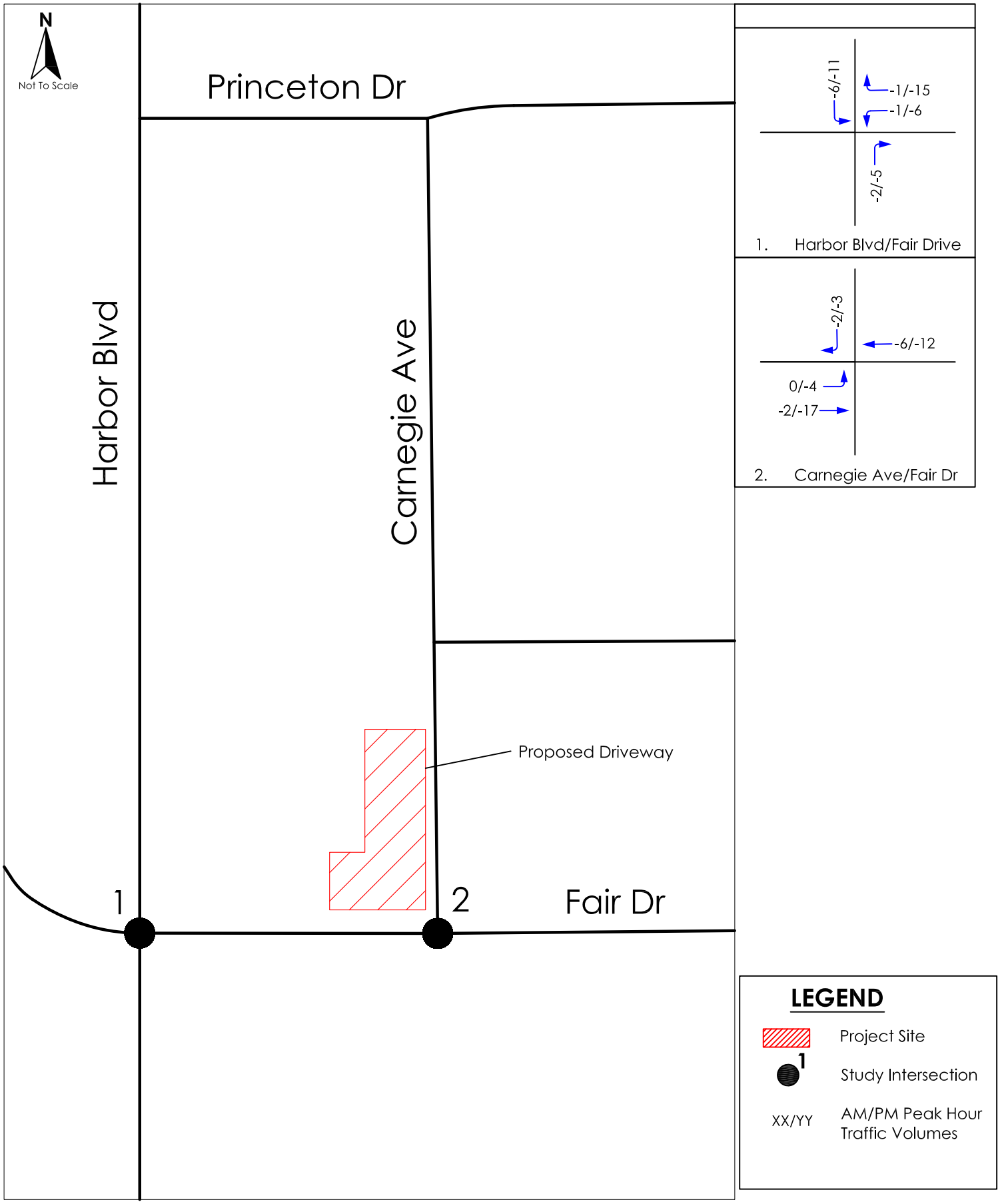

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Figure 6
Existing Site Trips

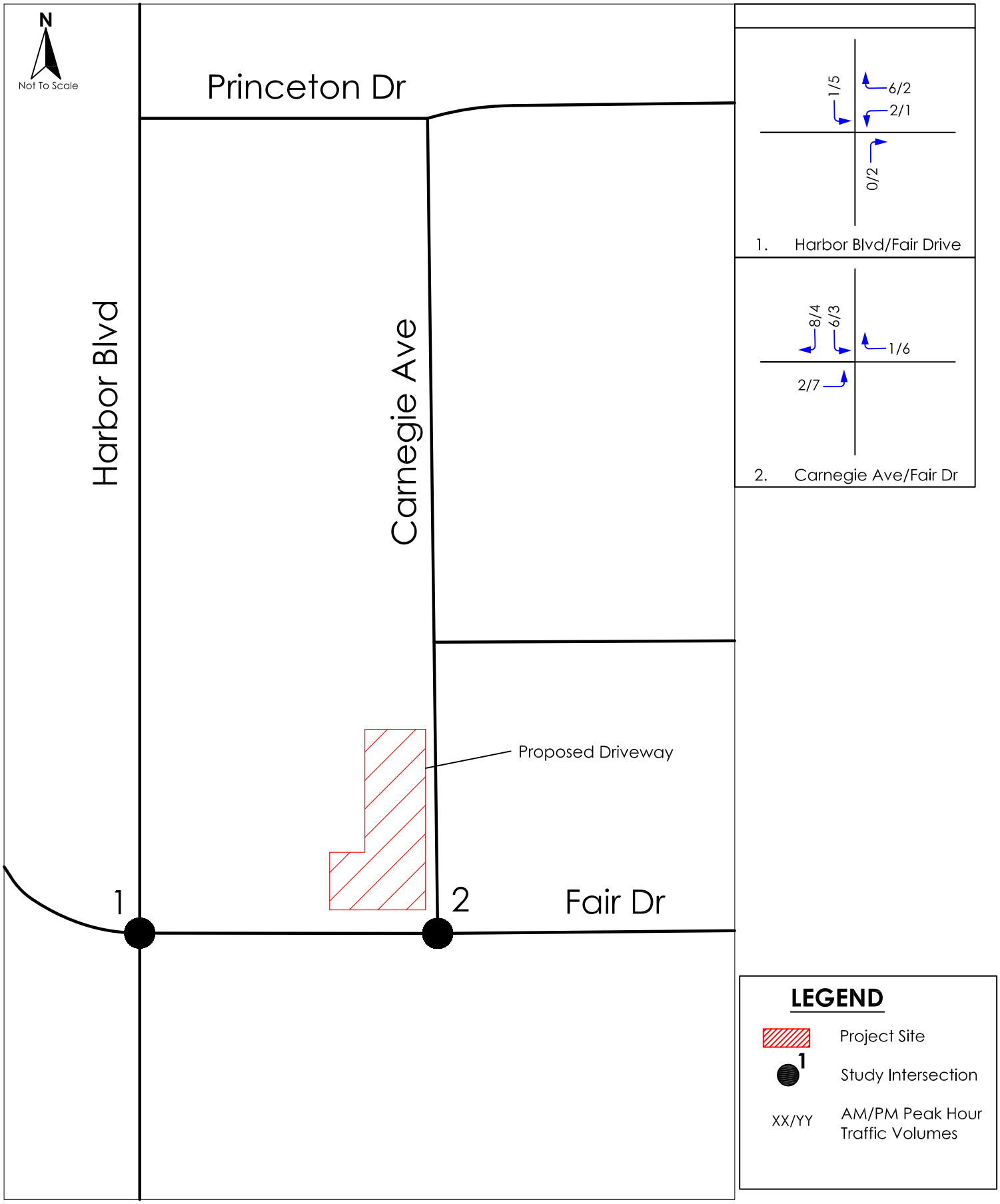

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Figure 7
Proposed Project Trips

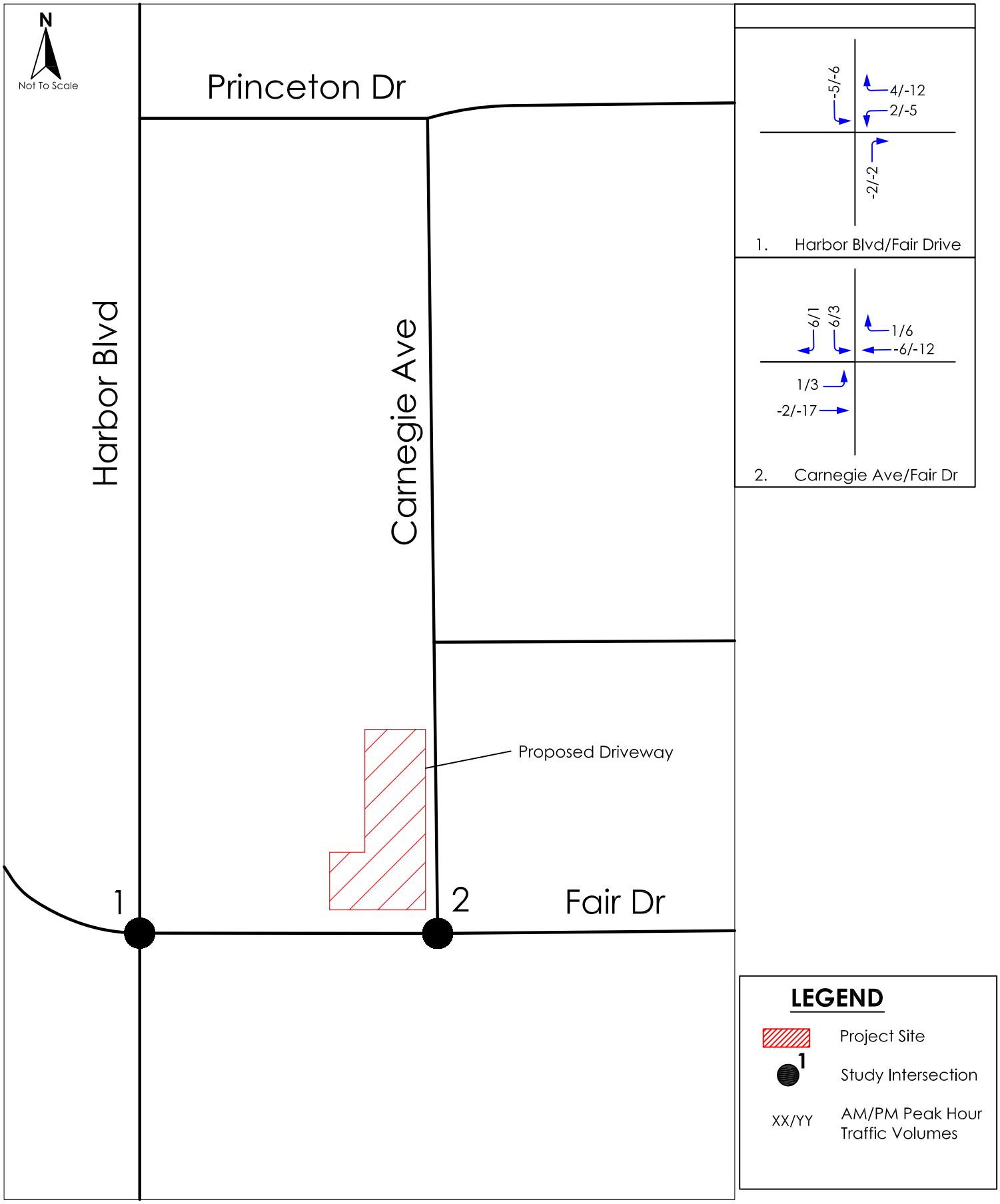

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Figure 8
Net Project Trips

4.0 PROJECT CONDITIONS

Traffic impact analyses were conducted at the study area intersections for the Existing plus Project. Intersection LOS was calculated using the ICU methodology for signalized intersections and HCM methodology for unsignalized intersections. Appendix B provides the LOS calculation worksheets.

Existing plus Project Traffic Conditions

Traffic generated by the proposed project was added to the existing traffic volumes to determine the Existing plus Project condition. **Figure 9** illustrates the existing plus project traffic volumes.

Existing plus Project Level of Service

Table E provides the results of the Existing plus Project LOS analysis during the AM and PM peak hours. As shown in the table, both study area intersections will continue to operate at acceptable LOS (LOS D or better) with the proposed project.

Table E – Existing plus Project Level of Service Summary

	AM Peak Hour		PM Peak Hour	
Signalized Intersection (ICU)	**ICU**	**LOS**	**ICU**	**LOS**
1. Harbor Boulevard/Fair Drive	0.382	A	0.550	A
Unsignalized Intersection (HCM)	**Delay (sec)**		**Delay (sec)**	
2. Carnegie Avenue/Fair Drive	13.4	B	18.2	C

Project Site Access Evaluation

Access to the project site would be moved from Fair Drive to Carnegie Avenue. The new driveway will be unsignalized with a stop sign at the outbound project driveway apron. The proposed project driveway was analyzed and is forecast to operate with an average delay of 3.0 seconds in the AM peak hour and 2.3 seconds in the PM peak hour. The minor street approach will experience a delay of 8.5 seconds in the AM peak hour and PM peak hour. The delay is caused by vehicles waiting for adequate gaps to turn on to Carnegie Avenue from the proposed project driveway. Appendix B provides the LOS calculation worksheets.

Sight distance at the project access should be reviewed for City and Caltrans standards in conjunction with the preparation of final grading, landscaping, and street improvement plans. The final grading, landscaping, and street improvement plans should show that sight distance standards are met.

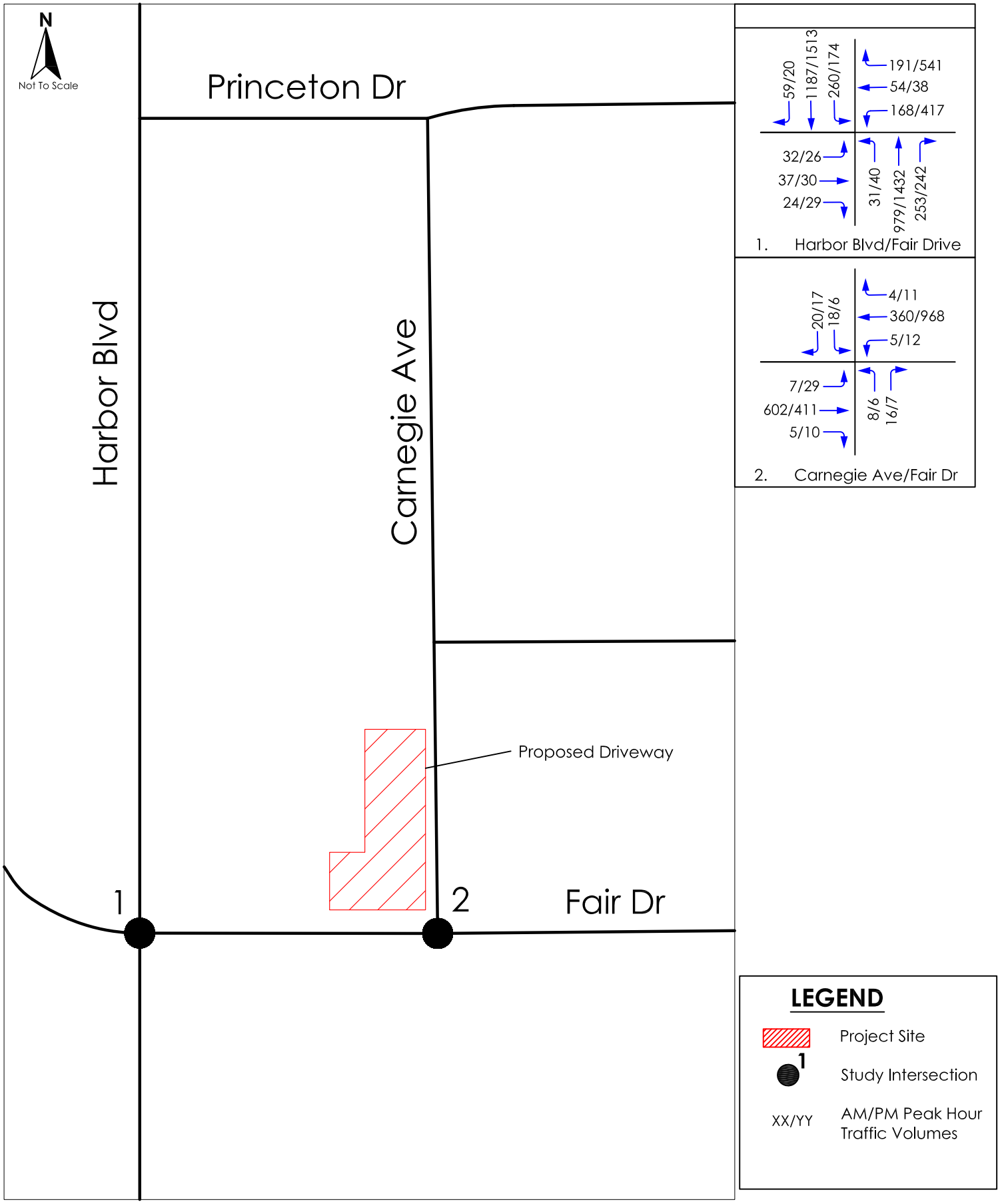

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Figure 9
Existing plus Project Traffic Volumes

General Plan Analysis

The proposed project is requesting a General Plan Amendment to change the land use designation for the project site from Neighborhood Commercial (NC) to High Density Residential (HDR). The existing uses on-site consist of 20,750 square feet of office use (medical, office, and retail). The project proposes to construct 28 dwelling units (20 units will be 3 story duplexes, and 8 units will be 2 story detached).

As summarized in the Project Trip Generation section, the proposed project would generate 484 less daily trips, one less AM peak hour trip (13 less entering and 12 more exiting) and 51 less PM peak hour trips (16 less entering and 35 less exiting) compared to the existing uses on-site.

As such, the proposed project trips would be within the current General Plan Buildout traffic condition for Neighborhood Commercial. Thus, the proposed project would not cause a significant impact in the General Plan Buildout condition.

5.0 FINDINGS AND RECOMMENDATIONS

The proposed project will have no significant impact to the surrounding circulation network. The project has a cumulative net decrease in trip generation. A significant impact occurs at a study area intersection when the addition of project traffic causes peak hour levels of service to degrade from acceptable LOS (LOS D or better) to an unacceptable LOS E or F. Intersections operating at LOS E or F is considered deficient and mitigation measures are required. This project requires no traffic related mitigation measures.

APPENDIX A

EXISTING TRAFFIC COUNTS

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Harbor Blvd and Fair Dr , Costa Mesa

Date:	5/10/2016
Day:	Tuesday

Project #:	16-1120-001
City:	Costa Mesa

AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Peak Hour Summary

Southbound Approach (Harbor Blvd)

	Lanes 0	3	2		
AM	59	1187	265	1198	AM
NOON	0	0	0	0	NOON
PM	20	1513	180	2011	PM

Eastbound Approach (Fair Dr)

Lanes	AM	NOON	PM
	144	0	98
1	32	0	26
1	37	0	30
1	24	0	29

Westbound Approach

AM	NOON	PM	Lanes
187	0	553	1.5
54	0	38	0.5
166	0	422	2
557	0	454	

CONTROL: Signalized

Northbound Approach

AM	1377	31	979	255	AM
NOON	0	0	0	0	NOON
PM	1964	40	1432	244	PM
		1	3	1	Lanes

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:30 PM	6:30 PM

Total Ins & Outs

	North Leg		
	1511	1198	AM
	0	0	NOON
	1713	2011	PM

West Leg	AM	NOON	PM	East Leg	AM	NOON	PM
AM	144	0	98	AM	407	0	1013
NOON	93	0	85	NOON	557	0	454

	South Leg	
AM	1377	1265
NOON	0	0
PM	1964	1716

Total Volume Per Leg

	North Leg
AM	2709
NOON	0
PM	3724

West Leg	AM	NOON	PM	East Leg	AM	NOON	PM
	237	0	183		964	0	1467

	South Leg
AM	2642
NOON	0
PM	3680

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carnegie Ave and Fair Dr , Costa Mesa

Date: 5/10/2016

Day: Tuesday

Project #: 16-1120-002

City: Costa Mesa

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Peak Hour Summary

Southbound Approach (Carnegie Ave)

Lanes	0	1	0		
AM	14	0	12	9	AM
NOON	0	0	0	0	NOON
PM	16	0	3	31	PM

Eastbound Approach (Fair Dr)

	AM	NOON	PM
	388	0	1002
1	6	0	26
2	604	0	428
0	5	0	10
Lanes	AM	NOON	PM

Westbound Approach

AM	NOON	PM	Lanes
3	0	5	0
366	0	980	2
5	0	12	0
632	0	438	
AM	NOON	PM	

CONTROL

1-Way Stop (SB)

Northbound Approach

AM	10	8	0	16	AM
NOON	0	0	0	0	NOON
PM	22	6	0	7	PM
		0	1	0	Lanes

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:30 PM	6:30 PM

Total Ins & Outs

	North Leg		
AM	26	9	AM
NOON	0	0	NOON
PM	19	31	PM

West Leg			East Leg		
AM	NOON	PM			
388	0	1002	374	0	997
615	0	464	632	0	438
			AM	NOON	PM

	South Leg	
AM	10	24
NOON	0	0
PM	22	13

Total Volume Per Leg

	North Leg
AM	35
NOON	0
PM	50

West Leg			East Leg		
AM	NOON	PM			
1003	0	1466	1006	0	1435
			AM	NOON	PM

	South Leg
AM	34
NOON	0
PM	35

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Dwy and Fair Dr , Costa Mesa

Date:	5/10/2016
Day:	Tuesday

Project #:	16-1120-003
City:	Costa Mesa

AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	430 PM

Peak Hour Summary

Southbound Approach (Dwy)

	Lanes 0	1	0		
AM	4	0	0	16	AM
NOON	0	0	0	0	NOON
PM	24	0	18	30	PM

Eastbound Approach (Fair Dr)

	AM	NOON	PM
	4	0	24
0	8	0	10
2	0	0	0
0	0	0	0
Lanes	AM	NOON	PM

Westbound Approach

	AM	NOON	PM	Lanes
	8	0	20	0
	0	0	0	2
	0	0	0	0
	0	0	18	
	AM	NOON	PM	

CONTROL

No Control

Northbound Approach

AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	0	0	0	0	PM
		0	0	0	Lanes

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:30 PM	6:30 PM

Total Ins & Outs

	North Leg		
	4	16	AM
	0	0	NOON
	42	30	PM

West Leg	AM	NOON	PM
	4	0	24
	8	0	10

East Leg	AM	NOON	PM
	8	0	20
	0	0	18

	South Leg	
AM	0	0
NOON	0	0
PM	0	0

Total Volume Per Leg

	North Leg	
	20	AM
	0	NOON
	72	PM

West Leg	AM	NOON	PM
	12	0	34

East Leg	AM	NOON	PM
	8	0	38

	South Leg
AM	0
NOON	0
PM	0

APPENDIX B

LEVEL OF SERVICE CALCULATION WORKSHEETS

EXISTING CONDITIONS

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

****

Intersection #1 Harbor Blvd/Fair Drive

****

Cycle (sec):	100	Critical Vol./Cap.(X):	0.382
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	37	Level Of Service:	A

****

Street Name:	Harbor Boulevard						Fair Drive					
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:	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	3 0	1	2 0	2 1	0	1 0	1 0	1	2 0	0 1	1
Volume Module:												
Base Vol:	31	979	255	265	1187	59	32	37	24	166	54	187
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:	31	979	255	265	1187	59	32	37	24	166	54	187
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:	31	979	255	265	1187	59	32	37	24	166	54	187
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:	31	979	255	265	1187	59	32	37	24	166	54	187
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	979	255	265	1187	59	32	37	24	166	54	187
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:	31	979	255	265	1187	59	32	37	24	166	54	187
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	3.00	1.00	2.00	2.86	0.14	1.00	1.00	1.00	2.00	0.45	1.55
Final Sat.:	1600	4800	1600	3200	4573	227	1600	1600	1600	3200	717	2483
Capacity Analysis Module:												
Vol/Sat:	0.02	0.20	0.16	0.08	0.26	0.26	0.02	0.02	0.02	0.05	0.08	0.08
Crit Moves:		****		****			****				****	

****

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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #2 Carnegie Ave/Fair Dr
******************************************************************************
Average Delay (sec/veh):      0.7       Worst Case Level Of Service: B[ 13.4]
******************************************************************************
Street Name:         Carnegie Avenue                     Fair Drive
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  1  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       8    0    16    12    0    14     6  604     5     5  366     3
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:    8    0    16    12    0    14     6  604     5     5  366     3
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:    8    0    16    12    0    14     6  604     5     5  366     3
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:     8    0    16    12    0    14     6  604     5     5  366     3
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    8    0    16    12    0    14     6  604     5     5  366     3
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.5  6.5   6.9   7.5  6.5   6.9   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  812  998   305   692  999   185   369 xxxx xxxxx   609 xxxx xxxxx
Potent Cap.:  274  246   697   335  246   833  1201 xxxx xxxxx   979 xxxx xxxxx
Move Cap.:    268  243   697   324  243   833  1201 xxxx xxxxx   979 xxxx xxxxx
Volume/Cap:  0.03 0.00  0.02  0.04 0.00  0.02  0.00 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx   0.1   0.0 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx   9.4   8.0 xxxx xxxxx   8.7 xxxx xxxxx
LOS by Move:    *    *     *     *    *     A     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  454 xxxxx   324 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.2 xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 13.4 xxxxx  16.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    B     *     C    *     *     *    *     *     *    *     *
ApproachDel:      13.4             12.7           xxxxxx           xxxxxx
ApproachLOS:         B                B                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

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

****

Intersection #1 Harbor Blvd/Fair Drive

****

Cycle (sec):	100	Critical Vol./Cap.(X):	0.556
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	51	Level Of Service:	A

****

Street Name:	Harbor Boulevard						Fair Drive					
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:	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	3 0	1	2 0	2 1	0	1 0	1 0	1	2 0	0 1	1
Volume Module:												
Base Vol:	40	1432	244	180	1513	20	26	30	29	422	38	553
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:	40	1432	244	180	1513	20	26	30	29	422	38	553
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:	40	1432	244	180	1513	20	26	30	29	422	38	553
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:	40	1432	244	180	1513	20	26	30	29	422	38	553
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	40	1432	244	180	1513	20	26	30	29	422	38	553
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:	40	1432	244	180	1513	20	26	30	29	422	38	553
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	3.00	1.00	2.00	2.96	0.04	1.00	1.00	1.00	2.00	0.13	1.87
Final Sat.:	1600	4800	1600	3200	4737	63	1600	1600	1600	3200	206	2994
Capacity Analysis Module:												
Vol/Sat:	0.03	0.30	0.15	0.06	0.32	0.32	0.02	0.02	0.02	0.13	0.18	0.18
Crit Moves:		****		****			****				****	

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------------------------------------------------------------------------------
                        Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #2 Carnegie Ave/Fair Dr
******************************************************************************
Average Delay (sec/veh):      0.6       Worst Case Level Of Service: C[ 16.8]
******************************************************************************
Street Name:         Carnegie Avenue                     Fair Drive
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  1  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       6    0     7     3    0    16    26  428    10    12  980     5
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:    6    0     7     3    0    16    26  428    10    12  980     5
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:    6    0     7     3    0    16    26  428    10    12  980     5
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:     6    0     7     3    0    16    26  428    10    12  980     5
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    6    0     7     3    0    16    26  428    10    12  980     5
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.5  6.5   6.9   7.5  6.5   6.9   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  999 1494   219  1273 1497   493   985 xxxx xxxxx   438 xxxx xxxxx
Potent Cap.:  201  124   791   127  124   527   709 xxxx xxxxx  1133 xxxx xxxxx
Move Cap.:    188  118   791   121  118   527   709 xxxx xxxxx  1133 xxxx xxxxx
Volume/Cap:  0.03 0.00  0.01  0.02 0.00  0.03  0.04 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx   0.1   0.1 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx  12.0  10.3 xxxx xxxxx   8.2 xxxx xxxxx
LOS by Move:    *    *     *     *    *     B     B    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  318 xxxxx   121 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.1 xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 16.8 xxxxx  35.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    C     *     E    *     *     *    *     *     *    *     *
ApproachDel:      16.8             15.7           xxxxxx           xxxxxx
ApproachLOS:         C                C                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

EXISTING PLUS PROJECT CONDITIONS

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

****

Intersection #1 Harbor Blvd/Fair Drive

****

Cycle (sec):	100	Critical Vol./Cap.(X):	0.382
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	37	Level Of Service:	A

****

Street Name:	Harbor Boulevard						Fair Drive					
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:	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	3 0	1	2 0	2 1	0	1 0	1 0	1	2 0	0 1	1
Volume Module:												
Base Vol:	31	979	255	265	1187	59	32	37	24	166	54	187
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:	31	979	255	265	1187	59	32	37	24	166	54	187
Added Vol:	0	0	-2	-5	0	0	0	0	0	2	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	979	253	260	1187	59	32	37	24	168	54	191
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:	31	979	253	260	1187	59	32	37	24	168	54	191
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	979	253	260	1187	59	32	37	24	168	54	191
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:	31	979	253	260	1187	59	32	37	24	168	54	191
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	3.00	1.00	2.00	2.86	0.14	1.00	1.00	1.00	2.00	0.44	1.56
Final Sat.:	1600	4800	1600	3200	4573	227	1600	1600	1600	3200	705	2495
Capacity Analysis Module:												
Vol/Sat:	0.02	0.20	0.16	0.08	0.26	0.26	0.02	0.02	0.02	0.05	0.08	0.08
Crit Moves:		****		****			****				****	

****

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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #2 Carnegie Ave/Fair Dr
******************************************************************************
Average Delay (sec/veh):      0.9       Worst Case Level Of Service: B[ 13.4]
******************************************************************************
Street Name:         Carnegie Avenue                     Fair Drive
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  1  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       8    0    16    12    0    14     6  604     5     5  366     3
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:    8    0    16    12    0    14     6  604     5     5  366     3
Added Vol:      0    0     0     6    0     6     1   -2     0     0   -6     1
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    8    0    16    18    0    20     7  602     5     5  360     4
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:     8    0    16    18    0    20     7  602     5     5  360     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    8    0    16    18    0    20     7  602     5     5  360     4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.5  6.5   6.9   7.5  6.5   6.9   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  809  993   304   687  993   182   364 xxxx xxxxx   607 xxxx xxxxx
Potent Cap.:  276  248   699   337  247   836  1206 xxxx xxxxx   981 xxxx xxxxx
Move Cap.:    267  245   699   327  245   836  1206 xxxx xxxxx   981 xxxx xxxxx
Volume/Cap:  0.03 0.00  0.02  0.06 0.00  0.02  0.01 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx   0.1   0.0 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx   9.4   8.0 xxxx xxxxx   8.7 xxxx xxxxx
LOS by Move:    *    *     *     *    *     A     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  454 xxxxx   327 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.2 xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 13.4 xxxxx  16.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    B     *     C    *     *     *    *     *     *    *     *
ApproachDel:      13.4             12.8           xxxxxx           xxxxxx
ApproachLOS:         B                B                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

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

****

Intersection #1 Harbor Blvd/Fair Drive

****

Cycle (sec):	100	Critical Vol./Cap.(X):	0.550
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	51	Level Of Service:	A

****

Street Name:	Harbor Boulevard						Fair Drive					
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:	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	3 0	1	2 0	2 1	0	1 0	1 0	1	2 0	0 1	1
Volume Module:												
Base Vol:	40	1432	244	180	1513	20	26	30	29	422	38	553
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:	40	1432	244	180	1513	20	26	30	29	422	38	553
Added Vol:	0	0	-2	-6	0	0	0	0	0	-5	0	-12
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	40	1432	242	174	1513	20	26	30	29	417	38	541
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:	40	1432	242	174	1513	20	26	30	29	417	38	541
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	40	1432	242	174	1513	20	26	30	29	417	38	541
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:	40	1432	242	174	1513	20	26	30	29	417	38	541
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	3.00	1.00	2.00	2.96	0.04	1.00	1.00	1.00	2.00	0.13	1.87
Final Sat.:	1600	4800	1600	3200	4737	63	1600	1600	1600	3200	210	2990
Capacity Analysis Module:												
Vol/Sat:	0.03	0.30	0.15	0.05	0.32	0.32	0.02	0.02	0.02	0.13	0.18	0.18
Crit Moves:		****		****			****				****	

****

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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #2 Carnegie Ave/Fair Dr
*******************************************************************************
Average Delay (sec/veh):      0.7       Worst Case Level Of Service: C[ 18.2]
*******************************************************************************
Street Name:         Carnegie Avenue                     Fair Drive
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  1  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       6    0     7     3    0    16    26  428    10    12  980     5
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:    6    0     7     3    0    16    26  428    10    12  980     5
Added Vol:      0    0     0     3    0     1     3  -17     0     0  -12     6
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    6    0     7     6    0    17    29  411    10    12  968    11
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:     6    0     7     6    0    17    29  411    10    12  968    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    6    0     7     6    0    17    29  411    10    12  968    11
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.5  6.5   6.9   7.5  6.5   6.9   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  982 1477   211  1261 1477   490   979 xxxx xxxxx   421 xxxx xxxxx
Potent Cap.:  206  127   801   129  127   530   713 xxxx xxxxx  1149 xxxx xxxxx
Move Cap.:    192  121   801   123  121   530   713 xxxx xxxxx  1149 xxxx xxxxx
Volume/Cap:  0.03 0.00  0.01  0.05 0.00  0.03  0.04 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx   0.1   0.1 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx  12.0  10.3 xxxx xxxxx   8.2 xxxx xxxxx
LOS by Move:    *    *     *     *    *     B     B    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  325 xxxxx   123 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.1 xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 16.5 xxxxx  35.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    C     *     E    *     *     *    *     *     *    *     *
ApproachDel:      16.5             18.2           xxxxxx           xxxxxx
ApproachLOS:         C                C                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

PROJECT DRIVEWAY ACCESS ANALYSIS

```
------------------------------------------------------------------------------
------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #5 Carnegie/Proposed Project Dwy
******************************************************************************
Average Delay (sec/veh):      3.0       Worst Case Level Of Service: A[  8.5]
******************************************************************************
Street Name:         Carnegie Avenue              Proposed Project Driveway
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  1  0  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    9     0     0   26     0     0    0     0     0    0     0
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:    0    9     0     0   26     0     0    0     0     0    0     0
Added Vol:      3   -1     0     0    0     0     2    0    14     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    3    8     0     0   26     0     2    0    14     0    0     0
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:     3    8     0     0   26     0     2    0    14     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    3    8     0     0   26     0     2    0    14     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   26 xxxx xxxxx  xxxx xxxx xxxxx    40   40    26  xxxx xxxx xxxxx
Potent Cap.: 1601 xxxx xxxxx  xxxx xxxx xxxxx   977  856  1056  xxxx xxxx xxxxx
Move Cap.:   1601 xxxx xxxxx  xxxx xxxx xxxxx   975  854  1056  xxxx xxxx xxxxx
Volume/Cap:  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.00 0.00  0.01  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx 1045 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.0 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  8.5 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    A     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx              8.5           xxxxxx
ApproachLOS:         *                *               A                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

```
------------------------------------------------------------------------------
------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #5 Carnegie/Proposed Project Dwy
******************************************************************************
Average Delay (sec/veh):      2.3       Worst Case Level Of Service: A[  8.5]
******************************************************************************
Street Name:         Carnegie Avenue              Proposed Project Driveway
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   31     0     0   19     0     0    0     0     0    0     0
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:    0   31     0     0   19     0     0    0     0     0    0     0
Added Vol:     13   -2     0     0   -2     1     1    0     6     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   13   29     0     0   17     1     1    0     6     0    0     0
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:    13   29     0     0   17     1     1    0     6     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   13   29     0     0   17     1     1    0     6     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   18 xxxx xxxxx  xxxx xxxx xxxxx    73   73    18  xxxx xxxx xxxxx
Potent Cap.: 1612 xxxx xxxxx  xxxx xxxx xxxxx   936  822  1067  xxxx xxxx xxxxx
Move Cap.:   1612 xxxx xxxxx  xxxx xxxx xxxxx   931  815  1067  xxxx xxxx xxxxx
Volume/Cap:  0.01 xxxx  xxxx  xxxx xxxx  xxxx  0.00 0.00  0.01  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx 1045 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.0 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  8.5 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    A     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx              8.5           xxxxxx
ApproachLOS:         *                *               A                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```