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## APPENDIX G

# TRAFFIC IMPACT ANALYSIS



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# **TRAFFIC IMPACT ANALYSIS**

**CITY OF CYPRESS SPORTS PARK  
CYPRESS, ORANGE COUNTY, CALIFORNIA**

**LSA**

August 22, 2019

# **TRAFFIC IMPACT ANALYSIS**

## **CITY OF CYPRESS SPORTS PARK CYPRESS, ORANGE COUNTY, CALIFORNIA**

Submitted to:

City of Cypress  
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Cypress, California 90630

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Project No. CCP1903



August 22, 2019

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## LIST OF ABBREVIATIONS AND ACRONYMS

ADT	average daily trips
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CAMUTCD	<i>California Manual on Uniform Traffic Control Devices</i>
City	City of Cypress
CMP	Congestion Management Program
ft	foot/feet
HCM	<i>Highway Capacity Manual</i>
ICU	Intersection Capacity Utilization
ITE	Institute of Transportation Engineers
LOS	level of service
mph	miles per hour
NDS	National Data & Surveying Services
OCTA	Orange County Transportation Authority
project	City of Cypress Sports Park
TIA	Traffic Impact Analysis
v/c	volume to capacity

## TRAFFIC IMPACT ANALYSIS CITY OF CYPRESS SPORTS PARK

### INTRODUCTION

The purpose of this Traffic Impact Analysis (TIA) is to identify the potential traffic impacts associated with the proposed sports park on an approximately 9-acre site at the southeast corner of Lexington Drive and Cerritos Avenue in the City of Cypress (City), California. The project includes up to six sports fields with play areas with an adjacent mural, an exercise station, picnic shelters, restrooms, two half-basketball courts, a 0.25-mile walking path, a storage building, and associated landscaping and utility improvements. The project would be completed in the year 2021.

The project site is bounded by Cerritos Avenue to the north, Lexington Drive to the west, and facilities associated with the horse stables and Los Alamitos Race Track to the south and east. Vehicle access to the project site would be provided via a right-turn-in/out and left-turn-in only driveway on Cerritos Avenue and a full access driveway on Lexington Drive. A project vicinity map is presented on Figure 1, including study area intersections. Figure 2 illustrates the project site plan.

This TIA addresses two general issues associated with the development of the proposed project:

1. Increase in traffic volumes and operation of nearby intersections
2. Adequacy of the proposed access locations

Prior to preparation of the TIA, the project methodology and study area details were discussed and approved by the City Traffic Engineer. Based on this approval, the TIA will examine the following development scenarios:

1. Existing Conditions
2. Existing Plus Project Conditions
3. Cumulative (2021) Conditions
4. Cumulative Plus Project Conditions

The following analysis periods have been evaluated:

- Weekday a.m. peak hour (between 7:00 a.m. and 9:00 a.m.)
- Weekday p.m. peak hour (between 4:00 p.m. and 6:00 p.m.)



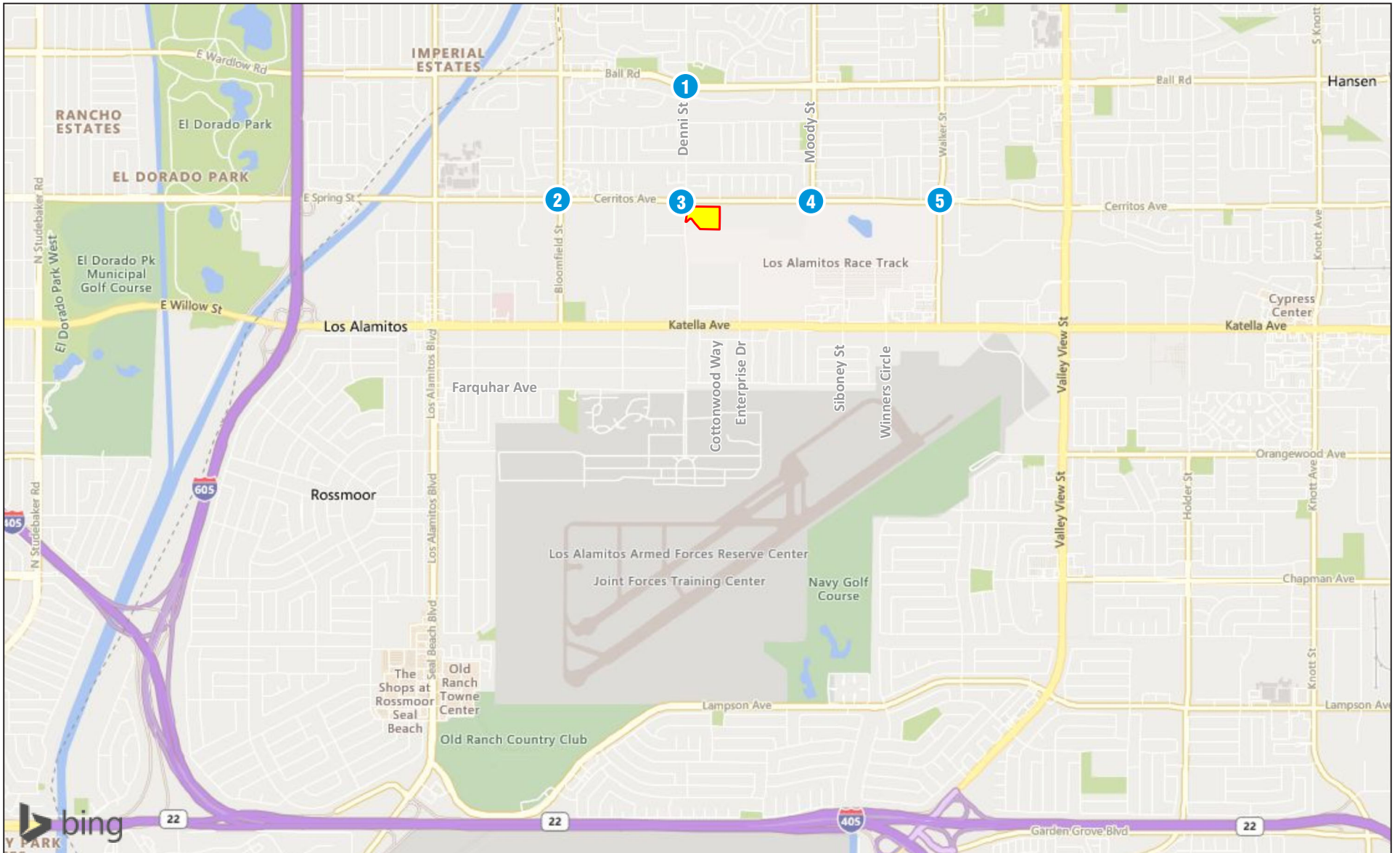
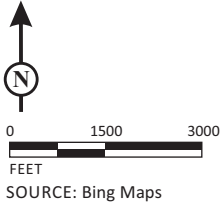


FIGURE 1

LSA

LEGEND

- Project Site
- # - Study Area Intersection



SOURCE: Bing Maps

City of Cypress Sports Park  
Project Location and  
Study Area Intersections

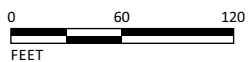


- LEGEND:**
- ① MULTI-USE FIELD
  - ② ENTRY / EXIT POINTS
  - ③ CHILD PLAY AREA
  - ④ TOT PLAY AREA
  - ⑤ EXERCISE STATION
  - ⑥ PICNIC SHELTER
  - ⑦ RESTROOM
  - ⑧ STORAGE
  - ⑨ FLAG POLES
  - ⑩ LARC MAINTENANCE YARD - EXISTING
  - ⑪ 8' WIDE WALKING PATH (1/4 MILE)
  - ⑫ BLEACHERS WITH SHADE COVERS
  - ⑬ MAINTENANCE EASEMENT
  - ⑭ 12' WIDE DECELERATION LANE
  - ⑮ 8' SECURITY FENCE AT PARK PERIMETER
  - ⑯ DROP OFF
  - ⑰ PROJECT MONUMENT
  - ⑱ 3' ORNAMENTAL FENCE
  - ⑲ MURAL WALL
  - ⑳ TOTAL PARKING: 235 + 7 ACCESSIBLE
  - ㉑ HALF-COURT BASKETBALL

**LEGEND**  
 Lexington Drive Access Easement

FIGURE 2

LSA



SOURCE: Community Works Design Group

I:\CCP1903\G\Site\_Plan.cdr (8/21/2019)

City of Cypress Sports Park  
 Site Plan



## ANALYSIS METHODOLOGY

This TIA is prepared consistent with the requirements of the City of Cypress and the Orange County Congestion Management Program (CMP) (2017).

### Study Area

Study area locations were selected in consultation with the City. The following five intersections are shown on Figure 1:

1. Denni Street/Ball Road
2. Bloomfield Street/Cerritos Avenue
3. Denni Street-Lexington Drive/Cerritos Avenue
4. Moody Street/Cerritos Avenue
5. Walker Street/Cerritos Avenue

Proposed project driveways along Lexington Drive and Cerritos Avenue will also be analyzed in the Plus Project conditions.

### Intersection Level of Service Methodologies

In accordance with the City of Cypress and the Orange County CMP, signalized intersection operation is analyzed using the Intersection Capacity Utilization (ICU) methodology. The ICU methodology compares the volume-to-capacity (v/c) ratios of conflicting turn movements at an intersection, sums up these critical conflicting v/c ratios for each intersection approach, and determines the overall ICU. The ICU calculations assume a per-lane capacity of 1,700 vehicles per hour with a clearance interval of 0.05.

The resulting ICU is expressed in terms of level of service (LOS), where LOS A represents free-flow operation and LOS F represents overcapacity operation. The relationship between LOS and the ICU value (i.e., v/c ratio) is as follows.

Level of Service	Volume-to-Capacity (ICU Methodology)
A	$\leq 0.60$
B	$> 0.60$ and $\leq 0.70$
C	$> 0.70$ and $\leq 0.80$
D	$> 0.80$ and $\leq 0.90$
E	$> 0.90$ and $\leq 1.00$
F	$> 1.00$

ICU = Intersection Capacity Utilization

In addition to the ICU methodology of calculating signalized intersection LOS, the *Highway Capacity Manual (HCM)*, 6<sup>th</sup> Edition (Transportation Research Board 2016) methodology is used to determine the LOS of the unsignalized intersections at the proposed project driveways. The following table illustrates the relationship of delay to LOS for unsignalized intersections.

Level of Service	Unsignalized Intersection Delay (seconds)
A	≤10.0
B	>10.0 and ≤15.0
C	>15.0 and ≤25.0
D	>25.0 and ≤35.0
E	>35.0 and ≤50.0
F	>50.0

Source: *Highway Capacity Manual*, 6<sup>th</sup> Edition (Transportation Research Board 2016).

### Threshold of Significance

The City of Cypress considers LOS D as the upper limit of satisfactory operations for intersections, except at intersections along Valley View Street, Lincoln Avenue, and Katella Avenue. The City has adopted LOS E as the standard for intersections along these three arterials, as they carry significant amounts of traffic. None of the study area intersections for the proposed project are located along these arterials.

Based on City of Cypress standards, a project traffic impact occurs at an intersection if the project causes an intersection operating at an acceptable LOS to deteriorate to an unacceptable LOS, or if an intersection is already operating at an unacceptable LOS and the project adds 0.01 or more to the peak-hour ICU.

## EXISTING CONDITIONS

### Existing Circulation System

The project site is bounded by Cerritos Avenue to the north, Lexington Drive to the west, and facilities associated with the horse stables and Los Alamitos Race Track to the south and east. The following provides a description of the existing roadways in the project vicinity.

- Lexington Drive – Denni Street** is a north-south undivided roadway located west of the project site. Lexington Drive is a two-lane roadway located south of Cerritos Avenue, and Denni Street is a four-lane roadway located north of Cerritos Avenue. As part of the proposed project, Lexington Drive would be widened between the proposed project driveway and Cerritos Avenue. The posted speed limit is 35 miles-per-hour (mph). Sidewalks are provided on both sides of Denni Street and on Lexington Drive adjacent to the project site. On-street parking is not permitted.
- Moody Street** is a north-south four-lane divided roadway. Moody Street is located east of the project site and ends at Cerritos Avenue at the Los Alamitos Race Track. According to the City of Cypress General Plan Circulation Element (2000), Moody Street is classified as a Primary Arterial. The posted speed limit is 40 mph. On-street bicycle lanes (Class II) and sidewalks are provided on both sides of the street. On-street parking is not permitted.
- Walker Street** is a north-south four-to-five lane undivided roadway located east of the project site. According to the City of Cypress General Plan Circulation Element, Walker Street is classified as a Secondary Arterial. The posted speed limit is 40 mph. On-street bicycle lanes

(Class II) are provided north of Cerritos Avenue. Sidewalks are provided on both sides of the street. On-street parking is not permitted.

- **Bloomfield Street** is a north-south four-lane divided roadway located west of the project site. According to the City of Cypress General Plan Circulation Element, Bloomfield Street is classified as a Secondary Arterial. The posted speed limit is 40 mph. On-street bicycle lanes (Class II) and sidewalks are provided on both sides of the street. On-street parking is permitted in select locations.
- **Cerritos Avenue** is a four-lane divided roadway located north of the project site. According to the City of Cypress General Plan Circulation Element, Cerritos Avenue is a Primary Arterial. The posted speed limit is 45 mph. Sidewalks are provided on both sides of the street, and on-street (Class II) bicycle lanes are provided on both sides between Walker Street and Denni Street. On-street parking is permitted in select locations.
- **Ball Road** is a four-lane divided roadway located north of the project site. According to the City of Cypress General Plan Circulation Element, Ball Road is a Primary Arterial. The posted speed limit is 45 mph. Sidewalks are provided on both sides of the street, and on-street (Class II) bicycle lanes are provided on both sides. On-street parking is not permitted.

The existing study area intersection geometrics are shown on Figure 3.

### Pedestrian Circulation

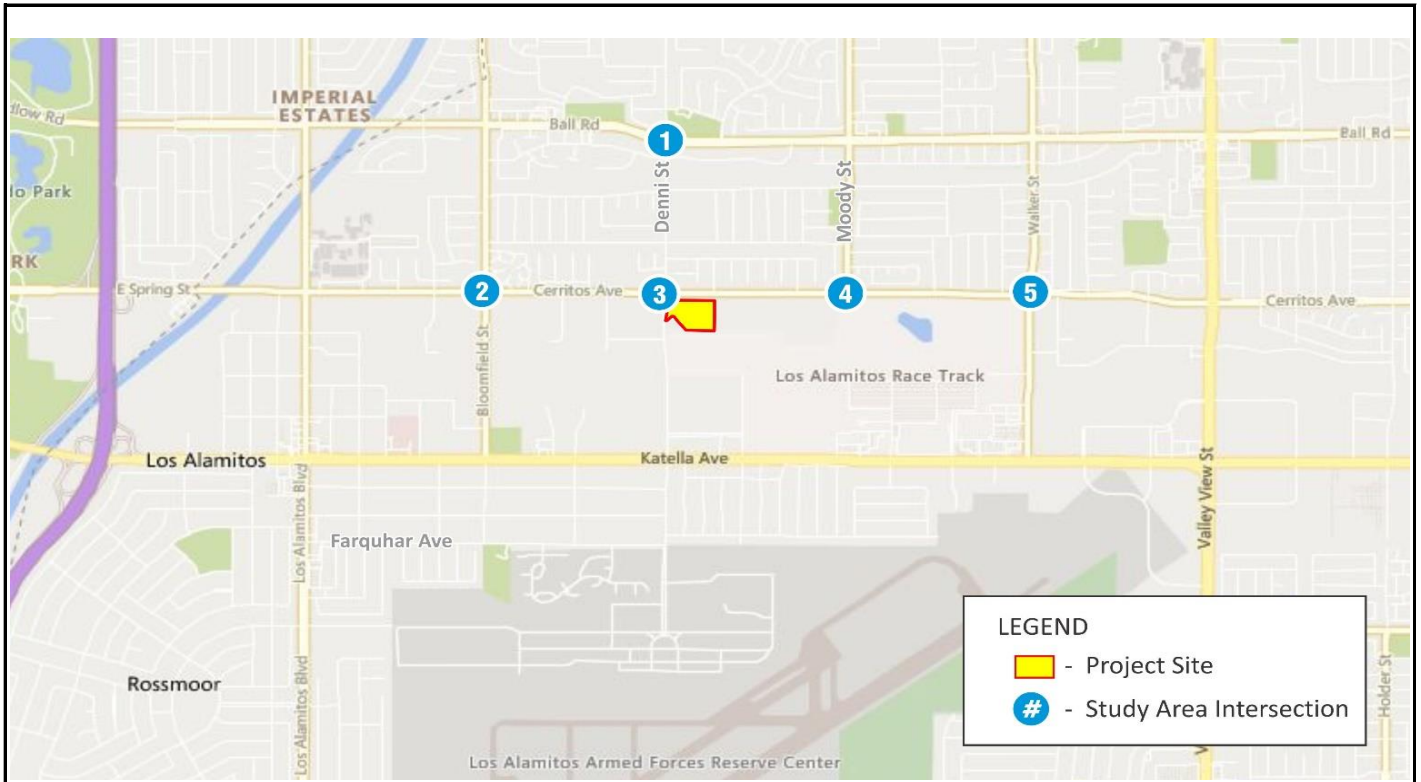
Sidewalks currently exist on both sides of Cerritos Avenue and Lexington Drive adjacent to the project site. There are pedestrian crosswalks at all intersections in the project vicinity. These facilities provide for pedestrian circulation between the project site and the surrounding areas. The project will provide walkway paths around the perimeter of the sports fields.

### Bicycle Circulation

On-street (Class II) bicycle lanes are provided on both sides of Ball Street, on Cerritos Avenue between Walker Street and Denni Street, on Walker Street north of Cerritos Avenue and on Bloomfield Street. There is an off-street bike path on the south side of Cerritos Avenue.

### Transit Facilities

Transit facilities will be accessible to and from the project site. An Orange County Transportation Authority (OCTA Route 46) bus stop is provided at the intersection of Denni Street/Ball Road, approximately 0.5 mile north of the project site. In addition, an OCTA (Route 50) bus stop is provided at the intersection of Denni Street/Katella Avenue, approximately 0.5 mile south of the project site. OCTA Route 46 provides transportation to/from Orange and Long Beach via Ball Road. OCTA Route 50 provides transportation to/from Orange and Long Beach via Katella Avenue.



**LEGEND**

- Project Site
- # - Study Area Intersection

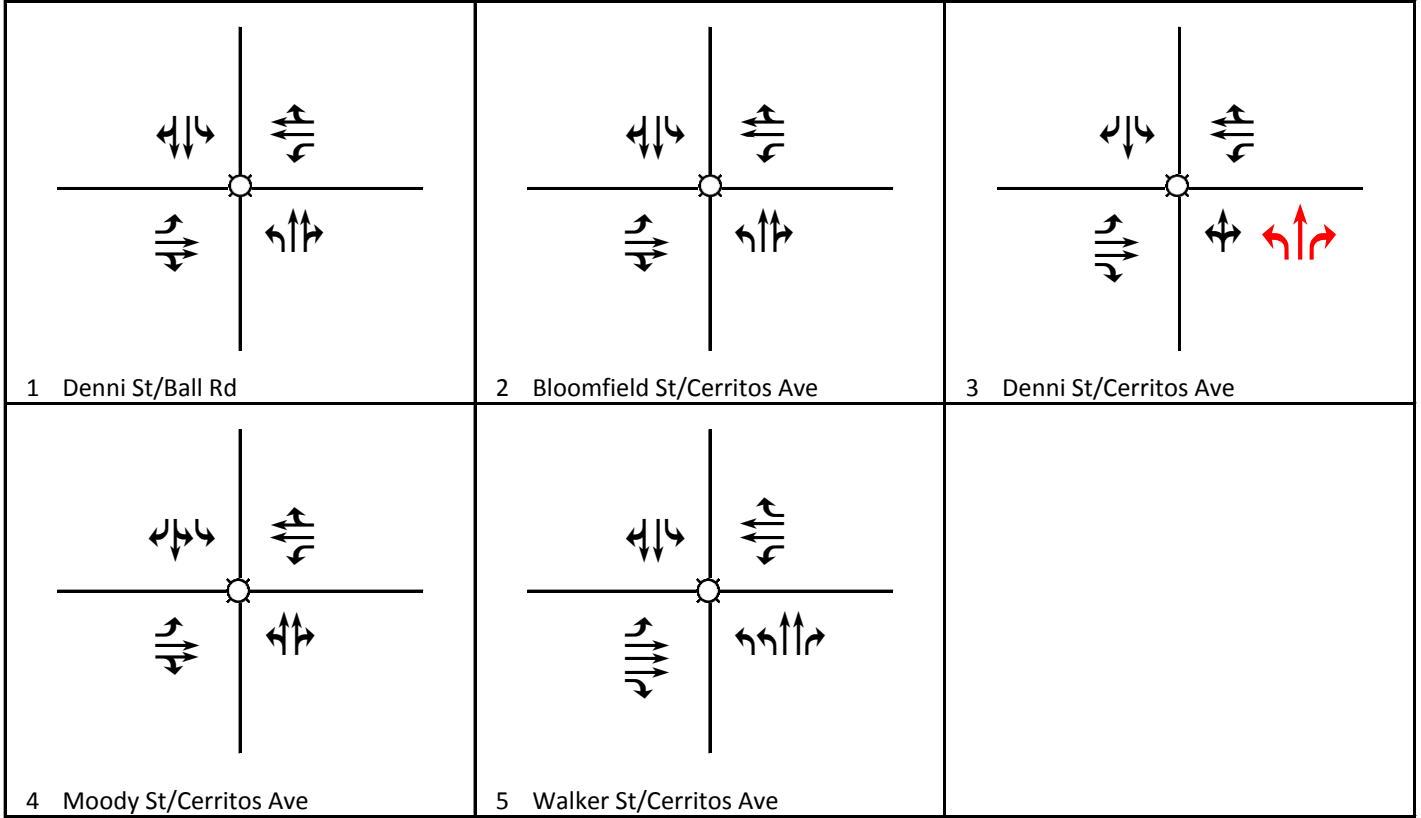


FIGURE 3

**LSA**  
 Legend   
 □ Signal N

*City of Cypress Sports Park*  
 Existing Geometrics

Future lane configuration is shown in red

### Existing Traffic Volumes and Level of Service

Existing peak-hour turn movement counts were provided by the City of Cypress and collected by National Data & Surveying Services (NDS) for four study area intersections (October 2018). Existing turn movement counts for the intersection of Denni Street/Ball Road was derived by multiplying 2017 average daily trips (ADT) for Denni Street north and south of Ball Road, and Ball Road east and west of Denni Street by the turning movement percentages from 2013 peak-hour intersection counts for Denni Street/Ball Road. The existing a.m. and p.m. peak-hour turn movement volumes for the study area intersections are shown on Figure 4 and provided in Appendix A.

Table A summarizes the results of the existing peak-hour LOS analysis for the study area intersections. The Existing ICU worksheets are contained in Appendix B. As shown in Table A, all study area intersections currently operate at satisfactory LOS during both peak hours.

**Table A: Existing Intersection Level of Service Summary**

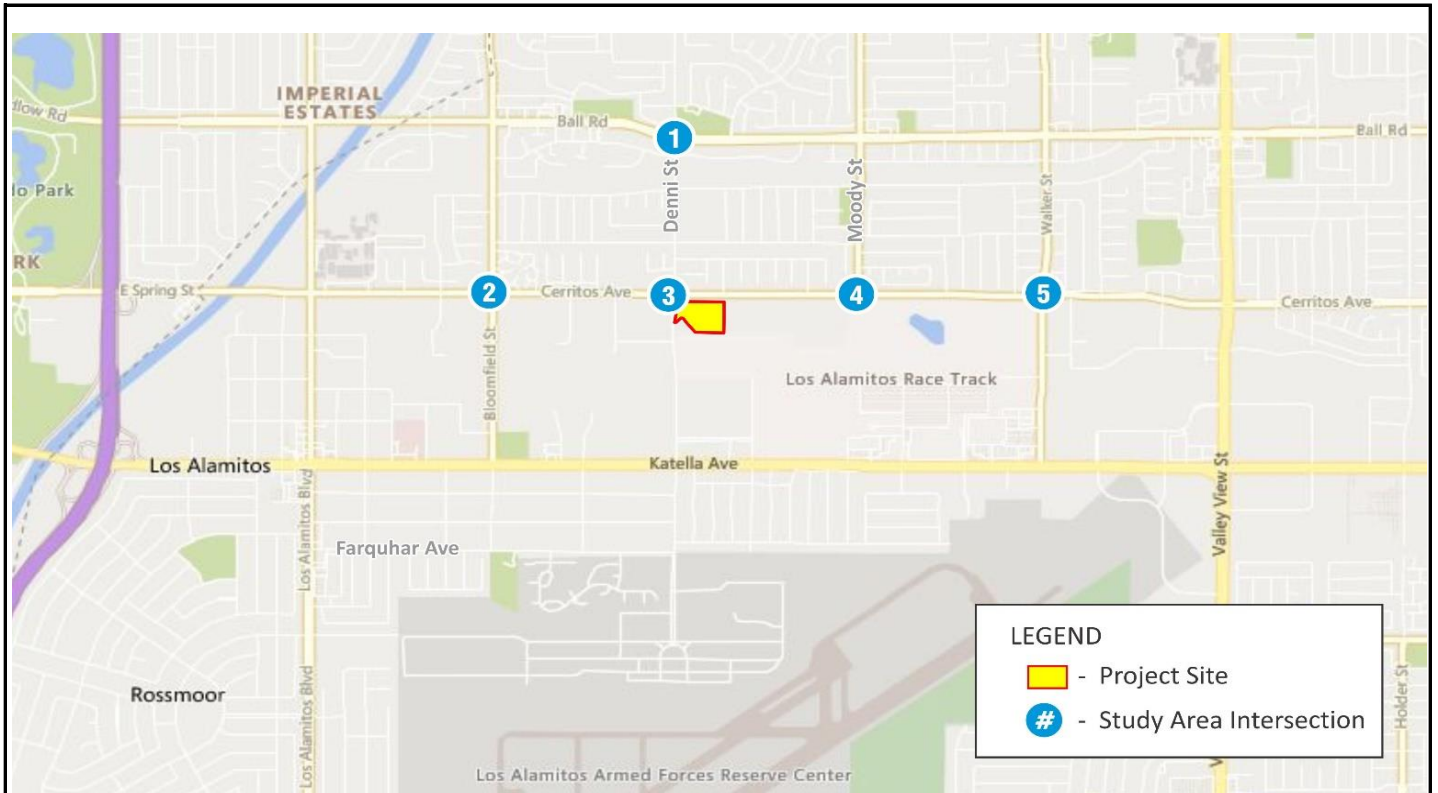
Intersection	Control	Peak Hour	Existing	
			ICU	LOS
1 Denni Street/Ball Road	Signal	AM	0.525	A
		PM	0.566	A
2 Bloomfield Street/Cerritos Avenue	Signal	AM	0.693	B
		PM	0.739	C
3 Denni Street-Lexington Drive/Cerritos Avenue	Signal	AM	0.594	A
		PM	0.751	C
4 Moody Street/Cerritos Avenue	Signal	AM	0.572	A
		PM	0.756	C
5 Walker Street/Cerritos Avenue	Signal	AM	0.681	B
		PM	0.730	C
6 Lexington Drive/Project Driveway	OWSC	AM	N/A	-
		PM	N/A	-
7 Project Driveway/Cerritos Avenue	OWSC	AM	N/A	-
		PM	N/A	-

ICU = Intersection Capacity Utilization  
LOS = level of service  
N/A = not applicable  
OWSC = one-way stop control

## PROJECT CONDITIONS

### Project Description

The proposed sports park project includes up to six sports fields with play areas with an adjacent mural, an exercise station, picnic shelters, restrooms, two half-basketball courts, a 0.25-mile walking path, a storage building, and associated landscaping and utility improvements. The project is located at the southeast corner of Cerritos Avenue and Lexington Drive. The project site is bounded by Cerritos Avenue to the north, Lexington Drive to the west, and facilities associated with the horse stables and Los Alamitos Race Track to the south and east.



**LEGEND**

- Project Site
- Study Area Intersection

<table border="1"> <tr> <td>67 / 39</td> <td>206 / 120</td> <td>123 / 102</td> <td>206 / 205</td> </tr> <tr> <td>53 / 90</td> <td>725 / 953</td> <td>106 / 78</td> <td>791 / 737</td> </tr> <tr> <td>47 / 101</td> <td>203 / 256</td> <td>63 / 101</td> <td>87 / 82</td> </tr> </table> <p><b>1 Denni St/Ball Rd</b></p>	67 / 39	206 / 120	123 / 102	206 / 205	53 / 90	725 / 953	106 / 78	791 / 737	47 / 101	203 / 256	63 / 101	87 / 82	<table border="1"> <tr> <td>90 / 99</td> <td>569 / 285</td> <td>168 / 61</td> <td>100 / 177</td> </tr> <tr> <td>31 / 159</td> <td>826 / 1104</td> <td>115 / 104</td> <td>724 / 1055</td> </tr> <tr> <td>121 / 108</td> <td>312 / 514</td> <td>192 / 158</td> <td>172 / 98</td> </tr> </table> <p><b>2 Bloomfield St/Cerritos Ave</b></p>	90 / 99	569 / 285	168 / 61	100 / 177	31 / 159	826 / 1104	115 / 104	724 / 1055	121 / 108	312 / 514	192 / 158	172 / 98	<table border="1"> <tr> <td>128 / 81</td> <td>153 / 78</td> <td>239 / 95</td> <td>137 / 209</td> </tr> <tr> <td>63 / 123</td> <td>845 / 1192</td> <td>86 / 33</td> <td>793 / 1113</td> </tr> <tr> <td>23 / 56</td> <td>79 / 180</td> <td>49 / 77</td> <td>112 / 49</td> </tr> </table> <p><b>3 Denni St/Cerritos Ave</b></p>	128 / 81	153 / 78	239 / 95	137 / 209	63 / 123	845 / 1192	86 / 33	793 / 1113	23 / 56	79 / 180	49 / 77	112 / 49
67 / 39	206 / 120	123 / 102	206 / 205																																			
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<table border="1"> <tr> <td>206 / 151</td> <td>3 / 0</td> <td>583 / 250</td> <td>174 / 416</td> </tr> <tr> <td>71 / 224</td> <td>1065 / 1131</td> <td>2 / 1</td> <td>869 / 1228</td> </tr> <tr> <td>1 / 3</td> <td>2 / 0</td> <td>1 / 0</td> <td></td> </tr> </table> <p><b>4 Moody St/Cerritos Ave</b></p>	206 / 151	3 / 0	583 / 250	174 / 416	71 / 224	1065 / 1131	2 / 1	869 / 1228	1 / 3	2 / 0	1 / 0		<table border="1"> <tr> <td>70 / 46</td> <td>750 / 449</td> <td>166 / 106</td> <td>106 / 157</td> </tr> <tr> <td>20 / 95</td> <td>1139 / 1068</td> <td>490 / 237</td> <td>841 / 1124</td> </tr> <tr> <td>104 / 502</td> <td>241 / 737</td> <td>53 / 213</td> <td>120 / 93</td> </tr> </table> <p><b>5 Walker St/Cerritos Ave</b></p>	70 / 46	750 / 449	166 / 106	106 / 157	20 / 95	1139 / 1068	490 / 237	841 / 1124	104 / 502	241 / 737	53 / 213	120 / 93													
206 / 151	3 / 0	583 / 250	174 / 416																																			
71 / 224	1065 / 1131	2 / 1	869 / 1228																																			
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20 / 95	1139 / 1068	490 / 237	841 / 1124																																			
104 / 502	241 / 737	53 / 213	120 / 93																																			

LSA

xxx / yyy

AM / PM Volume



FIGURE 4

City of Cypress Sports Park  
Existing Peak-Hour Volumes



Vehicle access to the project site would be provided via a right-turn-in/out and left-turn-in only driveway on Cerritos Avenue and a full access driveway on Lexington Drive. The project would be completed in the year 2021.

### Trip Generation

LSA identified the trip generation of the project based on the trip rates in the latest Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10<sup>th</sup> Edition (2017). The project trip generation is shown in Table B. Project trips were generated using trip rates from the Land-use Code 488. According to ITE *Trip Generation Manual*, Land-use code 488 may accommodate ancillary amenities including stadium seating, fitness trail, activity shelter, aquatic center, picnic grounds, basketball and tennis courts and playground. As Table B indicates, the project has the potential to generate approximately 428 ADT, including 6 a.m. peak hour trips (4 inbound and 2 outbound) and 99 p.m. peak hour trips (65 inbound and 34 outbound).

**Table B: Trip Generation Summary**

Land Use	Size	Unit	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
<b>Trip Rates<sup>1</sup></b>									
Sports Fields		Fields	71.33	0.60	0.39	0.99	10.84	5.59	16.43
<b>Project Trip Generation</b>									
Sports Fields	6	Fields	428	4	2	6	65	34	99
<b>Total Trip Generation</b>			<b>428</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>65</b>	<b>34</b>	<b>99</b>

<sup>1</sup> Trip rates referenced from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10<sup>th</sup> Edition (2017).  
Land Use Code 488  
ADT = average daily trips

### Trip Distribution and Assignment

Trip distribution for the project is based on the location of the project, logical travel corridors and minimum time paths. Project peak-hour traffic volumes entering/exiting the project site were assigned to the adjacent street system based on the locations of project driveways. The project trip distribution and assignment during the a.m. and p.m. peak hours are shown on Figure 5.

### EXISTING PLUS PROJECT CONDITIONS

To determine the Existing Plus Project conditions, the net traffic generated by the project was added to the existing traffic volumes at the study area intersections. Figure 6 shows the resulting Existing Plus Project peak-hour traffic volumes. Table C summarizes the results of the Existing Plus Project peak-hour LOS analysis for the study area intersections. The Existing Plus Project ICU and HCM worksheets are contained in Appendices B and C, respectively. As shown in Table C, with the addition of the project, all study area intersections would continue to operate at satisfactory LOS during both peak hours.

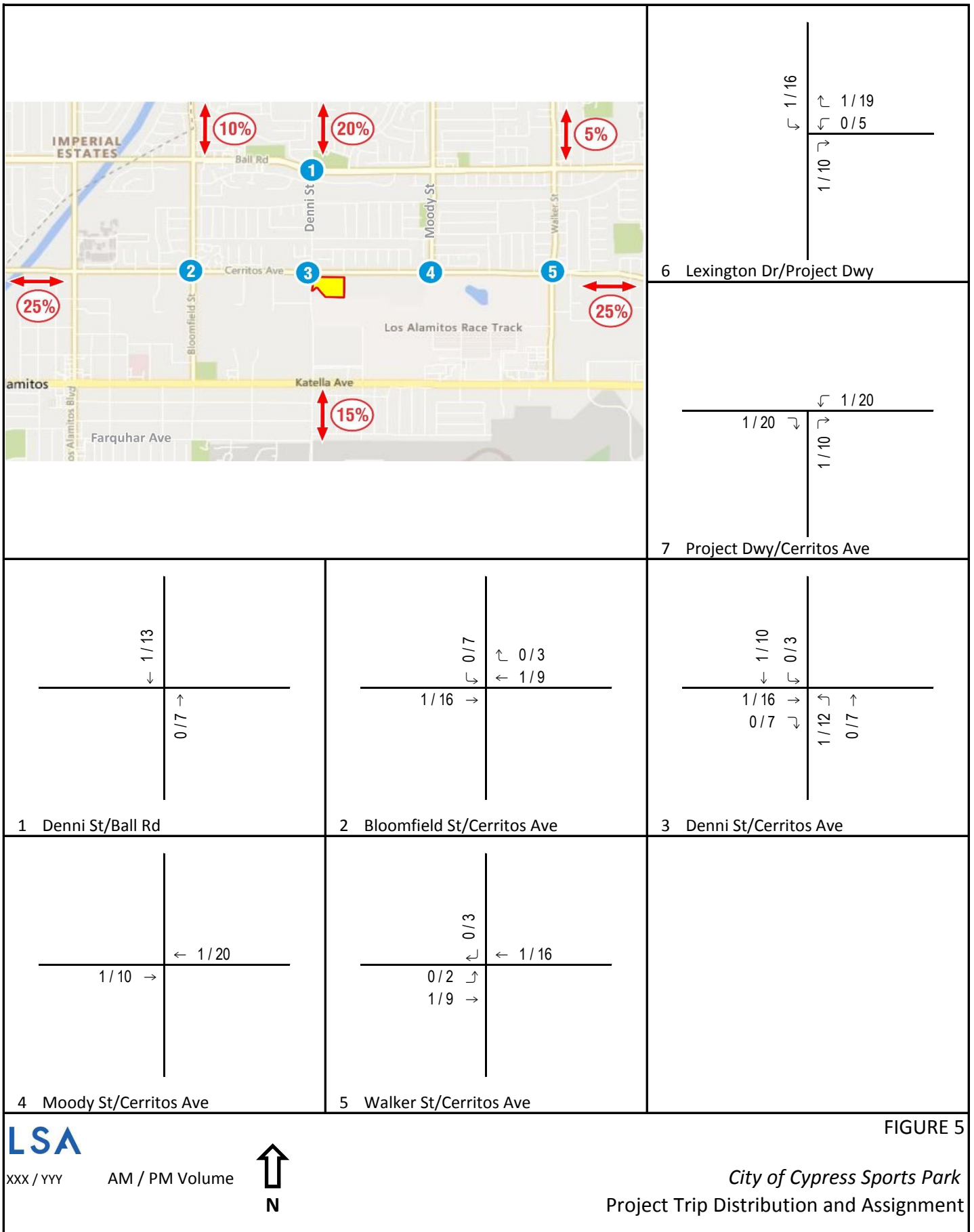


FIGURE 5

**LSA**

xxx / yyy

AM / PM Volume



City of Cypress Sports Park  
Project Trip Distribution and Assignment



← 351 / 161	↗ 1 / 24
↘ 1 / 16	↖ 0 / 5
-----	
↖ 151 / 313	↗ 1 / 10

6 Lexington Dr/Project Dwy

↖ 1133 / 1364	↗ 1043 / 1391
↘ 1 / 20	↖ 1 / 20
-----	
↖ 1 / 10	↗ 1 / 10

7 Project Dwy/Cerritos Ave

↖ 67 / 39	↗ 206 / 205
↘ 207 / 133	↖ 791 / 737
↙ 123 / 102	↗ 87 / 82
-----	
↖ 53 / 90	↗ 47 / 101
↘ 725 / 953	↖ 203 / 263
↙ 106 / 78	↗ 63 / 101

1 Denni St/Ball Rd

↖ 90 / 99	↗ 100 / 180
↘ 569 / 285	↖ 725 / 1064
↙ 168 / 68	↗ 172 / 98
-----	
↖ 31 / 159	↗ 121 / 108
↘ 827 / 1120	↖ 312 / 514
↙ 115 / 104	↗ 192 / 158

2 Bloomfield St/Cerritos Ave

↖ 128 / 81	↗ 137 / 209
↘ 154 / 88	↖ 793 / 1113
↙ 239 / 98	↗ 112 / 49
-----	
↖ 63 / 123	↗ 24 / 68
↘ 846 / 1208	↖ 79 / 187
↙ 86 / 40	↗ 49 / 77

3 Denni St/Cerritos Ave

↖ 206 / 151	↗ 174 / 416
↘ 3 / 0	↖ 870 / 1248
↙ 583 / 250	↗ 1 / 3
-----	
↖ 71 / 224	↗ 2 / 0
↘ 1066 / 1141	↖ 1 / 0
↙ 2 / 1	↗ 1 / 0

4 Moody St/Cerritos Ave

↖ 70 / 49	↗ 106 / 157
↘ 750 / 449	↖ 842 / 1140
↙ 166 / 106	↗ 120 / 93
-----	
↖ 20 / 97	↗ 104 / 502
↘ 1140 / 1077	↖ 241 / 737
↙ 490 / 237	↗ 53 / 213

5 Walker St/Cerritos Ave

**LSA**  
xxx / yyy AM / PM Volume

FIGURE 6  
City of Cypress Sports Park  
Existing Plus Project Peak-Hour Volumes

**Table C: Existing Plus Project Intersection Level of Service Summary**

	Intersection	Control	Peak Hour	Existing		Existing plus Project		Project Impact	
				ICU	LOS	ICU/ Delay	LOS	Δ ICU	Yes/ No
1	Denni Street/Ball Road	Signal	AM	0.525	A	0.525	A	0.000	No
			PM	0.566	A	0.569	A	0.003	No
2	Bloomfield Street/Cerritos Avenue	Signal	AM	0.693	B	0.693	B	0.000	No
			PM	0.739	C	0.747	C	0.008	No
3	Denni Street-Lexington Drive/Cerritos Avenue <sup>1</sup>	Signal	AM	0.594	A	0.552	A	-0.042	No
			PM	0.751	C	0.679	B	-0.072	No
4	Moody Street/Cerritos Avenue	Signal	AM	0.572	A	0.572	A	0.000	No
			PM	0.756	C	0.762	C	0.006	No
5	Walker Street/Cerritos Avenue	Signal	AM	0.681	B	0.681	B	0.000	No
			PM	0.730	C	0.736	C	0.006	No
6	Lexington Drive/Project Driveway	OWSC	AM	N/A	-	9.1	A	N/A	-
			PM	N/A	-	10.8	B	N/A	-
7	Project Driveway/Cerritos Avenue	OWSC	AM	N/A	-	13.3	B	N/A	-
			PM	N/A	-	15.6	C	N/A	-

<sup>1</sup> Added lanes with the project.  
ICU = Intersection Capacity Utilization  
LOS = level of service  
N/A = not applicable  
OWSC = one-way stop control  
Delay is reported in seconds.

## PROJECT OPENING YEAR CONDITIONS

A future, near-term scenario corresponding to the project opening year (2021) was analyzed. To develop the project opening year volumes, an ambient growth rate of 0.5 percent per year was applied to existing counts. Application of a 0.5 percent per year growth rate to the existing traffic volumes is considered conservative and would account for any additional future development beyond that described below in the project vicinity. This growth rate was referenced from other traffic studies prepared in the City of Cypress.

In addition to the ambient growth, cumulative project traffic volumes from approved but not built and/pending development projects in the vicinity of the project site were included in the Project Opening Year conditions. Information regarding cumulative projects was requested from the City of Cypress and other surrounding cities, including the Cities of Los Alamitos, Garden Grove, Stanton, La Palma, Buena Park, and Hawaiian Gardens. Trip generation estimates for the cumulative projects were obtained from the available approved traffic studies or from calculations based on the ITE trip generation rates. Table D summarizes the list of cumulative projects and their trip generation estimates. Trip distribution for the cumulative projects is based on the available approved traffic studies or has been estimated by LSA. Figure 7 shows the locations of the cumulative projects. Figure 8 shows the cumulative project trips at the study area intersections.

Table D: Summary of Cumulative Projects

Project No.	Project Name	Project Address	Project Description	ADT	AM			PM		
					In	Out	Total	In	Out	Total
<b>City of Cypress</b>										
1	Barton Place Mixed-Use (Ovation) <sup>1</sup>	Northeast corner of Katella and Enterprise	244 du Senior Housing 35,600 sf Retail 11,376 sf Restaurant	1,954	65	60	125	61	48	109
2	SRM Cypress (Westmont)	Northeast corner of Katella and Enterprise	129 bed Assisted Living 13,700 sf Retail	852	23	14	37	38	48	86
3	Bonanni Development	4620 Lincoln Ave	67 du Apartments	364	6	18	24	18	11	29
4	Cypress City Center	North of Katella between Siboney and Winners	20,800 sf Retail 251 du Apartments 120 room Hotel 10 screen Movie Theater	4978	68	96	164	176	147	323
<b>City of Los Alamitos</b>										
5	Residential Development <sup>2</sup>	10845 Cherry St	1 Duplex	15	0	1	1	1	0	1
6	Los Alamitos Luxury Apartments <sup>3</sup>	3342 Cerritos Ave	107 du Apartments	783	11	38	49	38	22	60
7	Residential Development	10922 Walnut St	4 du Apartments	29	0	1	1	1	1	2
8	Residential Development	3751 Farquhar Ave	4 du Condominiums	29	0	1	1	1	1	2
9	Cottonwood Church Site Residential Development <sup>4</sup>	3311 Sausalito St	50 du Condominiums	291	4	18	22	17	9	26
10	Residential Development	4071 Farquhar Ave	5 du Condominiums	37	1	2	3	2	1	3
11	Residential Development	4061 Farquhar Ave	5 du Condominiums	37	1	2	3	2	1	3
12	Residential Development <sup>2</sup>	10700 Regan St	1 Duplex	15	0	1	1	1	0	1
13	Commercial Development	5250 Katella Ave	2,400 sf Coffee Shop 2,800 sf Restaurant	2,283	124	118	242	69	62	131
14	Hotel Development	10650 Los Alamitos Blvd	107 room Hotel	895	30	20	50	33	31	64
<b>City of Garden Grove</b>										
15	Mixed Use Development	12101 - 12111 Valley View St	4,241 sf Automatic Car Wash 1,870 sf Drive-through Restaurant 2,700 sf Sit-down Restaurant 2,846 sf Movie Theater	1,707	53	49	102	95	70	165
<b>City of Stanton</b>										
16	Commercial Development	10580 - 10600 Beach Blvd	4,100 sf Retail 850 sf Warehouse	156	2	1	3	8	8	16
17	Residential Development	7320 Katella Ave	6 unit Townhouses	44	1	2	3	2	1	3
<b>Total</b>				<b>14,469</b>	<b>389</b>	<b>442</b>	<b>831</b>	<b>563</b>	<b>461</b>	<b>1,024</b>

note:

<sup>1</sup> At the time of preparation of this traffic study, 40% of the project was completed, and 60% was incomplete. Trips show the incomplete part of the total project trips (60%).

<sup>2</sup> Trips for duplex were estimated as 2 apartment units.

<sup>3</sup> Trip generation referenced from the Los Alamitos Luxury Apartments Initial Study (2018).

<sup>4</sup> Trip generation referenced from the Cottonwood Church Site Residential Development Traffic Impact Study (2017).

ADT = average daily trips



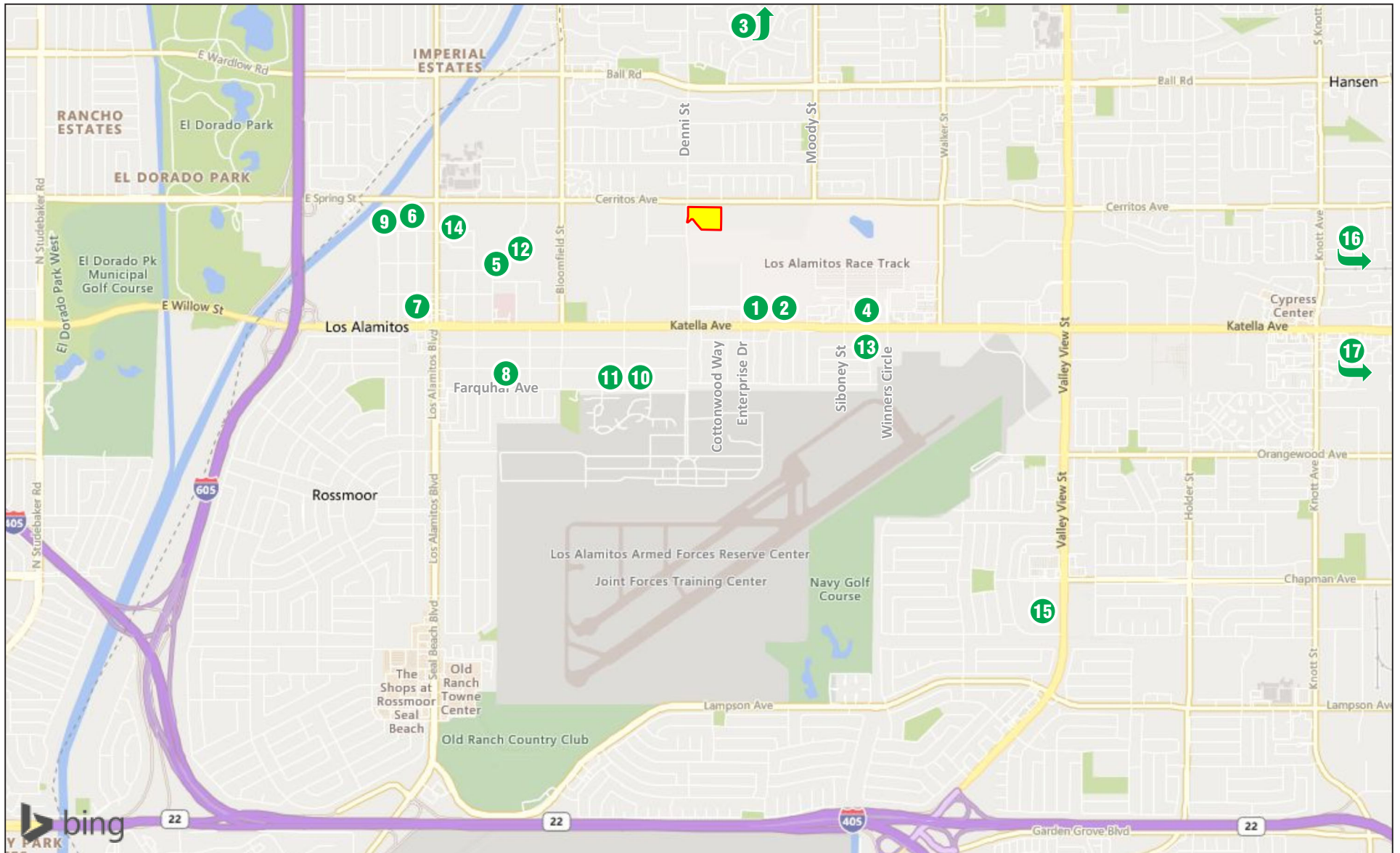
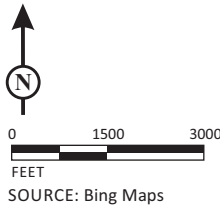


FIGURE 7

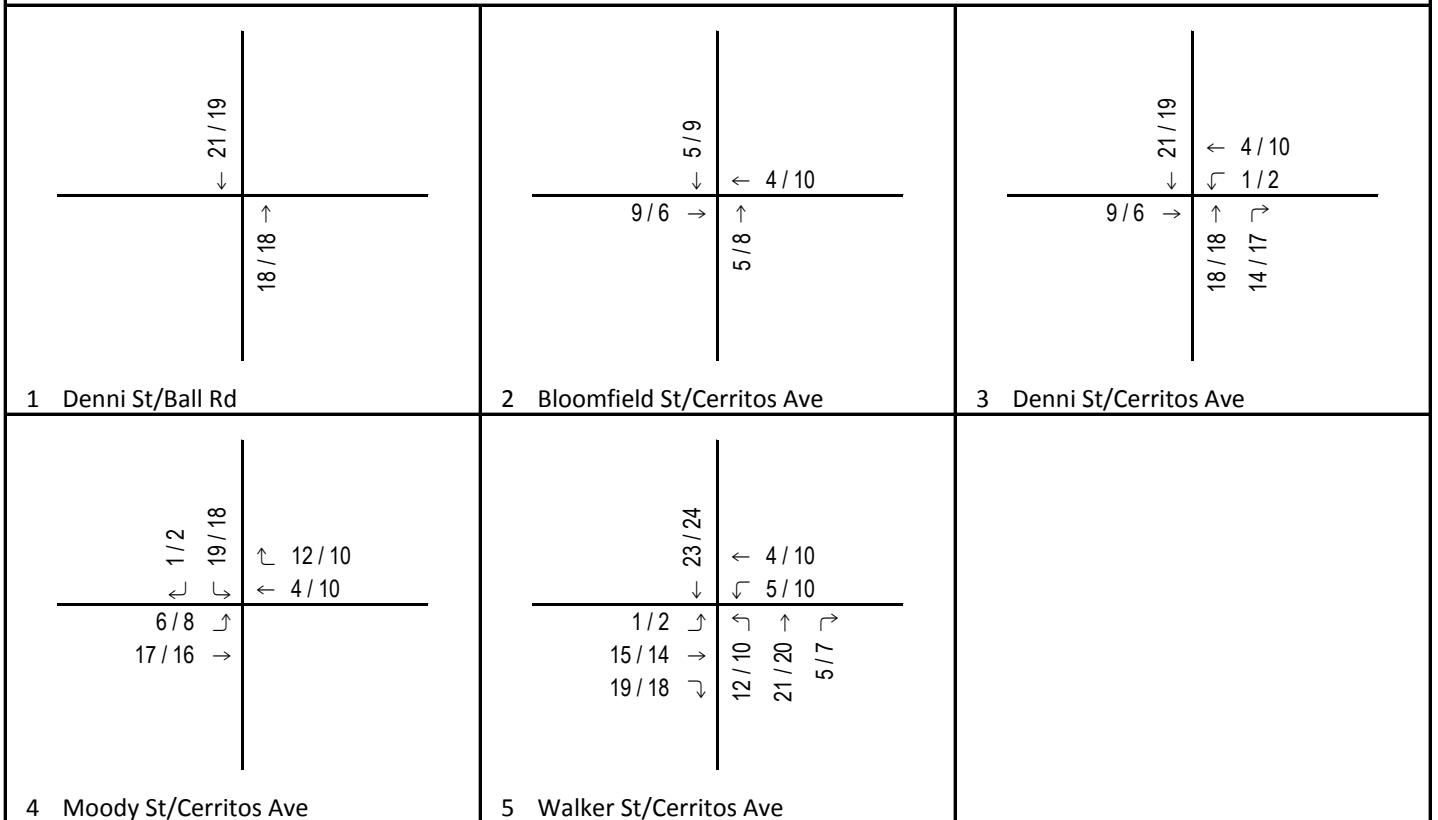
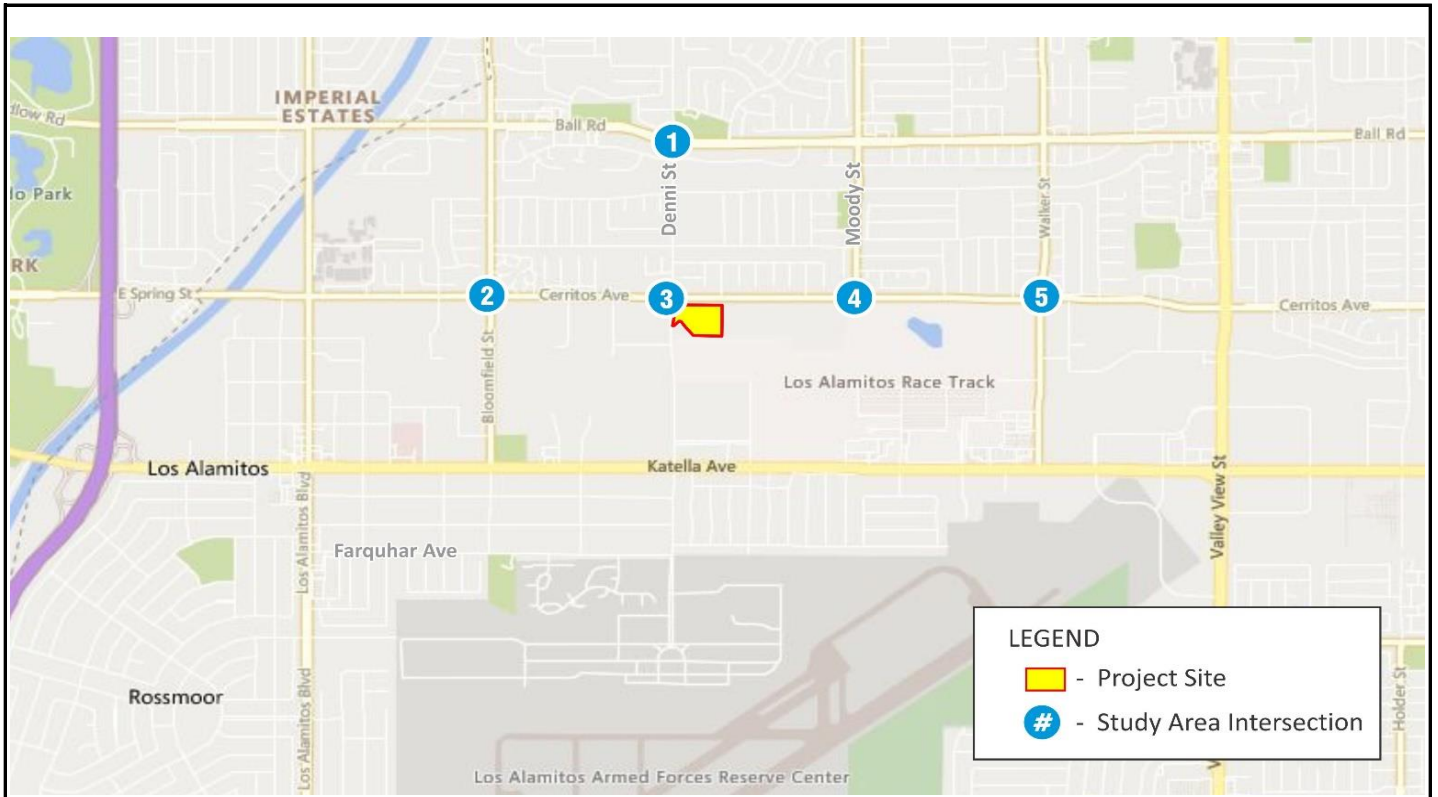
LSA

- LEGEND
- Project Site
  - # - Cumulative Projects



SOURCE: Bing Maps

City of Cypress Sports Park  
Location of Cumulative Projects




**LSA**  
 xxx / yyy AM / PM Volume  
  
 N

FIGURE 8

City of Cypress Sports Park  
 Cumulative Projects Peak-Hour Volumes

The ambient growth and cumulative project trips at the study area intersections were added to the existing peak-hour volumes to develop the Project Opening Year conditions. Figure 9 shows the Project Opening Year peak-hour volumes. Table E summarizes the results of the Project Opening Year LOS analysis for the study area intersections. The Project Opening Year ICU worksheets are contained in Appendix B. As shown in Table E, all study area intersections are forecast to operate at satisfactory LOS during both peak hours in the Project Opening Year conditions.

### **PROJECT OPENING YEAR PLUS PROJECT CONDITIONS**

To determine the Project Opening Year Plus Project conditions, the net traffic generated by the project was added to the project opening year traffic volumes at the study area intersections. Figure 10 shows the resulting Project Opening Year Plus Project peak-hour traffic volumes.

Table F summarizes the results of the Project Opening Year Plus Project peak-hour LOS analysis for the study area intersections. The Project Opening Year Plus Project ICU and HCM worksheets are contained in Appendices B and C, respectively. As shown in Table F, with the addition of the project, all study area intersections are forecast to operate at satisfactory LOS during both peak hours.

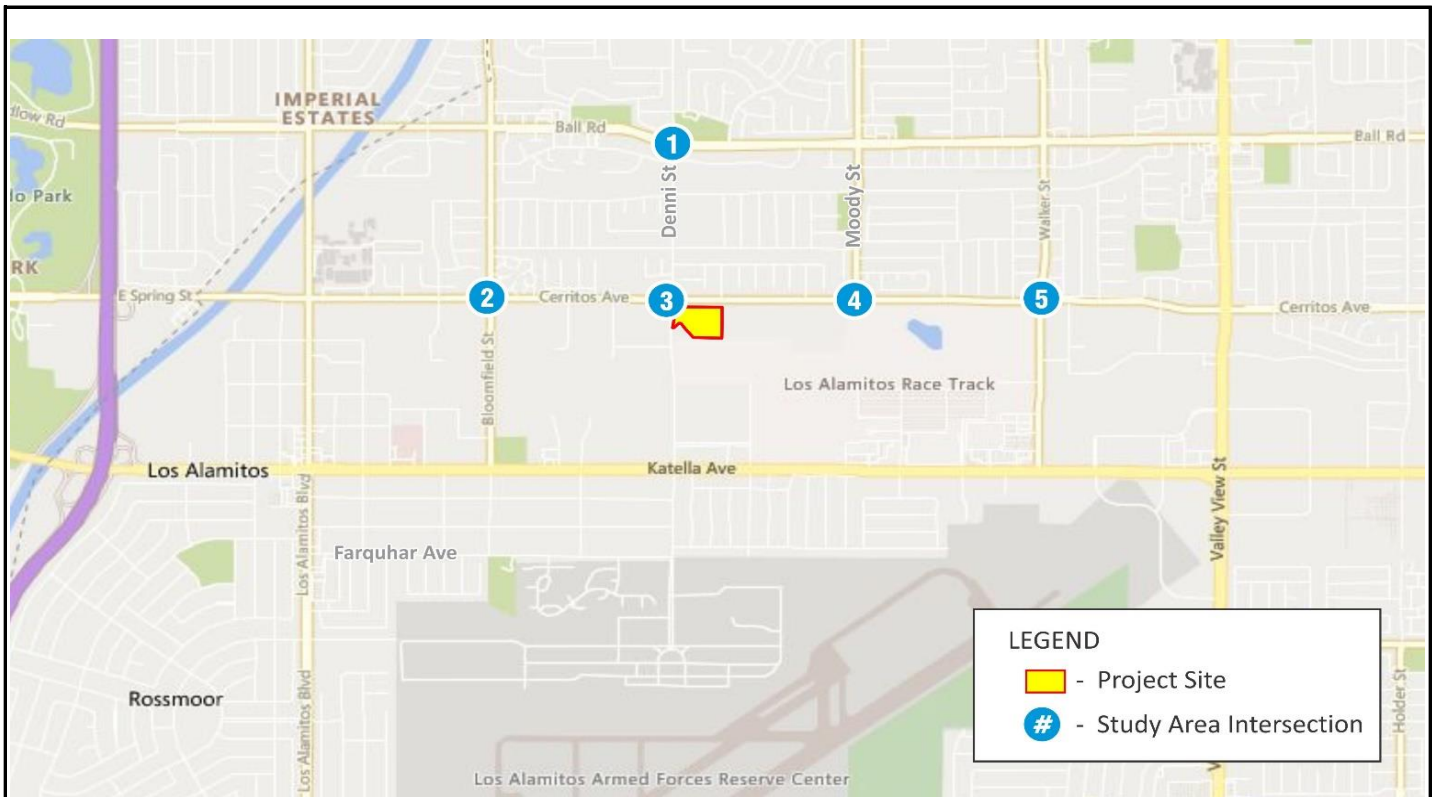
### **ACCESS AND ON-SITE CIRCULATION ANALYSIS**

Vehicle access to the project site would be provided via a right-turn-in/out and left-turn-in only driveway on Cerritos Avenue and a full access driveway on Lexington Drive. An LOS analysis has been conducted at the proposed driveways in the plus project conditions. Based on the results of this analysis, both project driveways are forecast to operate at LOS C or better during both peak hours in the Existing Plus Project and Cumulative Plus Project conditions.

#### **Sight Distance Analysis**

A sight distance analysis was conducted along Lexington Drive and Cerritos Avenue at the proposed driveways to ensure driver visibility and safety. In the project vicinity, the speed limit for Lexington Drive and Cerritos Avenue is 35 mph and 45 mph, respectively. According to Table 6C-2 of the 2014 Edition of the Caltrans (California Department of Transportation) and CalSTA (California State Transportation Agency) *California Manual on Uniform Traffic Control Devices* (CAMUTCD), the stopping sight distances for roadways with speed limits of 35 mph and 45 mph are 250 feet (ft) and 360 ft, respectively. Both driveways will be designed to provide adequate sight distance based on requirements specified in the CAMUTCD with no sight distance obstructions, and will provide a safe right-turn out movement.





<table border="1"> <tbody> <tr> <td>68 / 40</td> <td>230 / 141</td> <td>125 / 104</td> <td>209 / 208</td> </tr> <tr> <td>54 / 91</td> <td>736 / 967</td> <td>108 / 79</td> <td>803 / 748</td> </tr> <tr> <td>48 / 103</td> <td>224 / 278</td> <td>64 / 103</td> <td>88 / 83</td> </tr> </tbody> </table> <p>1 Denni St/Ball Rd</p>	68 / 40	230 / 141	125 / 104	209 / 208	54 / 91	736 / 967	108 / 79	803 / 748	48 / 103	224 / 278	64 / 103	88 / 83	<table border="1"> <tbody> <tr> <td>91 / 100</td> <td>583 / 298</td> <td>171 / 62</td> <td>102 / 180</td> </tr> <tr> <td>31 / 161</td> <td>847 / 1127</td> <td>117 / 106</td> <td>739 / 1081</td> </tr> <tr> <td>123 / 110</td> <td>322 / 530</td> <td>195 / 160</td> <td>175 / 99</td> </tr> </tbody> </table> <p>2 Bloomfield St/Cerritos Ave</p>	91 / 100	583 / 298	171 / 62	102 / 180	31 / 161	847 / 1127	117 / 106	739 / 1081	123 / 110	322 / 530	195 / 160	175 / 99	<table border="1"> <tbody> <tr> <td>130 / 82</td> <td>176 / 98</td> <td>243 / 96</td> <td>139 / 212</td> </tr> <tr> <td>64 / 125</td> <td>867 / 1216</td> <td>87 / 33</td> <td>809 / 1140</td> </tr> <tr> <td>23 / 57</td> <td>98 / 201</td> <td>64 / 95</td> <td>115 / 52</td> </tr> </tbody> </table> <p>3 Denni St/Cerritos Ave</p>	130 / 82	176 / 98	243 / 96	139 / 212	64 / 125	867 / 1216	87 / 33	809 / 1140	23 / 57	98 / 201	64 / 95	115 / 52
68 / 40	230 / 141	125 / 104	209 / 208																																			
54 / 91	736 / 967	108 / 79	803 / 748																																			
48 / 103	224 / 278	64 / 103	88 / 83																																			
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130 / 82	176 / 98	243 / 96	139 / 212																																			
64 / 125	867 / 1216	87 / 33	809 / 1140																																			
23 / 57	98 / 201	64 / 95	115 / 52																																			
<table border="1"> <tbody> <tr> <td>210 / 155</td> <td>3 / 0</td> <td>611 / 272</td> <td>189 / 432</td> </tr> <tr> <td>78 / 235</td> <td>1098 / 1164</td> <td>2 / 1</td> <td>886 / 1256</td> </tr> <tr> <td>1 / 3</td> <td>2 / 0</td> <td>1 / 0</td> <td></td> </tr> </tbody> </table> <p>4 Moody St/Cerritos Ave</p>	210 / 155	3 / 0	611 / 272	189 / 432	78 / 235	1098 / 1164	2 / 1	886 / 1256	1 / 3	2 / 0	1 / 0		<table border="1"> <tbody> <tr> <td>71 / 47</td> <td>784 / 480</td> <td>168 / 108</td> <td>108 / 159</td> </tr> <tr> <td>21 / 98</td> <td>1171 / 1098</td> <td>516 / 259</td> <td>858 / 1151</td> </tr> <tr> <td>118 / 520</td> <td>266 / 768</td> <td>59 / 223</td> <td>127 / 104</td> </tr> </tbody> </table> <p>5 Walker St/Cerritos Ave</p>	71 / 47	784 / 480	168 / 108	108 / 159	21 / 98	1171 / 1098	516 / 259	858 / 1151	118 / 520	266 / 768	59 / 223	127 / 104													
210 / 155	3 / 0	611 / 272	189 / 432																																			
78 / 235	1098 / 1164	2 / 1	886 / 1256																																			
1 / 3	2 / 0	1 / 0																																				
71 / 47	784 / 480	168 / 108	108 / 159																																			
21 / 98	1171 / 1098	516 / 259	858 / 1151																																			
118 / 520	266 / 768	59 / 223	127 / 104																																			

**LSA** xxx / yyy AM / PM Volume  N

FIGURE 9  
City of Cypress Sports Park  
Cumulative (Opening Year) Peak-Hour Volumes

**Table E: Cumulative Level of Service Summary**

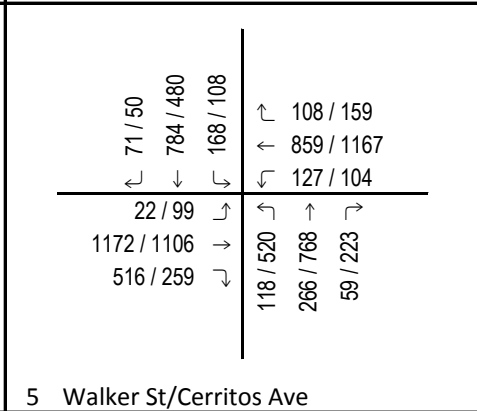
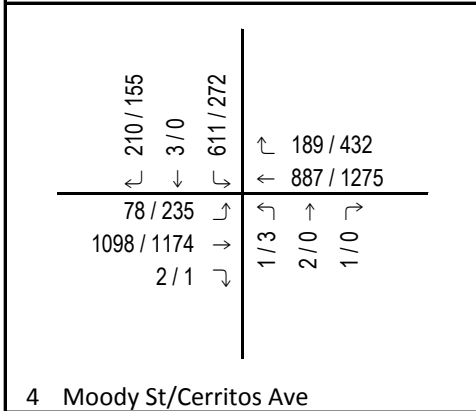
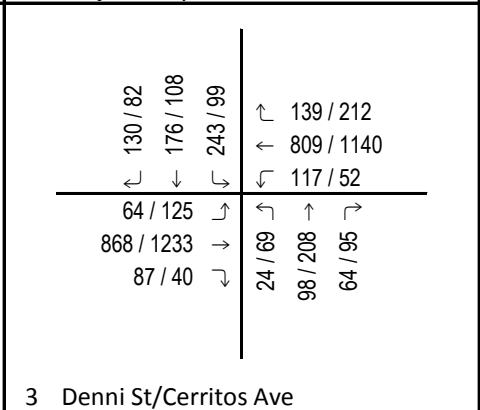
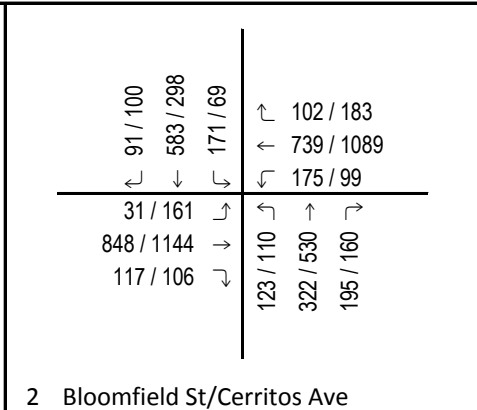
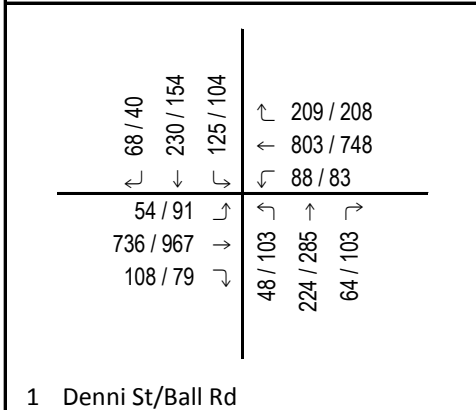
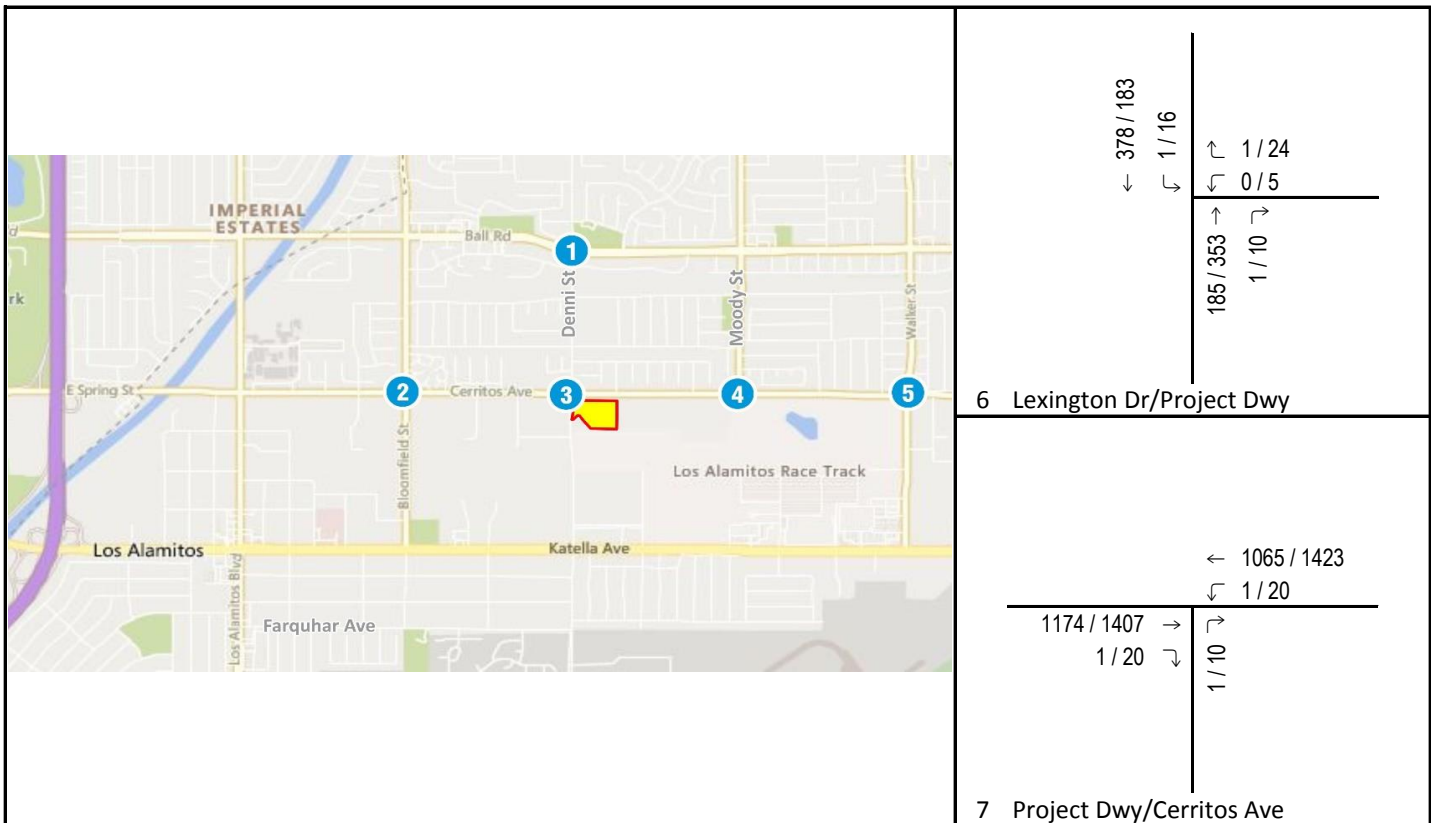
	Intersection	Control	Peak Hour	Cumulative	
				ICU	LOS
1	Denni Street/Ball Road	Signal	AM	0.537	A
			PM	0.580	A
2	Bloomfield Street/Cerritos Avenue	Signal	AM	0.707	C
			PM	0.755	C
3	Denni Street-Lexington Drive/Cerritos Avenue	Signal	AM	0.624	B
			PM	0.786	C
4	Moody Street/Cerritos Avenue	Signal	AM	0.594	A
			PM	0.778	C
5	Walker Street/Cerritos Avenue	Signal	AM	0.714	C
			PM	0.754	C
6	Lexington Drive/Project Driveway	OWSC	AM	N/A	-
			PM	N/A	-
7	Project Driveway/Cerritos Avenue	OWSC	AM	N/A	-
			PM	N/A	-

ICU = Intersection Capacity Utilization

LOS = level of service

N/A = not applicable

OWSC = one-way stop control



**LSA** xxx / yyy AM / PM Volume **N**

**FIGURE 10**  
*City of Cypress Sports Park*  
Cumulative (Opening Year) Plus Project Peak-Hour Volumes

**Table F: Cumulative Plus Project Intersection Level of Service Summary**

	Intersection	Control	Peak Hour	Cumulative		Cumulative plus Project		Project Impact	
				ICU	LOS	ICU/Delay	LOS	Δ ICU	Yes/No
1	Denni Street/Ball Road	Signal	AM	0.537	A	0.537	A	0.000	No
			PM	0.580	A	0.582	A	0.002	No
2	Bloomfield Street/Cerritos Avenue	Signal	AM	0.707	C	0.707	C	0.000	No
			PM	0.755	C	0.762	C	0.007	No
3	Denni Street-Lexington Drive/Cerritos Avenue <sup>1</sup>	Signal	AM	0.624	B	0.573	A	-0.050	No
			PM	0.786	C	0.707	C	-0.079	No
4	Moody Street/Cerritos Avenue	Signal	AM	0.594	A	0.594	A	0.000	No
			PM	0.778	C	0.784	C	0.006	No
5	Walker Street/Cerritos Avenue	Signal	AM	0.714	C	0.714	C	0.000	No
			PM	0.754	C	0.760	C	0.006	No
6	Lexington Drive/Project Driveway	OWSC	AM	N/A	-	9.3	A	N/A	-
			PM	N/A	-	11.2	B	N/A	-
7	Project Driveway/Cerritos Avenue	OWSC	AM	N/A	-	13.6	B	N/A	-
			PM	N/A	-	15.9	C	N/A	-

<sup>1</sup> Added lanes with the project.  
 ICU = Intersection Capacity Utilization  
 LOS = level of service  
 N/A = not applicable  
 OWSC = one-way stop control  
 Delay is reported in seconds.

## CONCLUSIONS

Based on the results of this analysis, implementation of the proposed project would not result in any significant project-related impacts to the surrounding roadway system. The evaluation of the study area intersections shows that the addition of project traffic would not create significant adverse impacts in the existing or cumulative conditions.

Based on the site plan layout, adequate access and on-site circulation would be provided.

## REFERENCES

California Department of Transportation (Caltrans) and California State Transportation Agency (CalSTA). 2014. *California Manual on Uniform Traffic Control Devices (CAMUTCD)*.

City of Cypress. 2000. General Plan Circulation Element.

County of Orange. 2017. *Orange County Congestion Management Program*.

Institute of Transportation Engineers (ITE). 2017. *Trip Generation Manual*, 10<sup>th</sup> Edition.

Transportation Research Board. 2016. *Highway Capacity Manual*, 6<sup>th</sup> Edition.

## **APPENDIX A**

# **EXISTING TRAFFIC VOLUMES**

# VOLUME

Denni St Bet. Orange Ave & Ball Rd

Day: Thursday  
Date: 4/6/2017

City: Cypress  
Project #: Historical

DAILY TOTALS	NB		SB		EB		WB		Total
	4,438		3,724		0		0		8,162

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
0:00	4	8			12	12:00	52	53			105	
0:15	4	3			7	12:15	53	40			93	
0:30	11	2			13	12:30	61	35			96	
0:45	1	20	1	14	2	12:45	73	239	47	175	120	414
1:00	5	2			7	13:00	71	80			151	
1:15	2	2			4	13:15	58	92			150	
1:30	5	1			6	13:30	58	48			106	
1:45	1	13	2	7	3	13:45	95	282	40	260	135	542
2:00	2	1			3	14:00	107	40			147	
2:15	3	0			3	14:15	92	76			168	
2:30	2	2			4	14:30	90	89			179	
2:45	0	7	1	4	1	14:45	84	373	50	255	134	628
3:00	1	0			1	15:00	71	85			156	
3:15	1	1			2	15:15	66	56			122	
3:30	3	6			9	15:30	68	52			120	
3:45	1	6	1	8	2	15:45	85	290	60	253	145	543
4:00	2	2			4	16:00	97	66			163	
4:15	4	3			7	16:15	92	59			151	
4:30	3	8			11	16:30	113	65			178	
4:45	5	14	18	31	23	16:45	97	399	73	263	170	662
5:00	5	10			15	17:00	99	58			157	
5:15	6	15			21	17:15	121	60			181	
5:30	6	17			23	17:30	105	64			169	
5:45	11	28	14	56	25	17:45	104	429	79	261	183	690
6:00	13	13			26	18:00	98	66			164	
6:15	25	36			61	18:15	75	76			151	
6:30	32	38			70	18:30	88	66			154	
6:45	45	115	50	137	95	18:45	64	325	84	292	148	617
7:00	59	56			115	19:00	66	81			147	
7:15	120	70			190	19:15	49	92			141	
7:30	203	126			329	19:30	67	57			124	
7:45	189	571	144	396	333	19:45	41	223	45	275	86	498
8:00	125	110			235	20:00	52	33			85	
8:15	62	60			122	20:15	29	31			60	
8:30	44	53			97	20:30	28	27			55	
8:45	43	274	54	277	97	20:45	30	139	22	113	52	252
9:00	30	39			69	21:00	22	27			49	
9:15	34	39			73	21:15	23	21			44	
9:30	45	31			76	21:30	31	21			52	
9:45	49	158	42	151	91	21:45	26	102	10	79	36	181
10:00	38	35			73	22:00	31	26			57	
10:15	27	31			58	22:15	12	12			24	
10:30	37	37			74	22:30	13	11			24	
10:45	40	142	52	155	92	22:45	8	64	7	56	15	120
11:00	39	35			74	23:00	9	12			21	
11:15	52	45			97	23:15	11	9			20	
11:30	64	49			113	23:30	3	3			6	
11:45	41	196	47	176	88	23:45	6	29	6	30	12	59
<b>TOTALS</b>	1544		1412		<b>2956</b>	<b>TOTALS</b>	2894		2312		<b>5206</b>	
<b>SPLIT %</b>	52.2%		47.8%		<b>36.2%</b>	<b>SPLIT %</b>	55.6%		44.4%		<b>63.8%</b>	

DAILY TOTALS	NB		SB		EB		WB		Total
	4,438		3,724		0		0		8,162

AM Peak Hour	7:15	7:15		7:15	PM Peak Hour	16:30	18:30	17:15			
AM Pk Volume	637	450		1087	PM Pk Volume	430	323	697			
Pk Hr Factor	0.784	0.781		0.816	Pk Hr Factor	0.888	0.878	0.952			
7 - 9 Volume	845	673	0	0	1518	4 - 6 Volume	828	524	0	0	1352
7 - 9 Peak Hour	7:15	7:15		7:15	4 - 6 Peak Hour	16:30	16:00	17:00			
7 - 9 Pk Volume	637	450	0	0	1087	4 - 6 Pk Volume	430	263	0	0	690
Pk Hr Factor	0.784	0.781	0.000	0.000	0.816	Pk Hr Factor	0.888	0.901	0.000	0.000	0.943

# VOLUME

Denni St Bet. Ball Rd & Cerritos Ave

Day: Thursday  
Date: 4/6/2017

City: Cypress  
Project #: Historical

DAILY TOTALS	NB		SB		EB		WB		Total
	4,408		3,478		0		0		7,886

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	5	5			10	12:00	59	49			108
0:15	4	2			6	12:15	54	51			105
0:30	17	2			19	12:30	60	45			105
0:45	3	29	1	10	4	12:45	66	239	52	197	436
1:00	2	4			6	13:00	52	60			112
1:15	3	2			5	13:15	51	64			115
1:30	5	2			7	13:30	66	47			113
1:45	6	16	0	8	6	13:45	65	234	40	211	445
2:00	1	1			2	14:00	59	47			106
2:15	2	0			2	14:15	76	44			120
2:30	3	0			3	14:30	80	74			154
2:45	1	7	1	2	2	14:45	79	294	58	223	517
3:00	1	0			1	15:00	93	57			150
3:15	2	2			4	15:15	80	56			136
3:30	1	12			13	15:30	85	41			126
3:45	3	7	9	23	12	15:45	92	350	42	196	546
4:00	5	1			6	16:00	88	59			147
4:15	2	7			9	16:15	81	56			137
4:30	8	15			23	16:30	128	54			182
4:45	4	19	23	46	27	16:45	107	404	55	224	628
5:00	4	12			16	17:00	115	50			165
5:15	2	13			15	17:15	105	48			153
5:30	9	16			25	17:30	113	53			166
5:45	5	20	29	70	34	17:45	124	457	53	204	661
6:00	15	20			35	18:00	107	43			150
6:15	20	38			58	18:15	95	49			144
6:30	23	51			74	18:30	81	46			127
6:45	31	89	53	162	84	18:45	98	381	58	196	577
7:00	40	78			118	19:00	84	62			146
7:15	66	76			142	19:15	59	58			117
7:30	99	122			221	19:30	61	31			92
7:45	108	313	146	422	254	19:45	53	257	47	198	455
8:00	94	110			204	20:00	57	33			90
8:15	99	84			183	20:15	48	23			71
8:30	51	63			114	20:30	51	22			73
8:45	39	283	66	323	105	20:45	28	184	16	94	278
9:00	33	57			90	21:00	36	24			60
9:15	37	46			83	21:15	33	16			49
9:30	35	40			75	21:30	27	28			55
9:45	39	144	49	192	88	21:45	20	116	4	72	188
10:00	40	38			78	22:00	33	11			44
10:15	48	44			92	22:15	22	5			27
10:30	40	49			89	22:30	14	10			24
10:45	33	161	55	186	88	22:45	16	85	10	36	121
11:00	54	37			91	23:00	11	4			15
11:15	79	45			124	23:15	11	6			17
11:30	99	36			135	23:30	6	5			11
11:45	54	286	48	166	102	23:45	5	33	2	17	50
<b>TOTALS</b>	1374		1610		<b>2984</b>	<b>TOTALS</b>	3034		1868		<b>4902</b>
<b>SPLIT %</b>	46.0%		54.0%		<b>37.8%</b>	<b>SPLIT %</b>	61.9%		38.1%		<b>62.2%</b>

DAILY TOTALS	NB		SB		EB		WB		Total
	4,408		3,478		0		0		7,886

AM Peak Hour	7:30	7:30			7:30	PM Peak Hour	17:00	14:30			16:30
AM Pk Volume	400	462			862	PM Pk Volume	457	245			662
Pk Hr Factor	0.926	0.791			0.848	Pk Hr Factor	0.921	0.828			0.909
7 - 9 Volume	596	745	0	0	1341	4 - 6 Volume	861	428	0	0	1289
7 - 9 Peak Hour	7:30	7:30			7:30	4 - 6 Peak Hour	17:00	16:00			16:30
7 - 9 Pk Volume	400	462	0	0	862	4 - 6 Pk Volume	457	224	0	0	662
Pk Hr Factor	0.926	0.791	0.000	0.000	0.848	Pk Hr Factor	0.921	0.949	0.000	0.000	0.909



# VOLUME

Ball Rd Bet. Denni St & Moody St

Day: Thursday  
Date: 3/9/2017

City: Cypress  
Project #: Historical

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	10,735	10,922	21,657

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
0:00			14	12	26	12:00			121	140	261			
0:15			19	11	30	12:15			160	155	315			
0:30			9	8	17	12:30			145	146	291			
0:45			6	48	8	39	12:45		135	561	145	586	280	1147
1:00			10	11	21	13:00			141	160	301			
1:15			7	10	17	13:15			162	145	307			
1:30			5	11	16	13:30			149	148	297			
1:45			5	27	5	37	13:45		139	591	173	626	312	1217
2:00			5	2	7	14:00			161	173	334			
2:15			11	3	14	14:15			168	181	349			
2:30			4	2	6	14:30			210	142	352			
2:45			5	25	1	8	14:45		210	749	181	677	391	1426
3:00			4	2	6	15:00			183	199	382			
3:15			8	8	16	15:15			201	185	386			
3:30			4	7	11	15:30			176	193	369			
3:45			8	24	10	27	15:45		225	785	204	781	429	1566
4:00			7	10	17	16:00			223	219	442			
4:15			10	16	26	16:15			222	210	432			
4:30			16	18	34	16:30			221	211	432			
4:45			26	59	22	66	16:45		192	858	238	878	430	1736
5:00			24	34	58	17:00			231	255	486			
5:15			29	27	56	17:15			269	270	539			
5:30			61	46	107	17:30			265	250	515			
5:45			45	159	55	162	17:45		242	1007	249	1024	491	2031
6:00			71	84	155	18:00			224	214	438			
6:15			93	90	183	18:15			224	226	450			
6:30			126	127	253	18:30			183	146	329			
6:45			148	438	191	492	18:45		166	797	118	704	284	1501
7:00			177	212	389	19:00			148	161	309			
7:15			231	297	528	19:15			137	125	262			
7:30			288	276	564	19:30			131	98	229			
7:45			302	998	298	1083	19:45		102	518	99	483	201	1001
8:00			236	212	448	20:00			94	95	189			
8:15			208	194	402	20:15			96	90	186			
8:30			166	184	350	20:30			110	82	192			
8:45			168	778	160	750	20:45		57	357	95	362	152	719
9:00			112	175	287	21:00			86	89	175			
9:15			119	139	258	21:15			71	80	151			
9:30			104	152	256	21:30			65	71	136			
9:45			132	467	106	572	21:45		45	267	76	316	121	583
10:00			136	103	239	22:00			55	69	124			
10:15			128	123	251	22:15			41	41	82			
10:30			120	104	224	22:30			42	33	75			
10:45			92	476	115	445	22:45		25	163	35	178	60	341
11:00			109	100	209	23:00			21	32	53			
11:15			130	122	252	23:15			26	31	57			
11:30			115	152	267	23:30			21	16	37			
11:45			134	488	148	522	23:45		27	95	25	104	52	199
<b>TOTALS</b>			<b>3987</b>	<b>4203</b>	<b>8190</b>	<b>TOTALS</b>			<b>6748</b>	<b>6719</b>	<b>13467</b>			
<b>SPLIT %</b>			<b>48.7%</b>	<b>51.3%</b>	<b>37.8%</b>	<b>SPLIT %</b>			<b>50.1%</b>	<b>49.9%</b>	<b>62.2%</b>			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	10,735	10,922	21,657

AM Peak Hour			7:15	7:00	7:15	PM Peak Hour			17:00	17:00	17:00
AM Pk Volume			1057	1083	2140	PM Pk Volume			1007	1024	2031
Pk Hr Factor			0.875	0.909	0.892	Pk Hr Factor			0.936	0.948	0.942
7 - 9 Volume	0	0	1776	1833	3609	4 - 6 Volume	0	0	1865	1902	3767
7 - 9 Peak Hour			7:15	7:00	7:15	4 - 6 Peak Hour			17:00	17:00	17:00
7 - 9 Pk Volume	0	0	1057	1083	2140	4 - 6 Pk Volume	0	0	1007	1024	2031
Pk Hr Factor	0.000	0.000	0.875	0.909	0.892	Pk Hr Factor	0.000	0.000	0.936	0.948	0.942

# VOLUME

Ball Rd Bet. Bloomfield St & Denni St

Day: Thursday  
Date: 3/9/2017

City: Cypress  
Project #: Historical

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	10,664	11,122	21,786

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
0:00			18	10	28	12:00			147	141	288			
0:15			16	6	22	12:15			163	162	325			
0:30			11	13	24	12:30			148	136	284			
0:45			3	48	11	12:45			154	612	146	585	300	1197
1:00			8	6	14	13:00			132	160	292			
1:15			9	10	19	13:15			146	149	295			
1:30			4	10	14	13:30			152	166	318			
1:45			4	25	5	13:45			136	566	149	624	285	1190
2:00			6	1	7	14:00			137	166	303			
2:15			7	3	10	14:15			159	167	326			
2:30			4	2	6	14:30			189	134	323			
2:45			4	21	1	14:45			218	703	165	632	383	1335
3:00			5	1	6	15:00			169	203	372			
3:15			8	7	15	15:15			216	183	399			
3:30			4	5	9	15:30			186	208	394			
3:45			7	24	9	15:45			228	799	190	784	418	1583
4:00			6	10	16	16:00			237	238	475			
4:15			9	14	23	16:15			218	190	408			
4:30			11	20	31	16:30			239	198	437			
4:45			20	46	26	16:45			208	902	245	871	453	1773
5:00			19	34	53	17:00			280	271	551			
5:15			21	40	61	17:15			272	246	518			
5:30			50	59	109	17:30			298	258	556			
5:45			39	129	58	17:45			271	1121	242	1017	513	2138
6:00			50	89	139	18:00			225	231	456			
6:15			78	87	165	18:15			223	200	423			
6:30			106	150	256	18:30			196	178	374			
6:45			136	370	207	18:45			171	815	123	732	294	1547
7:00			150	223	373	19:00			165	165	330			
7:15			184	280	464	19:15			141	121	262			
7:30			266	267	533	19:30			122	92	214			
7:45			284	884	289	19:45			110	538	78	456	188	994
8:00			198	272	470	20:00			104	91	195			
8:15			171	215	386	20:15			110	90	200			
8:30			153	225	378	20:30			117	79	196			
8:45			152	674	192	20:45			72	403	89	349	161	752
9:00			107	189	296	21:00			83	74	157			
9:15			105	153	258	21:15			74	64	138			
9:30			104	160	264	21:30			78	69	147			
9:45			116	432	117	21:45			61	296	54	261	115	557
10:00			143	121	264	22:00			63	52	115			
10:15			115	143	258	22:15			42	40	82			
10:30			118	122	240	22:30			47	38	85			
10:45			105	481	120	22:45			22	174	27	157	49	331
11:00			124	112	236	23:00			30	29	59			
11:15			132	129	261	23:15			28	26	54			
11:30			110	161	271	23:30			22	19	41			
11:45			131	497	173	23:45			24	104	23	97	47	201
<b>TOTALS</b>				3631	4557	<b>8188</b>	<b>TOTALS</b>			7033	6565	<b>13598</b>		
<b>SPLIT %</b>				44.3%	55.7%	<b>37.6%</b>	<b>SPLIT %</b>			51.7%	48.3%	<b>62.4%</b>		

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	10,664	11,122	21,786

AM Peak Hour			7:15	7:15	7:15	PM Peak Hour			17:00	16:45	17:00
AM Pk Volume			932	1108	2040	PM Pk Volume			1121	1020	2138
Pk Hr Factor			0.820	0.958	0.890	Pk Hr Factor			0.940	0.941	0.961
7 - 9 Volume	0	0	1558	1963	3521	4 - 6 Volume	0	0	2023	1888	3911
7 - 9 Peak Hour			7:15	7:15	7:15	4 - 6 Peak Hour			17:00	16:45	17:00
7 - 9 Pk Volume	0	0	932	1108	2040	4 - 6 Pk Volume	0	0	1121	1020	2138
Pk Hr Factor	0.000	0.000	0.820	0.958	0.890	Pk Hr Factor	0.000	0.000	0.940	0.941	0.961

# ITM Peak Hour Summary

Prepared by:



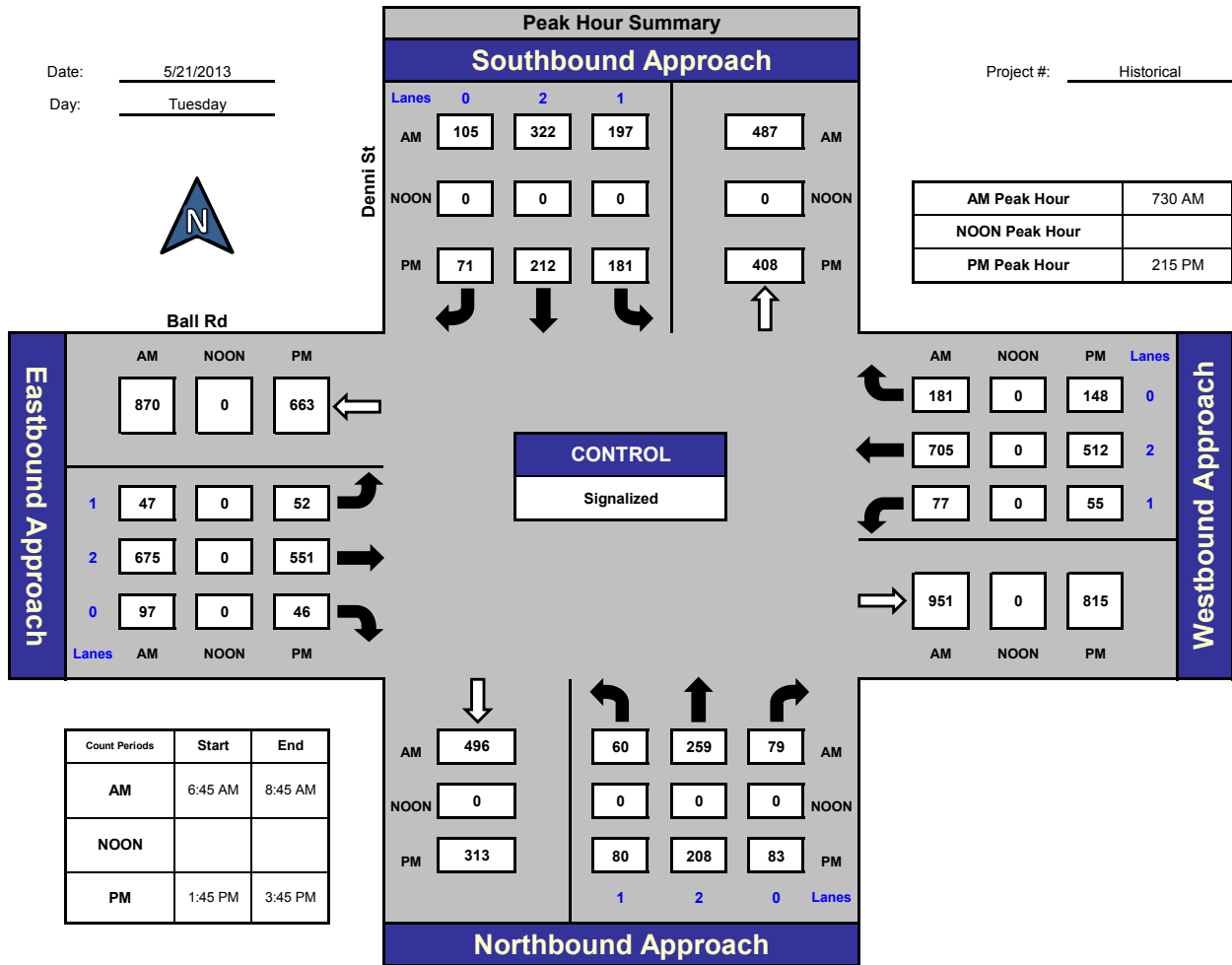
National Data & Surveying Services

## Denni St and Ball Rd, City of Cypress

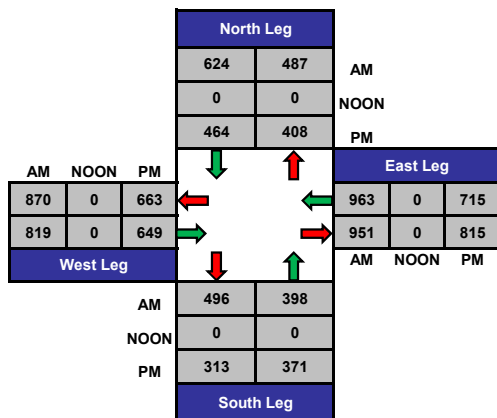
Date: 5/21/2013

Day: Tuesday

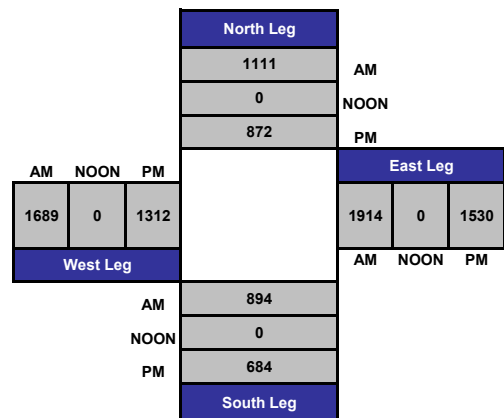
Project #: Historical



### Total Ins & Outs



### Total Volume Per Leg



# National Data & Surveying Services

## Intersection Turning Movement Count

**Location:** Bloomfield St & Cerritos Ave  
**City:** Cypress  
**Control:** Signalized

**Project ID:** 18-01205-021  
**Date:** 10/10/2018

### Total

NS/EW Streets:	Bloomfield St				Bloomfield St				Cerritos Ave				Cerritos Ave				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	54	31	17	0	24	88	66	0	13	165	57	0	37	241	11	0	804
7:15 AM	20	27	26	0	29	113	29	0	11	167	39	0	28	183	13	0	685
7:30 AM	29	74	46	0	44	163	22	0	3	191	32	0	48	180	31	0	863
7:45 AM	33	105	58	0	43	161	20	0	10	201	36	0	52	177	22	0	918
8:00 AM	29	65	41	0	32	133	25	0	11	194	21	0	34	174	10	0	769
8:15 AM	30	68	47	0	49	112	23	0	7	240	26	0	38	193	37	0	870
8:30 AM	33	49	55	0	57	120	22	0	11	196	18	0	35	208	39	0	843
8:45 AM	9	42	13	0	22	96	25	0	11	178	18	0	24	166	16	0	620
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	237	461	303	0	300	986	232	0	77	1532	247	0	296	1522	179	0	6372
	23.68%	46.05%	30.27%	0.00%	19.76%	64.95%	15.28%	0.00%	4.15%	82.54%	13.31%	0.00%	14.82%	76.21%	8.96%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	121	312	192	0	168	569	90	0	31	826	115	0	172	724	100	0	3420
PEAK HR FACTOR :	0.917	0.743	0.828	0.000	0.857	0.873	0.900	0.000	0.705	0.860	0.799	0.000	0.827	0.938	0.676	0.000	0.931
	0.797				0.903				0.890				0.929				

NS/EW Streets:	Bloomfield St				Bloomfield St				Cerritos Ave				Cerritos Ave				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	28	100	32	0	10	67	23	0	29	260	30	0	20	208	37	0	844
4:15 PM	29	110	33	0	9	70	21	0	29	254	24	0	21	191	38	0	829
4:30 PM	26	97	21	0	27	64	25	0	49	250	36	0	30	237	35	0	897
4:45 PM	23	117	27	0	12	80	19	0	31	255	27	0	33	245	39	0	908
5:00 PM	32	140	44	0	15	76	35	0	28	296	20	0	18	276	38	0	1018
5:15 PM	31	119	43	0	21	63	26	0	50	286	29	0	24	282	57	0	1031
5:30 PM	22	138	44	0	13	66	19	0	50	267	28	0	23	252	43	0	965
5:45 PM	23	105	30	0	13	84	18	0	41	215	18	0	34	225	33	0	839
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	214	926	274	0	120	570	186	0	307	2083	212	0	203	1916	320	0	7331
	15.13%	65.49%	19.38%	0.00%	13.70%	65.07%	21.23%	0.00%	11.80%	80.05%	8.15%	0.00%	8.32%	78.56%	13.12%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	108	514	158	0	61	285	99	0	159	1104	104	0	98	1055	177	0	3922
PEAK HR FACTOR :	0.844	0.918	0.898	0.000	0.726	0.891	0.707	0.000	0.795	0.932	0.897	0.000	0.742	0.935	0.776	0.000	0.951
	0.903				0.883				0.936				0.916				

# National Data & Surveying Services

## Intersection Turning Movement Count

**Location:** Denni St & Cerritos Ave  
**City:** Cypress  
**Control:** Signalized

**Project ID:** 18-01205-025  
**Date:** 10/10/2018

### Total

NS/EW Streets:	Denni St				Denni St				Cerritos Ave				Cerritos Ave				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	1	0	0	1	1	1	0	1	2	1	0	1	2	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	15	8	3	0	29	29	23	0	12	159	14	0	17	238	18	0	565
7:15 AM	6	15	10	0	45	32	28	0	6	187	7	0	26	204	41	0	607
7:30 AM	5	21	6	0	60	32	27	0	10	209	21	0	27	181	42	0	641
7:45 AM	5	10	15	0	76	43	30	0	16	236	21	0	32	221	41	0	746
8:00 AM	8	21	14	0	64	44	29	0	15	174	22	0	25	183	29	1	629
8:15 AM	5	27	14	0	39	34	42	0	21	226	22	1	27	208	25	0	691
8:30 AM	2	14	9	0	37	19	23	0	17	233	30	1	18	213	13	0	629
8:45 AM	7	9	9	0	21	16	21	0	11	162	7	0	21	185	13	1	483
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	53	125	80	0	371	249	223	0	108	1586	144	2	193	1633	222	2	4991
<b>PEAK HR :</b>	07:30 AM - 08:30 AM																TOTAL
<b>PEAK HR VOL :</b>	23	79	49	0	239	153	128	0	62	845	86	1	111	793	137	1	2707
<b>PEAK HR FACTOR :</b>	0.719	0.731	0.817	0.000	0.786	0.869	0.762	0.000	0.738	0.895	0.977	0.250	0.867	0.897	0.815	0.250	0.907
	0.821				0.872				0.910				0.886				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	0	0	1	1	1	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	18	33	25	0	23	18	15	0	26	273	17	0	4	212	28	0	692
4:15 PM	11	46	28	0	20	16	18	0	26	256	17	0	9	173	52	0	672
4:30 PM	10	46	19	0	19	14	14	0	32	266	13	0	16	263	22	1	735
4:45 PM	16	45	19	0	24	17	22	0	24	270	5	0	13	265	56	0	776
5:00 PM	12	46	21	0	25	22	18	0	41	317	8	0	11	256	55	0	832
5:15 PM	18	54	11	0	23	21	16	0	28	307	15	0	13	303	59	0	868
5:30 PM	10	35	26	0	23	18	25	0	30	298	5	0	12	289	39	0	810
5:45 PM	8	51	18	0	22	23	14	0	31	214	10	0	18	238	30	0	677
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	103	356	167	0	179	149	142	0	238	2201	90	0	96	1999	341	1	6062
<b>PEAK HR :</b>	04:45 PM - 05:45 PM																TOTAL
<b>PEAK HR VOL :</b>	56	180	77	0	95	78	81	0	123	1192	33	0	49	1113	209	0	3286
<b>PEAK HR FACTOR :</b>	0.778	0.833	0.740	0.000	0.950	0.886	0.810	0.000	0.750	0.940	0.550	0.000	0.942	0.918	0.886	0.000	0.946
	0.943				0.962				0.921				0.914				

# National Data & Surveying Services

## Intersection Turning Movement Count

**Location:** Moody St & Cerritos Ave  
**City:** Cypress  
**Control:** Signalized

**Project ID:** 18-01205-023  
**Date:** 10/10/2018

### Total

NS/EW Streets:	Moody St				Moody St				Cerritos Ave				Cerritos Ave				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0.5	1	0.5	0	1.5	0.5	1	0	1	2	0	0	1	2	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	0	0	0	81	0	43	0	9	200	0	0	0	238	25	0	596
7:15 AM	0	0	0	0	123	1	45	0	18	230	0	0	0	211	39	0	667
7:30 AM	0	0	0	0	127	1	48	0	16	270	0	0	0	222	61	0	745
7:45 AM	0	0	0	0	186	1	57	0	20	315	1	0	0	214	37	0	831
8:00 AM	1	2	1	0	147	0	56	1	17	250	1	0	0	222	37	0	735
8:15 AM	4	0	0	0	120	0	58	0	17	264	1	0	0	173	26	0	663
8:30 AM	0	0	0	0	117	0	46	0	32	239	0	0	0	188	26	0	648
8:45 AM	0	1	0	0	82	0	52	0	17	200	0	0	0	173	23	0	548
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	55.56%	33.33%	11.11%	0.00%	70.62%	0.22%	29.09%	0.07%	6.90%	92.96%	0.14%	0.00%	0.00%	85.69%	14.31%	0.00%	5433
<b>PEAK HR :</b>	07:15 AM - 08:15 AM																TOTAL
<b>PEAK HR VOL :</b>	1	2	1	0	583	3	206	1	71	1065	2	0	0	869	174	0	2978
<b>PEAK HR FACTOR :</b>	0.250	0.250	0.250	0.000	0.784	0.750	0.904	0.250	0.888	0.845	0.500	0.000	0.000	0.979	0.713	0.000	0.896
	0.250				0.813				0.847				0.921				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0.5	1	0.5	0	1.5	0.5	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	2	2	1	0	51	0	31	0	52	254	2	0	0	221	79	0	695
4:15 PM	2	0	0	0	57	0	32	0	57	257	0	0	0	216	83	0	704
4:30 PM	0	1	0	0	58	0	44	0	39	263	1	0	0	274	100	0	780
4:45 PM	0	0	0	0	50	0	37	0	59	264	0	0	0	262	76	0	748
5:00 PM	1	0	0	0	47	0	31	0	56	300	1	0	0	342	121	0	899
5:15 PM	2	0	0	0	75	0	39	0	51	282	0	0	0	322	120	0	891
5:30 PM	0	0	0	0	78	0	44	0	58	285	0	0	0	302	99	0	866
5:45 PM	0	0	0	0	61	0	42	0	46	217	1	0	0	227	96	0	690
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	63.64%	27.27%	9.09%	0.00%	61.39%	0.00%	38.61%	0.00%	16.42%	83.38%	0.20%	0.00%	0.00%	73.67%	26.33%	0.00%	6273
<b>PEAK HR :</b>	04:45 PM - 05:45 PM																TOTAL
<b>PEAK HR VOL :</b>	3	0	0	0	250	0	151	0	224	1131	1	0	0	1228	416	0	3404
<b>PEAK HR FACTOR :</b>	0.375	0.000	0.000	0.000	0.801	0.000	0.858	0.000	0.949	0.943	0.250	0.000	0.000	0.898	0.860	0.000	0.947
	0.375				0.822				0.950				0.888				

# National Data & Surveying Services

## Intersection Turning Movement Count

**Location:** Walker St & Cerritos Ave  
**City:** Cypress  
**Control:** Signalized

**Project ID:** 18-01205-007  
**Date:** 10/10/2018

### Total

NS/EW Streets:	Walker St				Walker St				Cerritos Ave				Cerritos Ave				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	2	2	1	0	1	2	0	0	1	3	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	28	28	9	0	21	121	7	0	2	195	75	0	17	209	15	0	727
7:15 AM	22	53	12	0	44	143	12	0	5	237	99	0	21	213	20	0	881
7:30 AM	20	80	13	0	36	178	14	0	2	268	104	0	31	242	42	0	1030
7:45 AM	32	66	16	0	45	227	14	0	5	319	144	0	31	219	25	0	1143
8:00 AM	36	50	12	0	47	190	20	0	5	285	136	0	29	192	19	0	1021
8:15 AM	16	45	12	0	38	155	22	0	8	267	106	0	29	188	20	0	906
8:30 AM	31	65	14	0	30	123	11	0	10	233	101	0	27	163	25	0	833
8:45 AM	21	47	13	0	20	136	17	0	6	196	90	0	11	158	18	0	733
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	206	434	101	0	281	1273	117	0	43	2000	855	0	196	1584	184	0	7274
	27.80%	58.57%	13.63%	0.00%	16.82%	76.18%	7.00%	0.00%	1.48%	69.01%	29.50%	0.00%	9.98%	80.65%	9.37%	0.00%	
<b>PEAK HR :</b>	<b>07:30 AM - 08:30 AM</b>																<b>TOTAL</b>
<b>PEAK HR VOL :</b>	104	241	53	0	166	750	70	0	20	1139	490	0	120	841	106	0	4100
<b>PEAK HR FACTOR :</b>	0.722	0.753	0.828	0.000	0.883	0.826	0.795	0.000	0.625	0.893	0.851	0.000	0.968	0.869	0.631	0.000	0.897
	0.873				0.862				0.881				0.847				

PM	Walker St				Walker St				Cerritos Ave				Cerritos Ave				TOTAL
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	1	3	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	85	151	37	0	27	112	4	0	19	239	62	0	18	219	41	0	1014
4:15 PM	84	161	45	0	27	93	5	0	20	235	66	0	23	226	28	0	1013
4:30 PM	126	167	35	0	31	121	16	0	6	245	55	0	18	224	32	0	1076
4:45 PM	107	176	46	0	20	99	6	0	14	252	64	0	28	257	38	0	1107
5:00 PM	137	201	48	0	28	111	9	0	31	273	53	0	16	297	48	0	1252
5:15 PM	141	207	60	0	29	109	19	0	23	271	65	0	24	299	41	0	1288
5:30 PM	117	153	59	0	29	130	12	0	27	272	55	0	25	271	30	0	1180
5:45 PM	100	195	26	0	24	97	21	0	19	198	59	0	33	228	41	0	1041
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	897	1411	356	0	215	872	92	0	159	1985	479	0	185	2021	299	0	8971
	33.67%	52.97%	13.36%	0.00%	18.24%	73.96%	7.80%	0.00%	6.06%	75.68%	18.26%	0.00%	7.39%	80.68%	11.94%	0.00%	
<b>PEAK HR :</b>	<b>04:45 PM - 05:45 PM</b>																<b>TOTAL</b>
<b>PEAK HR VOL :</b>	502	737	213	0	106	449	46	0	95	1068	237	0	93	1124	157	0	4827
<b>PEAK HR FACTOR :</b>	0.890	0.890	0.888	0.000	0.914	0.863	0.605	0.000	0.766	0.978	0.912	0.000	0.830	0.940	0.818	0.000	0.937
	0.890				0.879				0.975				0.944				

# **APPENDIX B**

## **ICU WORKSHEETS**



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Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 Denni/Ball	A	xxxxxx 0.525	A	xxxxxx 0.525	+ 0.000 V/C
# 2 Bloomfield/Cerritos	B	xxxxxx 0.693	B	xxxxxx 0.693	+ 0.000 V/C
# 3 Denni/Cerritos	A	xxxxxx 0.594	A	xxxxxx 0.594	+ 0.000 V/C
# 4 Moody/Cerritos	A	xxxxxx 0.572	A	xxxxxx 0.572	+ 0.000 V/C
# 5 Walker/Cerritos	B	xxxxxx 0.681	B	xxxxxx 0.681	+ 0.000 V/C

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #1 Denni/Ball

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.525
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 25 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic volumes and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns for Vol/Sat and Crit Moves.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #2 Bloomfield/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.693
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 36 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows of adjustment factors.

Saturation Flow Module: Table with 12 columns representing saturation flow values and 4 rows of adjustment factors.

Capacity Analysis Module: Table with 12 columns representing capacity analysis values and 2 rows of adjustment factors.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #3 Denni/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.594
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 28 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic volumes and adjustment factors.

Saturation Flow Module: Table with 12 columns representing saturation flow rates and adjustments.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #4 Moody/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.572
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 27 Level Of Service: A
\*\*\*\*\*

Table with columns for Approach (North, South, East, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for Vol/Sat and Crit Moves.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #5 Walker/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.681
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 35 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows for various adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module: Table with 12 columns for saturation flow and 4 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns for capacity analysis and 3 rows for Vol/Sat, Crit Moves, and a summary row.

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Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 Denni/Ball	A	xxxxxx 0.566	A	xxxxxx 0.566	+ 0.000 V/C
# 2 Bloomfield/Cerritos	C	xxxxxx 0.739	C	xxxxxx 0.739	+ 0.000 V/C
# 3 Denni/Cerritos	C	xxxxxx 0.751	C	xxxxxx 0.751	+ 0.000 V/C
# 4 Moody/Cerritos	C	xxxxxx 0.756	C	xxxxxx 0.756	+ 0.000 V/C
# 5 Walker/Cerritos	C	xxxxxx 0.730	C	xxxxxx 0.730	+ 0.000 V/C



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

\*\*\*\*\*  
 Intersection #1 Denni/Ball  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.566  
 Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 27 Level Of Service: A  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permit+Prot			Permit+Prot			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	1	1	0	1	0	1	1	0	1	0	1	1	0					

Volume Module:

Base Vol:	101	256	101	102	120	39	90	953	78	82	737	205
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:	101	256	101	102	120	39	90	953	78	82	737	205
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:	101	256	101	102	120	39	90	953	78	82	737	205
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	101	256	101	102	120	39	90	953	78	82	737	205
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:	101	256	101	102	120	39	90	953	78	82	737	205

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
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	1.43	0.57	1.00	1.51	0.49	1.00	1.85	0.15	1.00	1.56	0.44
Final Sat.:	1700	2438	962	1700	2566	834	1700	3143	257	1700	2660	740

Capacity Analysis Module:

Vol/Sat:	0.06	0.10	0.11	0.06	0.05	0.05	0.05	0.30	0.30	0.05	0.28	0.28
Crit Moves:			****	****			****			****		

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #2 Bloomfield/Cerritos

\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.739
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	42	Level Of Service:	C

\*\*\*\*\*

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				
Y+R:	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	1	1	0

Volume Module:

Base Vol:	108	514	158	61	285	99	159	1104	104	98	1055	177
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:	108	514	158	61	285	99	159	1104	104	98	1055	177
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:	108	514	158	61	285	99	159	1104	104	98	1055	177
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	108	514	158	61	285	99	159	1104	104	98	1055	177
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:	108	514	158	61	285	99	159	1104	104	98	1055	177

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
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	1.53	0.47	1.00	1.48	0.52	1.00	1.83	0.17	1.00	1.71	0.29
Final Sat.:	1700	2601	799	1700	2523	877	1700	3107	293	1700	2912	488

Capacity Analysis Module:

Vol/Sat:	0.06	0.20	0.20	0.04	0.11	0.11	0.09	0.36	0.36	0.06	0.36	0.36
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #3 Denni/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.751
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 44 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic volumes and adjustment factors.

Saturation Flow Module: Table with 12 columns representing saturation flow rates and adjustments.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #4 Moody/Cerritos

\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.756
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	44	Level Of Service:	C

\*\*\*\*\*

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

-----|-----|-----|-----|-----|

Control:	Split Phase	Split Phase	Prot+Permit	Prot+Permit
Rights:	Include	Include	Include	Include

Min. Green:	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
------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Lanes:	0	1	0	1	0	1	1	0	0	1	1	0	1	0	1	1	0
--------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

-----|-----|-----|-----|-----|

Volume Module:

Base Vol:	3	0	0	250	0	151	224	1131	1	0	1228	416
-----------	---	---	---	-----	---	-----	-----	------	---	---	------	-----

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
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Initial Bse:	3	0	0	250	0	151	224	1131	1	0	1228	416
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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
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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	0	0	250	0	151	224	1131	1	0	1228	416
-------------	---	---	---	-----	---	-----	-----	------	---	---	------	-----

Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
-------------	---	---	---	---	---	---	---	---	---	---	---	---

Reduced Vol:	3	0	0	250	0	151	224	1131	1	0	1228	416
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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:	3	0	0	250	0	151	224	1131	1	0	1228	416
--------------	---	---	---	-----	---	-----	-----	------	---	---	------	-----

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Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
-----------	------	------	------	------	------	------	------	------	------	------	------	------

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
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Lanes:	1.00	1.00	0.00	2.00	0.00	1.00	1.00	1.99	0.01	1.00	1.49	0.51
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Final Sat.:	1700	1700	0	3400	0	1700	1700	3397	3	1700	2540	860
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Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.07	0.00	0.09	0.13	0.33	0.33	0.00	0.48	0.48
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Crit Moves:	****					****	****				****	
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 Level Of Service Computation Report  
 ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)  
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\*\*\*\*\*  
 Intersection #5 Walker/Cerritos  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.730  
 Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 41 Level Of Service: C  
 \*\*\*\*\*

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:	2	0	2	0	1	1	0	1	1	0	1	0	3	0	1	1	0	2	0	1

Volume Module:

Base Vol:	502	737	213	106	449	46	95	1068	237	93	1124	157
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:	502	737	213	106	449	46	95	1068	237	93	1124	157
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:	502	737	213	106	449	46	95	1068	237	93	1124	157
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	502	737	213	106	449	46	95	1068	237	93	1124	157
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:	502	737	213	106	449	46	95	1068	237	93	1124	157

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
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:	2.00	2.00	1.00	1.00	1.81	0.19	1.00	3.00	1.00	1.00	2.00	1.00
Final Sat.:	3400	3400	1700	1700	3084	316	1700	5100	1700	1700	3400	1700

Capacity Analysis Module:

Vol/Sat:	0.15	0.22	0.13	0.06	0.15	0.15	0.06	0.21	0.14	0.05	0.33	0.09
Crit Moves:	****			****			****			****		

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Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 Denni/Ball	A	xxxxxx 0.525	A	xxxxxx 0.525	+ 0.000 V/C
# 2 Bloomfield/Cerritos	B	xxxxxx 0.693	B	xxxxxx 0.693	+ 0.000 V/C
# 3 Denni/Cerritos	A	xxxxxx 0.551	A	xxxxxx 0.552	+ 0.000 V/C
# 4 Moody/Cerritos	A	xxxxxx 0.572	A	xxxxxx 0.572	+ 0.000 V/C
# 5 Walker/Cerritos	B	xxxxxx 0.681	B	xxxxxx 0.681	+ 0.000 V/C

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 Denni/Ball

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.525
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 25 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns representing saturation flow values and 4 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns representing capacity analysis values and 2 rows of data including Vol/Sat and Crit Moves.

\*\*\*\*\*



Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Bloomfield/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.693
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 36 Level Of Service: B
\*\*\*\*\*

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 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 121 312 192 168 569 90 31 826 115 172 724 100
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: 121 312 192 168 569 90 31 826 115 172 724 100
Added Vol: 0 0 0 0 0 0 0 0 1 0 0 1 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 121 312 192 168 569 90 31 827 115 172 725 100
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: 121 312 192 168 569 90 31 827 115 172 725 100
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 121 312 192 168 569 90 31 827 115 172 725 100
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: 121 312 192 168 569 90 31 827 115 172 725 100

Saturation Flow Module:
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
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 1.24 0.76 1.00 1.73 0.27 1.00 1.76 0.24 1.00 1.76 0.24
Final Sat.: 1700 2105 1295 1700 2936 464 1700 2985 415 1700 2988 412

Capacity Analysis Module:
Vol/Sat: 0.07 0.15 0.15 0.10 0.19 0.19 0.02 0.28 0.28 0.10 0.24 0.24
Crit Moves: \*\*\*\* \*\*\*\* \*\*\*\* \*\*\*\*
\*\*\*\*\*

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)
*****
Intersection #3 Denni/Cerritos
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.552
Loss Time (sec):      5            Average Delay (sec/veh):        xxxxxx
Optimal Cycle:        26            Level Of Service:                A
*****
Approach:             North Bound      South Bound      East Bound      West Bound
Movement:             L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:              Split Phase    Split Phase      Prot+Permit     Prot+Permit
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 0 1      1 0 1 0 1      1 0 2 0 1       1 0 1 1 0
-----|-----|-----|-----|
Volume Module:
Base Vol:             23 79 49        239 153 128     63 845 86        112 793 137
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:          23 79 49        239 153 128     63 845 86        112 793 137
Added Vol:            1 0 0           0 1 0           0 1 0           0 0 0
PasserByVol:         0 0 0           0 0 0           0 0 0           0 0 0
Initial Fut:         24 79 49        239 154 128     63 846 86        112 793 137
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:          24 79 49        239 154 128     63 846 86        112 793 137
Reduct Vol:           0 0 0           0 0 0           0 0 0           0 0 0
Reduced Vol:         24 79 49        239 154 128     63 846 86        112 793 137
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:         24 79 49        239 154 128     63 846 86        112 793 137
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:             1700 1700 1700  1700 1700 1700  1700 1700 1700  1700 1700 1700
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 1.00 1.00  1.00 1.00 1.00  1.00 2.00 1.00  1.00 1.71 0.29
Final Sat.:          1700 1700 1700  1700 1700 1700  1700 3400 1700  1700 2899 501
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:              0.01 0.05 0.03  0.14 0.09 0.08  0.04 0.25 0.05  0.07 0.27 0.27
Crit Moves:           ****          ****          ****          ****
*****

```

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

\*\*\*\*\*  
 Intersection #4 Moody/Cerritos  
 \*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.572
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	27	Level Of Service:	A

\*\*\*\*\*

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

-----|-----|-----|-----|-----|

Control:	Split Phase	Split Phase	Prot+Permit	Prot+Permit
Rights:	Include	Include	Include	Include

Min. Green:	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
Lanes:	0	1	0	1	0	1	1	0	1	1	0

-----|-----|-----|-----|-----|

Volume Module:

Base Vol:	1	2	1	583	3	206	71	1065	2	0	869	174
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:	1	2	1	583	3	206	71	1065	2	0	869	174
Added Vol:	0	0	0	0	0	0	0	1	0	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	2	1	583	3	206	71	1066	2	0	870	174
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:	1	2	1	583	3	206	71	1066	2	0	870	174
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	2	1	583	3	206	71	1066	2	0	870	174
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:	1	2	1	583	3	206	71	1066	2	0	870	174

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Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
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:	0.50	1.00	0.50	1.99	0.01	1.00	1.00	1.99	0.01	1.00	1.67	0.33
Final Sat.:	850	1700	850	3383	17	1700	1700	3394	6	1700	2833	567

-----|-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.17	0.17	0.12	0.04	0.31	0.31	0.00	0.31	0.31
Crit Moves:	****			****			****			****		

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Walker/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.681
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 35 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume and adjustment factors.

Saturation Flow Module: Table with 12 columns representing saturation flow and adjustment factors.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics.

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Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 Denni/Ball	A	xxxxxx 0.566	A	xxxxxx 0.569	+ 0.002 V/C
# 2 Bloomfield/Cerritos	C	xxxxxx 0.739	C	xxxxxx 0.747	+ 0.008 V/C
# 3 Denni/Cerritos	B	xxxxxx 0.673	B	xxxxxx 0.679	+ 0.006 V/C
# 4 Moody/Cerritos	C	xxxxxx 0.756	C	xxxxxx 0.762	+ 0.006 V/C
# 5 Walker/Cerritos	C	xxxxxx 0.730	C	xxxxxx 0.736	+ 0.007 V/C

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 Denni/Ball

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.569
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 27 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns representing saturation flow factors and 4 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics and 2 rows of data including Vol/Sat and Crit Moves.

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)
*****
Intersection #2 Bloomfield/Cerritos
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.747
Loss Time (sec):      5           Average Delay (sec/veh):        xxxxxx
Optimal Cycle:        43          Level Of Service:              C
*****
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 1 1 0      1 0 1 1 0      1 0 1 1 0      1 0 1 1 0
-----|-----|-----|-----|
Volume Module:
Base Vol:             108 514 158    61 285 99      159 1104 104    98 1055 177
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:          108 514 158    61 285 99      159 1104 104    98 1055 177
Added Vol:            0 0 0          7 0 0          0 16 0          0 9 3
PasserByVol:         0 0 0          0 0 0          0 0 0          0 0 0
Initial Fut:          108 514 158    68 285 99      159 1120 104    98 1064 180
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:           108 514 158    68 285 99      159 1120 104    98 1064 180
Reduct Vol:           0 0 0          0 0 0          0 0 0          0 0 0
Reduced Vol:          108 514 158    68 285 99      159 1120 104    98 1064 180
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:          108 514 158    68 285 99      159 1120 104    98 1064 180
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:             1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
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 1.53 0.47 1.00 1.48 0.52 1.00 1.83 0.17 1.00 1.71 0.29
Final Sat.:           1700 2601 799 1700 2523 877 1700 3111 289 1700 2908 492
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:              0.06 0.20 0.20 0.04 0.11 0.11 0.09 0.36 0.36 0.06 0.37 0.37
Crit Moves:          ****          ****          ****          ****
*****

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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Denni/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.679
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 35 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns and 2 rows showing Vol/Sat and Crit Moves.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Moody/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.762
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 45 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns representing saturation flow for different lanes and 4 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics and 3 rows of data including Vol/Sat, Crit Moves, and asterisks.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Walker/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.736
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 41 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows of adjustment factors.

Saturation Flow Module: Table with 12 columns representing saturation flow and 4 rows of adjustment factors.

Capacity Analysis Module: Table with 12 columns representing capacity analysis and 2 rows of adjustment factors.

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Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 Denni/Ball	A	xxxxxx 0.532	A	xxxxxx 0.537	+ 0.005 V/C
# 2 Bloomfield/Cerritos	C	xxxxxx 0.703	C	xxxxxx 0.707	+ 0.004 V/C
# 3 Denni/Cerritos	B	xxxxxx 0.602	B	xxxxxx 0.624	+ 0.022 V/C
# 4 Moody/Cerritos	A	xxxxxx 0.580	A	xxxxxx 0.594	+ 0.014 V/C
# 5 Walker/Cerritos	B	xxxxxx 0.690	C	xxxxxx 0.714	+ 0.024 V/C

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 Denni/Ball

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.537
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 25 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 13 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns representing saturation flow values and 4 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns representing capacity analysis values and 2 rows of data including Vol/Sat and Crit Moves.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Bloomfield/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.707
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 38 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic directions and metrics like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns for Vol/Sat and Crit Moves.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Denni/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.624
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 31 Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 13 columns representing different volume metrics and 12 rows of data.

Saturation Flow Module: Table with 12 columns representing saturation flow metrics and 4 rows of data.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics and 2 rows of data.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Moody/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.594
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 28 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume and adjustment factors.

Saturation Flow Module: Table with 12 columns representing saturation flow and adjustment factors.

Capacity Analysis Module: Table with 12 columns representing capacity analysis factors.

\*\*\*\*\*



Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Walker/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.714
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 39 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume metrics and 12 rows of data.

Saturation Flow Module: Table with 12 columns representing saturation flow metrics and 4 rows of data.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics and 2 rows of data.

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Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 Denni/Ball	A	xxxxxx 0.574	A	xxxxxx 0.580	+ 0.005 V/C
# 2 Bloomfield/Cerritos	C	xxxxxx 0.750	C	xxxxxx 0.755	+ 0.005 V/C
# 3 Denni/Cerritos	C	xxxxxx 0.762	C	xxxxxx 0.786	+ 0.025 V/C
# 4 Moody/Cerritos	C	xxxxxx 0.766	C	xxxxxx 0.778	+ 0.012 V/C
# 5 Walker/Cerritos	C	xxxxxx 0.740	C	xxxxxx 0.754	+ 0.014 V/C

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 Denni/Ball

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.580
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 28 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different traffic directions and 12 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module: Table with 12 columns and 4 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns and 2 rows showing Vol/Sat and Crit Moves.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Bloomfield/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.755
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 44 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume metrics and 12 rows of data.

Saturation Flow Module: Table with 12 columns representing saturation flow metrics and 4 rows of data.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics and 2 rows of data.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Denni/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.786
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 49 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns representing saturation flow values and 4 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns representing capacity analysis values and 2 rows of data including Vol/Sat and Crit Moves.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Moody/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.778
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 48 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing traffic volumes and adjustments for various scenarios like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns representing saturation flow rates and adjustments for different lane configurations.

Capacity Analysis Module: Table with 12 columns representing volume-to-saturation ratios and critical moves for each approach.

\*\*\*\*\*

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Walker/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.754
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 44 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns representing saturation flow and 4 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns representing capacity analysis and 2 rows of data including Vol/Sat and Crit Moves.

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Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 Denni/Ball	A	xxxxxx 0.532	A	xxxxxx 0.537	+ 0.005 V/C
# 2 Bloomfield/Cerritos	C	xxxxxx 0.703	C	xxxxxx 0.707	+ 0.004 V/C
# 3 Denni/Cerritos	A	xxxxxx 0.559	A	xxxxxx 0.573	+ 0.014 V/C
# 4 Moody/Cerritos	A	xxxxxx 0.580	A	xxxxxx 0.594	+ 0.014 V/C
# 5 Walker/Cerritos	B	xxxxxx 0.690	C	xxxxxx 0.714	+ 0.024 V/C



Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 Denni/Ball

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.537
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 25 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume metrics and 12 rows of data.

Saturation Flow Module: Table with 12 columns representing saturation flow metrics and 4 rows of data.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics and 2 rows of data.

\*\*\*\*\*

Level Of Service Computation Report  
 ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)  
 \*\*\*\*\*  
 Intersection #2 Bloomfield/Cerritos  
 \*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.707
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	38	Level Of Service:	C

\*\*\*\*\*

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 1 1 0	1 0 1 1 0	1 0 1 1 0	1 0 1 1 0

-----|-----|-----|-----|-----|

Volume Module:

Base Vol:	121 312 192	168 569 90	31 826 115	172 724 100
Growth Adj:	1.01 1.01 1.01	1.01 1.01 1.01	1.01 1.01 1.01	1.01 1.01 1.01
Initial Bse:	123 317 195	171 578 91	31 838 117	175 735 101
Added Vol:	0 5 0	0 5 0	0 10 0	0 4 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	123 322 195	171 583 91	31 848 117	175 739 101
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:	123 322 195	171 583 91	31 848 117	175 739 101
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	123 322 195	171 583 91	31 848 117	175 739 101
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:	123 322 195	171 583 91	31 848 117	175 739 102

-----|-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane:	1700 1700 1700	1700 1700 1700	1700 1700 1700	1700 1700 1700
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 1.25 0.75	1.00 1.73 0.27	1.00 1.76 0.24	1.00 1.76 0.24
Final Sat.:	1700 2117 1283	1700 2939 461	1700 2989 411	1700 2989 411

-----|-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat:	0.07 0.15 0.15	0.10 0.20 0.20	0.02 0.28 0.28	0.10 0.25 0.25
Crit Moves:	****	****	****	****

\*\*\*\*\*

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-----
Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)
*****
Intersection #3 Denni/Cerritos
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.573
Loss Time (sec):      5            Average Delay (sec/veh):        xxxxxx
Optimal Cycle:        27            Level Of Service:                A
*****
Approach:             North Bound      South Bound      East Bound      West Bound
Movement:             L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:              Split Phase    Split Phase      Prot+Permit      Prot+Permit
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 0 1      1 0 1 0 1      1 0 2 0 1      1 0 1 1 0
-----|-----|-----|-----|
Volume Module:
Base Vol:             23 79 49        239 153 128      63 845 86 112 793 137
Growth Adj:           1.01 1.01 1.01  1.01 1.01 1.01  1.01 1.01 1.01  1.01 1.01 1.01
Initial Bse:          23 80 50        243 155 130      64 858 87 114 805 139
Added Vol:            1 18 14         0 21 0           0 10 0           1 4 0
PasserByVol:         0 0 0           0 0 0           0 0 0           0 0 0
Initial Fut:          24 98 64        243 176 130      64 868 87 115 809 139
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:          24 98 64        243 176 130      64 868 87 115 809 139
Reduct Vol:           0 0 0           0 0 0           0 0 0           0 0 0
Reduced Vol:         24 98 64        243 176 130      64 868 87 115 809 139
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:         24 98 64        243 176 130      64 868 87 115 809 139
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:             1700 1700 1700  1700 1700 1700  1700 1700 1700  1700 1700 1700
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 1.00 1.00  1.00 1.00 1.00  1.00 2.00 1.00  1.00 1.71 0.29
Final Sat.:          1700 1700 1700  1700 1700 1700  1700 3400 1700  1700 2901 499
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:              0.01 0.06 0.04  0.14 0.10 0.08  0.04 0.26 0.05  0.07 0.28 0.28
Crit Moves:           ****          ****          ****          ****
*****

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)
*****
Intersection #4 Moody/Cerritos
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.594
Loss Time (sec):      5            Average Delay (sec/veh):        xxxxxx
Optimal Cycle:        29            Level Of Service:                A
*****
Approach:             North Bound      South Bound      East Bound      West Bound
Movement:             L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:              Split Phase      Split Phase      Prot+Permit      Prot+Permit
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:                0  1  0  1  0      1  1  0  0  1      1  0  1  1  0      1  0  1  1  0
-----|-----|-----|-----|
Volume Module:
Base Vol:             1  2  1          583  3  206      71 1065          2  0  869  174
Growth Adj:          1.01 1.01 1.01      1.01 1.01 1.01      1.01 1.01 1.01      1.01 1.01 1.01
Initial Bse:          1  2  1          592  3  209      72 1081          2  0  882  177
Added Vol:            0  0  0          19  0  1          6  17  0          0  5  12
PasserByVol:         0  0  0          0  0  0          0  0  0          0  0  0
Initial Fut:          1  2  1          611  3  210      78 1098          2  0  887  189
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:           1  2  1          611  3  210      78 1098          2  0  887  189
Reduct Vol:           0  0  0          0  0  0          0  0  0          0  0  0
Reduced Vol:          1  2  1          611  3  210      78 1098          2  0  887  189
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:          1  2  1          611  3  210      78 1098          2  0  887  189
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:             1700 1700 1700      1700 1700 1700      1700 1700 1700      1700 1700 1700
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:                0.50 1.00 0.50      1.99 0.01 1.00      1.00 1.99 0.01      1.00 1.65 0.35
Final Sat.:           850 1700 850      3383 17 1700      1700 3394 6 1700 2804 596
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:              0.00 0.00 0.00      0.18 0.18 0.12      0.05 0.32 0.32      0.00 0.32 0.32
Crit Moves:           ****          ****          ****          ****
*****

```

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Walker/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.714
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 39 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume metrics and 12 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns representing saturation flow metrics and 4 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics and 2 rows of data including Vol/Sat and Crit Moves.

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Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 Denni/Ball	A	xxxxxx 0.574	A	xxxxxx 0.582	+ 0.007 V/C
# 2 Bloomfield/Cerritos	C	xxxxxx 0.750	C	xxxxxx 0.762	+ 0.013 V/C
# 3 Denni/Cerritos	B	xxxxxx 0.682	C	xxxxxx 0.707	+ 0.025 V/C
# 4 Moody/Cerritos	C	xxxxxx 0.766	C	xxxxxx 0.784	+ 0.017 V/C
# 5 Walker/Cerritos	C	xxxxxx 0.740	C	xxxxxx 0.760	+ 0.020 V/C

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 Denni/Ball

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.582
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 28 Level Of Service: A
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume metrics and 12 rows of data.

Saturation Flow Module: Table with 12 columns representing saturation flow metrics and 4 rows of data.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics and 2 rows of data.

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)
*****
Intersection #2 Bloomfield/Cerritos
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.762
Loss Time (sec):      5            Average Delay (sec/veh):        xxxxxxx
Optimal Cycle:        45           Level Of Service:                C
*****
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 1 1 0    1 0 1 1 0    1 0 1 1 0    1 0 1 1 0
-----|-----|-----|-----|
Volume Module:
Base Vol:      108 514 158      61 285 99      159 1104 104      98 1055 177
Growth Adj:   1.01 1.01 1.01    1.01 1.01 1.01    1.01 1.01 1.01    1.01 1.01 1.01
Initial Bse:  110 522 160      62 289 100      161 1121 106      99 1071 180
Added Vol:    0 8 0      7 9 0      0 23 0      0 18 3
PasserByVol: 0 0 0      0 0 0      0 0 0      0 0 0
Initial Fut:  110 530 160      69 298 100      161 1144 106      99 1089 183
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:   110 530 160      69 298 100      161 1144 106      99 1089 183
Reduct Vol:   0 0 0      0 0 0      0 0 0      0 0 0
Reduced Vol:  110 530 160      69 298 100      161 1144 106      99 1089 183
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:  110 530 160      69 298 100      161 1144 106      99 1089 183
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:     1700 1700 1700    1700 1700 1700    1700 1700 1700    1700 1700 1700
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 1.54 0.46    1.00 1.50 0.50    1.00 1.83 0.17    1.00 1.71 0.29
Final Sat.:   1700 2610 790    1700 2543 857    1700 3113 287    1700 2912 488
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:      0.06 0.20 0.20    0.04 0.12 0.12    0.09 0.37 0.37    0.06 0.37 0.37
Crit Moves:   ****          ****          ****          ****
*****

```



Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Denni/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.707
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 38 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume categories and 12 rows of data including Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 12 columns representing saturation flow values and 4 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns representing capacity analysis values and 2 rows of data including Vol/Sat and Crit Moves.

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)
*****
Intersection #4 Moody/Cerritos
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.784
Loss Time (sec):      5            Average Delay (sec/veh):        xxxxxx
Optimal Cycle:        49            Level Of Service:                C
*****
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:      Split Phase      Split Phase      Prot+Permit      Prot+Permit
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:       0 1 0 1 0      1 1 0 0 1      1 0 1 1 0      1 0 1 1 0
-----|-----|-----|-----|
Volume Module:
Base Vol:     3 0 0      250 0 151 224 1131 1 0 1228 416
Growth Adj:  1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01
Initial Bse:  3 0 0      254 0 153 227 1148 1 0 1246 422
Added Vol:    0 0 0      18 0 2 8 26 0 0 29 10
PasserByVol:  0 0 0      0 0 0 0 0 0 0 0 0 0
Initial Fut:  3 0 0      272 0 155 235 1174 1 0 1275 432
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 0 0      272 0 155 235 1174 1 0 1275 432
Reduct Vol:  0 0 0      0 0 0 0 0 0 0 0 0 0
Reduced Vol:  3 0 0      272 0 155 235 1174 1 0 1275 432
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:  3 0 0      272 0 155 235 1174 1 0 1275 432
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:    1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
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 1.00 0.00 2.00 0.00 1.00 1.00 1.99 0.01 1.00 1.49 0.51
Final Sat.:  1700 1700 0 3400 0 1700 1700 3397 3 1700 2539 861
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00 0.00 0.08 0.00 0.09 0.14 0.35 0.35 0.00 0.50 0.50
Crit Moves:  ****                **** ****                ****
*****

```

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Walker/Cerritos

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.760
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 45 Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns representing different volume metrics and 12 rows of data.

Saturation Flow Module: Table with 12 columns representing saturation flow metrics and 4 rows of data.

Capacity Analysis Module: Table with 12 columns representing capacity analysis metrics and 2 rows of data.

\*\*\*\*\*

# APPENDIX C

## HCM WORKSHEETS

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↗		↑	↗↘	↘↗	↑
Traffic Vol, veh/h	0	1	151	1	1	351
Future Vol, veh/h	0	1	151	1	1	351
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	164	1	1	382

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	548	164	0	0	165
Stage 1	164	-	-	-	-
Stage 2	384	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	497	881	-	-	1413
Stage 1	865	-	-	-	-
Stage 2	688	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	497	881	-	-	1413
Mov Cap-2 Maneuver	497	-	-	-	-
Stage 1	865	-	-	-	-
Stage 2	687	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	881	1413
HCM Lane V/C Ratio	-	-	0.001	0.001
HCM Control Delay (s)	-	-	9.1	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Vol, veh/h	1133	1	1	1043	0	1
Future Vol, veh/h	1133	1	1	1043	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1232	1	1	1134	0	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1233	0	- 617
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	4.14	-	- 6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	2.22	-	- 3.32
Pot Cap-1 Maneuver	-	-	561	-	0 433
Stage 1	-	-	-	-	0 -
Stage 2	-	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	561	-	- 433
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	433	-	-	561	-
HCM Lane V/C Ratio	0.003	-	-	0.002	-
HCM Control Delay (s)	13.3	-	-	11.4	0
HCM Lane LOS	B	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↙		↑	↗↘	↘↙	↑
Traffic Vol, veh/h	5	24	313	10	16	161
Future Vol, veh/h	5	24	313	10	16	161
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	26	340	11	17	175

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	549	340	0	0	351
Stage 1	340	-	-	-	-
Stage 2	209	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	497	702	-	-	1208
Stage 1	721	-	-	-	-
Stage 2	826	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	490	702	-	-	1208
Mov Cap-2 Maneuver	490	-	-	-	-
Stage 1	721	-	-	-	-
Stage 2	814	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	653	1208
HCM Lane V/C Ratio	-	-	0.048	0.014
HCM Control Delay (s)	-	-	10.8	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Vol, veh/h	1364	20	20	1391	0	10
Future Vol, veh/h	1364	20	20	1391	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1483	22	22	1512	0	11

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1505	0	- 753
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	4.14	-	- 6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	2.22	-	- 3.32
Pot Cap-1 Maneuver	-	-	441	-	0 352
Stage 1	-	-	-	-	0 -
Stage 2	-	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	441	-	- 352
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	15.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	352	-	-	441	-
HCM Lane V/C Ratio	0.031	-	-	0.049	-
HCM Control Delay (s)	15.6	-	-	13.6	2.1
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-



Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↘		↑	↗	↘	↑
Traffic Vol, veh/h	0	1	185	1	1	378
Future Vol, veh/h	0	1	185	1	1	378
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	201	1	1	411

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	614	201	0	0	202
Stage 1	201	-	-	-	-
Stage 2	413	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	455	840	-	-	1370
Stage 1	833	-	-	-	-
Stage 2	668	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	455	840	-	-	1370
Mov Cap-2 Maneuver	455	-	-	-	-
Stage 1	833	-	-	-	-
Stage 2	667	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	840	1370
HCM Lane V/C Ratio	-	-	0.001	0.001
HCM Control Delay (s)	-	-	9.3	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Vol, veh/h	1174	1	1	1065	0	1
Future Vol, veh/h	1174	1	1	1065	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1276	1	1	1158	0	1

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1277	0	- 639
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	4.14	-	- 6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	2.22	-	- 3.32
Pot Cap-1 Maneuver	-	-	540	-	0 419
Stage 1	-	-	-	-	0 -
Stage 2	-	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	540	-	- 419
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	419	-	-	540	-
HCM Lane V/C Ratio	0.003	-	-	0.002	-
HCM Control Delay (s)	13.6	-	-	11.7	0
HCM Lane LOS	B	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↗		↑	↗↘	↘↗	↑
Traffic Vol, veh/h	5	24	353	10	16	183
Future Vol, veh/h	5	24	353	10	16	183
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	26	384	11	17	199

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	617	384	0	0	395
Stage 1	384	-	-	-	-
Stage 2	233	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	453	664	-	-	1164
Stage 1	688	-	-	-	-
Stage 2	806	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	446	664	-	-	1164
Mov Cap-2 Maneuver	446	-	-	-	-
Stage 1	688	-	-	-	-
Stage 2	794	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	612	1164
HCM Lane V/C Ratio	-	-	0.052	0.015
HCM Control Delay (s)	-	-	11.2	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Vol, veh/h	1407	20	20	1423	0	10
Future Vol, veh/h	1407	20	20	1423	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1529	22	22	1547	0	11

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1551	0	- 776
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	4.14	-	- 6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	2.22	-	- 3.32
Pot Cap-1 Maneuver	-	-	423	-	0 340
Stage 1	-	-	-	-	0 -
Stage 2	-	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	423	-	- 340
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	15.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	340	-	-	423	-
HCM Lane V/C Ratio	0.032	-	-	0.051	-
HCM Control Delay (s)	15.9	-	-	14	2.5
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-