Kimley»Horn

DRAFT

November 21, 2014

Sara Osborn
City of San Diego
202 C Street
San Diego, California 92101

RE: *San Ysidro Community Plan Update – Mobility Analysis Memo for the Preferred Land Use Alternative*

Dear Sara:

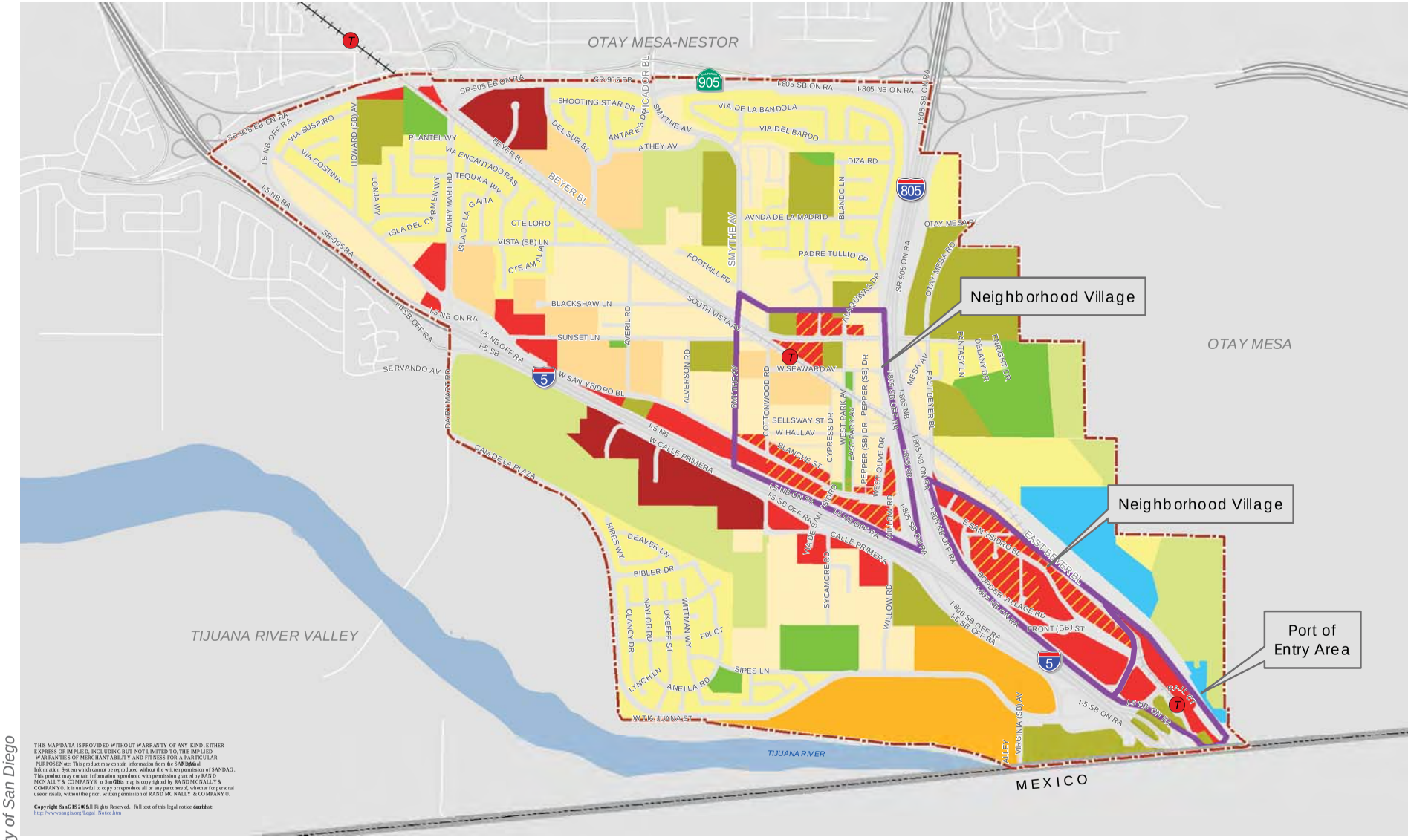
This technical memorandum summarizes the technical analysis and mobility recommendations for the San Ysidro Community Plan (SYCP) Update, Preferred Land Use Alternative. This technical report is being prepared to facilitate City staff review of the recommended mobility improvements for the San Ysidro Community Plan Update (SYCPU). The analysis includes an evaluation of the existing roadway network with the increase of traffic volumes anticipated with the building of the Community.

Land Use and Trip Generation

The projections of land use intensities were developed using GIS analysis techniques by the City of San Diego's Planning Department staff. Allowable uses, floor-to-area ratios, residential densities, allowable heights, and space for parking were all considered when determining the reasonably expected land use plan alternatives. **Figure 1** illustrates the future recommended land uses within the community map.

Land use was converted to trips (auto, transit, walk and bicycle) using trip generation rates calibrated for this community. Based on the trip generation rate used for each parcel, a total of 547,066 person trips would be generated by the Community under the 2035 Proposed Land Use scenario. This trip generation represents a total of 386,668 auto trips for the entire community based on standard trip generation rates for each land use. The forecast model then assigned the total trip generation for each Trip Analysis Zone (TAZ) to the roadway network, taking into account the different transportation mode splits and the internal capture between and within each TAZ to generate the total auto trip output for the community. The total output trips generated by the community were 369,383. The difference between the input trips (386,668) and the output trips (369,383) represents the mode split shift selection and the interaction between the uses within each TAZ. A more detailed breakdown of trip generation input by land use within each TAZ is included in **Appendix A**.

Table 1 summarizes the traffic forecast output for mode choice splits for the Community of San Ysidro. As shown in the table, the forecast model for the proposed Future Land Use alternative assigned a total of 354,434 s auto trips to the network (95.96% of the total output trips). Out of the total auto trips, approximately 193,093 trips represented drive along trips (52.3% of the total output trips) and 161,341 represented carpool trips. (43.7% of the total output trips). Only 1.8% of the total output trips (6,659) were assigned to transit, with the light rail taking the majority of the transit trips with 2,829, followed by school buses with 1,930 trips and then the local buses with 1,259 trips. The commuter rail received 16 trips, the BRT 492 and finally the express buses had 133 trips. A total of



Provided by City of San Diego

LEGEND

San Ysidro Proposed Land Use
- Community Commercial
- Community Commercial/Residential Permitted
- Regional Commercial
- Heavy Commercial
- Industrial
- Light Industrial
- Institutional
- Low Density Residential (5-10 du/nra)
- Low-Medium Density Residential (10-15 du/nra)
- Medium Density Residential (15-30 du/nra)
- Medium-High Density Residential (30-44 du/nra)
- Park
- Open Space
- Other Community Open Space / Agriculture
- Right-of-Way
- Community Plan Boundary
- Areas of Transition
- Light Rail
- Trolley Stop

Figure 1
DRAFT

Year 2035 Alternative 2
Roadway Segments ADT Volumes (Weekday)

N
0 400 800 1,600 Feet

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7,232 trips were assigned to walk trips, which represented a 1.9 percent of the total output trips. The bicycle trips totaled 1,058 trips, which represents 0.3% of the total output trips for the community.

Table 1 Summary of Mode Choice Split for the Year 2035 Forecast Plot

Mode Choice		Total Trips	Percent of Total
Auto	Drive Alone	193,093	52.3%
	Carpool	161,341	43.7%
Transit	Commuter Rail	16	1.8%
	Light Rail	2,829	
	BRT	492	
	Express Bus	133	
	Local Bus	1,259	
	School Bus	1,930	
Walk	Walk	7,232	1.90%
Bicycle	Bicycle	1,058	0.3 %

Traffic volumes for the Year 2035 from the traffic model are included in **Appendix B**.

Future Daily Traffic Volumes

In the process of calibrating the existing model, it was concluded that several post model adjustments were needed for the forecasted 2035 traffic models volumes to make them consistent with existing vehicular counts and expected overall traffic patterns within the community. Below is a list of the post-model adjustments made:

- For all roadway segments where the difference between the calibrated existing 2008 model and the actual count exceeded 10%, the difference was subtracted or added to the 2035 forecast model to account for the difference between the calibrated model and the existing counts. This adjustment was completed along the following corridors:
  - Beyer Boulevard between Del Sur Boulevard and Smythe Avenue (-1,100 trips);
  - Otay Mesa Road North of Beyer Boulevard (-2,700 trips);
  - East Beyer Boulevard between Beyer Boulevard and San Ysidro Boulevard (-4,200 trips);
  - Del Sur Boulevard between SR-905 EB ramps and Beyer Boulevard (-1,100 trips);
  - Smythe Avenue between SR-905 EB ramps and Beyer Boulevard (-10,000 trips);
  - Smythe Avenue between Sunset Lane and West San Ysidro Boulevard (-600 trips);
  - Dairy Mart Road between I-5 SB ramp and Servando Avenue (+4,400 trips);
  - West San Ysidro Boulevard between Howard Avenue and Dairy Mart Road (-2,000 trips);

- West San Ysidro Boulevard between Dairy Mart Road and Sunset Lane (-4,000 trips);
- West San Ysidro Boulevard between Sunset Lane and Averil Road (+2,300 trips);
- West San Ysidro Boulevard between Averil Road and Smythe Avenue (-3,300 trips);
- West San Ysidro Boulevard between Smythe Avenue and Cottonwood Road (+3,600 trips);
- East San Ysidro Boulevard between West Park and I-805 SB ramps (+3,300 trips);
- East San Ysidro Boulevard between I-805 SB ramps and I-805 NB ramps (+5,600 trips);
- East San Ysidro Boulevard between Border Village Road (west) and Border Village Road (east) (-3,300 trips);
- East San Ysidro Boulevard between Border Villa Road (south) and Camino de la Plaza (+8,400 trips)
- Border Village Road between San Ysidro Boulevard (-700 trips);
- Willow Road between Calle Primera and Camino de la Plaza (-1,400 trips);
- Camino de la Plaza between Willow Road and I-5 SB ramps (-11,200 trips);
- Camino de la Plaza between I-5 SB ramp to East San Ysidro Boulevard (-3,200 trips);
- Vista Lane between Dairy Mart Road and Averil Road (+400 trips);
- Sunset Lane between West San Ysidro Boulevard and Averil Road (-2,500 trips);
- Sunset Lane between Averil Road and Smythe Avenue (-2,500 trips);
- Cottonwood Road between Sunset Lane and West San Ysidro Boulevard (-3,500 trips);
- West Park Avenue between Beyer Boulevard and Seward Avenue (+1,100 trips);
- Howard Avenue north of West San Ysidro Boulevard (-400 trips); and
- Avenida de la Madrid between Smythe Avenue and Alaquina Drive (-1,700 trips).

- For several additional segments, the forecasted volumes were manually adjusted as follow:
  - The forecasted volumes along West San Ysidro Boulevard between Via de San Ysidro and Park Avenue were reduced by 2,100 trips in order to balance and smooth volumes downstream and upstream of this segment;
  - The forecasted volumes along Bibler Street were increased by approximately 1,200 trips to 4,400 ADT since volumes along this street are not expected to change in the future. A nominal increase was assumed for this segment from the 4,332 existing count;
  - The forecasted volumes along Vista Lane between Averil Road and Smythe Avenue were kept as 4,600 trips as shown in the forecast plot. Reducing the trips per the calibration versus count volumes would have produced a negative value along this

corridor. The 4,600 trips shown in the plot would represent a nominal increase of traffic that was found to be within the acceptable limits.

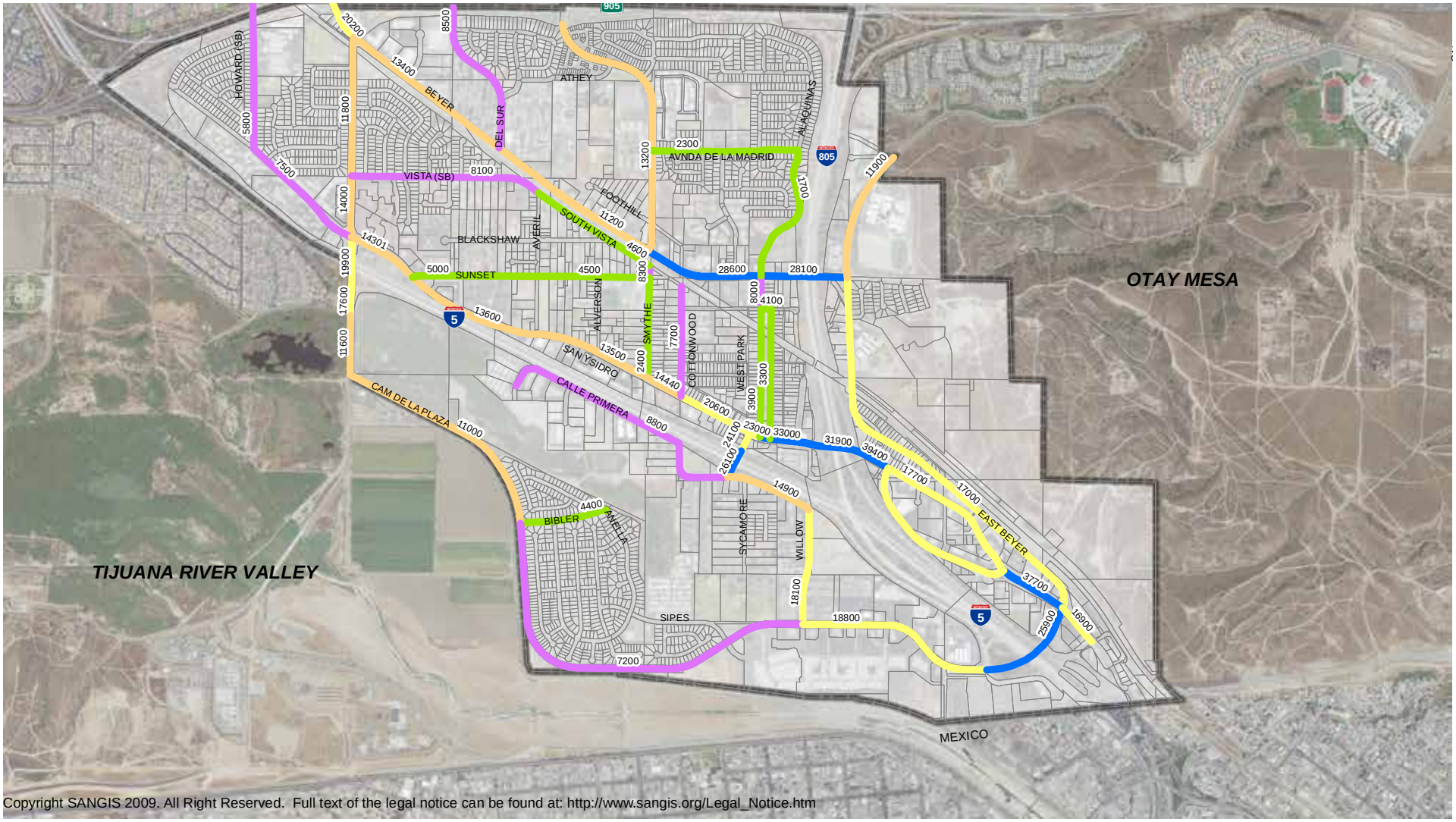
- The forecasted volumes along West Park Avenue between Seward Avenue and West San Ysidro Boulevard were kept as 3,900 trips as shown in the forecast plot. Reducing the trips per the calibration versus count volumes would have produced a negative value along this corridor. The 3,900 trips shown in the plot would represent a nominal increase of traffic that was found to be within the acceptable limits.
- The forecasted volume along Alaquinas Drive was changed to 1,700 to account for nominal growth expected by the year 2035. Reducing the trips per the calibration versus count volumes would have produced a negative value along this corridor.

Resulting daily traffic volumes for future land use alternative is depicted in **Figure 2**. **Appendix C** includes the worksheet used for the post-model adjustments for the ADT volumes

Peak Hour Traffic Volumes

Horizon Year peak hour turning movements at study area intersections were developed using methodologies from National Cooperative Highway Research Program (NCHRP) 255 – Highway Traffic Data for Urbanized Area Project Planning and Design, Chapter 8. NCHRP Report 255 is a compilation of the best techniques that are currently being used in urban areas to forecast future traffic volumes. These techniques were identified through a survey of state and local agencies with follow-up field visits to obtain detailed information on procedural steps and typical applications. The method used to forecast the future turning movement volumes for the San Ysidro Community Plan evaluation is the NCHRP's "Directional Volume Forecast". For this method, existing and Horizon Year daily traffic volumes, existing peak hour turning movements, and projected peak hour "K" and directional "D" factors, are used to calculate Horizon Year turning movements. Existing daily segment traffic volumes and peak hour intersection turning movements were counted in the field. Existing K and D factors were computed at each intersection approach based on these traffic counts. Horizon Year daily traffic volumes were obtained from the forecast models for each land use alternative as described earlier in this report.

Using the "Directional Volume Forecast" technique, the existing turning movements at each study area intersection were factored based on increases in daily approach traffic and existing K and D factors. Each respective movement was derived using an iterative approach that balances the inflows and outflows for each approach. Resulting peak hour intersection turning movements for the future proposed land use alternative is depicted in **Figure 3**. **Appendix D** includes the worksheet used for the calculations of the future peak-hour volumes.



LEGEND

- 0 - 5,000
- 5,001 - 10,000
- 10,001 - 15,000
- 15,001 - 25,000
- 25,000 or more
- Community Plan Boundary
- Parcel Boundaries

Figure 2

Year 2035 Proposed Land Use Alternative
Roadway Segments ADT Volumes

N

0 400 800 1,600 Feet

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San Ysidro CPU- Mobility Element

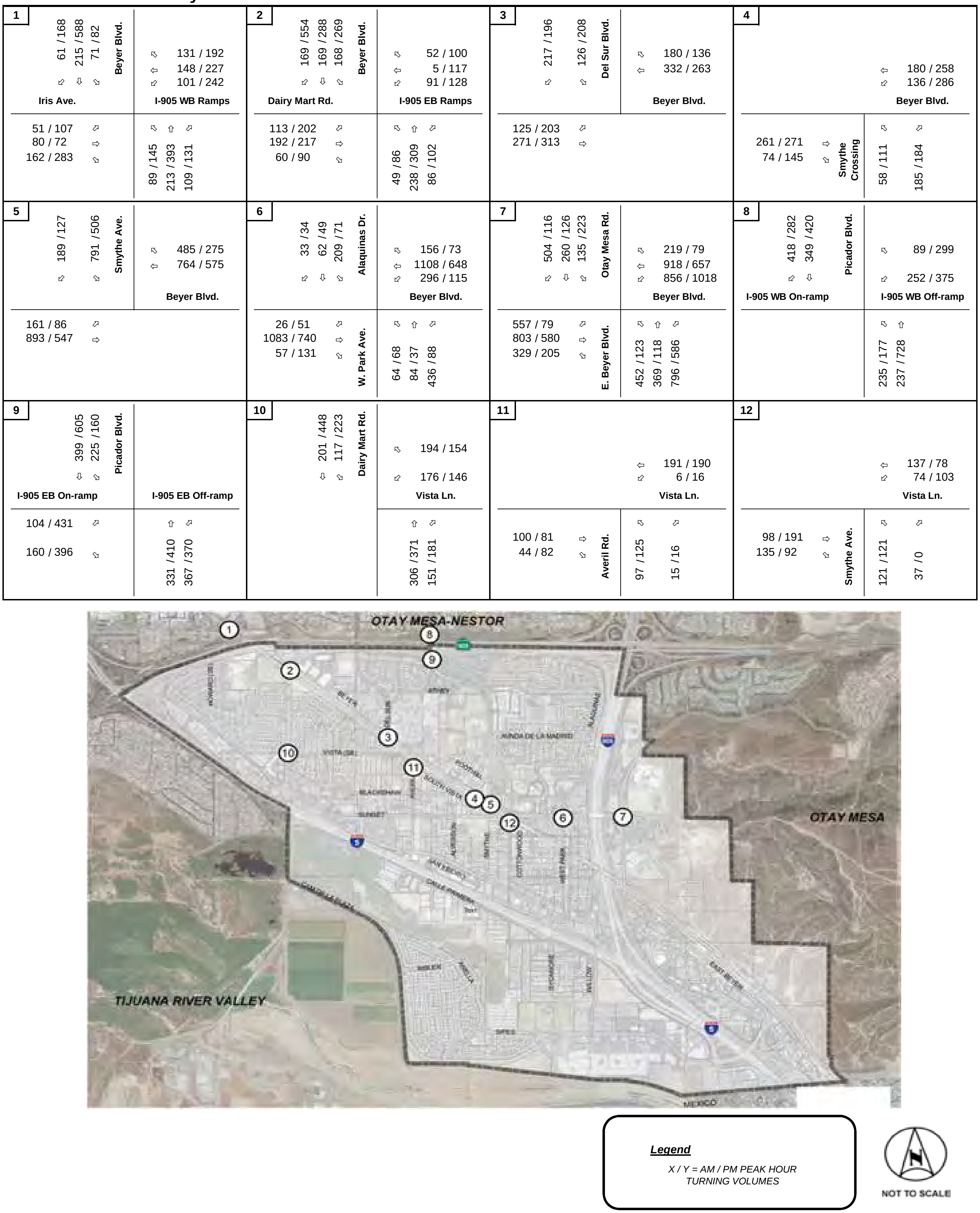
1
61 / 168
215 / 588
71 / 82
Beyer Blvd.
131 / 192
148 / 227
101 / 242
Iris Ave.
I-905 WB Ramps
51 / 107
80 / 72
162 / 283
89 / 145
213 / 393
109 / 131
2
169 / 554
169 / 288
168 / 269
Beyer Blvd.
52 / 100
5 / 117
91 / 128
Dairy Mart Rd.
I-905 EB Ramps
113 / 202
192 / 217
60 / 90
49 / 86
238 / 309
86 / 102
3
217 / 196
126 / 208
Del Sur Blvd.
180 / 136
332 / 263
Beyer Blvd.
125 / 203
271 / 313
4
180 / 258
136 / 286
Beyer Blvd.
261 / 271
74 / 145
Smythe Crossing
58 / 111
185 / 184
5
189 / 127
791 / 506
Smythe Ave.
485 / 275
764 / 575
Beyer Blvd.
161 / 86
893 / 547
6
33 / 34
62 / 49
209 / 71
Alaquinas Dr.
156 / 73
1108 / 648
296 / 115
Beyer Blvd.
26 / 51
1083 / 740
57 / 131
W. Park Ave.
64 / 68
84 / 37
436 / 88
7
504 / 116
260 / 126
135 / 223
Otay Mesa Rd.
219 / 79
918 / 657
856 / 1018
Beyer Blvd.
557 / 79
803 / 580
329 / 205
E. Beyer Blvd.
452 / 123
369 / 118
796 / 586
8
418 / 282
349 / 420
Picador Blvd.
89 / 299
252 / 375
I-905 WB On-ramp
I-905 WB Off-ramp
235 / 177
237 / 728
9
399 / 605
225 / 160
Picador Blvd.
I-905 EB On-ramp
I-905 EB Off-ramp
104 / 431
160 / 396
331 / 410
367 / 370
10
201 / 448
117 / 223
Dairy Mart Rd.
194 / 154
176 / 146
Vista Ln.
306 / 371
151 / 181
11
191 / 190
6 / 16
Vista Ln.
100 / 81
44 / 82
Averil Rd.
97 / 125
15 / 16
12
137 / 78
74 / 103
Vista Ln.
98 / 191
135 / 92
Smythe Ave.
121 / 121
37 / 0
OTAY MESA-NESTOR
OTAY MESA
TIJUANA RIVER VALLEY
Legend
X / Y = AM / PM PEAK HOUR TURNING VOLUMES
NOT TO SCALE

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FIGURE 3.a

Year 2035 Preferred Alternative Peak-Hour Traffic Volumes

K:\SND_TPTO\095413002\Excel\[413002TA01.xlsm]HY-AltB Figure 1-12

13

Vista Ln. — Cottonwood Rd.: ⇦ 131 / 130; ⇖ 11 / 30

Sunset Ln.: ⇗ 1 / 0; ⇗ 122 / 45; ⇦ 111 / 232; ⇦ 0 / 5; ⇙ 0 / 5

14

Averil Rd.: ⇖ 107 / 101; ⇩ 97 / 129; ⇙ 112 / 26

Sunset Ln.: ⇗ 61 / 25; ⇧ ⇦ 153 / 106; ⇖ 32 / 21

⇗ 54 / 76; ⇗ 216 / 111; ⇙ 30 / 27

⇗ 10 / 48; ⇧ 42 / 95; ⇗ 39 / 17

15

Smythe Ave.: ⇖ 92 / 114; ⇩ 113 / 67; ⇙ 16 / 6

Sunset Ln.: ⇗ 19 / 0; ⇧ ⇦ 45 / 21; ⇖ 32 / 0

⇦ 169 / 48; ⇦ 71 / 33; ⇙ 180 / 46

⇗ 83 / 32; ⇧ 68 / 37; ⇗ 87 / 13

16

W. Park Ave.: ⇖ 45 / 40; ⇩ 223 / 193; ⇙ 15 / 20

Seward Ave.: ⇗ 367 / 179; ⇧ 7 / 26; ⇖ 10 / 24

⇦ 95 / 16; ⇦ 0 / 5; ⇙ 13 / 26

17

Seward Ave.: ⇦ 105 / 91

E. Park Ave.: ⇗ 308 / 126; ⇗ 42 / 102; ⇦ 13 / 25

18

Howard Ave.: ⇖ 27 / 33; ⇙ 269 / 189

W. San Ysidro Blvd.: ⇗ 332 / 252; ⇧ 21 / 64

⇗ 67 / 30; ⇗ 44 / 59

19

Dairy Mart Rd.: ⇖ 71 / 23; ⇩ 139 / 232; ⇙ 221 / 327

W. San Ysidro Blvd.: ⇗ 198 / 240; ⇧ 140 / 166; ⇖ 65 / 190

⇦ 47 / 61; ⇦ 228 / 210; ⇙ 67 / 138

⇗ 166 / 149; ⇧ 237 / 278; ⇗ 577 / 731

20

W San Ysidro Blvd.: ⇦ 253 / 398; ⇖ 475 / 435

I-5 NB Ramps: ⇗ 139 / 88; ⇗ 136 / 114; ⇦ 320 / 650; ⇦ 707 / 516

21

W. San Ysidro Blvd.: ⇩ 319 / 494; ⇙ 109 / 177

Sunset Ln.: ⇗ 237 / 142; ⇖ 77 / 32

⇧ 412 / 507; ⇗ 90 / 111

22

Averil Rd.: ⇖ 67 / 41; ⇩ 0 / 5; ⇙ 101 / 145

W. San Ysidro Blvd.: ⇗ 55 / 101; ⇦ 315 / 438; ⇖ 5 / 8

⇗ 24 / 33; ⇗ 265 / 448; ⇙ 5 / 5

Private Dwy.: ⇗ 1 / 5; ⇗ 0 / 5

23

Smythe Ave.: ⇖ 186 / 168; ⇩ 12 / 0; ⇙ 50 / 26

W. San Ysidro Blvd.: ⇗ 32 / 40; ⇦ 345 / 528; ⇖ 4 / 6

⇦ 47 / 124; ⇦ 199 / 493; ⇙ 8 / 5

Private Dwy.: ⇗ 2 / 2; ⇧ 14 / 0; ⇗ 6 / 6

24

Cottonwood Rd.: ⇖ 45 / 45; ⇩ 3 / 3; ⇙ 215 / 267

W. San Ysidro Blvd.: ⇗ 198 / 193; ⇦ 279 / 524; ⇖ 5 / 20

⇦ 39 / 62; ⇦ 232 / 602; ⇙ 3 / 8

Private Dwy.: ⇗ 5 / 2; ⇧ 5 / 2; ⇗ 9 / 6

Legend

X / Y = AM / PM PEAK HOUR TURNING VOLUMES

NOT TO SCALE

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FIGURE 3.b

Year 2035 Preferred Alternative Peak-Hour Traffic Volumes (cont.)

K:\SND_TPTO\095413002\Excel\[413002TA01.xlsm]HY-AltB Figure 13-24

25

206 / 412
362 / 433
W. San Ysidro Blvd.

244 / 599
167 / 348
Via de San Ysidro
275 /316
510 /687

26

158 /117
W. Park Ave.
576 / 1045
W. San Ysidro Blvd.

776 / 1239

27

E. Park Ave.
46 / 41
554 / 1002
9 / 11
E. San Ysidro Blvd.

191 / 97
651 / 1192
32 / 50
5 /2
0 /2
31 /44

28

297 / 604
1 /15
317 /531
I-805 SB Off-ramp
331 / 710
57 / 250
E. San Ysidro Blvd.

709 / 964
157 / 552
I-805 SB On-ramp

29

I-805 NB On-ramp
424 / 762
378 / 839
E. San Ysidro Blvd.

223 / 250
753 / 1326
I-805 NB Off-ramp
70 /120
268 /427

30

383 / 942
0 / 290
E. San Ysidro Blvd.

274 / 677
620 / 1186
Border Village Rd. (west)
156 /733
241 /423

31

5 /12
3 /2
2 /21
Private Dwy.
3 / 0
342 / 851
167 / 363
E. San Ysidro Blvd.

4 / 19
380 / 878
20 / 47
Border Village Rd. (east)
16 /44
0 /6
140 /556

32

61 /132
89 /99
51 /33
E. Beyer Blvd.
16 / 31
67 / 143
48 / 92
E. San Ysidro Blvd.

104 / 181
235 / 269
158 / 815
Camino de la Plaza
263 /642
141 /177
277 /578

33

30 /65
131 /247
Private Dwy.
0 / 8
73 / 37
167 / 126
E. San Ysidro Blvd.

200 / 125
197 / 85
485 / 670
I-5 NB Ramps
0 /185
0 /138
0 /40

34

272 /399
275 /410
Via de San Ysidro
215 / 135
80 / 90
I-5 NB Off-ramp

I-5 NB On-ramp

308 /513
519 /817

35

401 /537
Via de San Ysidro

I-5 SB Off-ramp

97 / 401
349 / 994

759 /979

36

172 /431
13 /29
406 /866
Via de San Ysidro
686 / 811
163 / 240
13 / 0
Willow Rd.

250 / 221
183 / 473
31 / 46
Calle Primera
20 /49
25 /44
27 /37

Legend

X / Y = AM / PM PEAK HOUR TURNING VOLUMES

NOT TO SCALE

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FIGURE 3.c

Year 2035 Preferred Alternative Peak-Hour Traffic Volumes (cont.)

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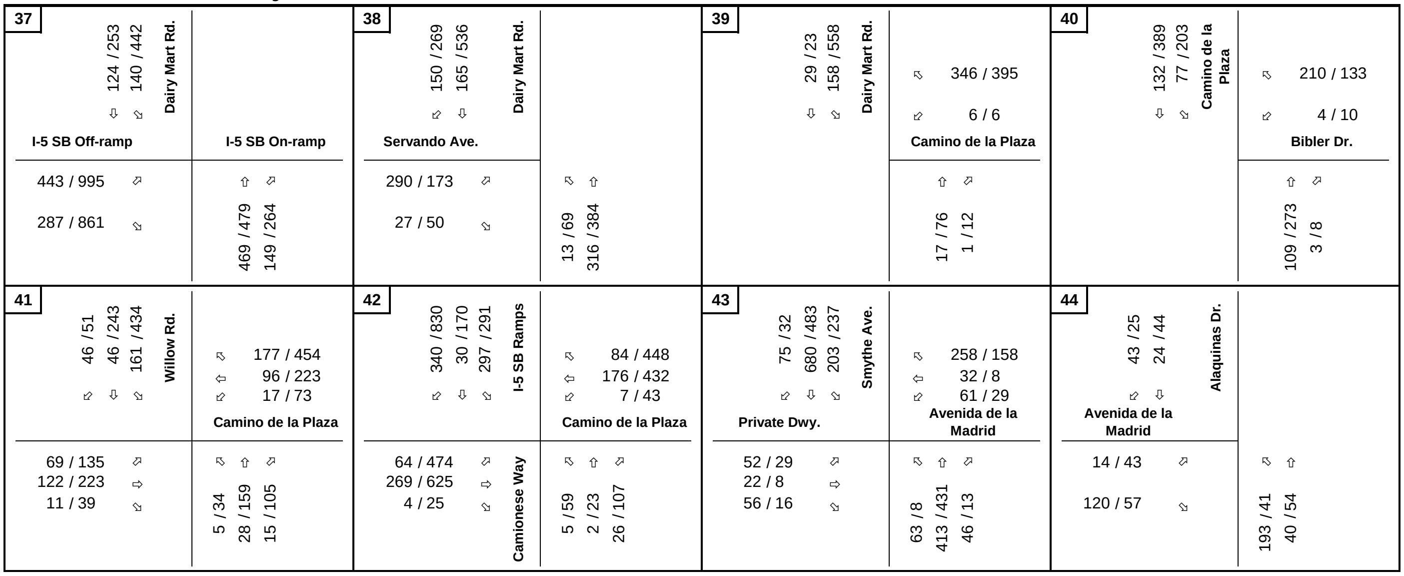
San Ysidro CPU- Mobility Element



Legend

X / Y = AM / PM PEAK HOUR TURNING VOLUMES

NOT TO SCALE

Kimley»Horn

FIGURE 3.d

Year 2035 Preferred Alternative Peak-Hour Traffic Volumes (cont.)

Impact Significance Criteria

Traffic impacts associated with this community plan update are determined by comparing Existing Traffic Conditions to Future Traffic Conditions assuming existing roadway and intersection configurations. The following criteria are used by the City of San Diego when determining if an impact is considered to be significant:

- Roadway segments operating at LOS E, with an increase in V/C ratio of more than 0.02 are considered to be a significant project impact. Also, roadway segments operating at LOS F conditions with an increase in V/C ratio of more than 0.01 are also considered to be significant project impacts.
- Roadway segments operating at acceptable LOS, where the project changes the LOS to E or F.
- Intersections operating at LOS E conditions with an increase in delay of 2 seconds or greater are considered to be a significant project impact. Intersections operating at LOS F conditions with an increase in delay of 1 second or greater are also considered to be significant project impacts.
- Intersections operating at acceptable LOS, where the project changes the LOS to E or F.

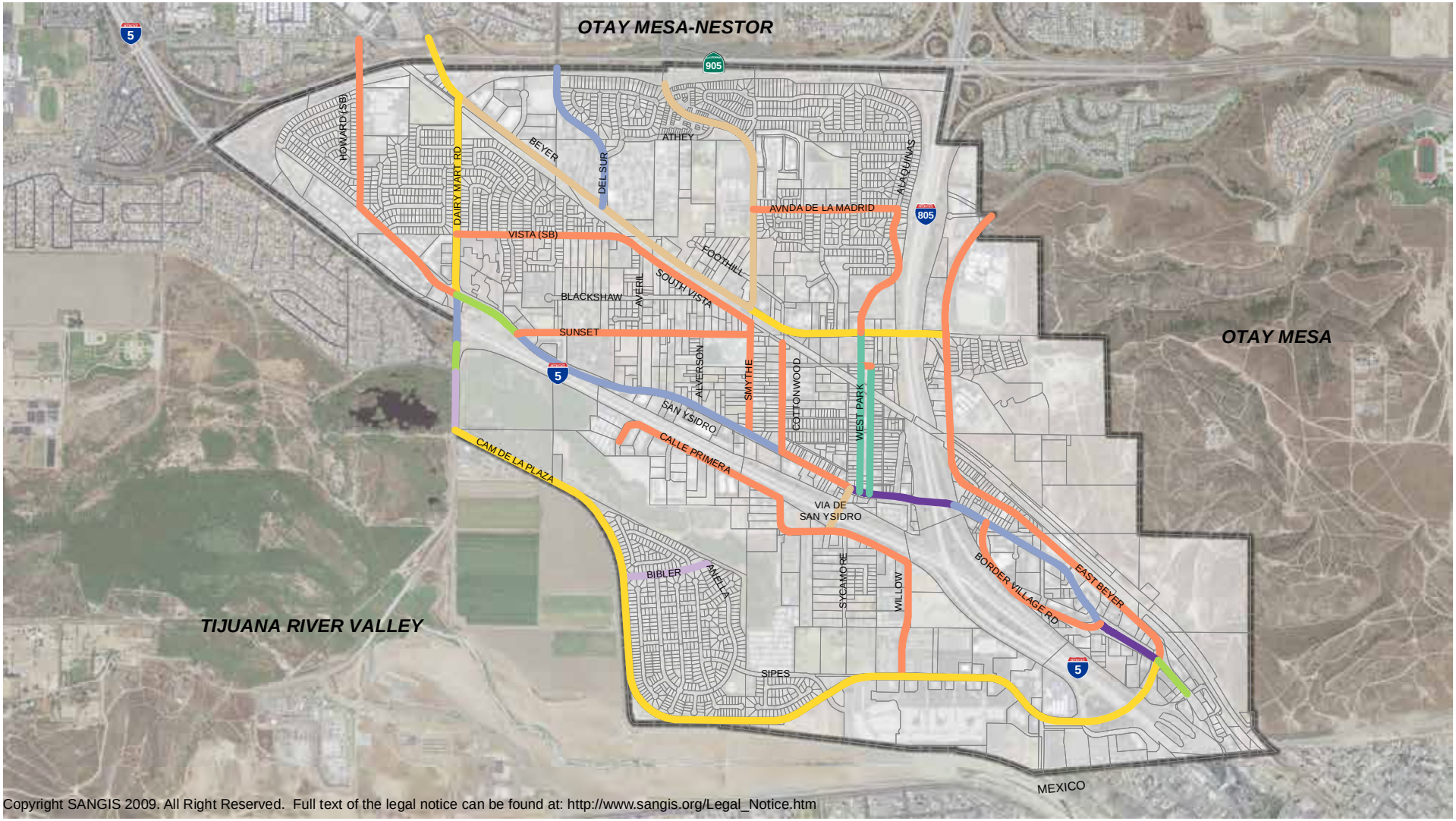
The significance criteria were used to determine roadway segment and intersection where improvements could be warranted.

Preferred Alternative Evaluation

Roadway Corridors

The San Ysidro Community roadway segments, assuming existing lanes and capacities, were evaluated using future traffic volumes from **Figure 2**. **Figure 4** depicts the existing roadway segment classifications for the study area used for the analysis. It should be noted that all circulation element roadways were included in the evaluation. The results of the analysis are depicted in **Table 2**. **Figure 5** illustrates the LOS results for each of the roadway segments analyzed. Significant roadway impacts occur on 31 of the 53 roadway segments evaluated, including one or more segments along the following streets:

- Beyer Boulevard
- Otay Mesa Road
- East Beyer Boulevard
- Smythe Avenue
- Dairy Mart Road
- West San Ysidro Boulevard
- East San Ysidro Boulevard
- Border Village Road
- Via de San Ysidro
- Calle Primera
- Willow Road
- Camino de la Plaza
- Vista Lane
- Cottonwood Road
- West Park Avenue
- East Park Avenue



LEGEND

- 1-Lane Collector
- 2-Lane Collector (multi-family, commercial-industrial fronting)
- 2-Lane Collector (continuous left-turn lane)
- 2-Lane Collector (no fronting property)
- 3-Lane Collector
- 4-Lane Collector
- 4-Lane Collector (no two-way left turn)
- 4-Lane Major Arterial
- Community Plan Boundary
- Parcel Boundaries

Figure 4

Existing Roadway Segments Functional Classification

N

0 400 800 1,600 Feet

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TABLE 2
HORIZON YEAR (2035) WITH PREFERRED ALTERNATIVE
ROADWAY SEGMENT ANALYSIS SUMMARY

			EXISTING			PREFERRED LAND USE ALT.					
ROADWAY SEGMENT	**ROADWAY FUNCTIONAL CLASSIFICATION (a)**	**LOS E CAPACITY**	**ADT (b)**	**V/C RATIO (d)**	**LOS**	**ADT (c)**	**V/C RATIO (c)**	**LOS**	**Δ in ADT**	**Δ in V/C**	**SIGNIFICANT?**
Beyer Blvd.											
SR-905 WB Off-Ramp to Dairy Mart Rd.	4-Lane Collector	30,000	16,371	0.546	C	20,200	0.673	D	3,829	0.190	NO
Dairy Mart Rd. to Del Sur Blvd.	4-Lane Collector (no TWLT)	15,000	8,260	0.551	C	13,400	0.893	**E**	5,140	0.384	**YES**
Del Sur Blvd. to Smythe Ave.	4-Lane Collector (no TWLT)	15,000	7,560	0.504	C	11,200	0.747	D	3,640	0.325	NO
Smythe Ave to W. Park Ave	4-Lane Collector	30,000	10,046	0.335	B	28,600	0.953	**E**	18,554	0.649	**YES**
W. Park Ave. to E. Beyer Blvd.	4-Lane Collector	30,000	7,511	0.25	A	28,100	0.937	**E**	20,589	0.733	**YES**
Otay Mesa Rd.											
North of Beyer Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	5,440	0.68	D	11,900	1.488	**F**	6,460	0.543	**YES**
E. Beyer Blvd.											
Beyer Blvd. to Center St.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2,734	0.342	B	17,000	2.125	**F**	14,266	0.839	**YES**
Center St. to E. San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2,734	0.342	B	9,500	1.188	**F**	6,766	0.712	**YES**
Del Sur Blvd.											
SR-905 EB Ramps to Beyer Blvd.	2-Lane Collector (continuous left-turn lane)	15,000	1,441	0.096	A	8,500	0.567	C	7,059	0.830	NO
Smythe Ave.											
SR-905 EB Ramps to Beyer Blvd.	4-Lane Collector (no TWLT)	15,000	7,256	0.484	C	13,200	0.88	**E**	5,944	0.450	**YES**
S. Vista Ave. to Sunset Ln.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	4,345	0.543	C	8,300	1.038	**F**	3,955	0.477	**YES**
Sunset Ln. to W. San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	840	0.105	A	2,400	0.3	A	1,560	0.650	NO
Dairy Mart Rd.											
Beyer Blvd to S. Vista Ln	4-Lane Collector	30,000	8,630	0.288	A	11,800	0.393	B	3,170	0.269	NO
S. Vista Ln. to W. San Ysidro Blvd.	4-Lane Collector	30,000	11,246	0.375	B	14,000	0.467	C	2,754	0.197	NO
W. San Ysidro Blvd. to I-5 SB Ramps	2-Lane Collector (continuous left-turn lane)	15,000	17,283	1.152	**F**	19,900	1.327	**F**	2,617	0.132	**YES**
I-5 SB Ramps to Servando Ave.	3-Lane Collector	11,250	14,609	1.299	**F**	17,600	1.564	**F**	2,991	0.170	**YES**
Servando Ave. to Camino de la Plaza	2-Lane Collector (no fronting property)	10,000	8,771	0.877	D	11,600	1.16	**F**	2,829	0.244	**YES**
W. San Ysidro Blvd.											
Howard Ave. to Dairy Mart Rd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	5,813	0.727	D	7,500	0.938	**E**	1,687	0.225	**YES**
Dairy Mart Rd. to Sunset Ln.	4-Lane Collector	30,000	14,301	0.477	C	14,301	0.477	C	0	0.000	NO
Sunset Ln. to Averil Rd.	2-Lane Collector (continuous left-turn lane)	15,000	12,674	0.845	D	13,600	0.907	**E**	926	0.068	**YES**
Averil Rd. to Smythe Ave.	2-Lane Collector (continuous left-turn lane)	15,000	11,519	0.768	D	13,500	0.9	**E**	1,981	0.147	**YES**
Smythe Ave. to Cottonwood Rd.	2-Lane Collector (continuous left-turn lane)	15,000	14,440	0.963	**E**	14,440	0.963	**E**	0	0.000	NO
Cottonwood Rd. to Via de San Ysidro	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	14,440	1.805	**F**	20,600	2.575	**F**	6,160	0.299	**YES**
Via de San Ysidro to W. Park Ave	4-Lane Major Arterial	40,000	16,756	0.419	B	23,000	0.575	C	6,244	0.271	NO
E. San Ysidro Blvd.											
W. Park Ave. to I-805 SB Ramps	4-Lane Major Arterial	40,000	23,764	0.594	C	33,000	0.825	D	9,236	0.280	NO
I-805 SB Ramps to I-805 NB Ramps	4-Lane Major Arterial	40,000	22,139	0.553	C	31,900	0.798	D	9,761	0.306	NO
I-805 NB Ramps to Border Village Rd. (west)	2-Lane Collector (continuous left-turn lane)	15,000	22,509	1.501	**F**	39,400	2.627	**F**	16,891	0.429	**YES**
Border Village Rd. (west) to Border Village Rd (east)	2-Lane Collector (continuous left-turn lane)	15,000	12,615	0.841	D	25,000	1.667	**F**	12,385	0.495	**YES**
Border Village Rd. (south) to E. Beyer Blvd./Camino de la Plaza	4-Lane Major Arterial	40,000	15,820	0.396	B	37,700	0.943	**E**	21,880	0.580	**YES**
E. Beyer Blvd./Camino de la Plaza to I-5 SB Ramps	3-Lane Collector	11,250	10,740	0.955	**E**	16,900	1.502	**F**	6,160	0.364	**YES**

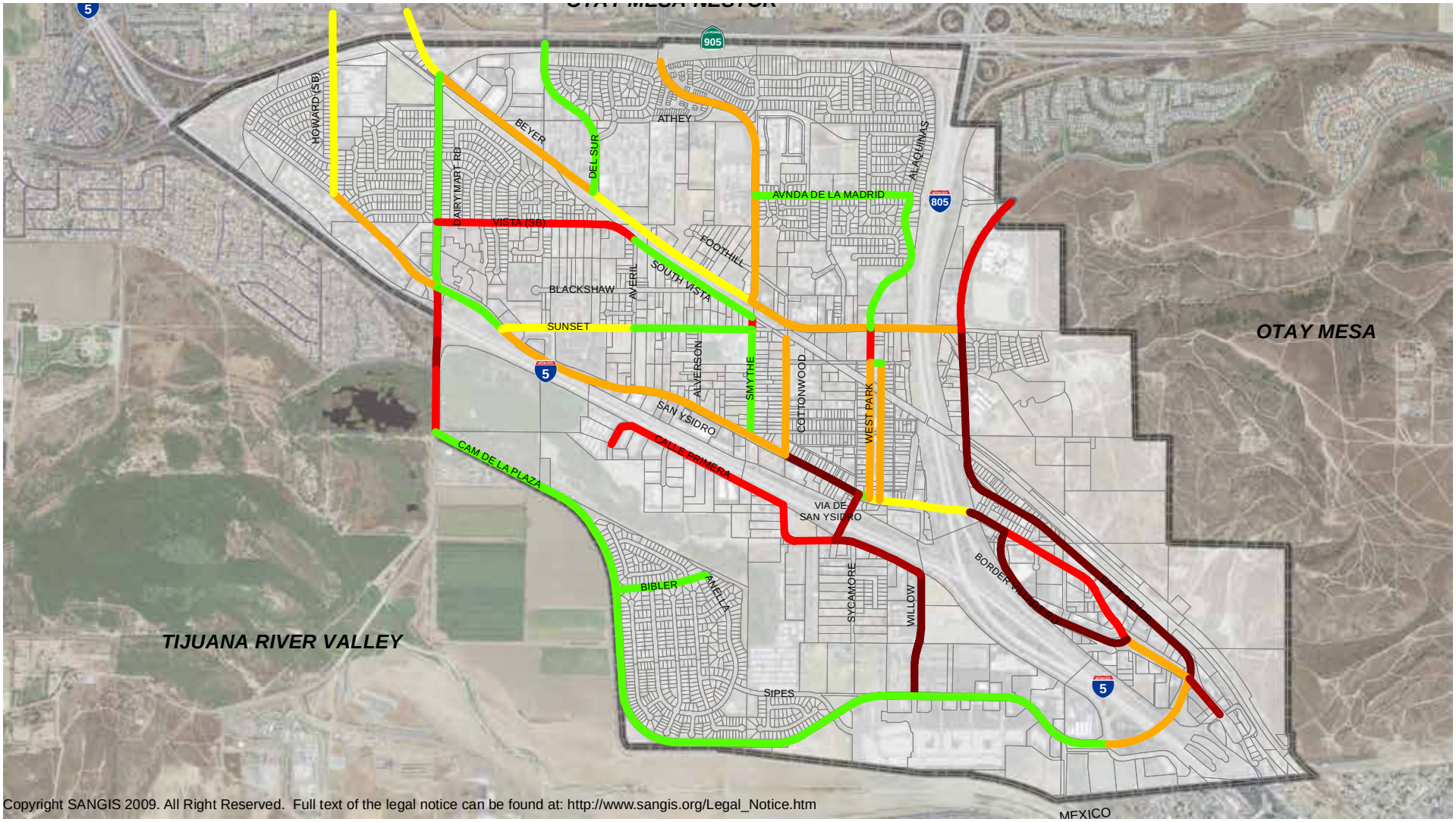
Notes:
Bold values indicate roadway segments operating at LOS E or F. **Bold** and shaded values indicate a project significant impact
(a) Roadway Functional Classification is based on field observations and anticipated funded roadway improvements to be completed by the Year 2035.
(b) Existing average daily traffic (ADT) volumes for the roadway segments were provided by National Data & Surveying Services and True Counts and measured in 2007, 2008, and 2010.
(c) 2035 Adopted Community Plan volumes were extracted from a SANDAG Series 12 Regional Transportation Model.
(d) The V/C Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

TABLE 2
HORIZON YEAR (2035) WITH PREFERRED ALTERNATIVE
ROADWAY SEGMENT ANALYSIS SUMMARY

			EXISTING			PREFERRED LAND USE ALT.					
ROADWAY SEGMENT	**ROADWAY FUNCTIONAL CLASSIFICATION (a)**	**LOS E CAPACITY**	**ADT (b)**	**V/C RATIO (d)**	**LOS**	**ADT (c)**	**V/C RATIO (c)**	**LOS**	**Δ in ADT**	**Δ in V/C**	**SIGNIFICANT?**
Border Village Rd .											
San Ysidro Blvd. to San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	3,228	0.404	B	10,400	1.3	**F**	7,172	0.690	**YES**
Via de San Ysidro											
W. San Ysidro Blvd. to I-5 NB Ramps	4-Lane Collector (no TWLT)	15,000	17,064	1.138	**F**	24,100	1.607	**F**	7,036	0.292	**YES**
I-5 NB Ramps to Calle Primera	4-Lane Collector (no TWLT)	15,000	19,619	1.308	**F**	26,100	1.74	**F**	6,481	0.248	**YES**
Calle Primera											
West of Rancho del Rio Estates	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	3,224	0.403	B	8,800	1.1	**F**	5,576	0.634	**YES**
Rancho del Rio Estates to Via de San Ysidro	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	3,224	0.403	B	8,800	1.1	**F**	5,576	0.634	**YES**
Via de San Ysidro to Willow Rd	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	10,853	1.357	**F**	14,900	1.863	**F**	4,047	0.272	**YES**
Willow Rd.											
Calle Primera to Camino De La Plaza	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	10,053	1.257	**F**	18,100	2.263	**F**	8,047	0.445	**YES**
Bibler Dr.											
East of Camino De La Plaza	2-Lane Collector (no fronting property)	10,000	4,332	0.433	B	4,400	0.44	B	68	0.015	NO
Camino De La Plaza.											
Dairy Mart Rd. to Bibler Dr.	4-Lane Collector	30,000	8,166	0.272	A	11,000	0.367	B	2,834	0.258	NO
Bibler Dr. to Willow Rd.	4-Lane Collector	30,000	4,431	0.148	A	7,200	0.24	A	2,769	0.385	NO
Willow Rd. to I-5 SB Ramp	4-Lane Collector	30,000	9,796	0.327	A	18,800	0.627	C	9,004	0.479	NO
I-5 SB Ramp to E. San Ysidro Blvd.	4-Lane Collector	30,000	17,300	0.577	C	25,900	0.863	**E**	8,600	0.332	**YES**
Vista Ln.											
Dairy Mart Rd. to Averil Rd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2,371	0.296	A	8,100	1.013	**F**	5,729	0.707	**YES**
Averil Rd. to Smythe Ave.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	3,660	0.458	C	4,600	0.575	C	940	0.204	NO
Sunset Ln.											
W. San Ysidro Blvd. to Averil Rd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2,695	0.337	B	5,000	0.625	D	2,305	0.461	NO
Averil Rd. to Smythe Ave.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2,410	0.301	A	4,500	0.563	C	2,090	0.464	NO
Cottonwood Rd.											
Sunset Ln. to W San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	3,787	0.473	C	7,700	0.963	**E**	3,913	0.508	**YES**
W. Park Ave.											
Beyer Blvd. to Seward Ave.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	5,301	0.663	D	8,000	1	**F**	2,699	0.337	**YES**
Seward Ave. to W. San Ysidro Blvd.	1-Lane Collector	4,000	3,129	0.782	D	3,900	0.975	**E**	771	0.198	**YES**
E. Park Ave.											
Seward Ave. to W. San Ysidro Blvd.	1-Lane Collector	4,000	2,172	0.543	C	3,300	0.825	**E**	1,128	0.342	**YES**
Seward Ave.											
W. Park Ave. to E. Park Ave.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2,469	0.309	A	4,100	0.513	C	1,631	0.398	NO
Howard Ave.											
North of W. San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	4,113	0.514	C	5,800	0.725	D	1,687	0.291	NO
Avenida de la Madrid											
Smythe Ave. to Alaquinas Dr.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2,003	0.25	A	2,300	0.288	A	297	0.129	NO
Alaquinas Dr.											
Beyer Blvd. to Avenida de la Madrid.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1,495	0.19	A	1,700	0.21	A	205	0.121	NO

Notes:
Bold values indicate roadway segments operating at LOS E or F. **Bold** and shaded values indicate a project significant impact
(a) Existing roads street functional classification is based field observations.
(b) Existing average daily traffic (ADT) volumes for the roadway segments were provided by National Data & Surveying Services and True Counts and measured in 2007, 2008, and 2010.
(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

K:\SND_TPTO\09541300 2\Excel\[413002RS01.xlsm]Existing vs 2035 AltB Weekd



LEGEND

- LOS: A, B, C
- LOS: D
- LOS: E
- LOS: F (v/c < 1.25)
- LOS: F (v/c 1.25 - 1.5)
- LOS: F (v/c 1.5 - 2)
- LOS: F (v/c > 2)
- Community Plan Boundary
- Parcel Boundaries

Figure 5

Summary of Roadway Segment Analysis - Preferred Alternative

N

0 400 800 1,600 Feet

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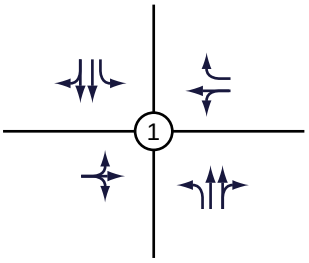
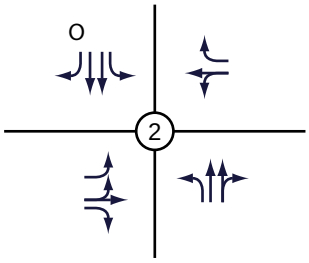
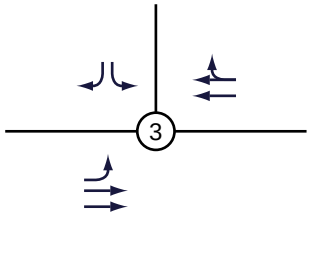
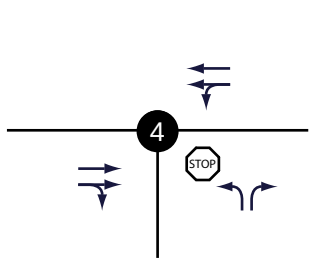
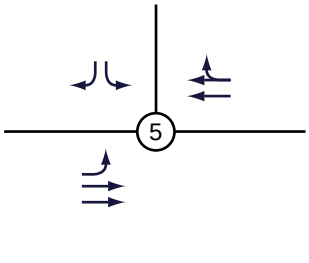
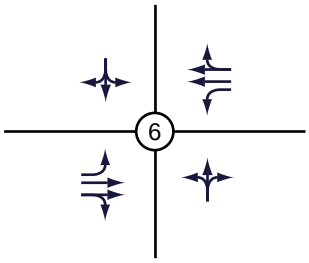
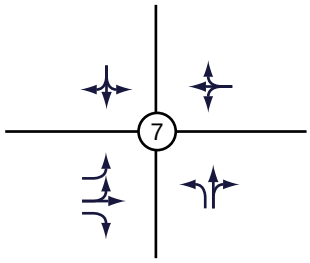
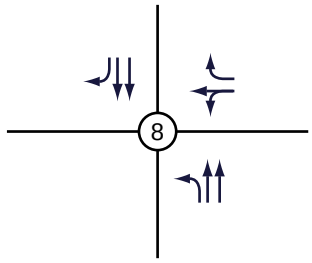
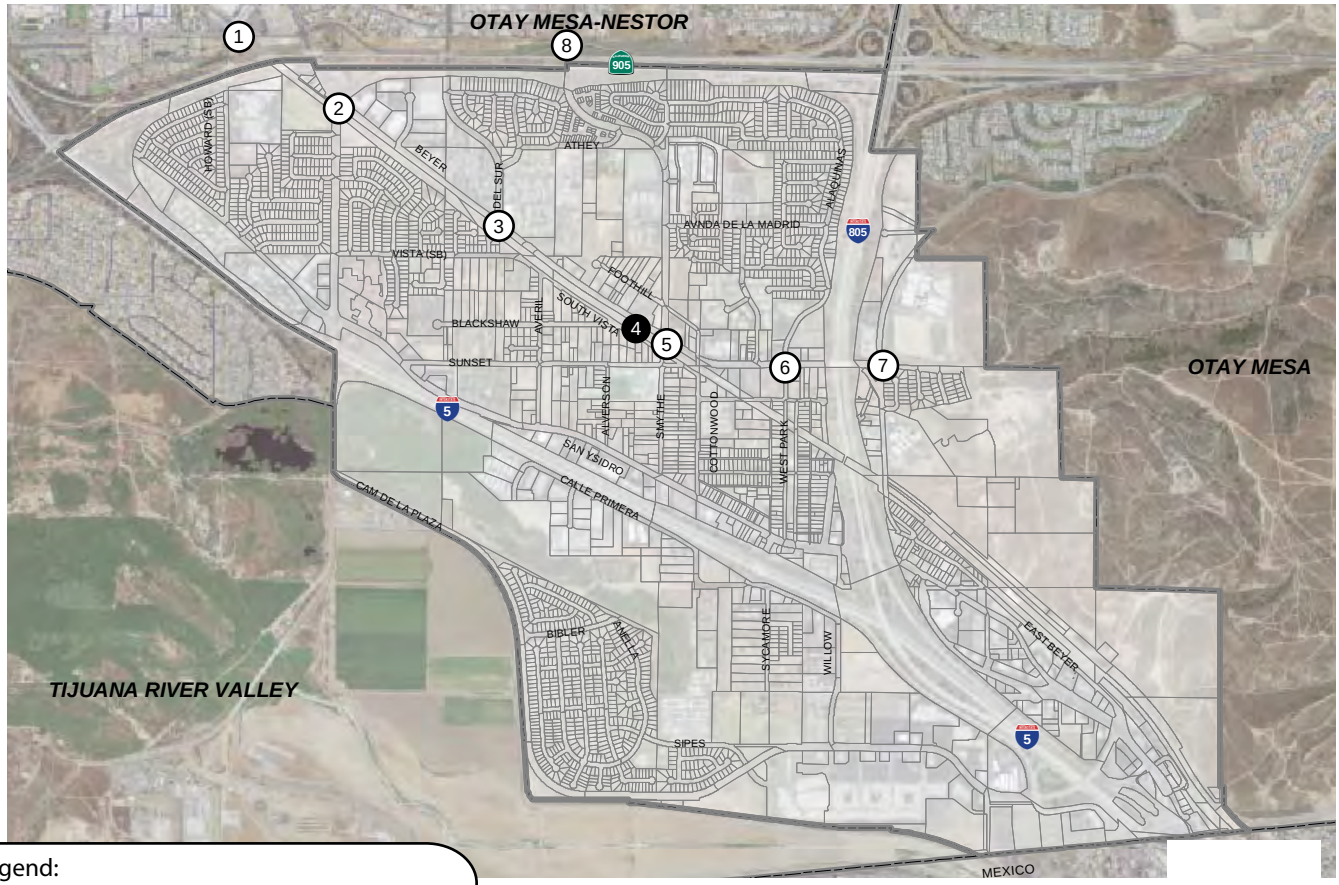
Intersections

The San Ysidro intersections were evaluated using future traffic volumes shown in **Figure 3**. Existing lane configurations were assumed for the analysis contained as shown in **Figure 6**. All major intersections within the community were included in the evaluation. Major intersections were defined as all locations where two circulation element roadways intercept. In addition, all existing of future traffic signals were included in the analysis. **Table 3** illustrates the results of the intersection analysis for the Horizon Year 2035 with the Preferred Land Use Alternative scenario. As shown in the table, the change in land use would have a significant intersection impact at 22 of the 44 intersections evaluated. **Figure 7** illustrates the LOS results for the intersection analysis. Synchro intersection peak-hour analysis worksheets are included in the **Appendix E**.

Beyer Blvd/Iris Ave-SR-905 WB Ramps	Beyer Blvd/SR-905 EB Ramps-Dairy Mart Rd	Beyer Blvd/Del Sur Blvd	Beyer Blvd/Smythe Crossing
			
Beyer Blvd/Smythe Ave	**Beyer Blvd/Alaquinas Dr-W. Park Ave**	**Beyer Blvd/E. Beyer Blvd-Otay Mesa Rd**	**SR-905 WB Ramps/Picador Blvd**
			



Legend:

- (X) Signalized
- (X) Unsignalized
- o Right-turn overlap

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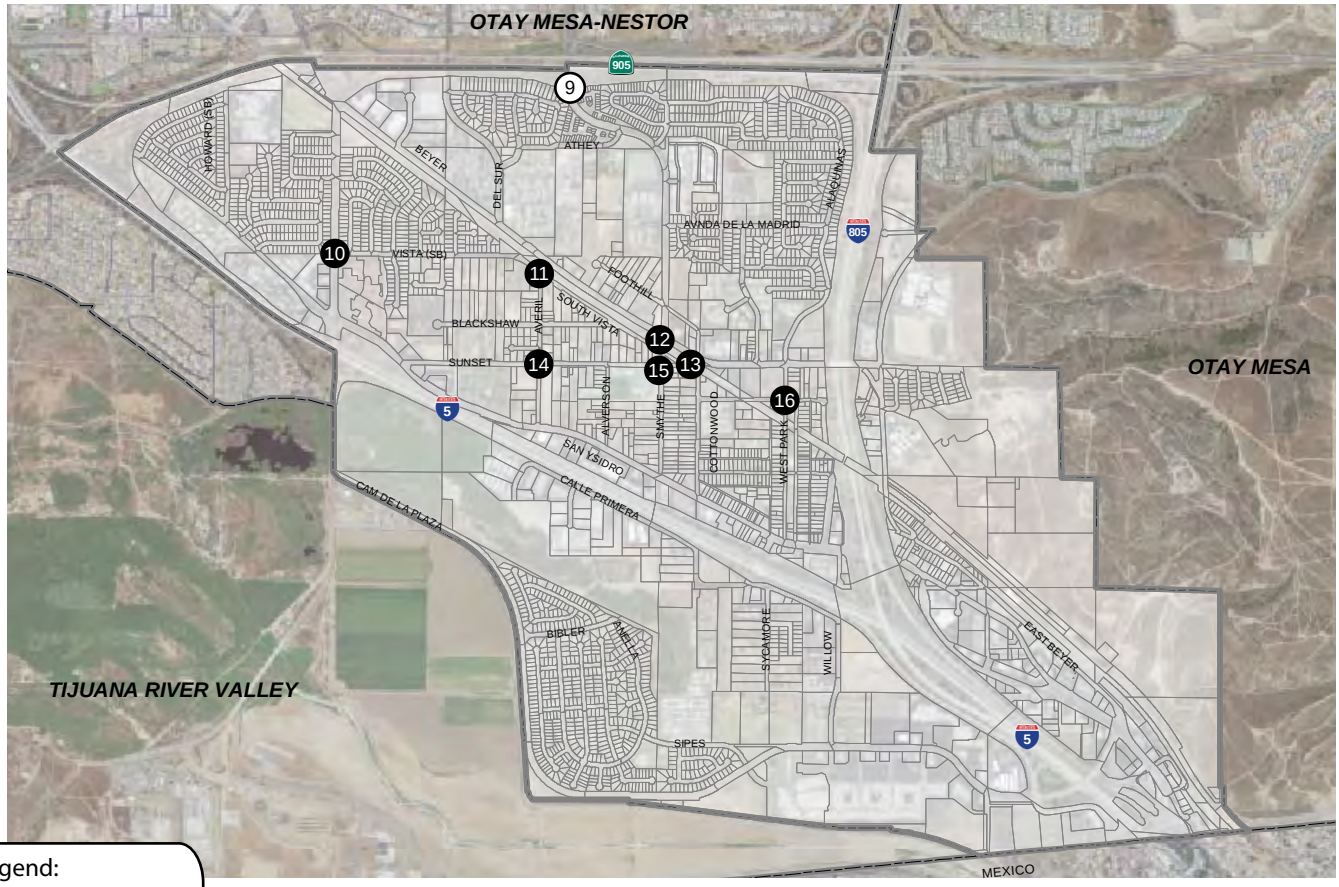
FIGURE 6.a

Existing Intersection Geometrics

SR-905 EB Ramps/ Picador Blvd	Vista Ln/ Dairy Mart Rd	Vista Ln/ Averil Rd	Vista Ln/ Smythe Ave
9	10	11	12
Vista Ln/ Sunset Ln	**Sunset Ln/ Averil Rd**	**Sunset Ln/ Smythe Ave**	**Seward Ave/ W. Park Ave**
13	14	15	16



Legend:

- (X) Signalized
- X Unsignalized

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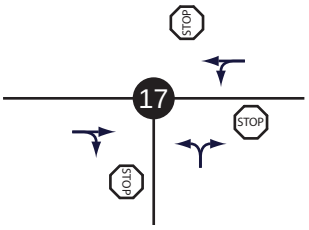
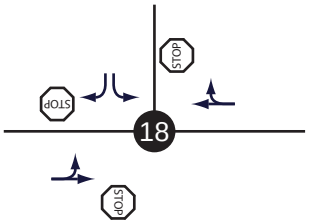
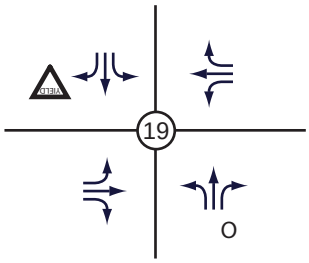
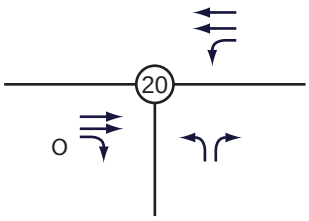
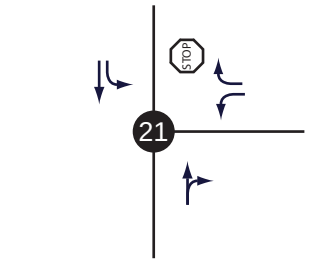
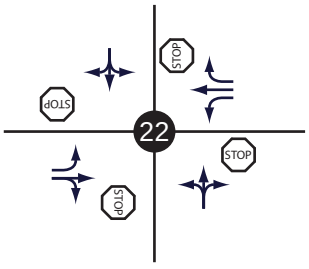
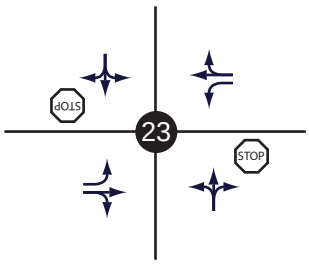
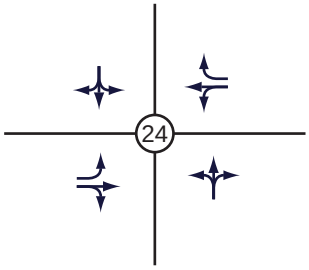
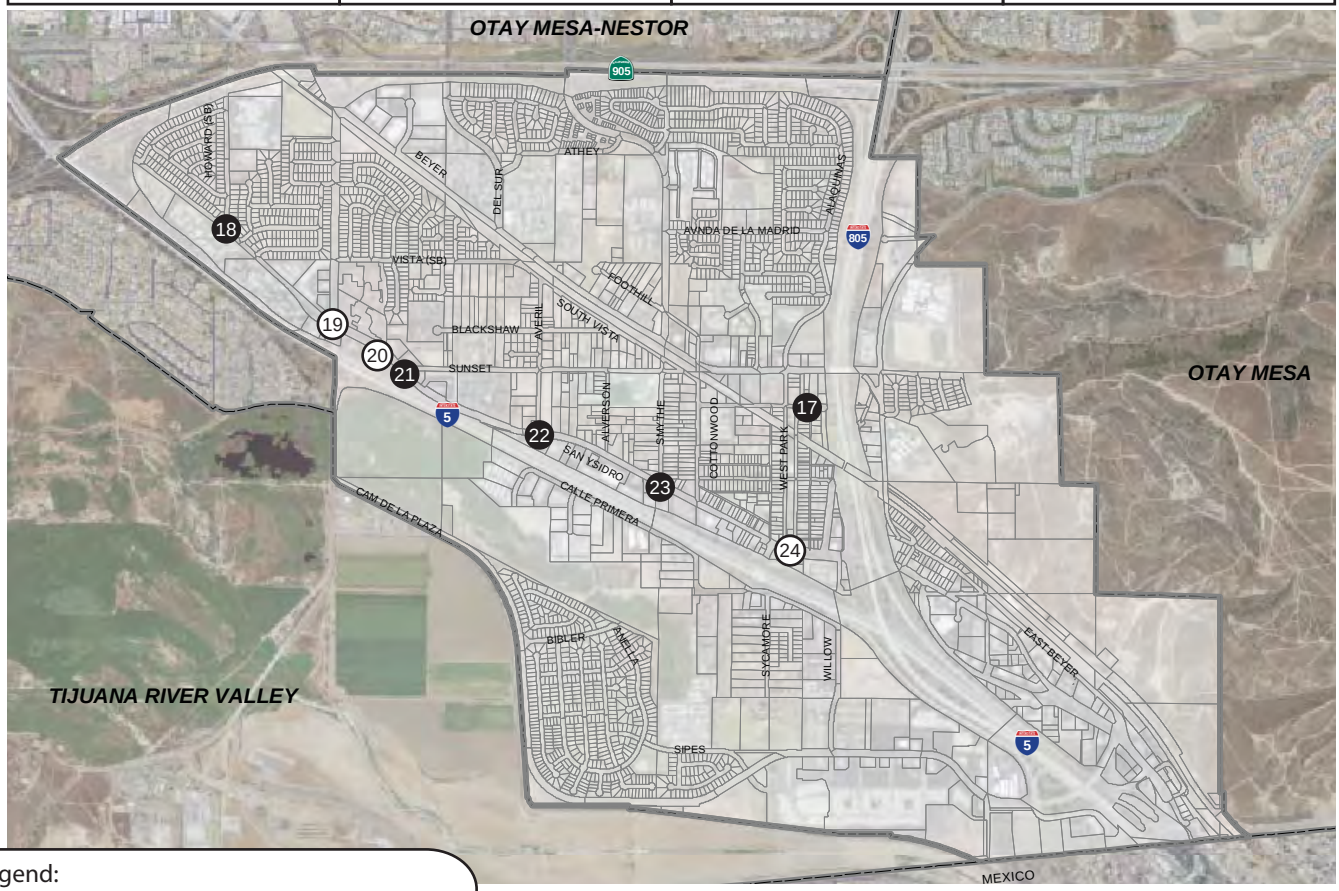
FIGURE 6.b

Existing Intersection Geometrics

Seward Ave/ E. Park Ave	W. San Ysidro Blvd/ Howard Ave	W. San Ysidro Blvd/ Dairy Mart Rd	W. San Ysidro Blvd/ I-5 NB Ramps
			
W. San Ysidro Blvd/ Sunset Ln	**W. San Ysidro Blvd/ Averil Rd**	**W. San Ysidro Blvd/ Smythe Ave**	**W. San Ysidro Blvd/ Cottonwood Rd**
			



Legend:

- (X) Signalized
- (X) Unsignalized
- F Free right-turn

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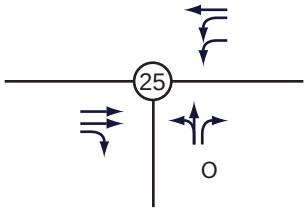
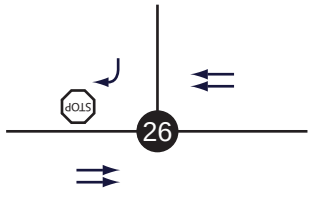
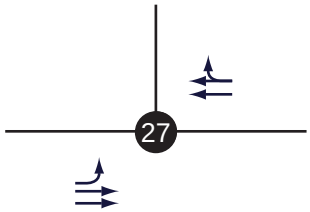
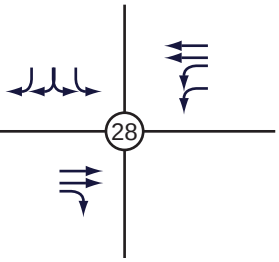
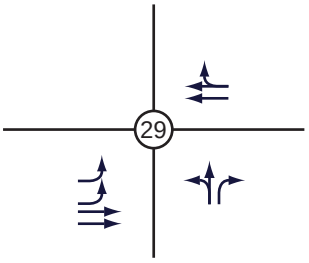
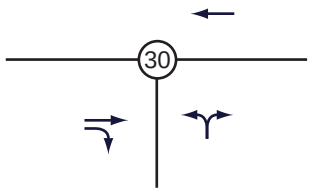
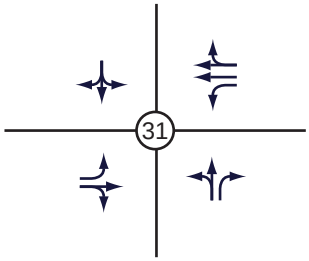
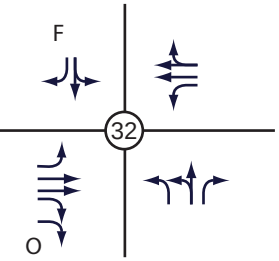
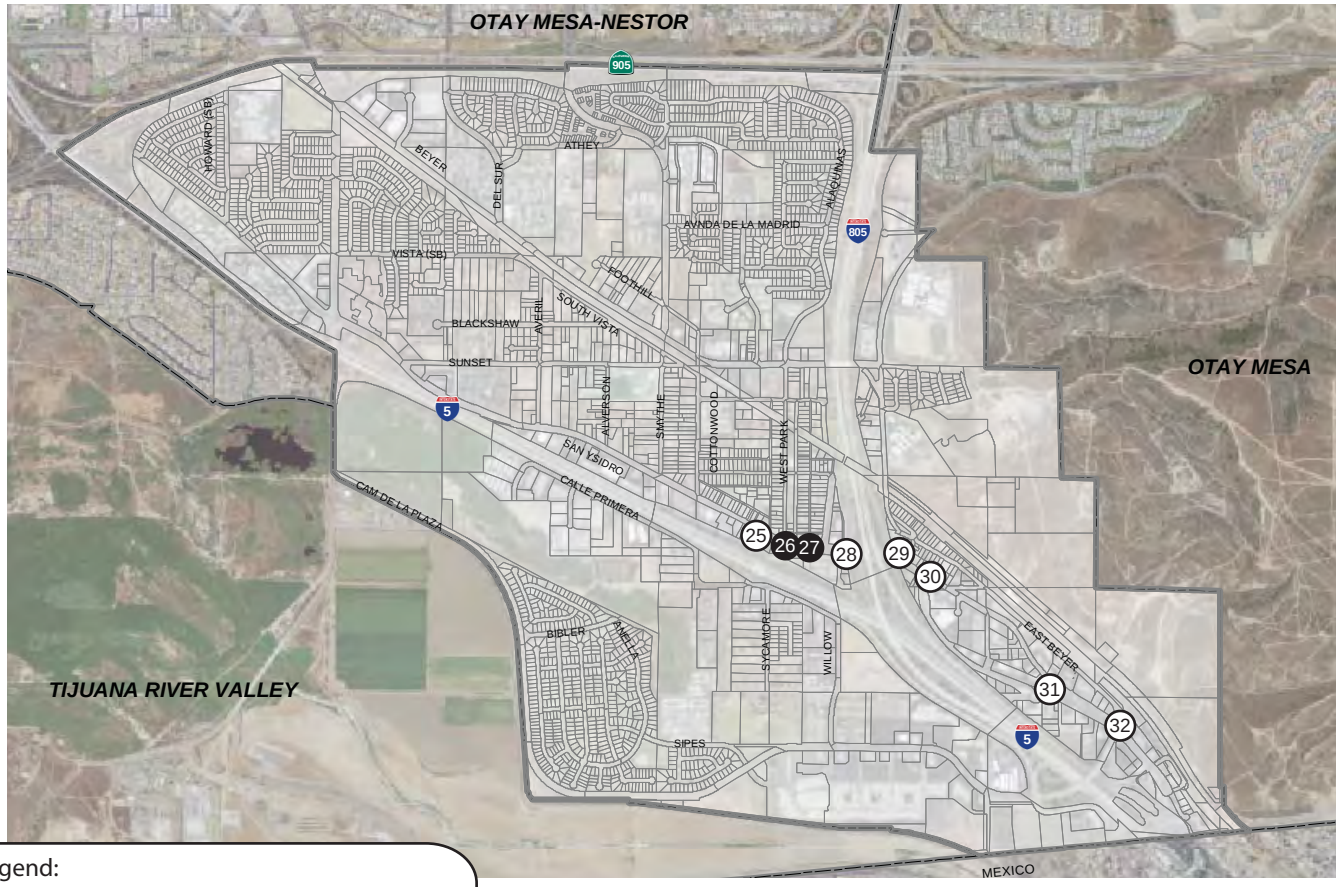
FIGURE 6.c

Existing Intersection Geometrics

W. San Ysidro Blvd/ Via de San Ysidro	W. San Ysidro Blvd/ W. Park Ave	E. San Ysidro Blvd/ E. Park Ave	E. San Ysidro Blvd/ I-805 SB Ramps
			
E. San Ysidro Blvd/ I-805 NB Ramps	**E. San Ysidro Blvd/ Border Village Rd (W)**	**E. San Ysidro Blvd/ Border Village Rd (E)**	**E. San Ysidro Blvd/Camino de la Plaza-E. Beyer Blvd**
			



Legend:

(X)	Signalized	O	Right-turn overlap
X	Unsignalized	F	Free right-turn

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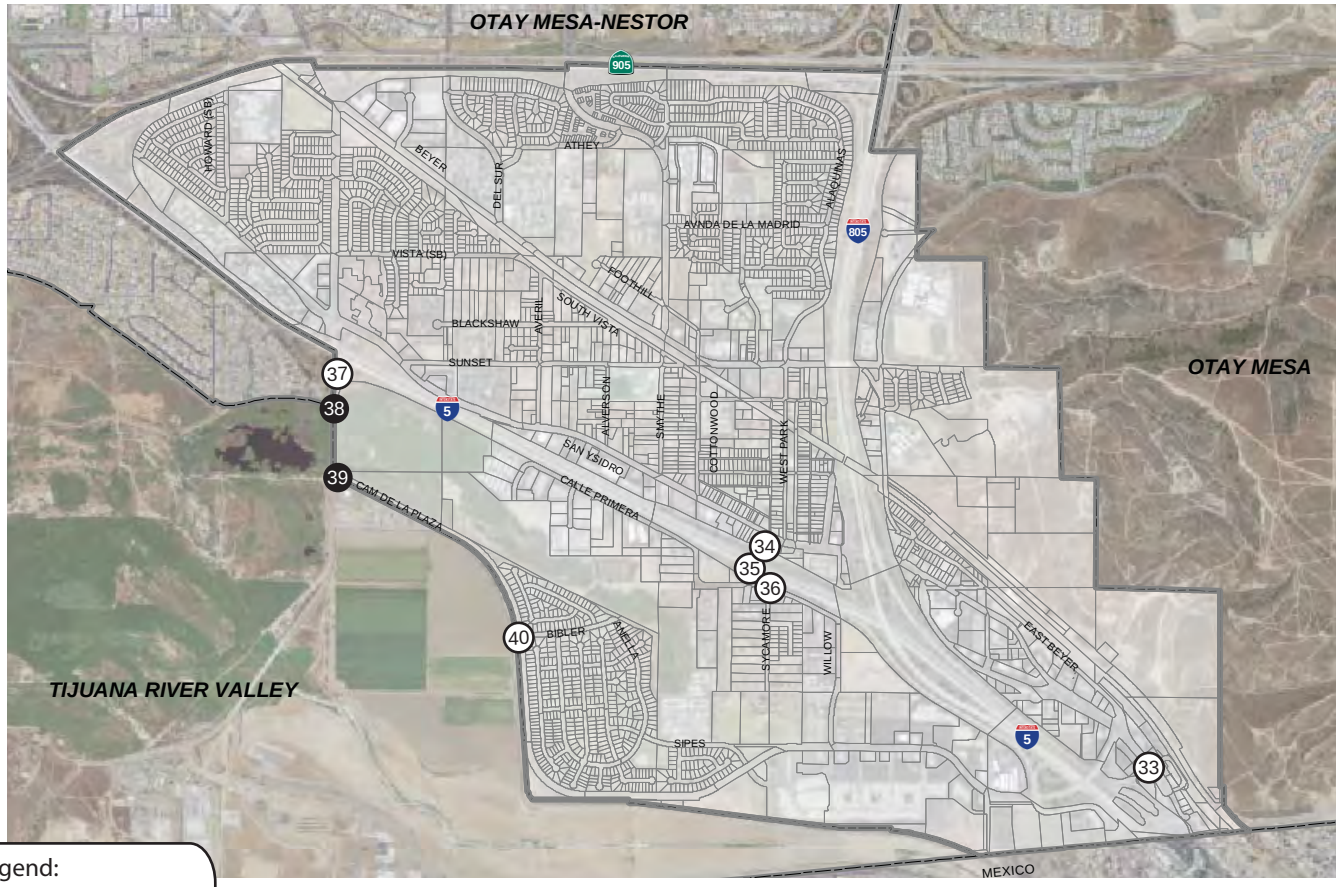
FIGURE 6.d

Existing Intersection Geometrics

E. San Ysidro Blvd/ I-5 NB Ramps	Via de San Ysidro/ I-5 NB Ramps	Via de San Ysidro/ I-5 SB Ramps	Via de San Ysidro/ Calle Primera
33	34	35	36
I-5 SB Ramps/ Dairy Mart Rd	**Servando Ave/ Dairy Mart Rd**	**Camino de la Plaza/ Dairy Mart Rd**	**Camino de la Plaza/ Bibler Dr**
37	38	39	40



Legend:

- (X) Signalized
- X Unsignalized

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FIGURE 6.e

Existing Intersection Geometrics

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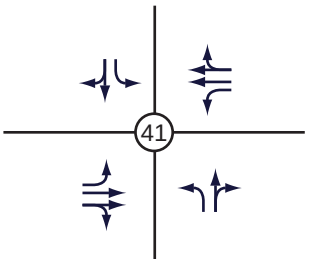
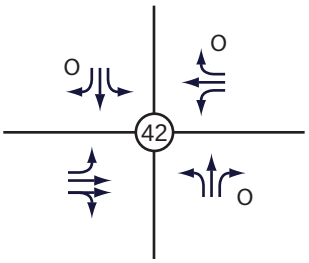
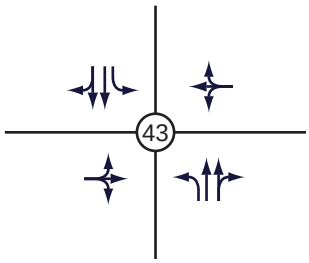
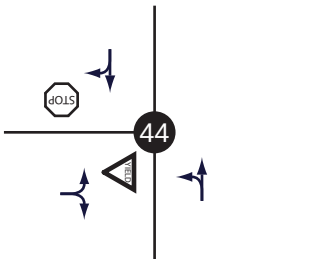
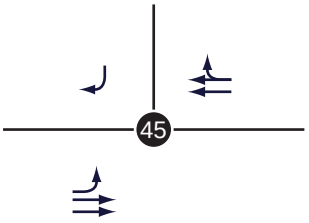
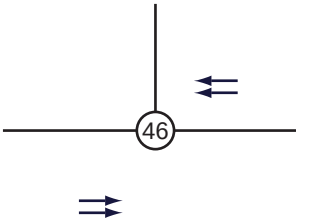
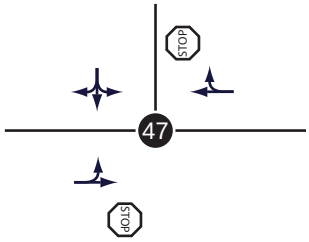
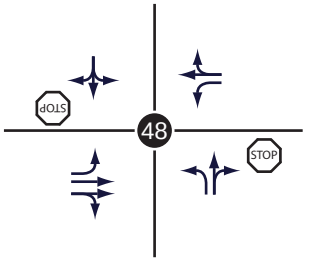
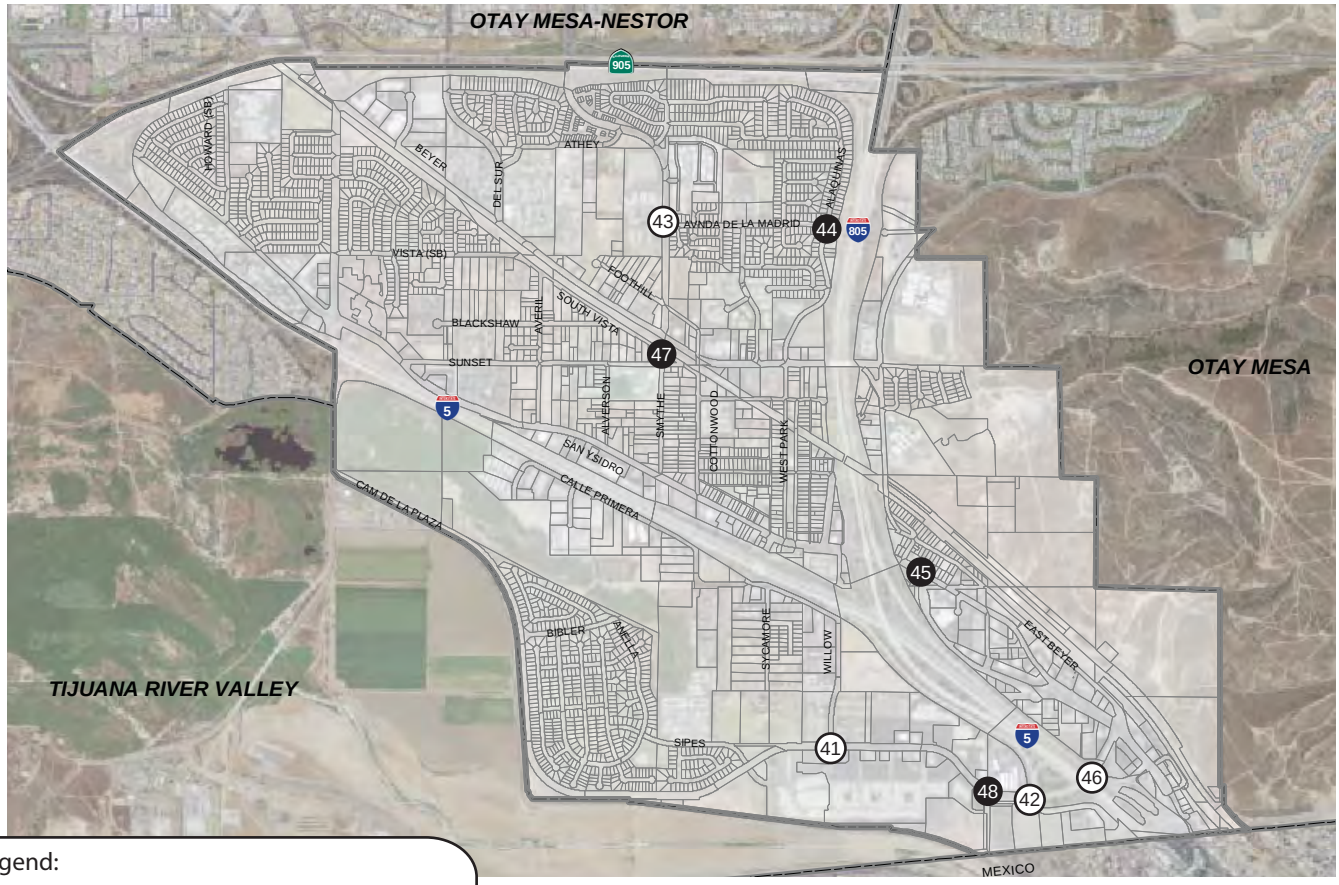
Camino de la Plaza/ Willow Rd	Camino de la Plaza/I-5 SB Ramps-Camiones Wy	Avenida de la Madrid/ Smythe Ave	Avenida de la Madrid/ Alaquinas Dr
			
Center St / E. San Ysidro Blvd	**I-5 SB Ramps/ Camino de la Plaza**	**Vista Ln/ Smythe Crossing**	**Camino de la Plaza/ Virginia Ave**
			



Legend:

- (X) Signalized
- X Unsignalized
- o Right-turn overlap

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FIGURE 6.f

Existing Intersection Geometrics

TABLE 3

HORIZON YEAR (2035) WITH THE PREFERRED LAND USE ALTERNATIVE

PEAK-HOUR INTERSECTION LOS SUMMARY

	INTERSECTION	PEAK-HOUR	EXISTING		PREFERRED LAND USE ALT.			
			DELAY (a)	LOS (b)	DELAY (a)	LOS (b)	Δ (c)	SIGNIFICANT?
1	Beyer Blvd & Iris Ave/SR-905 WB Ramps	AM	24.3	C	32.2	C	7.9	NO
		PM	54.9	D	109.3	**F**	54.4	**YES**
2	Beyer Blvd & Dairy Mart Rd/SR-905 Ramps	AM	30.8	C	60.1	**E**	29.3	**YES**
		PM	126.9	**F**	38.7	D	-88.2	NO
3	Beyer Blvd & Del Sur Blvd	AM	8.5	A	12.5	B	4.0	NO
		PM	13.2	B	20.3	C	7.1	NO
4	Smythe Crossing & Beyer Blvd	AM	11.4	B	13.5	B	2.1	NO
		PM	23.8	C	**ECL**	**F**	-	**YES**
5	Beyer Blvd & Smythe Ave	AM	18.7	B	**ECL**	**F**	-	**YES**
		PM	12.3	B	32.6	C	20.3	NO
6	W. Park Ave/Alaquinas Dr & Beyer Blvd	AM	19.3	B	165.5	**F**	146.2	**YES**
		PM	19.8	B	21.0	C	1.2	NO
7	East Beyer Blvd/Otay Mesa Rd & Beyer Blvd	AM	23.1	C	**ECL**	**F**	-	**YES**
		PM	16.5	B	**ECL**	**F**	-	**YES**
8	Picador Blvd & SR-905 WB On Ramp/SR-905	AM	15.9	B	20.7	C	4.8	NO
		PM	16.0	B	20.7	C	4.7	NO
9	Smythe Ave/Picador Blvd & SR-905 EB Off Ra	AM	12.9	B	15.4	B	2.5	NO
		PM	18.9	B	25.2	C	6.3	NO
10	Dairy Mart Rd & Vista Ln	AM	14.7	B	105.8	**F**	91.1	**YES**
		PM	17.0	C	**ECL**	**F**	-	**YES**
11	Averil Rd & Vista Ln	AM	7.8	A	10.8	B	3.0	NO
		PM	7.6	A	10.0	B	2.4	NO
12	Smythe Ave & Vista Ln	AM	ECL	**F**	**ECL**	**F**	-	**YES**
		PM	ECL	**F**	**ECL**	**F**	-	**YES**
13	Sunset Ln & Vista Ln	AM	8.7	A	9.8	A	1.1	NO
		PM	9.8	A	11.3	B	1.5	NO
14	Averil Rd & Sunset Ln	AM	10.4	B	17.0	C	6.6	NO
		PM	8.6	A	12.0	B	3.4	NO
15	Smythe Ave & Sunset Ln	AM	12.0	B	131.5	**F**	119.5	**YES**
		PM	7.6	A	8.7	A	1.1	NO
16	W. Park Ave & Seaward Ave	AM	11.3	B	29.3	D	18.0	NO
		PM	8.6	A	10.4	B	1.8	NO
17	E. Park Ave & Seaward Ave	AM	11.1	B	23.5	C	12.4	NO
		PM	8.1	A	9.0	A	0.9	NO
18	W. San Ysidro Blvd & Howard Ave	AM	15.1	C	45.8	**E**	30.7	**YES**
		PM	9.4	A	11.3	B	1.9	NO
19	Dairy Mart Rd & W. San Ysidro Blvd	AM	19.2	B	31.7	C	12.5	NO
		PM	28.3	C	48.2	D	19.9	NO
20	I-5 NB Ramps & W. San Ysidro Blvd	AM	15.6	B	29.8	C	14.2	NO
		PM	42.4	D	44.8	D	2.4	NO

Notes:

Bold values indicate intersections operating at LOS E or F.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 8

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TABLE 3
HORIZON YEAR (2035) WITH THE PREFERRED LAND USE ALTERNATIVE
PEAK-HOUR INTERSECTION LOS SUMMARY (cont.)

	INTERSECTION	PEAK-HOUR	EXISTING		PREFERRED LAND USE ALT.		Δ (c)	SIGNIFICANT?
			DELAY (a)	LOS (b)	DELAY (a)	LOS (b)		
21	W. San Ysidro Blvd & Sunset Ln	AM	14.5	B	19.0	C	4.5	NO
		PM	17.8	C	22.2	C	4.4	NO
22	W. San Ysidro Blvd & Averil Rd	AM	12.0	B	14.8	B	2.8	NO
		PM	26.4	D	50.6	**F**	24.2	**YES**
23	W. San Ysidro Blvd & Smythe Ave	AM	12.3	B	16.4	C	4.1	NO
		PM	14.7	B	20.4	C	5.7	NO
24	Cottonwood Rd & W. San Ysidro Blvd	AM	6.5	A	10.8	B	4.3	NO
		PM	7.3	A	22.0	C	14.7	NO
25	Via de San Ysidro & W. San Ysidro Blvd	AM	13.4	B	15.6	B	2.2	NO
		PM	36.0	D	44.4	D	8.4	NO
26	W. San Ysidro Blvd/E. San Ysidro Blvd & W.	AM	11.1	B	13.6	B	2.5	NO
		PM	14.1	B	19.8	C	5.7	NO
27	E. San Ysidro Blvd/W. San Ysidro Blvd & E. I	AM	9.0	B	10.6	B	1.6	NO
		PM	10.3	B	13.1	C	2.8	NO
28	I-805 SB Ramps & E. San Ysidro Blvd	AM	17.1	B	18.1	B	1.0	NO
		PM	23.6	C	35.8	D	12.2	NO
29	I-805 NB Ramps & E. San Ysidro Blvd	AM	13.8	B	16.3	B	2.5	NO
		PM	16.5	B	57.2	**E**	40.7	**YES**
30	Border Village Rd (W) & E. San Ysidro Blvd	AM	17.4	B	55.9	**E**	38.5	**YES**
		PM	15.7	B	**ECL**	**F**	-	**YES**
31	Border Village Rd (E) & E. San Ysidro Blvd	AM	8.6	A	14.4	B	5.8	NO
		PM	15.6	B	**ECL**	**F**	-	**YES**
32	Camino de la Plaza/E. Beyer Blvd & E. San Ys	AM	18.8	B	24.4	C	5.6	NO
		PM	26.5	C	33.9	C	7.4	NO
33	I-5 NB Ramp & E. San Ysidro Blvd	AM	9.4	A	37.4	D	28.0	NO
		PM	12.6	B	**ECL**	**F**	-	**YES**
34	Via de San Ysidro & I-5 NB Ramps	AM	32.5	D	**ECL**	**F**	-	**YES**
		PM	ECL	**F**	**ECL**	**F**	-	**YES**
35	Via de San Ysidro & I-5 SB off-ramp	AM	23.6	C	52.5	D	28.9	NO
		PM	71.9	**E**	**ECL**	**F**	-	**YES**
36	Calle Primera/Willow Rd & Via de San Ysidro	AM	11.5	B	62.6	**E**	51.1	**YES**
		PM	63.1	**E**	**ECL**	**F**	-	**YES**
37	Dairy Mart Rd & I-5 SB Ramps	AM	16.2	B	29.9	C	13.7	NO
		PM	60.7	**E**	**ECL**	**F**	-	**YES**
38	Dairy Mart Rd & Servando Ave	AM	13.7	B	20.9	C	7.2	NO
		PM	36.8	**E**	106.8	**F**	70.0	**YES**
39	Dairy Mart Rd & Camino De La Plaza	AM	11.6	B	13.1	B	1.5	NO
		PM	37.6	**E**	78.1	**F**	40.5	**YES**
40	Camino de la Plaza & Bibler Dr	AM	11.5	B	9.3	A	-2.2	NO
		PM	12.6	B	11.1	B	-1.5	NO
41	Willow Rd & Camino de la Plaza	AM	15.4	B	27.1	C	11.7	NO
		PM	28.6	C	55.3	**E**	26.7	**YES**
42	Camiones Way/I-5 SB Ramps & Camino de la	AM	18.0	B	21.5	C	3.5	NO
		PM	91.8	**F**	100.3	**F**	8.5	**YES**
43	Smythe Ave & Avenida de la Madrid	AM	20.8	C	31.6	C	10.8	NO
		PM	24.8	C	34.8	C	10.0	NO
44	Avenida de la Madrid & Alaquinas Dr	AM	12.7	B	15.2	C	2.5	NO
		PM	7.8	A	8.2	A	0.4	NO
45	E. San Ysidro Blvd & Center St	AM	11.1	B	17.9	C	6.8	NO
		PM	18.3	C	**ECL**	**F**	-	**YES**
47	Vista Ln & Smythe Crossing	AM	19.1	C	28.8	D	9.7	NO
		PM	47.2	**E**	**ECL**	**F**	-	**YES**
48	Camino de la Plaza & Virgina Ave	AM	12.0	B	**ECL**	**F**	-	**YES**
		PM	27.9	D	**ECL**	**F**	-	**YES**

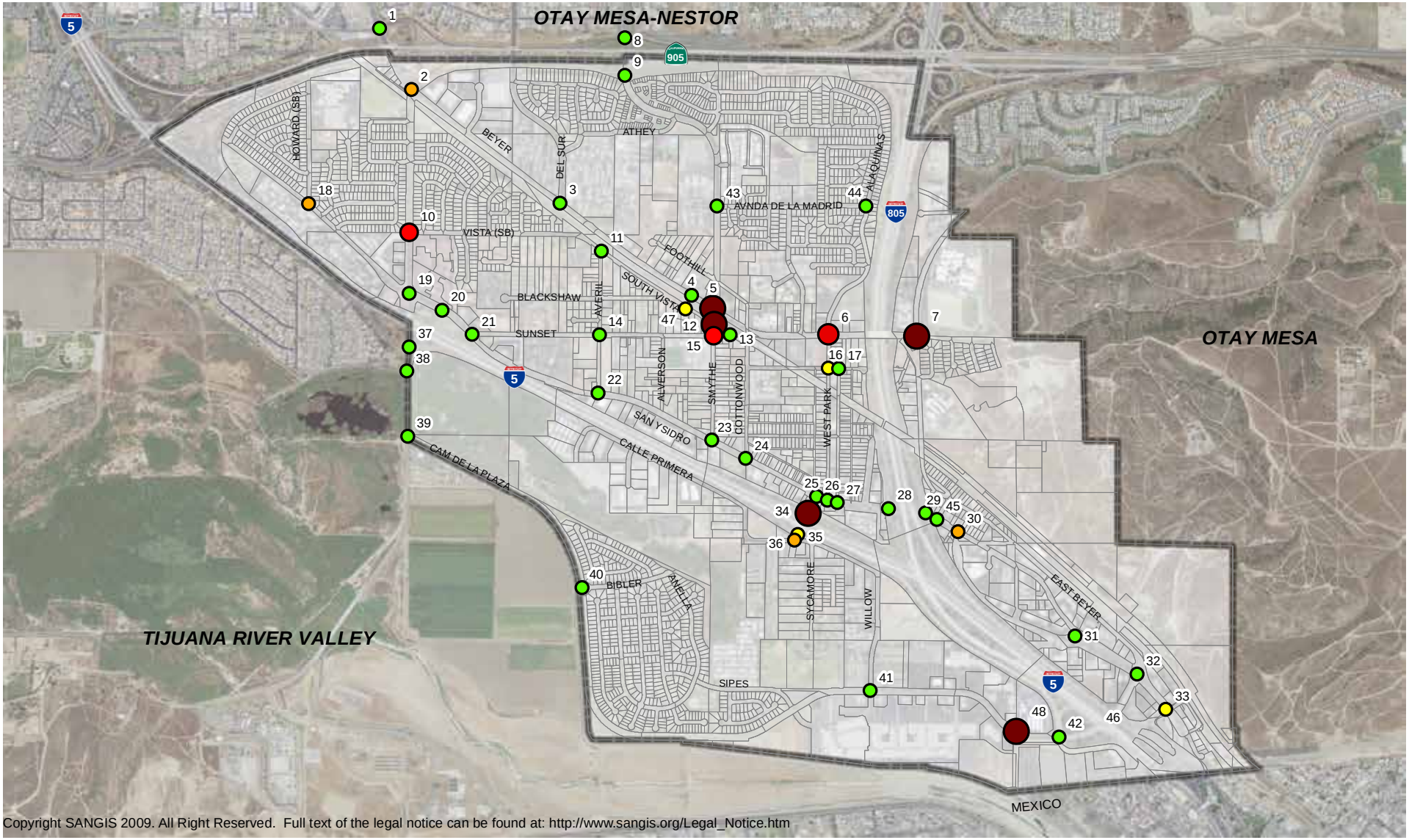
Notes:

Bold values indicate intersections operating at LOS E or F.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 8

The saturation flow rate at the intersection of Camino de la Plaza and I-5 Soutbound Ramps was adjusted to replicate existing conditions when the I-5 Southbound inspection lane is open entering Mexico.



LEGEND

- LOS: A, B, C
- LOS: D
- LOS: E
- LOS: F (100-150 sec)
- LOS: F (150-200 sec)
- LOS: F (>500 sec)
- Community Plan Boundary
- Parcel Boundaries
- XX Intersection # (See Tables 3-8)

Figure 7.a

Summary of Intersection Analysis - Preferred Alternative (Weekday - AM)

N

0 400 800 1,600 Feet

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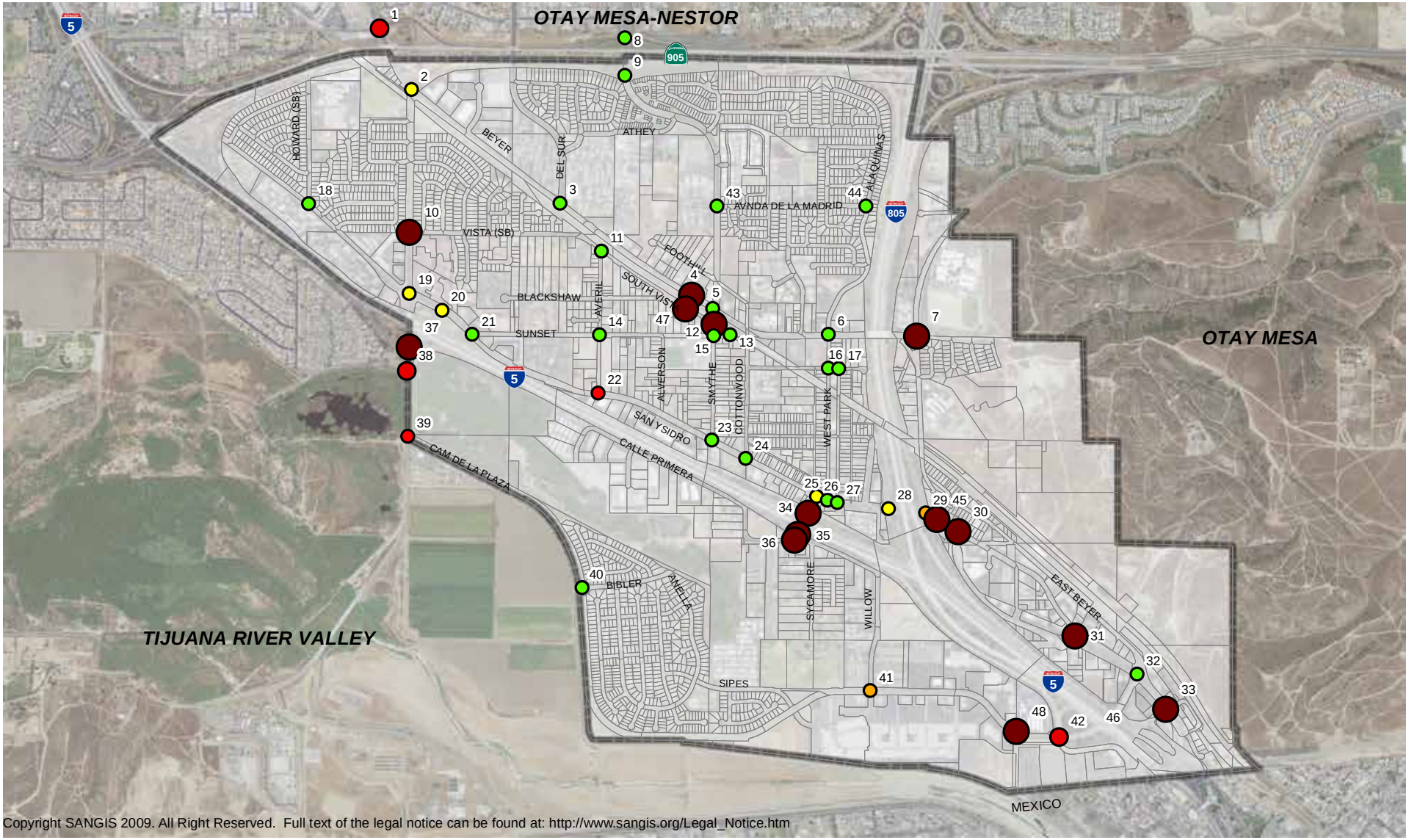

LEGEND

- LOS: A, B, C
- LOS: D
- LOS: E
- LOS: F (<100 sec)
- LOS: F (100-150 sec)
- LOS: F (>500 sec)
- Community Plan Boundary
- Parcel Boundaries
- XX Intersection # (See Tables 3-8)

Figure 7.b

Summary of Intersection Analysis - Preferred Alternative (Weekday - PM)

N

0 400 800 1,600 Feet

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Recommended Improvements

A number of improvements have been identified for inclusion in the Mobility Element. These improvements occur along corridors and at spot intersections and are recommended to mitigate roadway and intersection impacts as well as to enhance pedestrian, bicycle and transit connectivity through the community. **Figure 8** illustrates the location of all the recommended improvements within the vicinity of the study area. **Table 4** describes the roadway segment classification changes recommended. The following are the recommended improvements:

Roadway Corridors

Beyer Boulevard:

Between Dairy Mart and Precision Park Lane:

Under existing conditions, the segment of Beyer Boulevard between Dairy Mart Road and Precision Park Lane has a functional classification of a four-lane collector with a center left-turn lane. The existing curb-to-curb width along this segment of Beyer Boulevard is 68 feet, which allows for two travel lanes in each direction, parking on both sides of the roadway and a two-way left-turn lane. The existing configuration does not allow for a dedicated bicycle lane. In order to provide a bicycle facility along this roadway segment, it is recommended that a six-foot cycle track be striped along both sides of the roadway with a three foot buffer between the parking and the travel lane. Then parking could be provided along both side of the roadway. One travel lane in each direction would be removed to provide the needed room for the cycle track. Although the auto capacity of the roadway would decrease, this configuration would improve the bicycle network and provide connectivity to the Beyer Transit Station. The roadway segment analysis shows that with the increase of traffic expected as a result of the preferred land use alternative, this segment of Beyer Boulevard would operate at LOS E. In order to increase the roadway capacity along Beyer Boulevard between Dairy Mart Road and Precision Park Lane and to improve the roadway segment operations to LOS D or better, the segment would need to be widened to provide an additional travel lane. Widening the roadway would require the City to obtain additional right-of-way for either the north of the roadway (which is currently developed with multi-family residential) or to the south of the roadway, which is geometrically constrained by the MTS Blueline trolley line. For this reason, the widening of Beyer Boulevard is not recommended. This reconfiguration could be implemented with a restriping of the roadway within the curb to curb width as shown in **Figure 9** (Cross Section A).

Between Precision Park Lane and Smythe Avenue:

Under existing conditions, the segment of Beyer Boulevard between Precision Park Lane and Smythe Avenue has a functional classification of a four-lane collector without a center left-turn lane. The existing curb-to-curb width along this segment of Beyer Boulevard is 58 feet, which allows for two travel lanes in each direction, and parking on both sides of the roadway. The existing configuration does not allow for a dedicated bicycle lane. In order to provide a bicycle facility along this roadway segment, it is recommended that a five-foot cycle track be striped along both sides of the roadway with a 1 foot buffer between the parking and the travel lane. Then parking could be provided along both side of the roadway. One travel lane in each direction would be removed to provide the needed

room for the cycle track. Although the auto capacity of the roadway would not change, this configuration would improve the bicycle network and provide connectivity to the Beyer Transit Station. The roadway segment analysis shows that with the increase of traffic expected as a result of the preferred land use alternative, this segment of Beyer Boulevard would operate at LOS E. In order to increase the roadway capacity along Beyer Boulevard between Precision Park Lane and Smythe Avenue and to improve the roadway segment operations to LOS D or better, the segment would need to be widened to provide an additional travel lane. Widening the roadway would require the City to obtain additional right-of-way for either the north of the roadway (which is currently developed with multi-family residential) or to the south of the roadway, which is geometrically constrained by the MTS Blueline trolley line. For this reason, the widening of Beyer Boulevard is not recommended. This reconfiguration could be implemented with a restriping of the roadway within the curb to curb width as shown in **Figure 9** (Cross Section B).

Between Smythe Avenue and E. Beyer Boulevard:

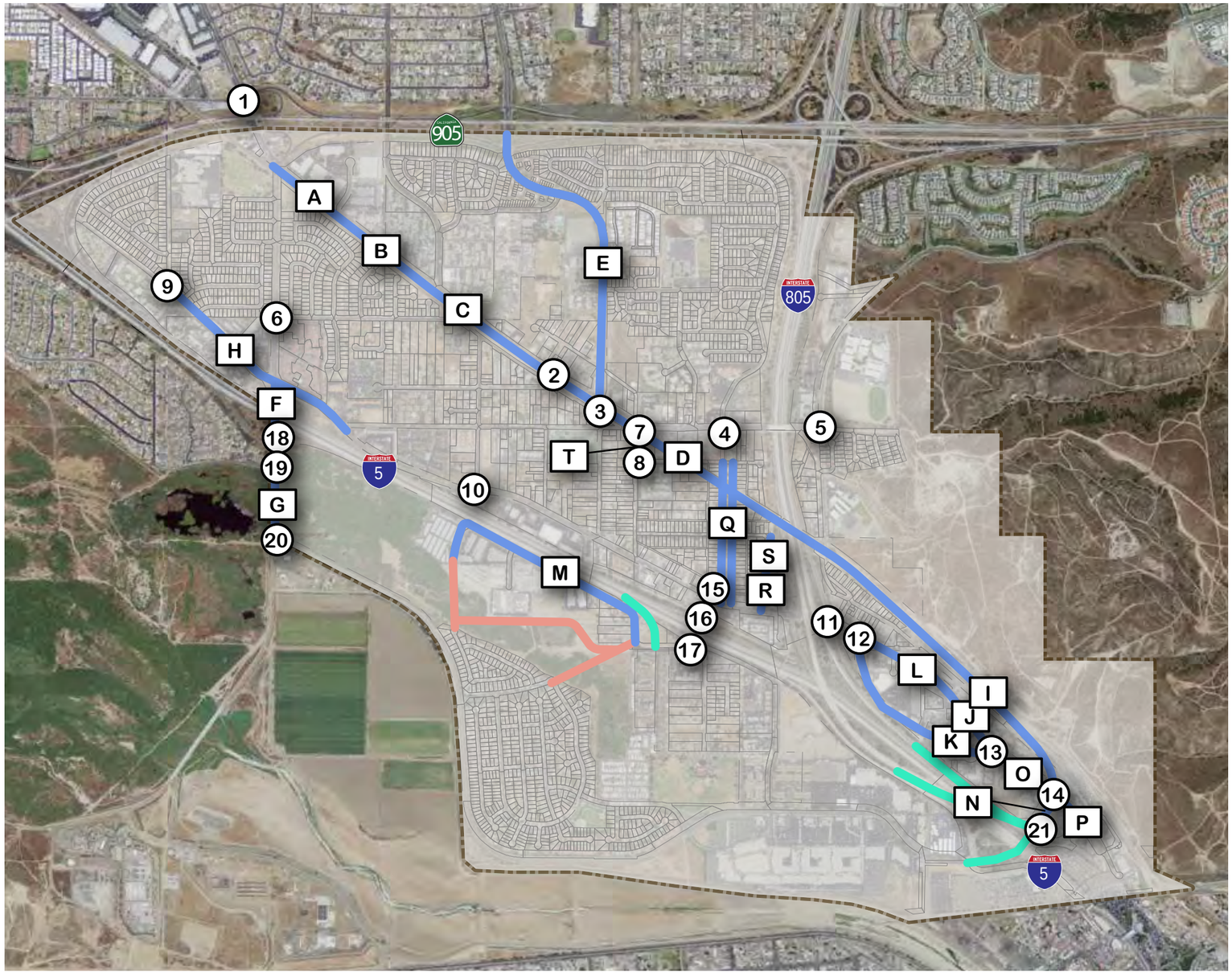
Under existing conditions, the segment of Beyer Boulevard between Smythe Avenue and East Beyer Boulevard has a functional classification of a four-lane collector with a center left-turn lane. The existing curb-to-curb width along this segment of Beyer Boulevard is 82 feet, which allows for two travel lanes in each direction, parking on both sides of the roadway and a center left-turn lane. The existing configuration does not allow for a dedicated bicycle lane. In order to provide a bicycle facility along this roadway segment, it is recommended that a five-foot cycle track be striped along both sides of the roadway with a 1 foot buffer between the parking and the travel lane. Then parking could be provided along both side of the roadway. The existing travel lanes would need to be restriped to provide 12 and 11 foot lanes, respectively. The restriping of the existing travel lanes would provide the necessary space to add the cycle track along Beyer Boulevard. Although the auto capacity of the roadway would not change, this configuration would improve the bicycle network and provide connectivity to the Beyer Transit Station from the east side of the Community. The roadway segment analysis shows that with the increase of traffic expected as a result of the preferred land use alternative, this segment of Beyer Boulevard would operate at LOS E. This segment of the roadway has a functional classification of a four-lane collector with a two-way left-turn lane. In order to increase the capacity of the roadway segment and improve its level of service to D or better, a raised median should be installed to reclassify the segment from a four-lane collector street to a four-lane major. The reclassification of the roadway would increase its capacity and improve its LOS to D or better. The recommended raised median could be constructed without the need to increase or widen the road. For this reason, the construction of a raised media is recommended. This reconfiguration could be implemented with a restriping of the roadway within and construction of the raised median within the the curb to curb width as shown in **Figure 9** (Cross Section D).

Roadway Segments:

- A - D Beyer Blvd (See Figure 9)
- E Smythe Ave
- F G Dairy Mart Rd (See Figure 10)
- H West San Ysidro Blvd
- I - L Border Village (See Figure 11)
- M Calle Primera (See Figure 12)
- N - P Camino de la Plaza (See Figure 13)
- Q West and East Park Ave (See Figure 14)
- R S Olive St (See Figure 15)
- T Vista Ave (See Figure 16)

Intersections:

1. Iris Ave and Beyer Blvd (See Figure 17)
2. Beyer Blvd and Smythe Crossing (See Figure 17)
3. Beyer Blvd and Smythe Ave (See Figure 17)
4. Beyer Blvd and Alaguinas Dr (See Figure 17)
5. Beyer Blvd and Otay Mesa Rd (See Figure 17)
6. Dairy Mart Rd and Vista Ln (See Figure 10 &17)
7. Vista Ln and Smythe Ave (See Figure 16 &17)
8. Sunsel Ln and Smythe Ave (See Figure 16 &17)
9. West San Ysidro Blvd and Howard Ave (See Figure 17)
10. West San Ysidro Blvd and Averil Rd (See Figure 17)
11. West San Ysidro Blvd and I-805 NB Ramps (See Figure 17)
12. East San Ysidro Blvd and Border Village Rd (See Figure 11 &17)
13. East San Ysidro Blvd and Camino de la Plaza (See Figure 11 &17)
14. East San Ysidro Blvd and I-5 NB Ramps (See Figure 13 &17)
15. West San Ysidro Blvd and Via de San Ysidro (See Figure 12 &17)
16. I-5 NB Ramp and Via San Ysidro (See Figure 12 &17)
17. Calle Primera and Via San Ysidro (See Figure 12 &17)
18. Dairy Mart Rd and I-5 SB Ramps (See Figure 17)
19. Dairy Mart Rd and Selvando Ave (See Figure 17)
20. Dairy Mart Rd and Camino de la Plaza (See Figure 17)
21. I-5 Ramps and Camino de la Plaza (See Figure 13 &17)



LEGEND

- San Ysidro Community Plan Boundary
- Roadway Improvement
- Freeway/ Ramp Improvement
- New Roadway

Figure 8

N

0 375 750 1,500 Feet

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TABLE 4
RECOMMENDED ROADWAY SEGMENT CLASSIFICATION CHANGES

ROADWAY SEGMENT	ROADWAY FUNCTIONAL CLASSIFICATION (a)	LOS E CAPACITY	RECOMMENDED CLASSIFICATION	LOS E CAPACITY	REMARKS
Beyer Blvd.					
SR-905 WB Off-Ramp to Dairy Mart Rd.	4-Lane Collector	30,000	4-Lane Collector	30,000	
Dairy Mart Rd. to Del Sur Blvd.	4-Lane Collector (no TWLT)	15,000	**2-Lane Collector (continuous left-turn lane)**	**15,000**	**Eliminate travel lane to provide bike lane**
Del Sur Blvd. to Smythe Ave.	4-Lane Collector (no TWLT)	15,000	**2-Lane Collector (continuous left-turn lane)**	**15,000**	**Eliminate travel lane to provide bike lane**
Smythe Ave to W. Park Ave	4-Lane Collector	30,000	4-Lane Collector	30,000	
W. Park Ave. to E. Beyer Blvd.	4-Lane Collector	30,000	4-Lane Collector	30,000	
Otay Mesa Rd.					
North of Beyer Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
E. Beyer Blvd.					
Beyer Blvd. to Center St.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Center St. to E. San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Del Sur Blvd.					
SR-905 EB Ramps to Beyer Blvd.	2-Lane Collector (continuous left-turn lane)	15,000	2-Lane Collector (continuous left-turn lane)	15,000	
Smythe Ave.					
SR-905 EB Ramps to Beyer Blvd.	4-Lane Collector (no TWLT)	15,000	**4-Lane Collector**	**30,000**	**Provide left-turn lanes at missing sections**
S. Vista Ave. to Sunset Ln.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Sunset Ln. to W. San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Dairy Mart Rd.					
Beyer Blvd to S. Vista Ln	4-Lane Collector	30,000	4-Lane Collector	30,000	
S. Vista Ln. to W. San Ysidro Blvd.	4-Lane Collector	30,000	4-Lane Collector	30,000	
W. San Ysidro Blvd. to I-5 SB Ramps	2-Lane Collector (continuous left-turn lane)	15,000	**4-Lane Collector**	**30,000**	**Widen bridge**
I-5 SB Ramps to Servando Ave.	3-Lane Collector	11,250	**4-Lane Collector**	**30,000**	**Widen**
Servando Ave. to Camino de la Plaza	2-Lane Collector (no fronting property)	10,000	**2-Lane Collector (continuous left-turn lane)**	**15,000**	**Provide continuous left-turn lanes**
W. San Ysidro Blvd.					
Howard Ave. to Dairy Mart Rd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Dairy Mart Rd. to Sunset Ln.	4-Lane Collector	30,000	4-Lane Collector	30,000	
Sunset Ln. to Averil Rd.	2-Lane Collector (continuous left-turn lane)	15,000	2-Lane Collector (continuous left-turn lane)	15,000	
Averil Rd. to Smythe Ave.	2-Lane Collector (continuous left-turn lane)	15,000	2-Lane Collector (continuous left-turn lane)	15,000	
Smythe Ave. to Cottonwood Rd.	2-Lane Collector (continuous left-turn lane)	15,000	2-Lane Collector (continuous left-turn lane)	15,000	
Cottonwood Rd. to Via de San Ysidro	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Via de San Ysidro to W. Park Ave	4-Lane Major Arterial	40,000	4-Lane Major Arterial	40,000	
E. San Ysidro Blvd.					
W. Park Ave. to I-805 SB Ramps	4-Lane Major Arterial	40,000	4-Lane Major Arterial	40,000	
I-805 SB Ramps to I-805 NB Ramps	4-Lane Major Arterial	40,000	4-Lane Major Arterial	40,000	
I-805 NB Ramps to Border Village Rd. (west)	2-Lane Collector (continuous left-turn lane)	15,000	**4-Lane Collector**	**30,000**	**Widen**
Border Village Rd. (west) to Border Village Rd (east)	2-Lane Collector (continuous left-turn lane)	15,000	**2-Lane Collector (One Way)**	**17,500**	**Convert to 1-way couplet**
Border Village Rd. (south) to E. Beyer Blvd./Camino de la Plaza	4-Lane Major Arterial	40,000	**6-Lane Major Arterial**	**50,000**	**Restripe**
E. Beyer Blvd./Camino de la Plaza to I-5 SB Ramps	3-Lane Collector	11,250	**4-Lane Major Arterial**	**40,000**	**Widen**

Notes:
Bold values indicates proposed roadway segment improvements.
(a) Roadway Functional Classification is based on field observations and anticipated funded roadway improvements to be completed by the Year 2035.
(b) 2035 Adopted Community Plan volumes were extracted from a SANDAG Series 12 Regional Transportation Model.
(c) The V/C Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

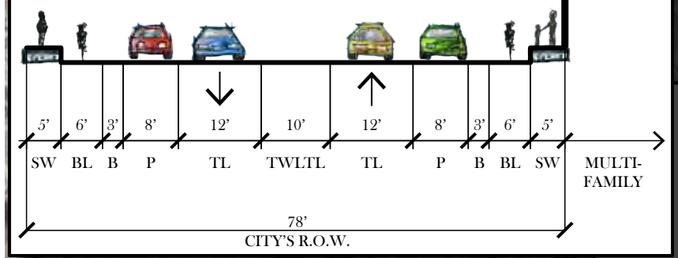
TABLE 4
RECOMMENDED ROADWAY SEGMENT CLASSIFICATION CHANGES

ROADWAY SEGMENT	ROADWAY FUNCTIONAL CLASSIFICATION (a)	LOS E CAPACITY	RECOMMENDED CLASSIFICATION	LOS E CAPACITY	REMARKS
Border Village Rd .					
San Ysidro Blvd. to San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	**2-Lane Collector (One Way)**	**17,500**	**Convert to 1-way couplet**
Via de San Ysidro					
W. San Ysidro Blvd. to I-5 NB Ramps	4-Lane Collector (no TWLT)	15,000	**4-Lane Collector**	**30,000**	**Widen**
I-5 NB Ramps to Calle Primera	4-Lane Collector (no TWLT)	15,000	**4-Lane Collector**	**30,000**	**Widen**
Calle Primera					
West of Rancho del Rio Estates	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	**3-Lane Collector**	**11,250**	**Widen to provide 2 WB and 1 EB lane**
Rancho del Rio Estates to Via de San Ysidro	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	**3-Lane Collector**	**11,250**	**Widen to provide 2 WB and 1 EB lane**
Via de San Ysidro to Willow Rd	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Willow Rd.					
Calle Primera to Camino De La Plaza	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Bibler Dr.					
East of Camino De La Plaza	2-Lane Collector (no fronting property)	10,000	2-Lane Collector (no fronting property)	10,000	
Camino De La Plaza.					
Dairy Mart Rd. to Bibler Dr.	4-Lane Collector	30,000	4-Lane Collector	30,000	
Bibler Dr. to Willow Rd.	4-Lane Collector	30,000	4-Lane Collector	30,000	
Willow Rd. to I-5 SB Ramp	4-Lane Collector	30,000	4-Lane Collector	30,000	
I-5 SB Ramp to E. San Ysidro Blvd.	4-Lane Collector	30,000	**4-Lane Major Arterial**	**40,000**	**Convert to 4-Lane Major**
Vista Ln.					
Dairy Mart Rd. to Averil Rd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Averil Rd. to Smythe Ave.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Sunset Ln.					
W. San Ysidro Blvd. to Averil Rd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Averil Rd. to Smythe Ave.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Cottonwood Rd.					
Sunset Ln. to W San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
W. Park Ave.					
Beyer Blvd. to Seward Ave.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Seward Ave. to W. San Ysidro Blvd.	1-Lane Collector	4,000	1-Lane Collector	4,000	
E. Park Ave.					
Seward Ave. to W. San Ysidro Blvd.	1-Lane Collector	4,000	1-Lane Collector	4,000	
Seward Ave.					
W. Park Ave. to E. Park Ave.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Howard Ave.					
North of W. San Ysidro Blvd.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Avenida de la Madrid					
Smythe Ave. to Alaquinas Dr.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	
Alaquinas Dr.					
Beyer Blvd. to Avenida de la Madrid.	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	

Notes:
Bold values indicates proposed roadway segment improvements.
(a) Existing roads street functional classification is based field observations.
(b) 2035 Adopted Community Plan volumes were extracted from a SANDAG Series 12 Regional Transportation Model.
(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

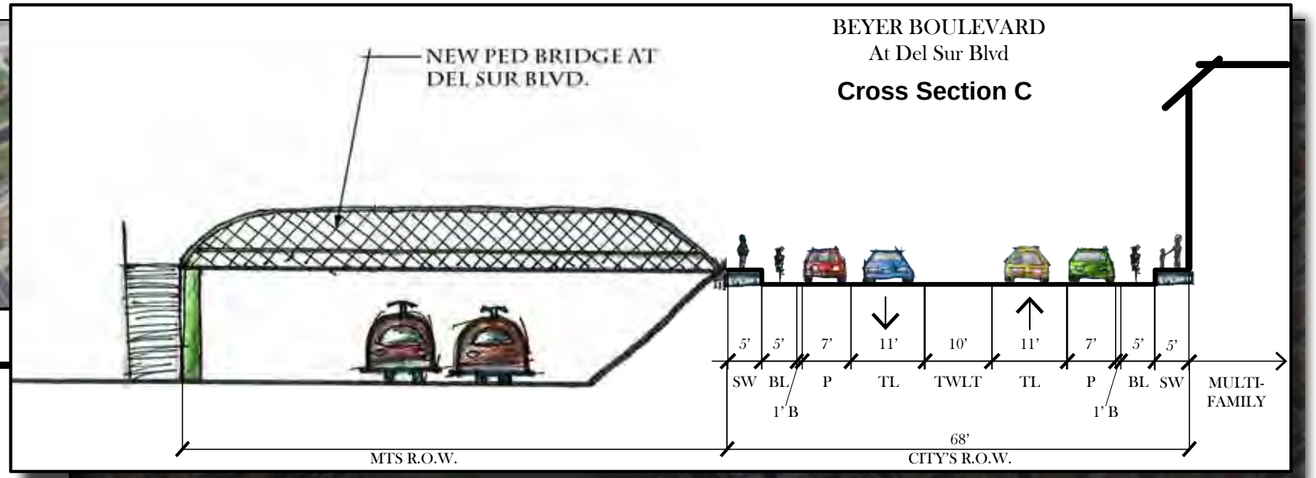
BEYER BOULEVARD
Dairy Mart Rd to Precision Park Ln

Cross Section A



BEYER BOULEVARD
Precision Park Ln to Smythe Ave

Cross Section B

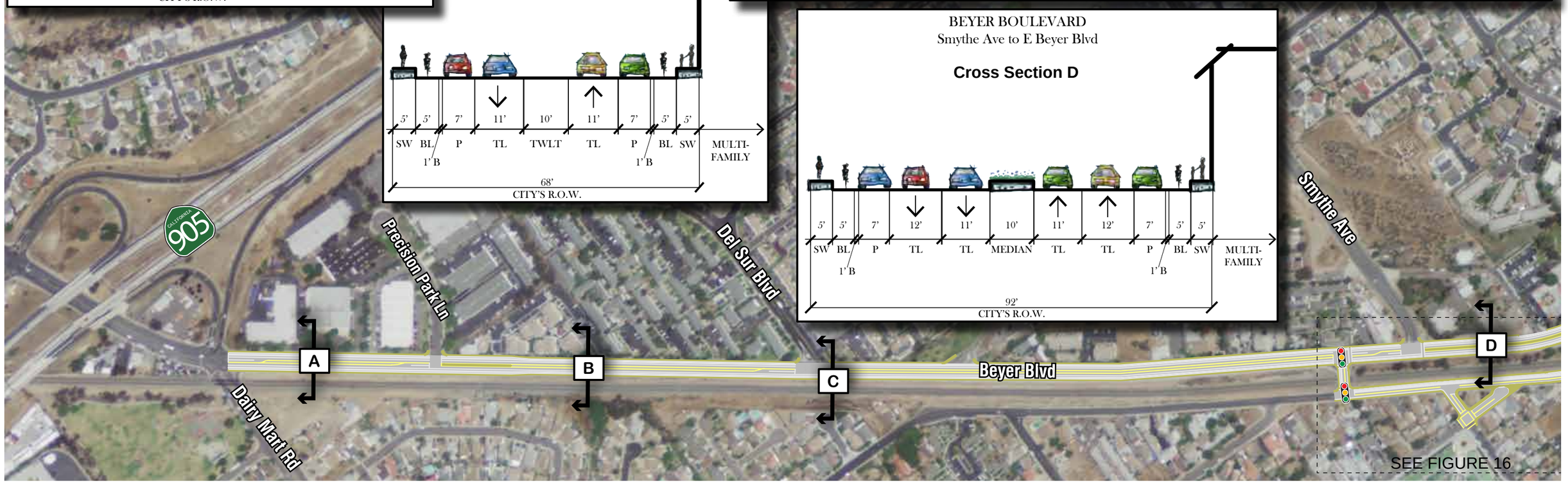


BEYER BOULEVARD
At Del Sur Blvd

Cross Section C

BEYER BOULEVARD
Smythe Ave to E Beyer Blvd

Cross Section D



LEGEND

BL	Bike Lane	TWLT	Two-way Left Turn
P	Parking	BP	Bike Path
SW	Sidewalk	B	Buffer
TL	Travel Lane		

New Traffic Signal

Figure 9

Recommended Improvement: Beyer Blvd between Dairy Mart Rd and Trolley Station

0 50 100 200 Feet

Kimley»Horn rrmdesigngroup SanGIS

Smythe Avenue:

The roadway segment analysis shows that Smythe Avenue between the SR-905 freeway ramps and Beyer Boulevard would operate at LOS E with the traffic associated with the preferred land use scenario. The LOS deficiency is caused by the fact that at the signalized intersections with Via de la Melodia, Smythe Avenue do not provide for left-turn pocket. Restriping Smythe Avenue to provide left-turn pocket at this signalized intersection would increase capacity and improve the roadway segment operations to D or better. The addition of the left-turn pockets would provide an increase in the overall capacity along the corridor, as it would eliminate the conflict between through movements and left-turn movements at intersections.

It is recommended that all bike lanes along Smythe Avenue be restriped to provide a buffer space between the bike lane and the travel lanes. The buffer space can be provided by restriping and reducing the existing travel lanes.

Dairy Mart Road:

Between West San Ysidro Boulevard and the I-5 Southbound ramps:

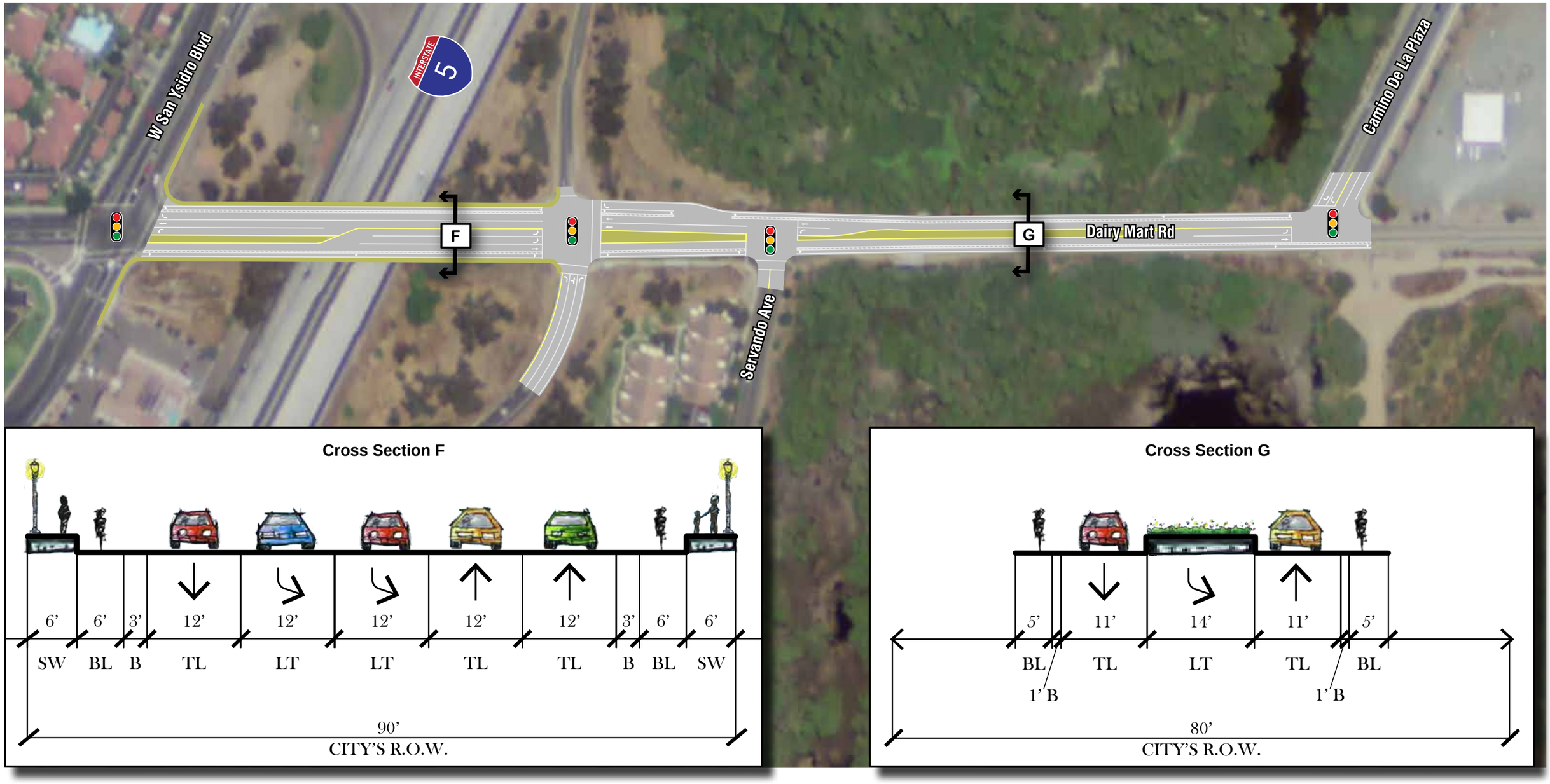
The roadway segment analysis shows that Dairy Mart Road would operate at LOS F between West San Ysidro Boulevard and the I-5 Southbound ramps. This segment is currently constructed as a bridge overpass with one lane in each direction and a painted median with left-turn pockets at the end points of the segment. In order to improve this segment to a LOS D or better, the widening of the bridge and the reconstruction of the interchange would be needed. The reconstruction of the bridge and the interchange will allow to provide the necessary lanes at the intersection with the I-5 Southbound ramps, in addition to provide the needed room to stripe a buffer bike lane along Dairy Mart Road. **Figure 10**, (Cross Section F), shows the recommended improvement including the needed cross section for the new bridge.

Between the I-5 Southbound ramps and Servando Avenue:

For the segment between the I-5 Southbound ramp and Servando Avenue, it is recommended that a raised median be constructed to separate the northbound and southbound traffic. Complemented by the intersection improvements at the I-5 Southbound ramp and Dairy Mart Road, the entire circulation and flow along Dairy Mart Road would improve significantly. **Figure 10** illustrates the recommended improvement. Buffered bike lanes are recommended along this segment.

Between Servando Avenue and Camino de la Plaza:

A raised median is also recommended to be constructed between Servando Avenue and Camino de la Plaza. This new raised median would separate the northbound and southbound traffic by providing a physical barrier that would increase capacity along the roadway segment. Buffered bike lanes are recommended along this segment. **Figure 10**, (Cross Section G), shows the recommended improvement including the needed cross section for this section of Dairy Mart Road.



Cross Section F

Cross Section G

LEGEND

BL	Bike Lane	TWLT	Two-way Left Turn
P	Parking	BP	Bike Path
SW	Sidewalk	B	Buffer
TL	Travel Lane	LT	Left Turn Lane

New Traffic Signal

Figure 10

Recommended Improvement: Dairy Mart Road

N

0 150 Feet

Kimley»Horn rrmdesigngroup SanGIS

West San Ysidro Boulevard:

The roadway segment analysis shows that with the exception of the segments between Dairy Mart Road and Sunset Lane and between Via de San Ysidro and West Park Avenue, with the addition of the traffic associated with the preferred land use scenario, would cause West San Ysidro Boulevard to operate at LOS E or F. This roadway is a multi-modal corridor within the community, used by vehicular passengers along with bicyclists and pedestrians. In order to improve the roadway segment operations and LOS to D or better, the roadway would need to be widened to provide additional lanes of traffic in each direction. The widening of West San Ysidro Boulevard would require the City to obtain additional right-of-way from multiple private owners. The potential widening would force several residential and commercial units to be reconstructed including historical landmark buildings along the corridor. The widening of the roadway would compromise the community character. For all these reasons, the widening of the roadway to provide additional capacity it is not recommended. Instead, it is recommended that traffic calming measures be implemented along the corridor to increase and enhance pedestrian and bicycle mobility, improving the multi-modal character of the community. Where the existing roadway width allows, a bike lane should be striped along the segment. For the majority of the segment, the bike lane could be striped by removing the existing two-way left-turn lanes. For sections where the roadway width does not provide sufficient space for bike lanes, sharrow marking should be installed.

East San Ysidro Boulevard: The roadway segment analysis shows that individual segments between the I-805 northbound ramp and Camino de la Plaza, East San Ysidro Boulevard would operate at LOS E or F with the addition of the preferred land use alternative traffic volumes.

Between I-805 and Center Street:

In order to improve the capacity of the segment between the I-805 northbound ramp and Border Village Road (north), it is recommended that the roadway be widened to the north to provide an additional westbound right-turn lane from westbound East San Ysidro Boulevard to northbound I-805. This improvement requires additional ROW that will be obtained from the fronting parcel. **Figure 19** illustrates the recommended improvement, including the reconfiguration of the I-805 northbound off-ramp at Center Street.

Between Border Village (north) and Border Village (south):

In order to increase the capacity of the roadway segments between Border Village Road (north and south), within the Border Village area, it is recommended that a one-way couplet configuration be implemented. Three different concepts were presented to the Community in March 2012, the three different concepts are described below:

- Option 1: This option would provide two eastbound travel lanes along Border Village Road with two westbound travel lanes along East San Ysidro Boulevard:

- Option 2: This option would provide one eastbound travel lane along Border Village Road (westbound lane would be removed), one travel lane in each direction along East San Ysidro Boulevard and an additional westbound travel lane along Beyer Boulevard.

- Option 3: This option would provide one eastbound travel lane along Border Village Road (westbound lane would be removed), one travel lane in each direction along East San Ysidro Boulevard and two westbound travel lanes along Beyer Boulevard (eastbound lane would be removed).

During the March 2012 Public meeting all options were discussed. As a result of the meeting, it was determined that Option 1 was the most popular option from the Community's perspective.

Further evaluation of all three alternatives also demonstrated that Option 1 would be the preferred option for the following reasons:

- This option matches with the current configuration of the street network;

- It allows for minimizing vehicular conflicts at intersections;

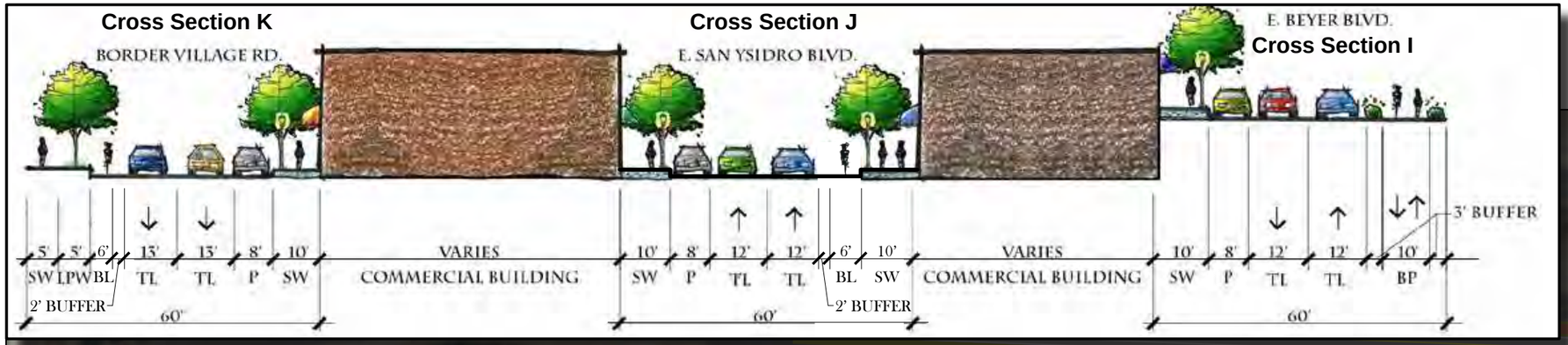
- Allows for additional parking spaces along the south side of East San Ysidro Boulevard, by removing existing two-way left-turn lane.

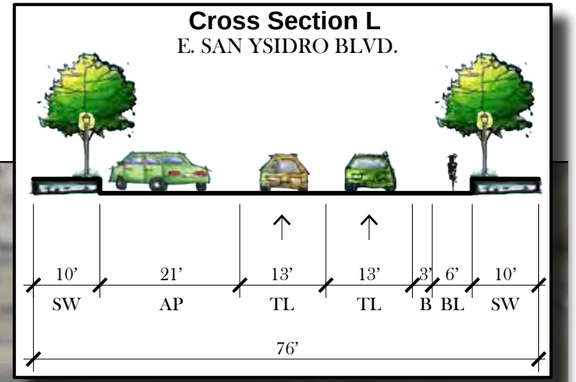
For these reasons, Option 1 is recommended as part of this study. **Figure 11** illustrates the proposed one-way couplet configuration for the Border Village area. As shown in Figure 11, within the existing curb-to-curb width, Border Village Road would be configured with two eastbound travel lanes, a buffered bike lane along the south side and parallel parking along the north side (see Cross Section K). East San Ysidro Boulevard would be configured with two westbound travel lanes, parallel parking on the south side and a buffered bike lane along the north side of the roadway (see Cross Section J). Between Bolton Hall Road and Virginia Avenue, the existing two-way left-turn lane should be removed. With the removal of the two-way left-turn lane, angled parking could be provided along the south side of the roadway (see Cross Section L). East Beyer Boulevard would be configured with one travel lane in each direction, parallel parking along the south side and a Class I bicycle facility along the north side.

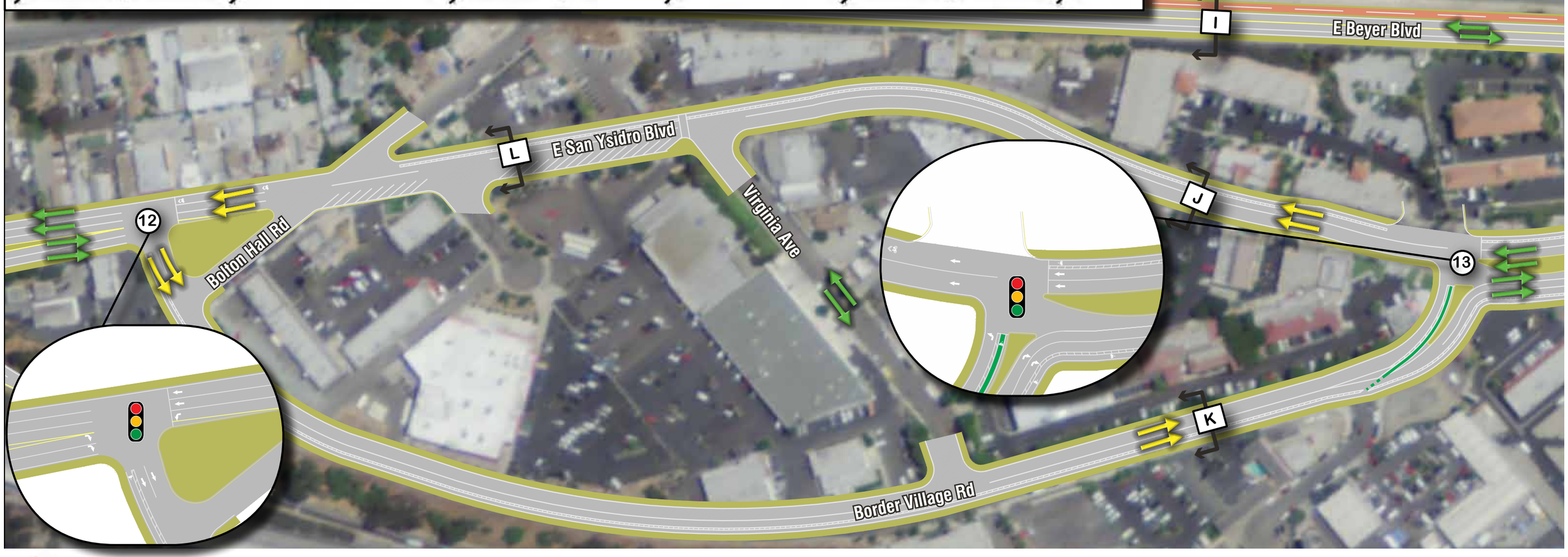
Between Border Village (south) and Camino de la Plaza:

The existing configuration of East Beyer Boulevard between Border Village (south) and Camino de la Plaza provides sufficient room to enhance the pedestrian/bicycle connectivity between the Border Village Area and the San Ysidro Border Crossing, including the San Ysidro Intermodal Transit Center. For this section, it is recommended that sidewalks be widen to a minimum of 10 feet and that buffered bike lanes be added. **Figure 13** illustrates the recommended improvements along this section of East San Ysidro Boulevard. As shown in the exhibit, it is recommended that two westbound travel lanes be provided for the north side of the roadway, while three travel lanes are provided along the south side of the roadway. At the intersection of Camino de la Plaza and East San Ysidro Boulevard, a multi-lane roundabout is recommended to provide traffic calming and an opportunity for a

gateway/monument entrance to the community. The proposed improvements to the pedestrian and bicycle connectivity is consistent with the recommendations of SANDAG's *San Ysidro Intermodal Transportation Center Study*, date June 2014.







LEGEND

- One Way Traffic
- Two Way Traffic
- Traffic Signal
- Two Way Bike Path

BL	Bike Lane
P	Parking
SW	Sidewalk
TL	Travel Lane
TWLT	Two-way Left Turn
BP	Bike Path
B	Buffer
LPW	Landscaped Parkway
AP	Angle Parking

Figure 11

Recommended Improvement Border Village

0 150 Feet

Kimley»Horn rrmdesigngroup SanGIS

Border Village Road:

As is East San Ysidro Boulevard, Border Village Road is expected to operate at LOS F during the Horizon Year conditions with the Preferred Land Use alternative. In order to increase the capacity of the roadway segments within the Border Village area, it is recommended that a one-way couplet configuration be implemented using Border Village Road for the eastbound traffic and East San Ysidro Boulevard for the westbound traffic. See previous section for a more completed description of the proposed improvements.

Calle Primera:

The roadways segment analysis shows the Calle Primera will operate at LOS F with the Preferred Land Use alternative under the Horizon Year scenario. Calle Primera is the only connection to the industrial/commercial area west of Via de San Ysidro south of the I-5 freeway. In order to decrease the traffic demand on Calle Primera and to enhance mobility and safety access to these parcels, it is recommended that a new connection between Calle Primera and Camino de la Plaza be constructed and implemented. **Figure 12** illustrates how a connection between Calle Primera and Camino de la Plaza could be implemented. The following are the 3 options evaluated:

- Option 1: Provides a connection to Camino de la Plaza by connecting Calle Primera to the Bible Street (existing roadway). This option is consistent with the San Ysidro Adopted Community Plan. Based on a preliminary environmental evaluation, this option would have the least environmental impact due to its overall footprint. In terms of transportation benefits, this alternative is not preferred since it will not provide a direct connection to the west from the existing commercial/industrial parcel just west of Via de San Ysidro.

- Option 2: Provides a connection to Camino de la Plaza by extending Calle Primera to the west along a proposed alignment just south of the existing commercial/industrial parcels just west of Via de San Ysidro. This option is not the preferred option from the preliminary environmental review. It is also not a preferred option with regards to the traffic connectivity for the similar reasons as Option 1.

- Option 3: Provides a connection to Camino de la Plaza by extending Via Tercero to the south and connecting with Camino de la Plaza just west of the existing residential development. This option is the preferred option in terms of traffic, since it provides a direction connection to the west for the commercial/industrial parcels just west of Via de San Ysidro. This is not the preferred option in terms of the preliminary environmental review; this has a larger footprint than Option 1.

A more detailed environmental evaluation of alternative alignments should be completed in order to minimize potential environmental impact to the existing sensitive habitat in the area.

In addition to the new connections explained above, it is recommended that Calle Primera between Via Tercero and Via de San Ysidro be restriped to provide a second westbound travel lane. **Figure 12** (Cross Section M) illustrates the recommended improvement.

Willow Road:

The roadway segment analysis shows that Willow Road will operate at LOS F with the Preferred Land Use alternative under the Horizon Year scenario. Willow Road is currently built as a two-lane collector with parking along both sides of the street. This roadway is a multi-modal corridor within the community, used by vehicular passengers along with bicyclists and pedestrians. In order to increase its capacity, Willow Road would need to be widened to provide additional travel lanes. The widening of Willow Road would require a significant number of property acquisitions since both sides of the road are currently built with institutional, multi-family, and commercial uses. In order to improve the operations of Willow Road and to increase the mobility of alternative modes, it is recommended that traffic calming measures such as speed tables, chicanes, and raised medians be installed along the roadway to decrease vehicular speeds, reduce cut-through traffic, and enhance bicycle and pedestrian mobility. The traffic calming measure should be complemented or coordinated with the construction of the new connection to Calle Primera from Camino de la Plaza, so traffic that would otherwise use Willow Road would have alternative options. In addition, the improvement at the Dairy Mart Road and the I-5 Southbound interchange should be completed to encourage vehicles destined to the commercial area south of Willow Road, to use Dairy Mart Road in connection with Camino de la Plaza, instead of the Via de San Ysidro exit, which would lead to vehicular traffic along Willow Road.

Camino de la Plaza:

The roadway segment analysis shows that Camino de la Plaza is expected to operate at LOS E with the Preferred Land Use alternative between the I-5 Southbound ramps and East San Ysidro Boulevard. In order to improve the operations of this segment, it is recommended that a new bridge deck be constructed connecting the I-5 SB ramps and East San Ysidro Boulevard. The new deck will provide additional lanes and width to reclassify the segment to a four-lane major classification with buffered bike lanes along each side of the roadway. The construction of the new deck would provide an enhanced pedestrian and bicycle connectivity between the west and east side of the I-5 interchange. The reconstruction of the Camino de la Plaza Bridge should incorporate the construction of a new entry ramp to the I-805 and/or I-5 freeways. An expanded discussion regarding this improvement is included in the intersection improvement recommendations. **Figure 13** illustrates the recommended improvements along Camino de la Plaza.

LEGEND

BL	Bike Lane	TWLT	Two-way Left Turn	New Traffic Signal
P	Parking	BP	Bike Path	
SW	Sidewalk	B	Buffer	
TL	Travel Lane			

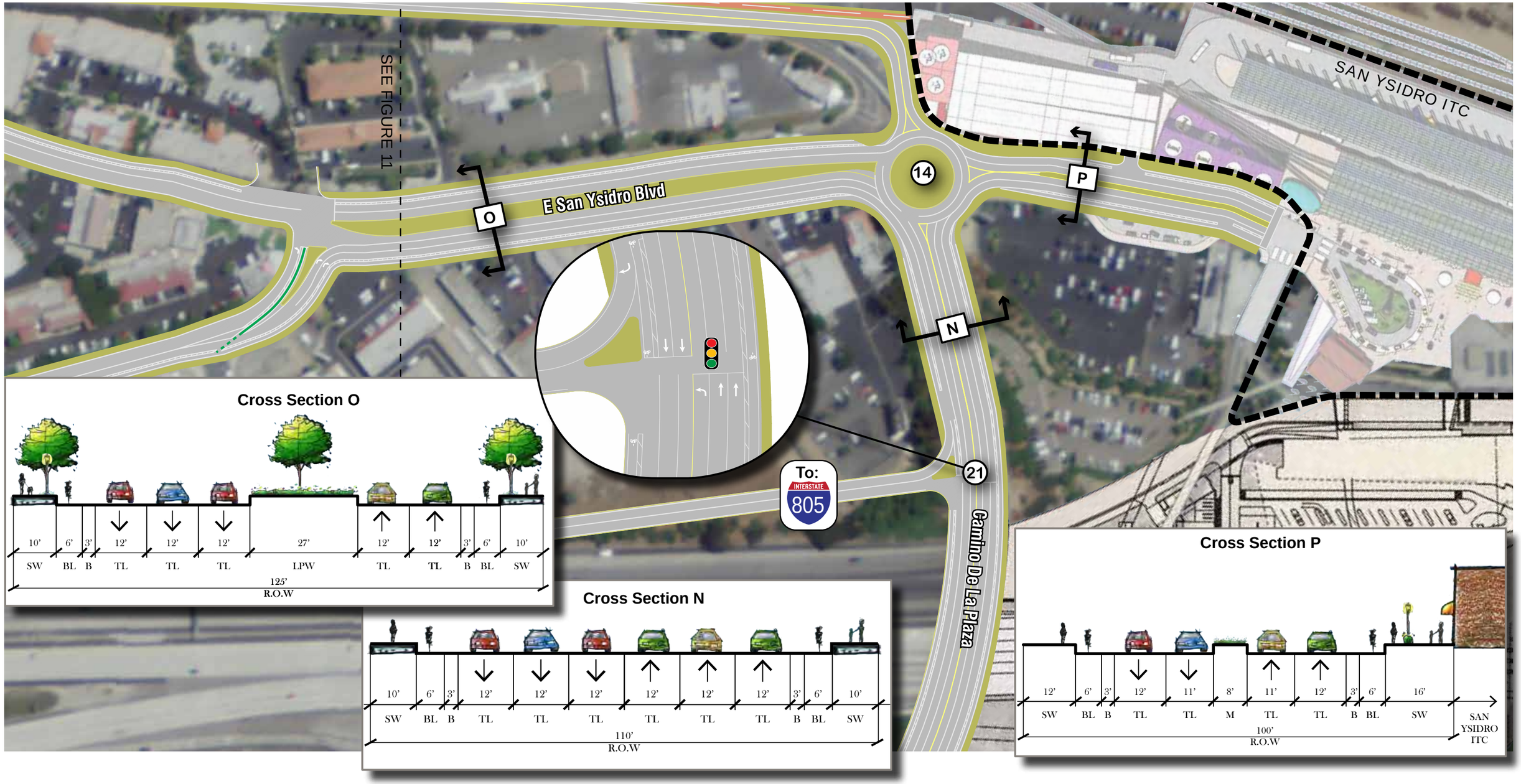
Figure 12

Recommended Improvement: Via de San Ysidro and Calle Primera

N

0 250 500 Feet

Kimley»Horn rrmdesigngroup SanGIS



LEGEND

BL	Bike Lane	TWLT	Two-way Left Turn	New Traffic Signal
P	Parking	BP	Bike Path	
SW	Sidewalk	B	Buffer	
TL	Travel Lane	LPW	Landscaped Parkway	

Figure 13

Recommended Imprvement: Camino de la Plaza

0 150 Feet

West and East Park Avenue:

The roadway segment analysis shows that West and East Park are expected to operate at LOS E or F with the Preferred Land Use alternative. In order to increase its capacity, West and East Park would need to be widened to provide additional travel lanes. The widening of West and East Park would require a significant number of property acquisitions since both sides of the road are currently built with institutional, multi-family and commercial uses. In order to improve the mobility and connectivity of alternative modes, it is recommended that traffic calming measures such as the striping of the parking lanes be installed along the roadway to decrease vehicular speeds and reduce cut-through traffic. **Figure 14** illustrates the recommended improvements along East and West Park. As shown in the exhibit, between Hall Avenue and the Trolley tracks, it is recommended that a Class I bicycle facility be installed within the footprint of the existing park and along the east side of the Civic Center. This new bicycle facility would connect the existing pedestrian bridge at the north end of Olive Street with the Beyer Transit Station.

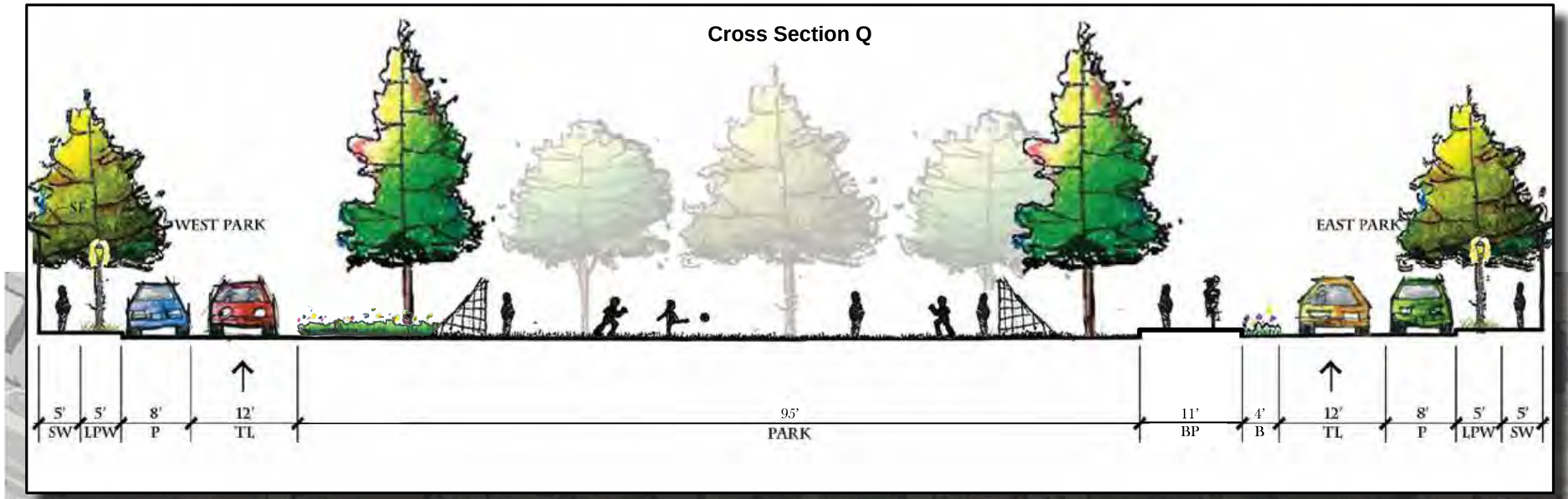
Olive Street:

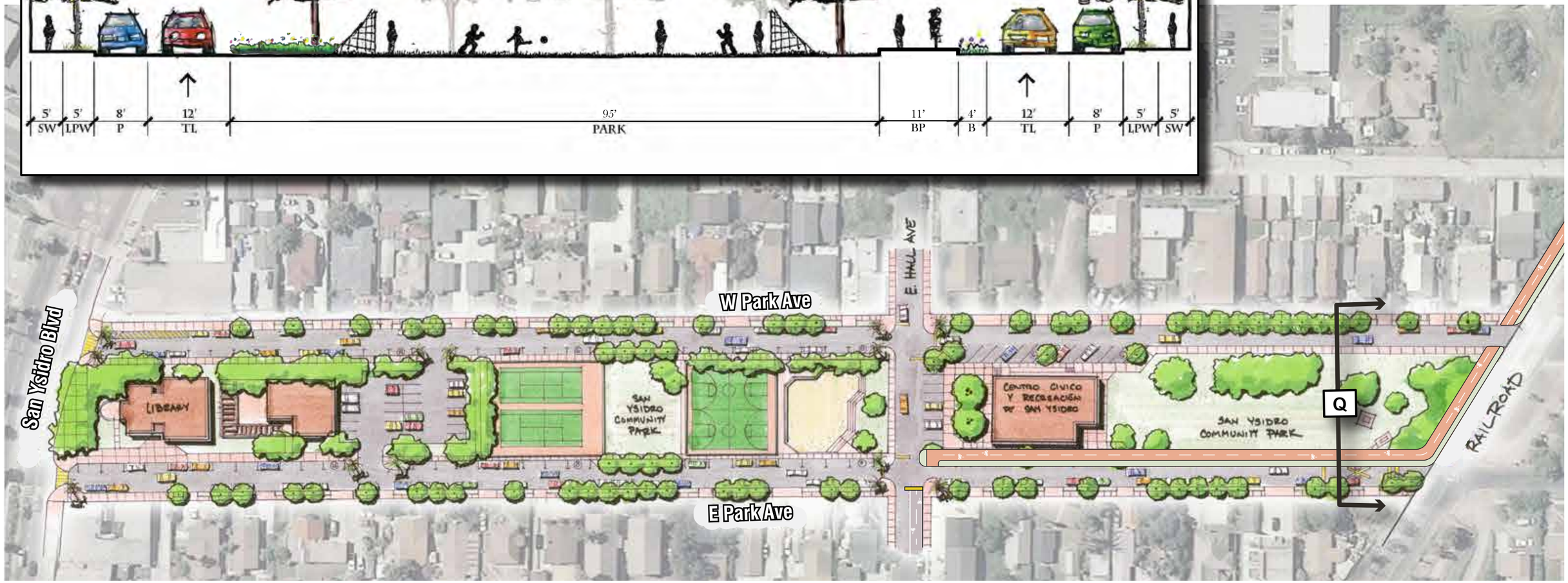
North of East San Ysidro Boulevard, Olive Street functions as a two-lane collector street with the curb-to-curb width of 70 feet. In order to provide additional parking, enhanced pedestrian connectivity and provide a bicycle facility, it is recommended that Olive Street be reconfigured to provide a raised median near East San Ysidro Boulevard and painted medians with angled parking for the rest of the corridor. **Figure 15** illustrates the recommended improvements along Olive Street. As shown in Figure 15, a cycle track is recommended along the north side of Hall Avenue connecting the existing pedestrian bridge at the north side of Olive Street with the proposed Class I facility along East Park (previously shown in Figure 14)

Sunset Lane:

At the intersection of Sunset Lane with Smythe Avenue, and at the intersection of Sunset Lane with South Vista Avenue, a triangle is configured between South Vista Avenue, Smythe Avenue and Sunset Lane. This triangular configuration makes for these three closed spaced intersections to have several conflicting point between auto and pedestrian/bicycle traffic. In order to provide for a simpler configuration that would enhance the pedestrian/bicycle connectivity, it is recommended that Sunset Lane be closed at the intersection with South Vista Avenue. **Figure 16** illustrates this recommendation.

Figure 17 illustrates the recommended roadway segment classifications for the San Ysidro Community.





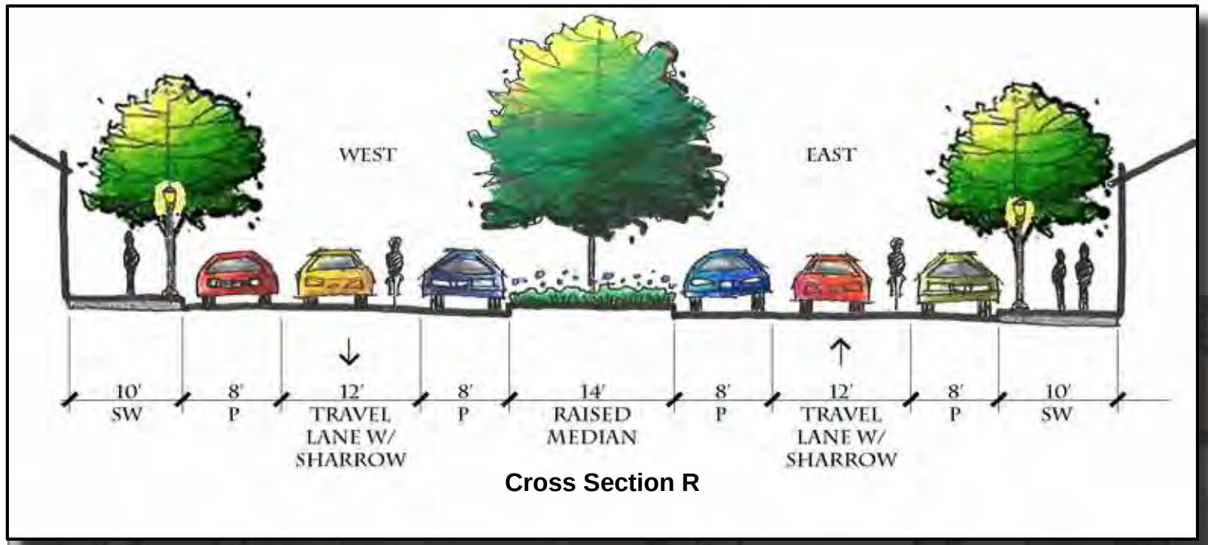
LEGEND

BL	Bike Lane	BP	Bike Path
P	Parking	B	Buffer
SW	Sidewalk		
TL	Travel Lane		
TWLT	Two-way Left Turn		

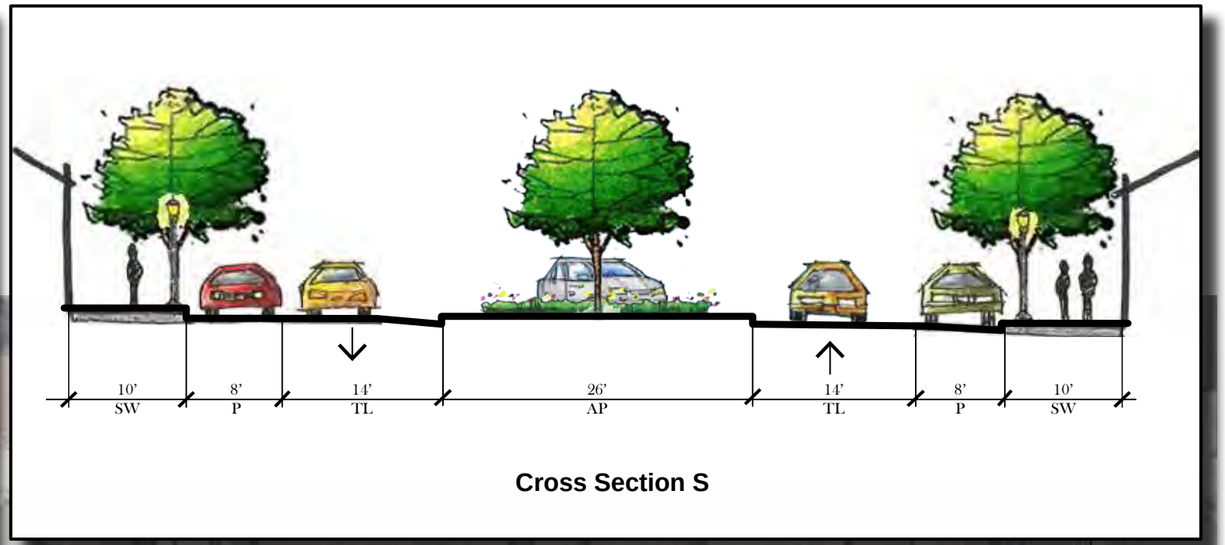
Figure 14

Recommended Improvement: East and West Park Ave

NOT TO SCALE



Cross Section R



Cross Section S

LEGEND

BL	Bike Lane	TWLT	Two-way Left Turn
P	Parking	BP	Bike Path
AP	Angled Parking	B	Buffer
SW	Sidewalk		
TL	Travel Lane		

Figure 15

Recommended Improvement: Olive Dr

NOT TO SCALE

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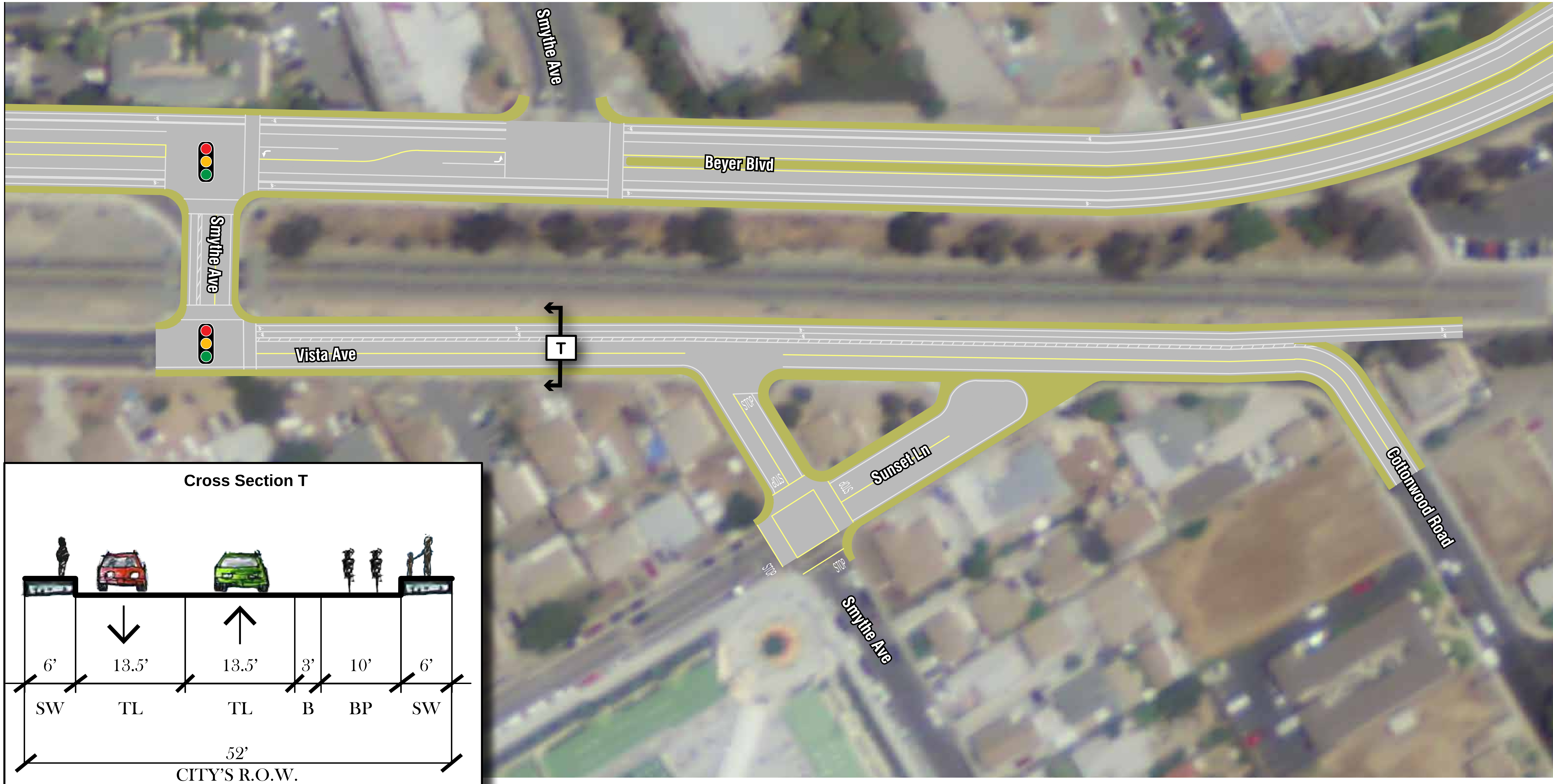

LEGEND

BL	Bike Lane	TWLT	Two-way Left Turn
P	Parking	BP	Bike Path
SW	Sidewalk	B	Buffer
TL	Travel Lane		

New Traffic Signal

Figure 16

Recommended Improvement: Smythe Ave, Vista Ave, & Sunset Lane Triangle Improvement

0 40 80 Feet

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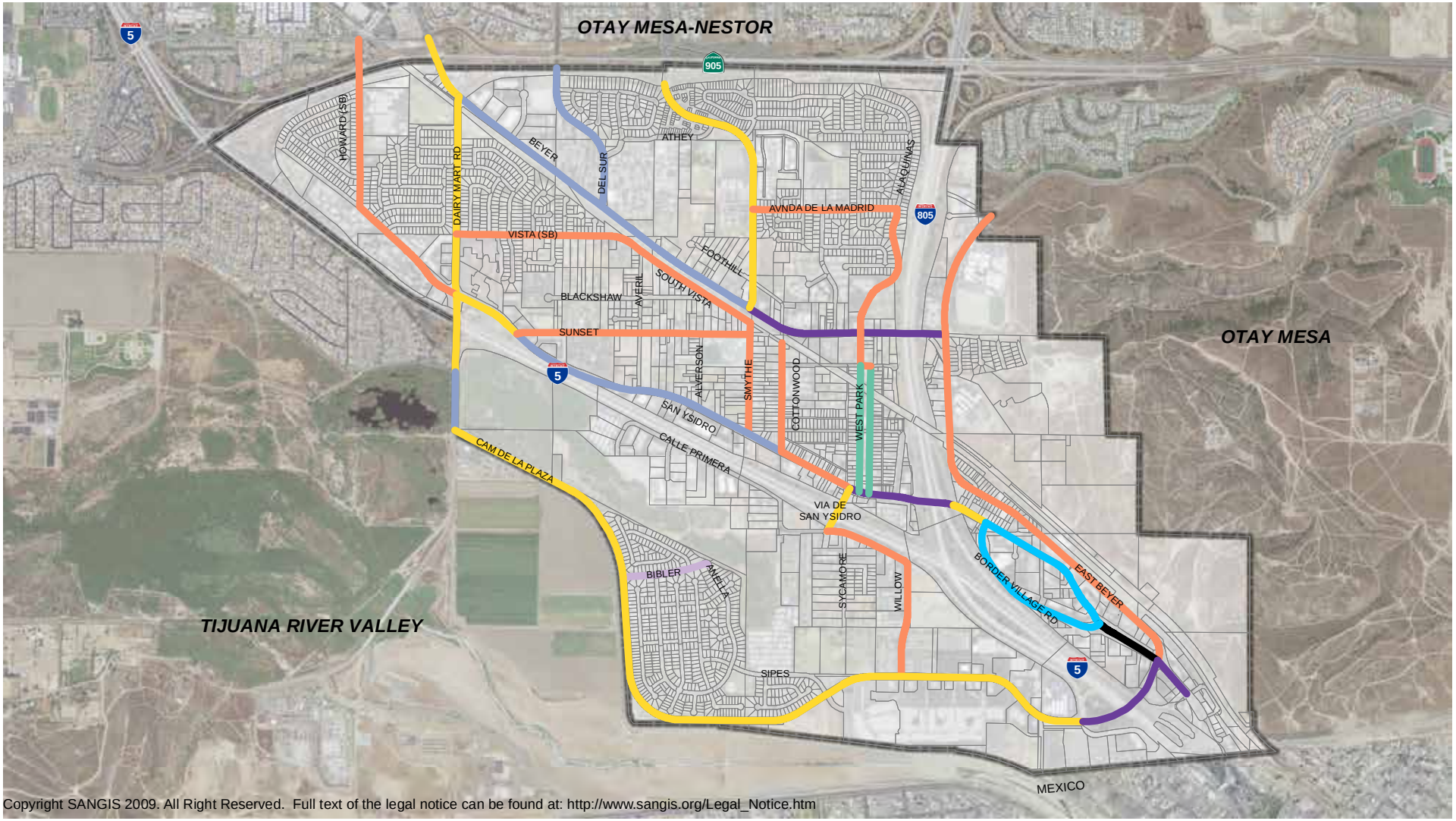

LEGEND

- 1-Lane Collector
- 2-Lane Collector (Multi-family, commercial-industrial fronting)
- 2-Lane Collector (One Way)
- 2-Lane Collector (continuous left-turn lane)
- 2-Lane Collector (no fronting property)
- 4-Lane Collector
- 4-Lane Collector (no TWLT)
- 4-Lane Major Arterial
- 6-Lane Major Arterial
- Community Plan Boundary
- Parcel Boundaries

Figure 17

Recommended Roadway Segment Classification

N

0 400 800 1,600 Feet

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Evaluation of the Recommended Roadway Improvements

An evaluation of future operating conditions with recommended improvements previously described was conducted; **Table 5** depicts the results of the roadway segment analysis with the recommended classification changes. As shown in Table 5, the following roadways would still have deficient LOS based on daily roadway analysis:

- Beyer Boulevard between Dairy Mart Road and Del Sur Boulevard (LOS E);
- Otay Mesa Road north of Beyer Boulevard (LOS F);
- East Beyer Boulevard between Beyer Boulevard and East San Ysidro Boulevard (LOS F);
- West San Ysidro Boulevard between Howard Avenue and Dairy Mart Road (LOS E);
- West San Ysidro Boulevard between Sunset Lane and Averil Road (LOS E);
- West San Ysidro Boulevard between Averil Road and Smythe Avenue (LOS E);
- West San Ysidro Boulevard between Smythe Avenue and Cottonwood Road (LOS E);
- West San Ysidro Boulevard between Cottonwood Road and Via de San Ysidro (LOS F);
- East San Ysidro Boulevard between I-805 NB Ramps to Border Village Road (LOS F);
- East San Ysidro Boulevard between Border Village Road (north and south) (LOS F);
- Border Village Road between East San Ysidro Boulevard (LOS F);
- Via de San Ysidro between West San Ysidro Boulevard and Calle Primera (LOS E);
- Calle Primera between Willow Road and Via de San Ysidro (LOS F);
- Willow Road between Calle Primera and Camino de la Plaza (LOS F);
- Vista Lane between Dairy Mart Road and Averil Road (LOS F);
- Cottonwood Road between Sunset Lane and West San Ysidro Boulevard (LOS E);
- West Park Avenue between Beyer Boulevard and Seward Avenue (LOS F);
- West Park Avenue between Seward Avenue and West San Ysidro Boulevard (LOS E); and
- East Park Avenue between Seward Avenue and West San Ysidro Boulevard (LOS E)

Additional improvements to the failing roadway segments listed above are not recommended since the roadway segment analysis used in this study is based on theoretical capacities based on the number of travel lanes. The analysis does not take into account other physical features that can affect the capacity of a roadway segment such as grades, number of traffic signals, number of driveways, parking availability, etc. In addition, the analysis does not take into account the different traffic peak periods experienced on these roadways due to the surrounding land uses. Therefore, the typical planning level capacity for these streets may understate the carrying capacity of these roadways. To better represent the conditions of a roadway segment within the San Ysidro community, the operations of the upstream and downstream intersections of each respective segment during the peak periods would indicate whether the roadway segment would have adequate capacity. The following section provides a summary of the intersection analysis. It should be noted that San Ysidro is a heavy transit oriented community, the increase of land use density associated with the preferred land use alternative shows that the increase would occur around transit oriented areas with direct access to regional transit routes. The roadway segment traffic volumes used for the roadway segment analysis are considered conservative in nature as they do not account for the expected mode share shift between current vehicular traffic and future transit ridership. The anticipated shift to

transit and other modes of transportation would decrease the forecasted roadway segment volumes otherwise shown increasing roadway segment operations through the community. **Figure 18** illustrates the roadway segment analysis results with the proposed classification changes.

TABLE 5
HORIZON YEAR (2035) PREFERRED LAND USE ALTERNATIVE WITH IMPROVEMENTS
ROADWAY SEGMENT LOS SUMMARY

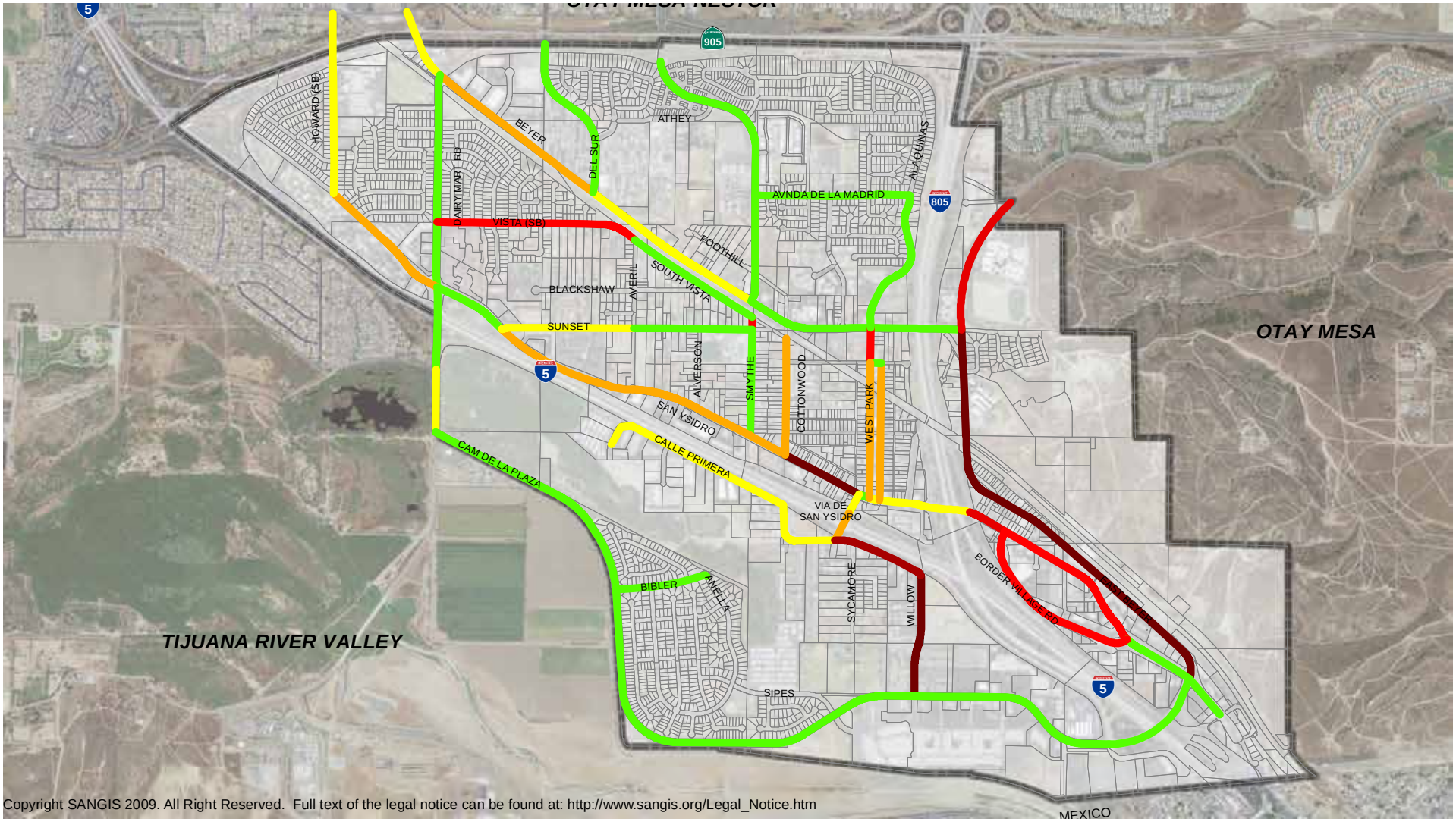
		PREFERRED LAND USE ALTERNATIVE				PREFERRED LAND USE ALTERNATIVE WITH IMPROVEMENTS			
ROADWAY SEGMENT	ADT (c)	EXISTING ROADWAY FUNCTIONAL CLASSIFICATION (a)	LOS E CAPACITY	V/C RATIO (d)	LOS	PROPOSED ROADWAY FUNCTIONAL CLASSIFICATION	LOS E CAPACITY	V/C RATIO (c)	LOS
Beyer Blvd.									
SR-905 WB Off-Ramp to Dairy Mart Rd.	20,200	4-Lane Collector	30,000	0.673	D	4-Lane Collector	30,000	0.673	D
Dairy Mart Rd. to Del Sur Blvd.	13,400	4-Lane Collector (no TWLT)	15,000	0.893	**E**	2-Lane Collector (continuous left-turn lane)	15,000	0.893	**E**
Del Sur Blvd. to Smythe Ave.	11,200	4-Lane Collector (no TWLT)	15,000	0.747	D	2-Lane Collector (continuous left-turn lane)	15,000	0.747	D
Smythe Ave to W. Park Ave	28,600	4-Lane Collector	30,000	0.953	**E**	4-Lane Major Arterial	40,000	0.715	C
W. Park Ave. to E. Beyer Blvd.	28,100	4-Lane Collector	30,000	0.937	**E**	4-Lane Major Arterial	40,000	0.703	C
Otay Mesa Rd.									
North of Beyer Blvd.	11,900	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.488	**F**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.488	**F**
E. Beyer Blvd.									
Beyer Blvd. to E. San Ysidro Blvd.	17,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2.125	**F**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2.125	**F**
Center St. to E. San Ysidro Blvd.	9,500	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.188	**F**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.188	**F**
Del Sur Blvd.									
SR-905 EB Ramps to Beyer Blvd.	8,500	2-Lane Collector (continuous left-turn lane)	15,000	0.567	C	2-Lane Collector (continuous left-turn lane)	15,000	0.567	C
Smythe Ave.									
SR-905 EB Ramps to Beyer Blvd.	13,200	4-Lane Collector (no TWLT)	15,000	0.88	**E**	4-Lane Collector	30,000	0.44	B
S. Vista Ave. to Sunset Ln.	8,300	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.038	**F**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.038	**F**
Sunset Ln. to W. San Ysidro Blvd.	2,400	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.3	A	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.3	A
Dairy Mart Rd.									
Beyer Blvd to S. Vista Ln	11,800	4-Lane Collector	30,000	0.393	B	4-Lane Collector	30,000	0.393	B
S. Vista Ln. to W. San Ysidro Blvd.	14,000	4-Lane Collector	30,000	0.467	C	4-Lane Collector	30,000	0.467	C
W. San Ysidro Blvd. to I-5 SB Ramps	19,900	2-Lane Collector (continuous left-turn lane)	15,000	1.327	**F**	4-Lane Collector	30,000	0.663	C
I-5 SB Ramps to Servando Ave.	17,600	3-Lane Collector	11,250	1.564	**F**	4-Lane Collector	30,000	0.587	C
Servando Ave. to Camino de la Plaza	11,600	2-Lane Collector (no fronting property)	10,000	1.16	**F**	2-Lane Collector (continuous left-turn lane)	15,000	0.773	D
W. San Ysidro Blvd.									
Howard Ave. to Dairy Mart Rd.	7,500	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.938	**E**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.938	**E**
Dairy Mart Rd. to Sunset Ln.	14,301	4-Lane Collector	30,000	0.477	C	4-Lane Collector	30,000	0.477	C
Sunset Ln. to Averil Rd.	13,600	2-Lane Collector (continuous left-turn lane)	15,000	0.907	**E**	2-Lane Collector (continuous left-turn lane)	15,000	0.907	**E**
Averil Rd. to Smythe Ave.	13,500	2-Lane Collector (continuous left-turn lane)	15,000	0.9	**E**	2-Lane Collector (continuous left-turn lane)	15,000	0.9	**E**
Smythe Ave. to Cottonwood Rd.	14,440	2-Lane Collector (continuous left-turn lane)	15,000	0.963	**E**	2-Lane Collector (continuous left-turn lane)	15,000	0.963	**E**
Cottonwood Rd. to Via de San Ysidro	20,600	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2.575	**F**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2.575	**F**
Via de San Ysidro to W. Park Ave	23,000	4-Lane Major Arterial	40,000	0.575	C	4-Lane Major Arterial	40,000	0.575	C
E. San Ysidro Blvd.									
W. Park Ave. to I-805 SB Ramps	33,000	4-Lane Major Arterial	40,000	0.825	D	4-Lane Major Arterial	40,000	0.825	D
I-805 SB Ramps to I-805 NB Ramps	31,900	4-Lane Major Arterial	40,000	0.798	D	4-Lane Major Arterial	40,000	0.798	D
I-805 NB Ramps to Border Village Rd. (west)	39,400	2-Lane Collector (continuous left-turn lane)	15,000	2.627	**F**	4-Lane Collector	30,000	1.313	**F**
Border Village Rd. (west) to Border Village Rd (east)	17,700	2-Lane Collector (continuous left-turn lane)	15,000	1.18	**F**	2-Lane Collector (One Way)	17,500	1.011	**F**
Border Village Rd. (south) to E. Beyer Blvd./Camino de la Plaza	37,700	4-Lane Major Arterial	40,000	0.943	**E**	6-Lane Major Arterial	50,000	0.754	C
E. Beyer Blvd./Camino de la Plaza to I-5 SB Ramps	16,900	3-Lane Collector	11,250	1.502	**F**	4-Lane Major Arterial	40,000	0.423	B

Notes:
Bold values indicate roadway segments operating at LOS E or F. **S**haded values indicate roadway segments with proposed improvements.
(a) Roadway Functional Classification is based on field observations and anticipated funded roadway improvements to be completed by the Year 2035.
(b) Existing average daily traffic (ADT) volumes for the roadway segments were provided by National Data & Surveying Services and True Counts and measured in 2007, 2008, and 2010.
(c) 2035 Adopted Community Plan volumes were extracted from a SANDAG Series 12 Regional Transportation Model.
(d) The V/C Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

TABLE 5
HORIZON YEAR (2035) PREFERRED LAND USE ALTERNATIVE WITH IMPROVEMENTS
ROADWAY SEGMENT LOS SUMMARY

		PREFERRED LAND USE ALTERNATIVE				PREFERRED LAND USE ALTERNATIVE WITH IMPROVEMENTS			
ROADWAY SEGMENT	**ADT (c)**	**EXISTING ROADWAY FUNCTIONAL CLASSIFICATION (a)**	**LOS E CAPACITY**	**V/C RATIO (d)**	**LOS**	**PROPOSED ROADWAY FUNCTIONAL CLASSIFICATION**	**LOS E CAPACITY**	**V/C RATIO (c)**	**LOS**
Border Village Rd .									
San Ysidro Blvd. to San Ysidro Blvd.	17,700	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2.213	**F**	2-Lane Collector (One Way)	17,500	1.011	**F**
Via de San Ysidro									
W. San Ysidro Blvd. to I-5 NB Ramps	24,100	4-Lane Collector (no TWLT)	15,000	1.607	**F**	4-Lane Collector	30,000	0.803	D
I-5 NB Ramps to Calle Primera	26,100	4-Lane Collector (no TWLT)	15,000	1.74	**F**	4-Lane Collector	30,000	0.87	**E**
Calle Primera									
West of Rancho del Rio Estates	8,800	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.1	**F**	3-Lane Collector	11,250	0.782	D
Rancho del Rio Estates to Via de San Ysidro	8,800	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.1	**F**	3-Lane Collector	11,250	0.782	D
Via de San Ysidro to Willow Rd	14,900	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.863	**F**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.863	**F**
Willow Rd.									
Calle Primera to Camino De La Plaza	18,100	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2.263	**F**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	2.263	**F**
Bibler Dr.									
East of Camino De La Plaza	4,400	2-Lane Collector (no fronting property)	10,000	0.44	B	2-Lane Collector (no fronting property)	10,000	0.44	B
Camino De La Plaza.									
Dairy Mart Rd. to Bibler Dr.	11,000	4-Lane Collector	30,000	0.367	B	4-Lane Collector	30,000	0.367	B
Bibler Dr. to Willow Rd.	7,200	4-Lane Collector	30,000	0.24	A	4-Lane Collector	30,000	0.24	A
Willow Rd. to I-5 SB Ramp	18,800	4-Lane Collector	30,000	0.627	C	4-Lane Collector	30,000	0.627	C
I-5 SB Ramp to E. San Ysidro Blvd.	25,900	4-Lane Collector	30,000	0.863	**E**	4-Lane Major Arterial	40,000	0.648	C
Vista Ln.									
Dairy Mart Rd. to Averil Rd.	8,100	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.013	**F**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1.013	**F**
Averil Rd. to Smythe Ave.	4,600	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.575	C	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.575	C
Sunset Ln.									
W. San Ysidro Blvd. to Averil Rd.	5,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.625	D	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.625	D
Averil Rd. to Smythe Ave.	4,500	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.563	C	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.563	C
Cottonwood Rd.									
Sunset Ln. to W San Ysidro Blvd.	7,700	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.963	**E**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.963	**E**
W. Park Ave.									
Beyer Blvd. to Seward Ave.	8,000	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1	**F**	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	1	**F**
Seward Ave. to W. San Ysidro Blvd.	3,900	1-Lane Collector	4,000	0.975	**E**	1-Lane Collector	4,000	0.975	**E**
E. Park Ave.									
Seward Ave. to W. San Ysidro Blvd.	3,300	1-Lane Collector	4,000	0.825	**E**	1-Lane Collector	4,000	0.825	**E**
Seward Ave.									
W. Park Ave. to E. Park Ave.	4,100	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.513	C	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.513	C
Howard Ave.									
North of W. San Ysidro Blvd.	5,800	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.725	D	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.725	D
Avenida de la Madrid									
Smythe Ave. to Alaquinas Dr.	2,300	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.288	A	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.288	A
Alaquinas Dr.									
Beyer Blvd. to Avenida de la Madrid.	1,700	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.21	A	2-Lane Collector (Multi-family, commercial-industrial fronting)	8,000	0.21	A

Notes:
Bold values indicate roadway segments operating at LOS E or F. **S**haded values indicate roadway segments with proposed improvements.
(a) Existing roads street functional classification is based field observations.
(b) Existing average daily traffic (ADT) volumes for the roadway segments were provided by National Data & Surveying Services and True Counts and measured in 2007, 2008, and 2010.
(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.



LEGEND

- LOS: A, B, C
- LOS: D
- LOS: E
- LOS: F (v/c < 1.25)
- LOS: F (v/c 1.25 - 1.5)
- LOS: F (v/c 1.5 - 2)
- LOS: F (v/c > 2)
- Community Plan Boundary
- Parcel Boundaries

Figure 18

Summary of Roadway Segment Analysis - Preferred Alternative with Improvements

N

0 400 800 1,600 Feet

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Intersections

Recommended Intersection improvements are displayed in **Figure 19**. These improvements, some of which are described in the roadway improvements sections, are summarized in the following discussion:

Beyer Boulevard and Iris Avenue/SR-905 WB Ramps (Intersection 1): Under the Horizon Year with the preferred land use alternative, this intersection is expected to operate at LOS F during the afternoon peak-hour period. To improve this intersection's level of service the addition of an exclusive eastbound left-turn lane, allowing for the protected left-turn phases for eastbound and westbound movements is recommended. For this improvement, the west leg of the intersection would need to be realigned to the north.

Smythe Crossing and Beyer Boulevard (Intersection 4): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the morning peak-hour period. The installation of a traffic signal is recommended at this intersection to improve its operation to an acceptable level of service. A signal warrant worksheet is included in **Appendix D**. This intersection meets the intersection near a grade crossing evaluation based on the Horizon Year 2035 volumes.

Smythe Avenue and Beyer Boulevard (Intersection 5): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the morning peak-hour period. The installation of an exclusive westbound right-turn lane, a southbound left-turn lane and westbound right-turn overlap phase is recommended at this intersection to improve its operation to an acceptable level of service.

W.Park Avenue/Alaquinas Drive and Beyer Boulevard (Intersection 6): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the morning peak-hour period. The installation of an additional southbound left-turn lane and an exclusive northbound right-turn lane is recommended at this intersection to improve its operation to an acceptable level of service.

East Beyer Boulevard/Otay Mesa Road and Beyer Boulevard (Intersection 8): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during both peak-hour periods. The analysis assumes that this intersection will be reconfigured with the extension of Beyer Boulevard to the east, connecting to Caliente Avenue. In order to improve the operation of this intersection, and additional southbound travel lane would need to be added along Beyer Boulevard. The construction of the additional southbound lane is not feasible since it would require a substantial right-of-way acquisition and encroaching onto an existing buildings. There are not feasible mitigation measures that would improve this intersection to an acceptable level of service.

Dairy Mart Road and Vista Lane (Intersection 10): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during both peak-hour periods. The installation of a traffic signal is recommended at this intersection. A signal warrant worksheet is included in **Appendix D**. This intersection meets the peak-hour warrant evaluation based on the Horizon Year 2035 volumes.

Sunset Lane and Vista Lane (Intersection 13): As described in the recommended roadway segment improvements, the section of Sunset Lane between South Vista Avenue and Smythe Avenue should be removed. With this removal, this intersection would be eliminated from the network.

West San Ysidro Boulevard and Howard Avenue (Intersection 18): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the morning peak-hour period. A single lane roundabout is recommended at this intersection.

West San Ysidro Boulevard and Averil Road (Intersection 22): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the morning peak-hour period. A single lane roundabout is recommended at this intersectionIt should be noted that this intersection is planned to be signalized as part of the Community's high priority CIP project's list.

East San Ysidro Boulevard and I-805 NB Ramps (Intersection 29): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS E during the afternoon peak-hour period. The installation of an additional westbound right-turn lane is recommended to improve its operations to an acceptable level of service. This improvement requires additional ROW that will be obtained from the fronting parcel. **Figure 19** illustrates this improvement.

Border Village (north) and East San Ysidro Boulevard (Intersection 30): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS E and LOS F during the morning and afternoon peak-hour periods, respectively. This intersection would be reconfigured as part of the one-way couplet configuration described in the roadway segment improvement sections. See **Figure 11** for an illustration of the one-way couplet configuration and how this intersection will be reconfigured. As shown in the figure, the intersection would continue to be signalized and the two eastbound lanes would be converted to exclusive right-turn lanes from East San Ysidro Boulevard to Border Village Road.

Border Village (south) and East San Ysidro Boulevard (Intersection 31): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the afternoon peak-hour period. This intersection would be reconfigured as part of the one-way couplet configuration described in the roadway segment improvement sections. See **Figure 11** for an illustration of the one-way couplet configuration and how this intersection will be reconfigured. As shown in the figure, the intersection would continue to be signalized and the two northbound lanes would be converted to exclusive right-turn lanes from East San Ysidro Boulevard to Border Village Road. A single left-turn lane will be provided from Border Village Road to East San Ysidro Boulevard.

Camino de la Plaza/East Beyer Boulevard and East San Ysidro Boulevard (Intersection 32): Under the Horizon Year with preferred land use alternative, this intersection would operate at acceptable LOS C during both peak-hour periods. Although this intersection would operate and an acceptable level of service, a multi-lane roundabout is recommended at this intersection to complement the improvements expected by the San Ysidro Intermodal Transit Center, the widening of Camino de la Plaza and the one-way configuration along East San Ysidro Boulevard. The multi-lane roundabout should be constructed as part of the reconfiguration of the Border Village area that would include the following projects: Reconfiguration of East San Ysidro Blvd and Border Village Road as a one-way

couplet, the construction of the Intermodal Transit Center (ITC) and the reconstruction/reconfiguration of the Camino de la Plaza Bridge. **Figure 13** illustrates the recommended improvements and proposed lane configurations.

East San Ysidro Boulevard and I-5 Northbound Ramp (Intersection 33): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the afternoon peak-hour period. In order to improve the operations of this intersection, it is recommended that as part of the widening of the Camino de la Plaza Bridge, a new on-ramp to the I-805 freeway is constructed. The additional I-805 connection would reduce the traffic demand of the I-5 Northbound on-ramp intersection improving its level of service. **Figure 12** illustrates the recommended new I-805 ramp connection.

Via de San Ysidro and I-5 Northbound Ramps (Intersection 34): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during both peak-hour periods. The installation of a traffic signal is recommended at this intersection to improve its operation to an acceptable level of service. A signal warrant worksheet is included in **Appendix D**. This intersection meets the peak-hour warrant evaluation based on the Horizon Year 2035 volumes.

Via de San Ysidro and I-5 Southbound Ramp/Calle Primera (Intersection 35): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the afternoon peak-hour period. In order to improve the operations of this intersection, it is recommended that the existing I-5 southbound off-ramp be relocated west of Via de San Ysidro with the construction of a new intersection along Camino de la Plaza. For this intersection and the new intersection along Camino de la Plaza, the construction of two modern roundabouts is recommended. The construction of the roundabout, complemented by the new roadway connection between Calle Primera and Camino de la Plaza, and traffic calming measures along Willow Road, would decongest this area of the community improving its operations to an acceptable level of service. **Figure 12** illustrates these improvements.

Dairy Mart Road and I-5 Southbound Ramps (Intersection 37): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the afternoon peak-hour period. In order to improve this intersection to an acceptable LOS, it is recommended that this intersection be reconstructed to provide an additional eastbound left-turn lane. This intersection improvements would require the widening of the Dairy Mart Road over the I-5 Bridge as previously described in the roadway segment improvement section. **Figure 10** illustrates the recommended improvements for this location.

Dairy Mart Road and Servando Avenue (Intersection 38): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the afternoon peak-hour period. The installation of a traffic signal is recommended at this intersection to improve its operation to an acceptable level of service. A signal warrant worksheet is included in **Appendix D**. This intersection meets the peak-hour warrant evaluation based on the Horizon Year 2035 volumes. **Figure 10** illustrates the recommended improvements for this location.

Dairy Mart Road and Camino de la Plaza (Intersection 39): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the afternoon peak-hour period. The installation of a traffic signal is recommended at this intersection to improve its operation to an acceptable level of service. A signal warrant worksheet is included in **Appendix D**. This intersection meets the peak-hour warrant evaluation based on the Horizon Year 2035 volumes. **Figure 10** illustrates the recommended improvements for this location.

Willow Road and Camino de la Plaza (Intersection 39): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the afternoon peak-hour period. Reconfiguration of the striping along Camino de la Plaza is recommended in order to provide an exclusive westbound right-turn lane from Camino de la Plaza to northbound Willow Road. The reconfiguration would convert the existing westbound outside lane to an exclusive westbound right-turn lane. It is also recommended that the northbound and southbound movements operate with split signal timing phasing.Camino de la Plaza and I-5 Southbound ramps (Intersection 42): As part of the reconstruction of the Camino de la Plaza Bridge, this intersection will be improved to provide additional lanes for the southbound ramps as shown in **Figure 17.**

I-805 Northbound ramps/Center Street and East San Ysidro Boulevard (Intersection 45): Although Center Street is not considered a circulation element road, it is an important connection between East San Ysidro Boulevard and Beyer Boulevard. In order to improve the existing stacking area for the eastbound left-turn movement from eastbound East San Ysidro Boulevard to northbound Center Street, it is recommended that the I-805 southbound off-ramp be relocated so it aligns with Center Street. **Figure 20** illustrates the recommended improvement. An analysis of this reconfiguration is included as part of the overall intersection improvements analysis.

Camino de la Plaza and I-805 Northbound on-ramp (Intersection 46): As previously mentioned, to improve the operations of the intersection of East San Ysidro Boulevard and I-5 northbound ramps, it is recommended that a new connection for the I-805 be constructed as part of the Camino de la Plaza deck widening. This new intersection would be signalized and would provide a direct connection for vehicles to the I-805, reducing the traffic demand of the San Ysidro Border crossing. **Figure 13** illustrates the recommended improvements and proposed intersection.

Vista Lane and Smythe Crossing (Intersection 47): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during the afternoon peak-hour period. The installation of a traffic signal is recommended at this intersection to improve its operation to an acceptable level of service. A signal warrant worksheet is included in **Appendix D**. This intersection meets the intersection near a grade crossing evaluation based on the Horizon Year 2035 volumes. **Figure 16** illustrates the recommended improvements for this location.

Camino de la Plaza and Virginia Avenue (Intersection 48): Under the Horizon Year with preferred land use alternative, this intersection would operate at LOS F during both peak-hour periods. The installation of a traffic signal is recommended at this intersection to improve its operation to an acceptable level of service. A signal warrant worksheet is included in **Appendix D**. This intersection meets the peak-hour warrant evaluation based on the Horizon Year 2035 volumes.

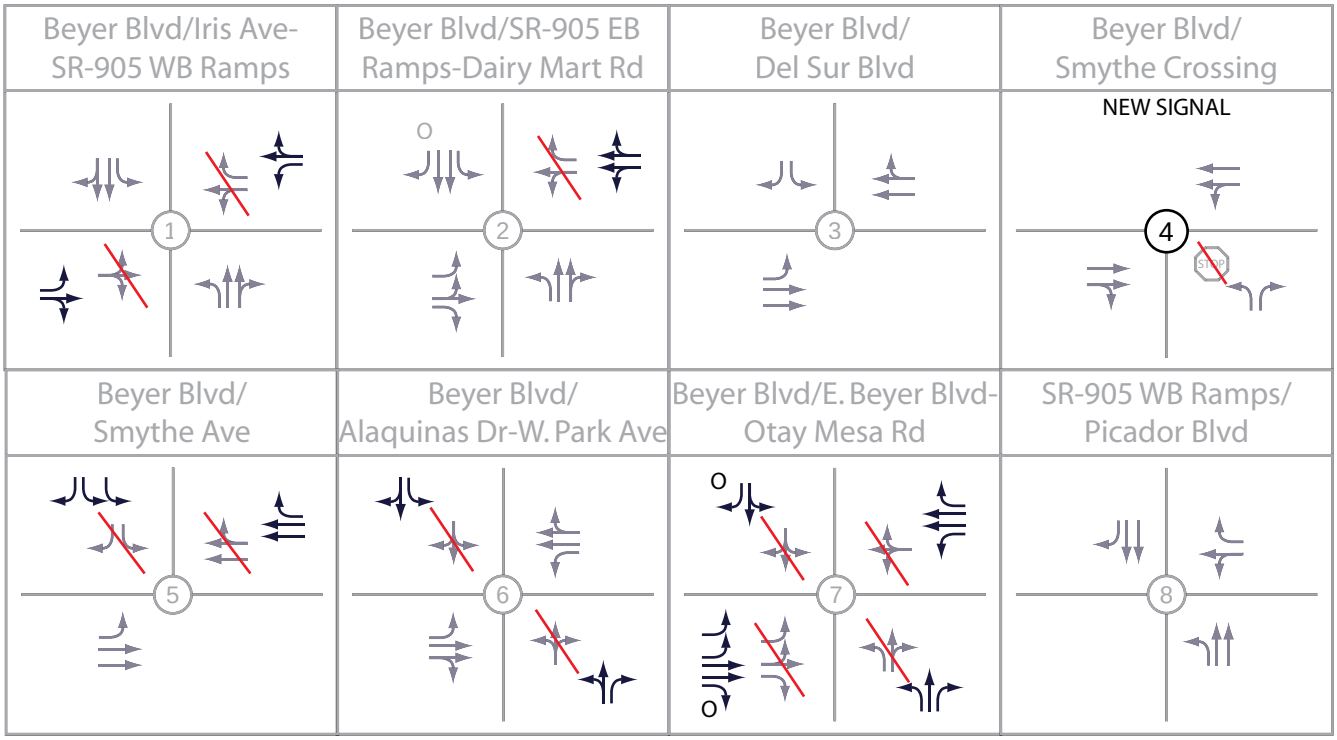
Table 6 illustrates the results of the peak-hour intersection analysis with the implementation of the above listed improvements. As shown in the table, several intersections are recommended to be improved with the construction of single-lane or multi-lane roundabouts. In order to analyze the operations of the intersections with roundabout configurations, a roundabout operation analysis was also performed using SIDRA Intersection 6.0. Sidra Intersection is a microscopic simulation tool commonly used for roundabout analysis. Sidra uses the gap theory analysis methodology and geometric parameters to determine the LOS for each movement of the roundabout.

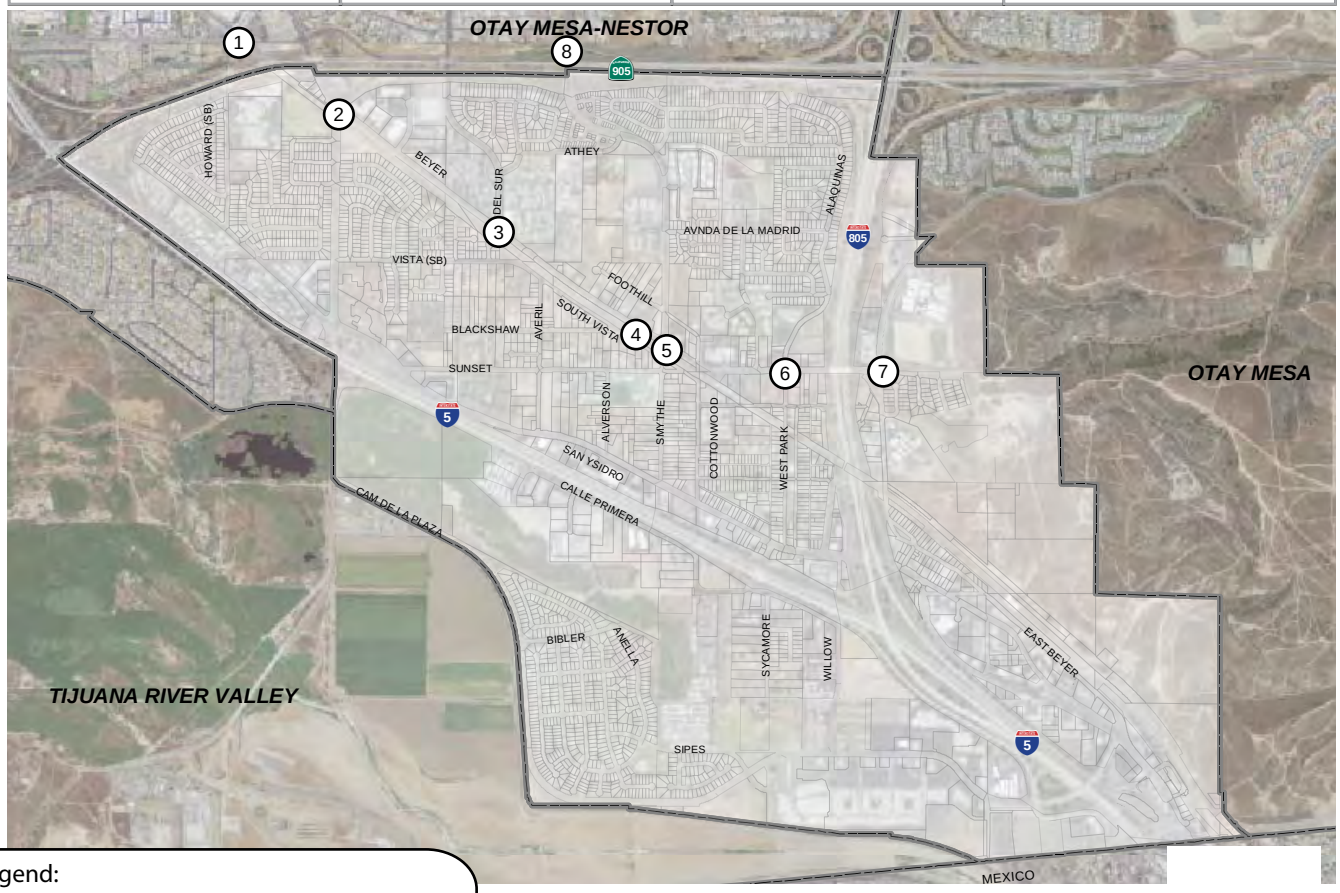
As shown in the table**,** the following intersection would have deficient LOS based on peak-hour intersection analysis:

- Beyer Boulevard and Otay Mesa Road (LOS F morning and afternoon peak-hour periods)

In order to improve the operation of this intersection, and additional southbound travel lane would need to be added along Beyer Boulevard. The construction of the additional southbound lane is not feasible as it would require a substantial right-of-way acquisition and encroaching onto existing buildings. There are not feasible mitigation measures that would improve this intersection to an acceptable level of service.

Synchro intersection peak-hour analysis worksheets are included in **Appendix E**. Sidra roundabout worksheets are included in **Appendix F**. **Figure 21** illustrates the intersection analysis results with the recommended improvements.





Legend:

- (X) Signalized
- (X) Unsignalized
- o Right-turn overlap

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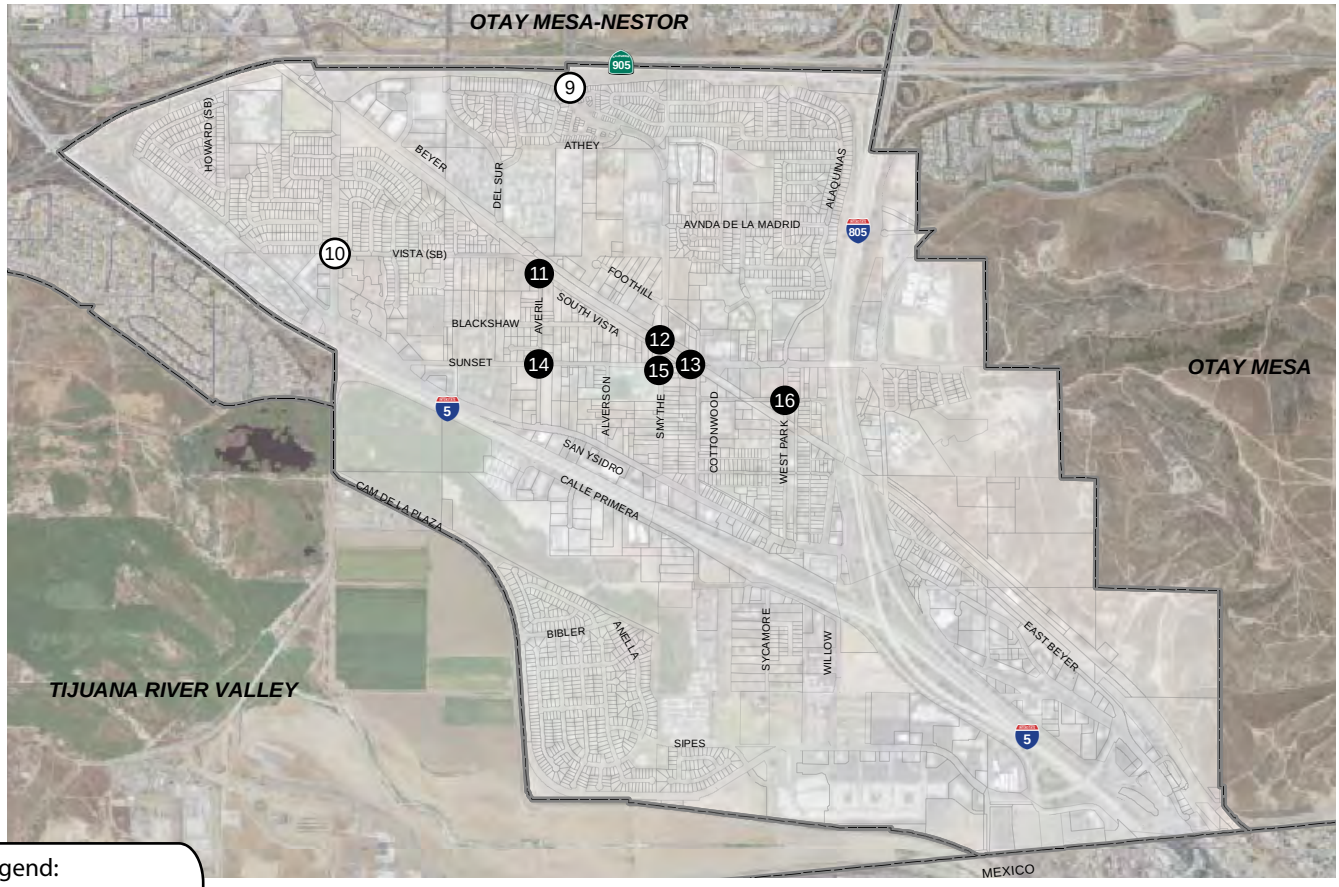
FIGURE 19.a

Proposed Intersection Geometrics

SR-905 EB Ramps/ Picador Blvd	Vista Ln/ Dairy Mart Rd	Vista Ln/ Averil Rd	Vista Ln/ Smythe Ave
9	NEW SIGNAL 10	11	12
Vista Ln/ Sunset Ln	**Sunset Ln/ Averil Rd**	**Sunset Ln/ Smythe Ave**	**Seward Ave/ W. Park Ave**
13	14	15	16



Legend:

- (X) Signalized
- X Unsignalized

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FIGURE 19.b

Proposed Intersection Geometrics

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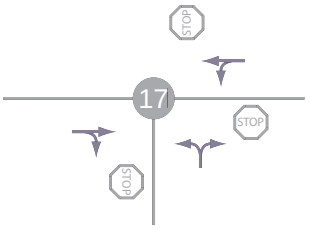
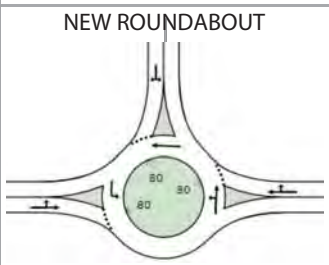
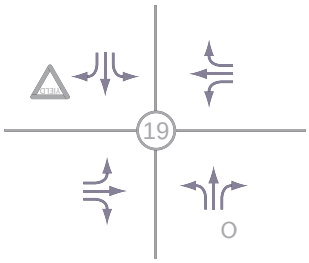
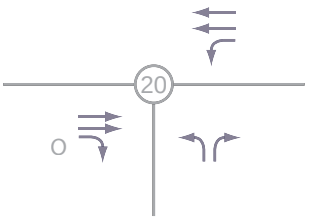
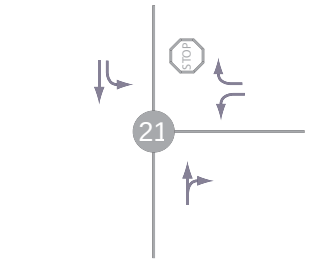
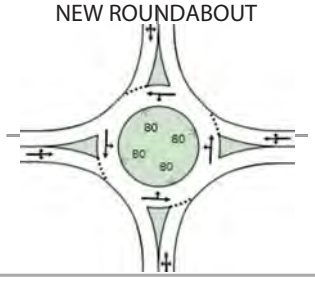
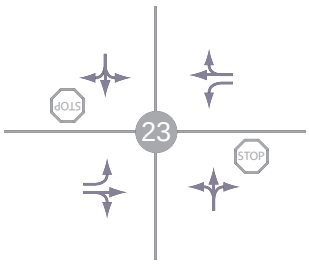
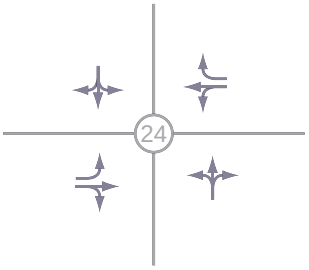
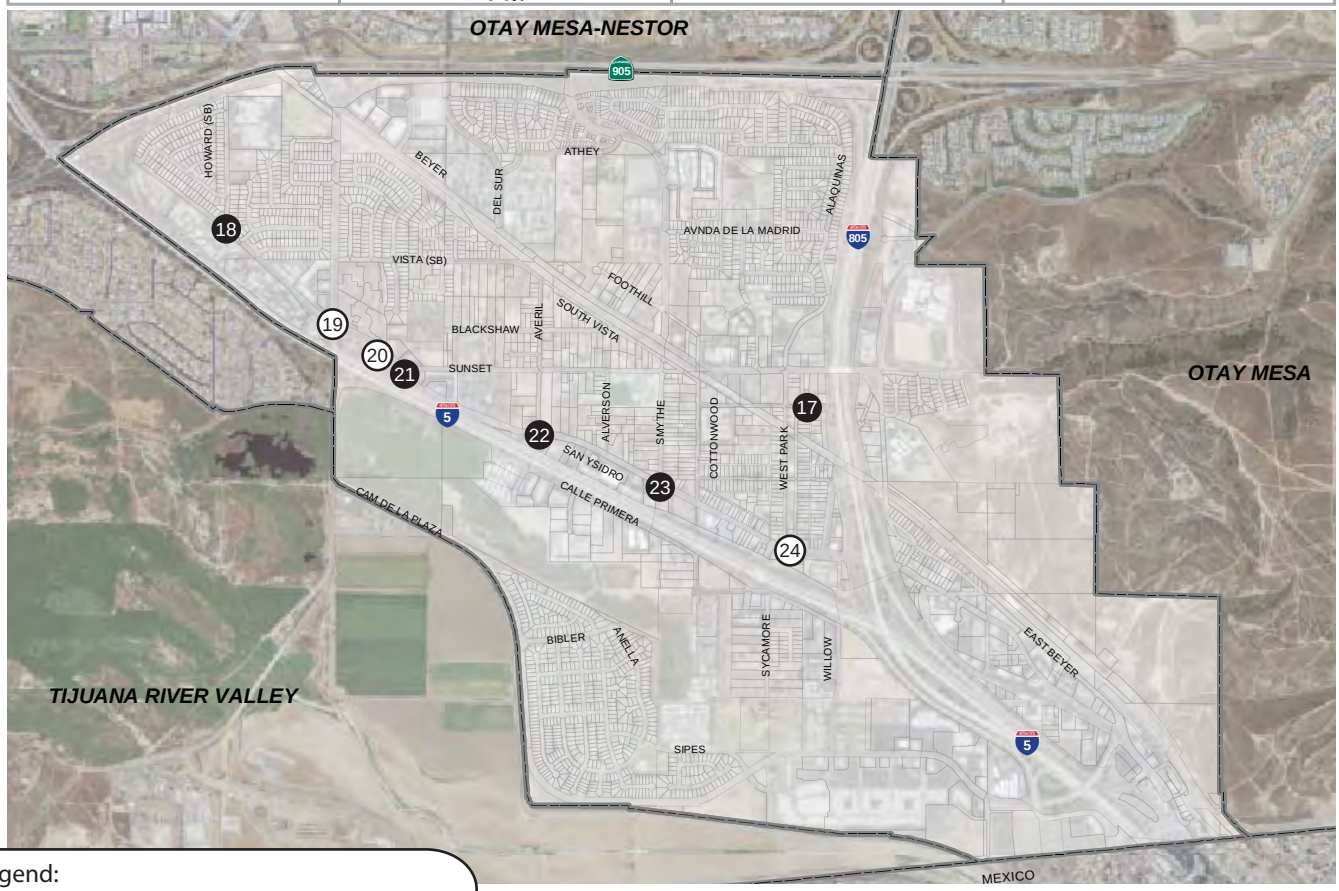
Seward Ave/ E. Park Ave	W. San Ysidro Blvd/ Howard Ave	W. San Ysidro Blvd/ Dairy Mart Rd	W. San Ysidro Blvd/ I-5 NB Ramps
	NEW ROUNDABOUT 		
W. San Ysidro Blvd/ Sunset Ln	**W. San Ysidro Blvd/ Averil Rd**	**W. San Ysidro Blvd/ Smythe Ave**	**W. San Ysidro Blvd/ Cottonwood Rd**
	NEW ROUNDABOUT 		



Legend:

- (X) Signalized
- (X) Unsignalized
- F Free right-turn

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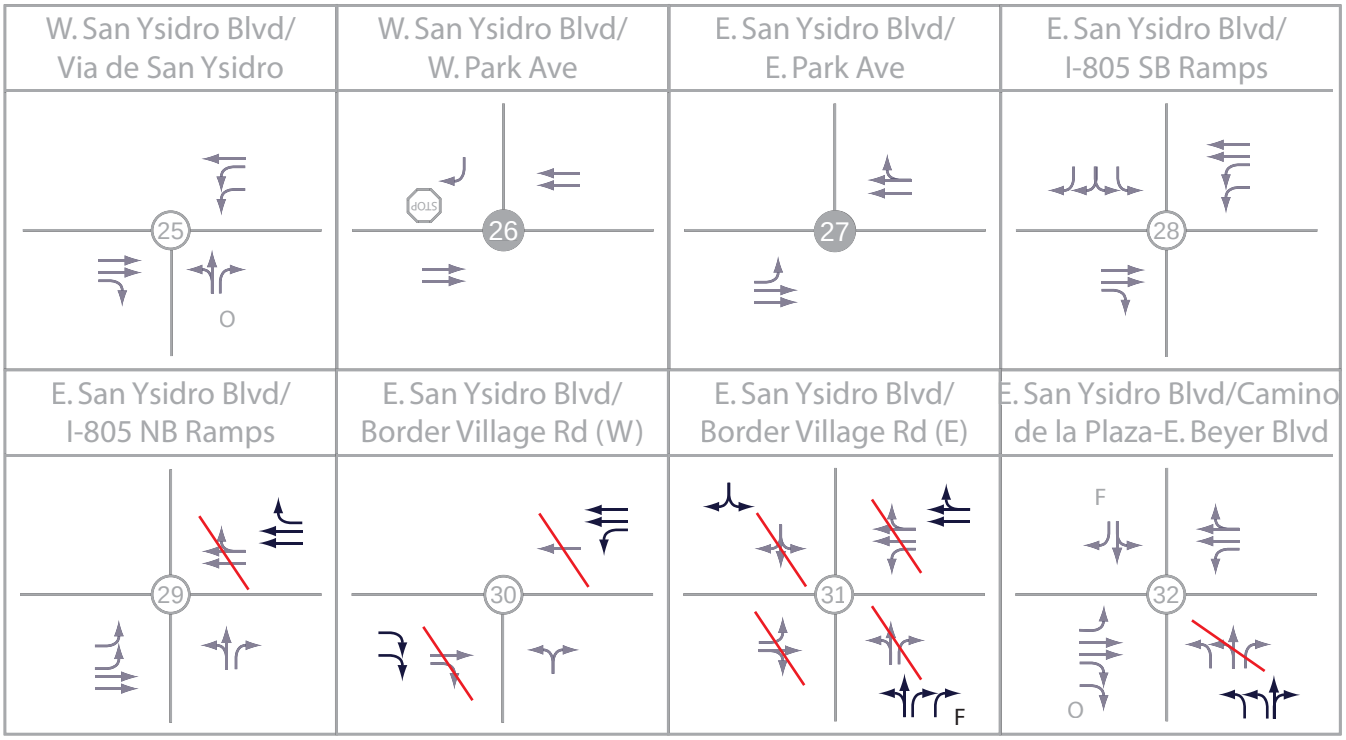
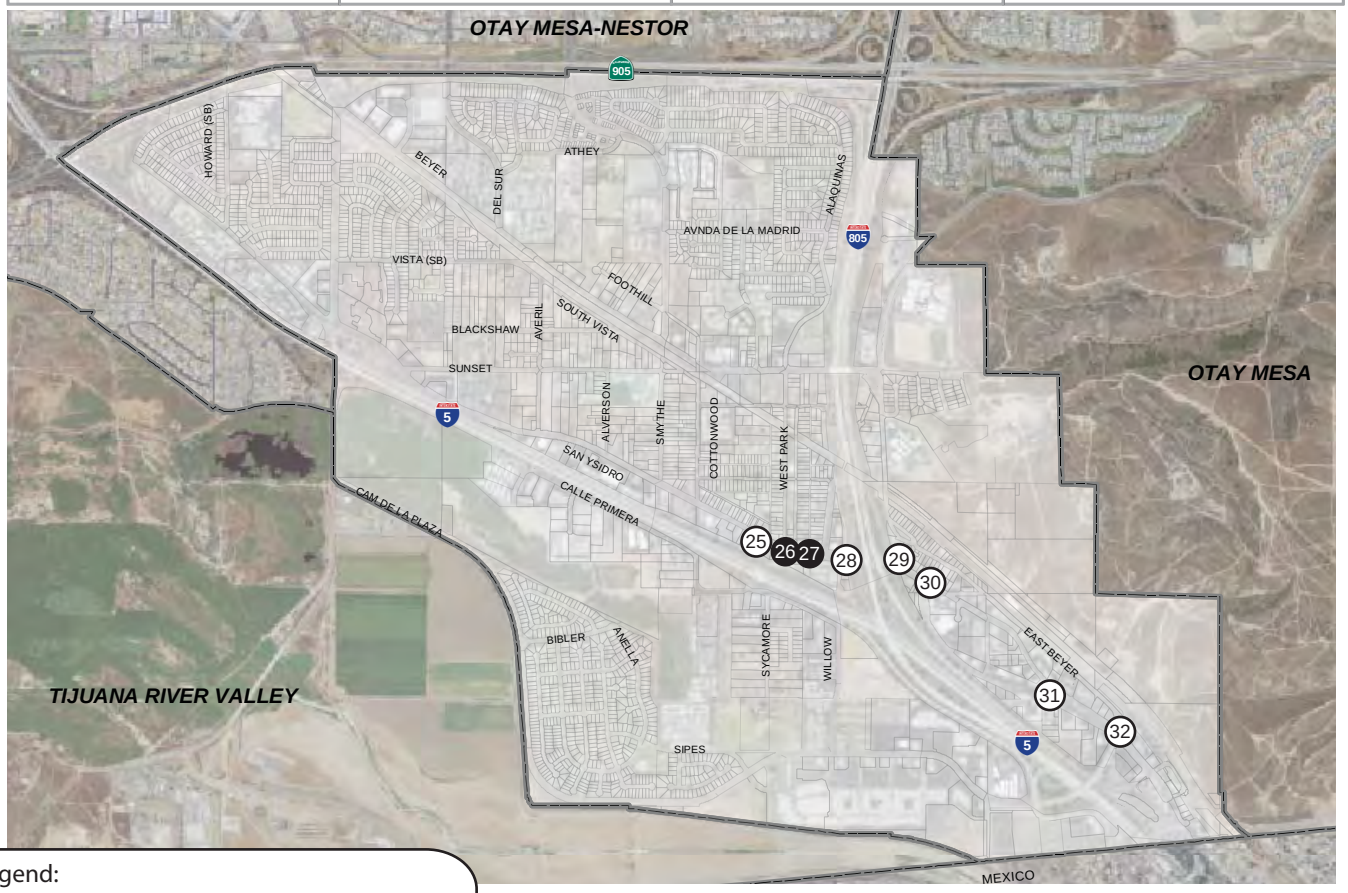
FIGURE 19.c

Proposed Intersection Geometrics





Legend:

(X)	Signalized	O	Right-turn overlap
X	Unsignalized	F	Free right-turn

Kimley»Horn

FIGURE 19.d

Proposed Intersection Geometrics

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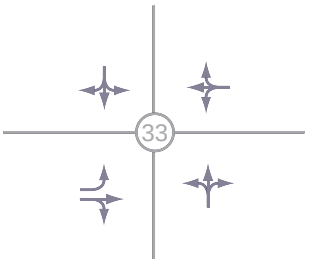
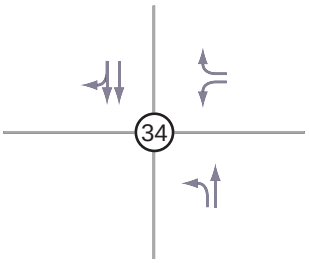
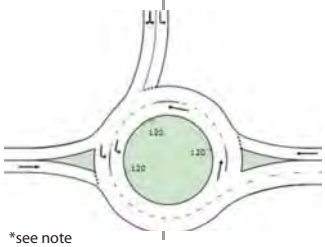
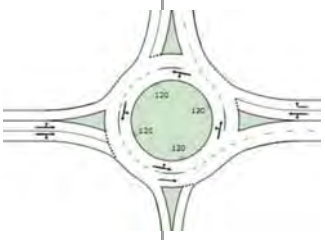
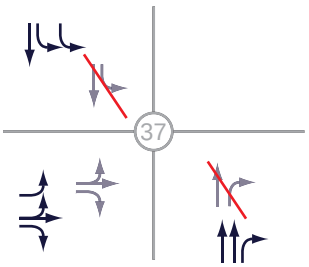
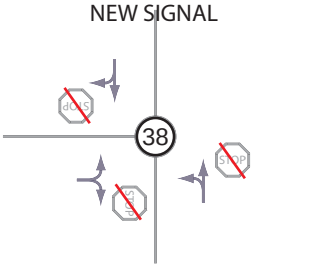
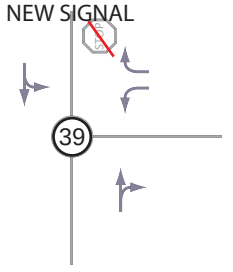
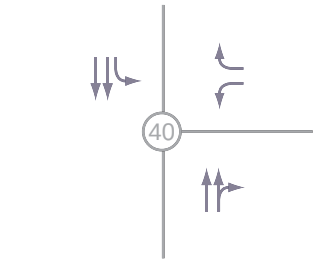
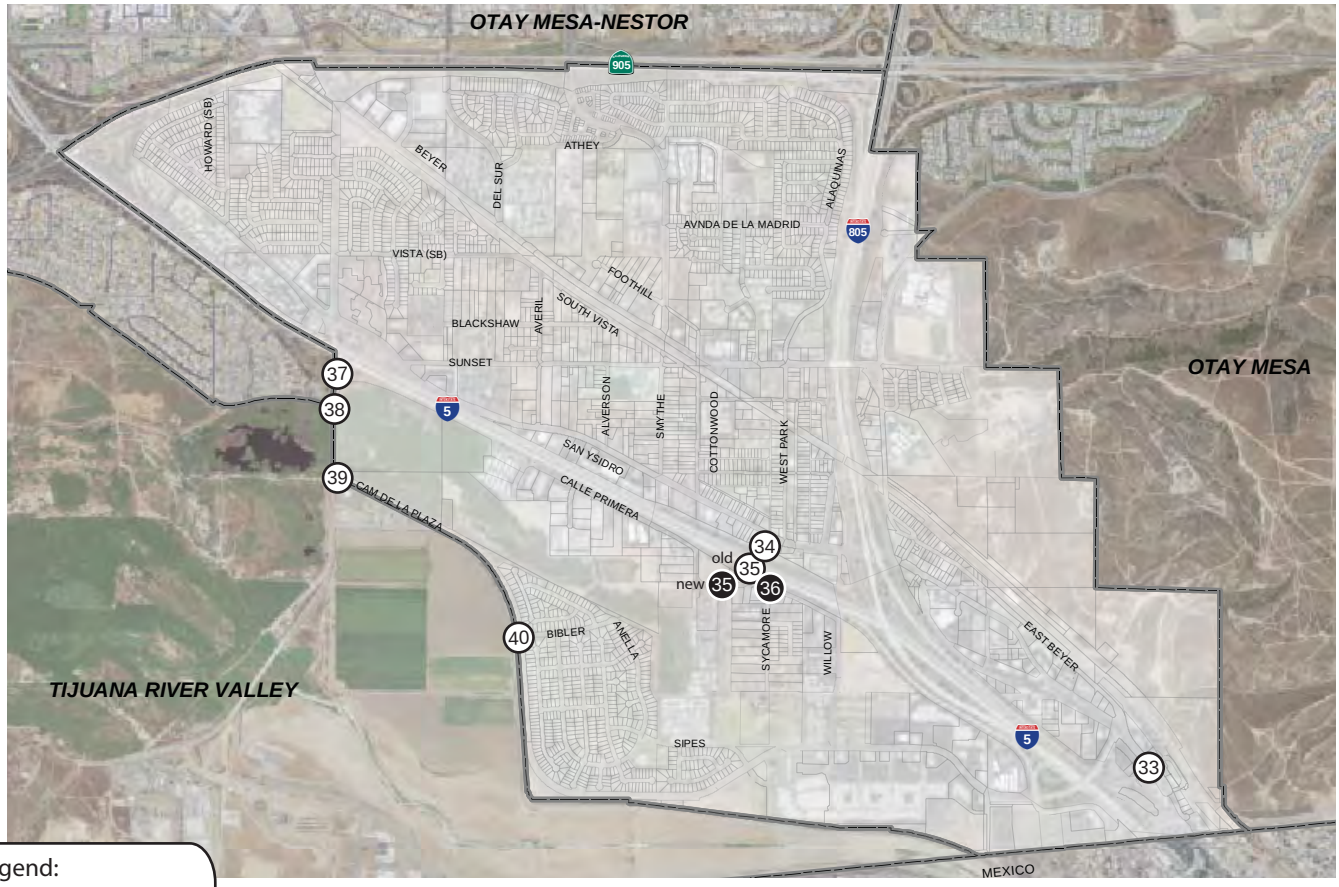
E. San Ysidro Blvd/ I-5 NB Ramps	Via de San Ysidro/ I-5 NB Ramps	Calle Primera / I-5 SB Ramps	Via de San Ysidro/ Calle Primera
		NEW ROUNDABOUT  *see note	NEW ROUNDABOUT 
I-5 SB Ramps/ Dairy Mart Rd	**Servando Ave/ Dairy Mart Rd**	**Camino de la Plaza/ Dairy Mart Rd**	**Camino de la Plaza/ Bibler Dr**
	NEW SIGNAL 	NEW SIGNAL 	



Legend:

- (X) Signalized
- X Unsignalized

* intersection relocated from the north side to the west side of Via de San Ysidro and Calle Primera

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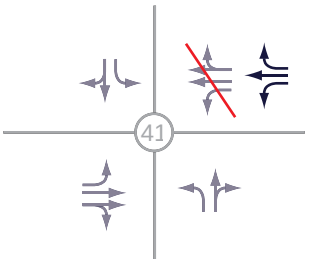
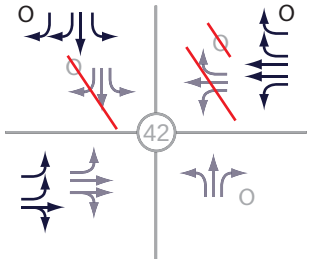
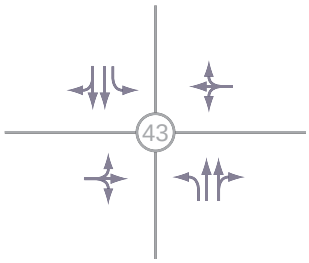
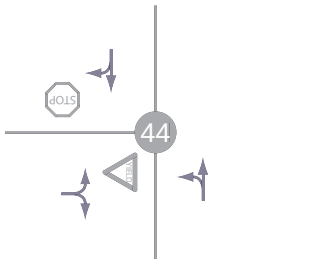
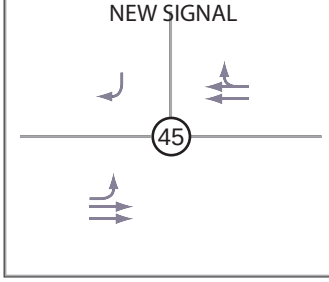
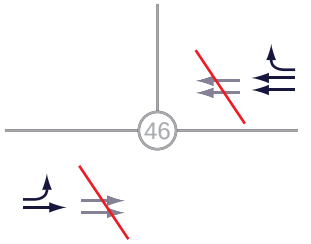
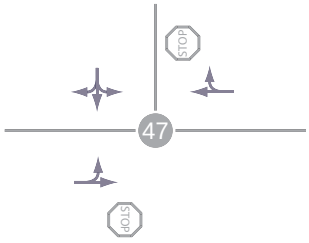
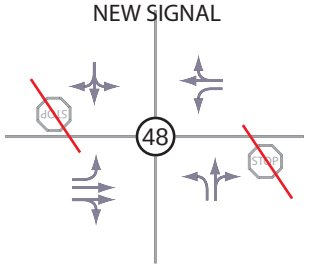
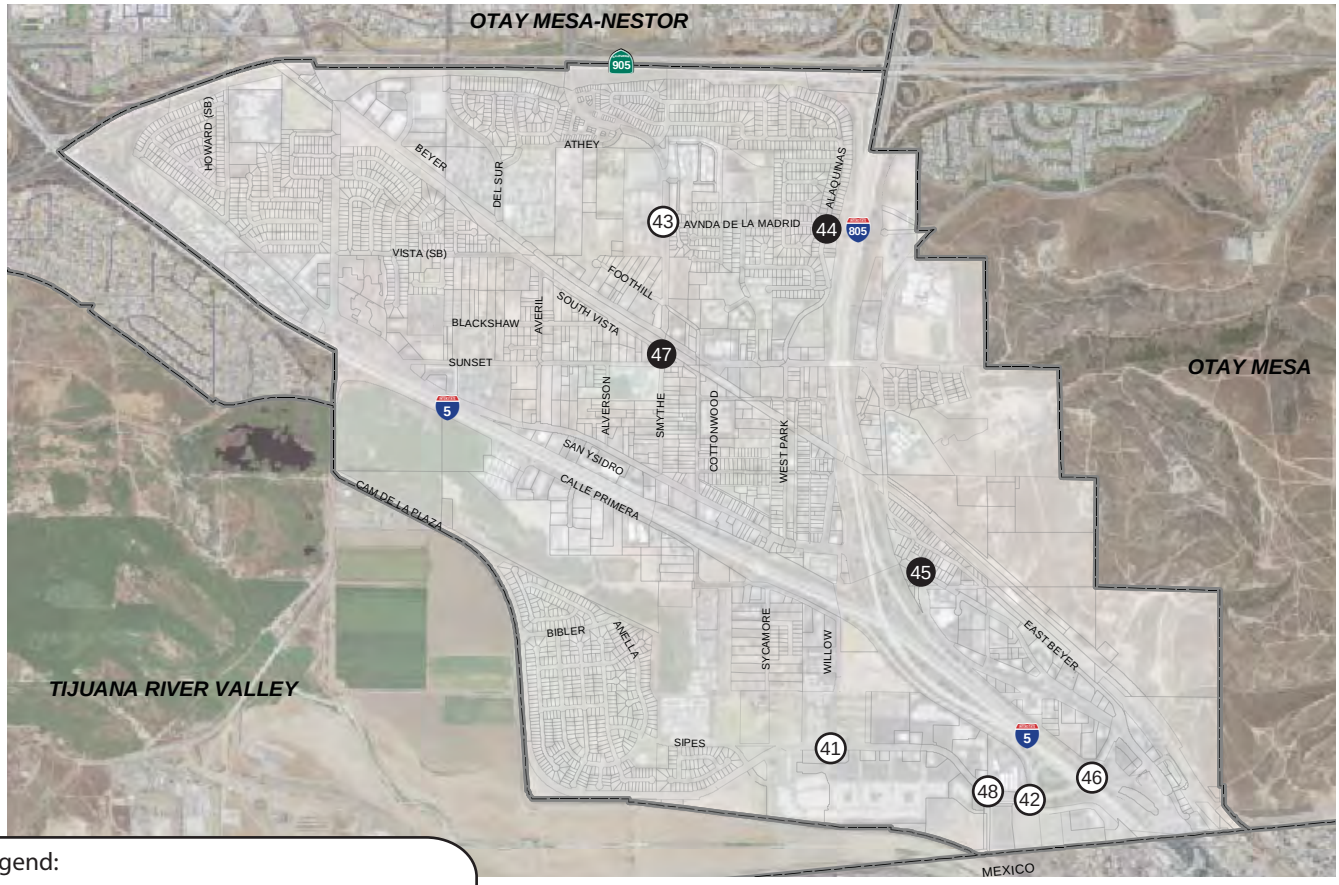
FIGURE 19.e

Proposed Intersection Geometrics

Camino de la Plaza/ Willow Rd	Camino de la Plaza/I-5 SB Ramps-Camiones Wy	Avenida de la Madrid/ Smythe Ave	Avenida de la Madrid/ Alaquinas Dr
			
Center St / E. San Ysidro Blvd	**I-5 SB Ramps/ Camino de la Plaza**	**Vista Ln/ Smythe Crossing**	**Camino de la Plaza/ Virginia Ave**
NEW SIGNAL 			NEW SIGNAL 



Legend:

- (X) Signalized
- X Unsignalized
- o Right-turn overlap

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FIGURE 19.f

Proposed Intersection Geometrics

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LEGEND

Traffic Signal

Figure 20

Center Street Improvement

N

0 100 200 Feet

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TABLE 6

EXISTING VS. PREFERRED LAND USE ALTERNATIVE WITH IMPROVEMENTS (805 RAMPS) (WEEKDAY)

PEAK-HOUR INTERSECTION LOS SUMMARY

	INTERSECTION	PEAK-HOUR	PREFERRED LAND USE ALTERNATIVE			WITH IMPROVEMENTS				
			TRAFFIC CONTROL	DELAY (a)	LOS (b)	TRAFFIC CONTROL	DELAY (a)	LOS (b)	Δ (c)	SIGNIFICANT?
1	Beyer Blvd & Iris Ave/SR-905 WB Ramps	AM	Signal	32.2	C	Signal	22.2	C	-10.0	NO
		PM		109.3	**F**		52.8	D	-56.5	NO
2	Beyer Blvd & Dairy Mart Rd/SR-905 Ramps	AM	Signal	60.1	**E**	Signal	23.4	C	-36.7	NO
		PM		38.7	D		36.3	D	-2.4	NO
4	Smythe Crossing & Beyer Blvd	AM	One-Way Stop	13.5	B	Signal	10.2	B	-3.3	NO
		PM		ECL	**F**		7.3	A	-	NO
5	Beyer Blvd & Smythe Ave	AM	Signal	ECL	**F**	Signal	44.8	D	-	NO
		PM		32.6	C		16.2	B	-16.4	NO
6	W. Park Ave/Alaquinas Dr & Beyer Blvd	AM	Signal	165.5	**F**	Signal	53.2	D	-112.3	NO
		PM		21.0	C		16.5	B	-4.5	NO
7	East Beyer Blvd/Otay Mesa Rd & Beyer Blvd	AM	Signal	ECL	**F**	Signal	195.2	**F**	-	NO
		PM		ECL	**F**		155.8	**F**	-	NO
10	Dairy Mart Rd & Vista Ln	AM	One-Way Stop	105.8	**F**	Signal	12.4	B	-93.4	NO
		PM		ECL	**F**		14.1	B	-	NO
12	Smythe Ave & Vista Ln	AM	One-Way Stop	ECL	**F**	One-Way Stop	17.9	C	-	NO
		PM		ECL	**F**		21.5	C	-	NO
13	Sunset Ln & Vista Ln	AM	One-Way Stop	9.8	A	One-Way Stop	DOES NOT EXIST WITH IMPROVEMENTS			
		PM		11.3	B					
15	Smythe Ave & Sunset Ln	AM	All-Way Stop	131.5	**F**	All-Way Stop	20.9	C	-110.6	NO
		PM		8.7	A		8.6	A	-0.1	NO
18	W. San Ysidro Blvd & Howard Ave	AM	All-Way Stop	45.8	**E**	Roundabout	7.5	A	-38.3	NO
		PM		11.3	B		6.6	A	-4.7	NO
22	W. San Ysidro Blvd & Averil Rd	AM	All-Way Stop	14.8	B	Signal	12.7	B	-2.1	NO
		PM		50.6	**F**		8.6	A	-42.0	NO
		AM	All-Way Stop	14.8	B	Roundabout	7.2	A	-7.6	NO
		PM		50.6	**F**		10.8	B	-39.8	NO
29	I-805 NB Ramps & E. San Ysidro Blvd	AM	Signal	16.3	B	Signal	9.7	A	-6.6	NO
		PM		57.2	**E**		14.2	B	-43.0	NO
30	Border Village Rd (W) & E. San Ysidro Blvd	AM	Signal	55.9	**E**	Signal	0.3	A	-55.6	NO
		PM		ECL	**F**		43.5	D	-	NO
31	Border Village Rd (E) & E. San Ysidro Blvd	AM	Signal	14.4	B	Signal	1.8	A	-12.6	NO
		PM		ECL	**F**		5.1	A	-	NO
32	Camino de la Plaza/E. Beyer Blvd & E. San Ysidro Blvd	AM	Signal	24.4	C	Signal	22.1	C	-2.3	NO
		PM		33.9	C		34.9	C	1.0	NO
		AM	Signal	37.4	D	Roundabout	8.2	A	-29.2	NO
		PM		ECL	**F**		29.7	D	-	NO
33	I-5 NB Ramp & E. San Ysidro Blvd	AM	Signal	37.4	D	Signal	18.4	B	-19.0	NO
		PM		ECL	**F**		16.6	B	-	NO
34	Via de San Ysidro & I-5 NB Ramps	AM	One-Way Stop	ECL	**F**	Signal	13.9	B	-	NO
		PM		ECL	**F**		29.5	C	-	NO
35	Calle Primera & I-5 SB off-ramp	AM	Signal	52.5	D	Roundabout	7.3	A	-45.2	NO
		PM		ECL	**F**		99.6	**F**	-	NO
36	Calle Primera & Via de San Ysidro	AM	Signal	62.6	**E**	Roundabout	5.3	A	-57.3	NO
		PM		ECL	**F**		17.4	C	-	NO
37	Dairy Mart Rd & I-5 SB Ramps	AM	Signal	29.9	C	Signal	19.0	B	-10.9	NO
		PM		ECL	**F**		49.1	D	-	NO
38	Dairy Mart Rd & Servando Ave	AM	All-Way Stop	20.9	C	Signal	10.8	B	-10.1	NO
		PM		106.8	**F**		17.8	B	-89.0	NO
		AM	All-Way Stop	20.9	C	Roundabout	8.3	A	-12.6	NO
		PM		106.8	**F**		12.2	B	-94.6	NO
39	Dairy Mart Rd & Camino De La Plaza	AM	One-Way Stop	13.1	B	Signal	11.1	B	-2.0	NO
		PM		78.1	**F**		20.9	C	-57.2	NO
		AM	One-Way Stop	13.1	B	Roundabout	6.1	A	-7.0	NO
		PM		78.1	**F**		9.4	A	-68.7	NO
41	Willow Rd & Camino de la Plaza	AM	Signal	27.1	C	Signal	26.4	C	-0.7	NO
		PM		55.3	**E**		50.0	D	-5.3	NO
42	Camiones Way/I-5 SB Ramps & Camino de la Plaza	AM	Signal	21.5	C	Signal	21.2	C	-0.3	NO
		PM		100.3	**F**		34.7	C	-65.6	NO
43	Smythe Ave & Avenida de la Madrid	AM	Signal	31.6	C	Signal	27.8	C	-3.8	NO
		PM		34.8	C		13.7	B	-21.1	NO
44	Avenida de la Madrid & Alaquinas Dr	AM	One-Way Stop	15.2	C	One-Way Stop	15.2	C	0.0	NO
		PM		8.2	A		9.0	A	0.8	NO
45	I-805 NB Ramps/Center Street & E. San Ysidro Blvd	AM	One-Way Stop	17.9	C	Signal	36.8	D	18.9	NO
		PM		ECL	**F**		75.6	**E**	-	NO
46	Camino de la Plaza & I-805 NB Ramp	AM	INTERSECTION DOES NOT EXIST UNDER THIS SCENARIO			Signal	1.8	A	-	NO
		PM					4.0	A	-	NO
47	Vista Ln & Smythe Crossing	AM	Two-Way Stop	28.8	D	Signal	7.5	A	-21.3	NO
		PM		ECL	**F**		10.0	B	-	NO
48	Camino de la Plaza & Virgina Ave	AM	Two-Way Stop	ECL	**F**	Signal	16.1	B	-	NO
		PM		ECL	**F**		38.0	D	-	NO

Notes:

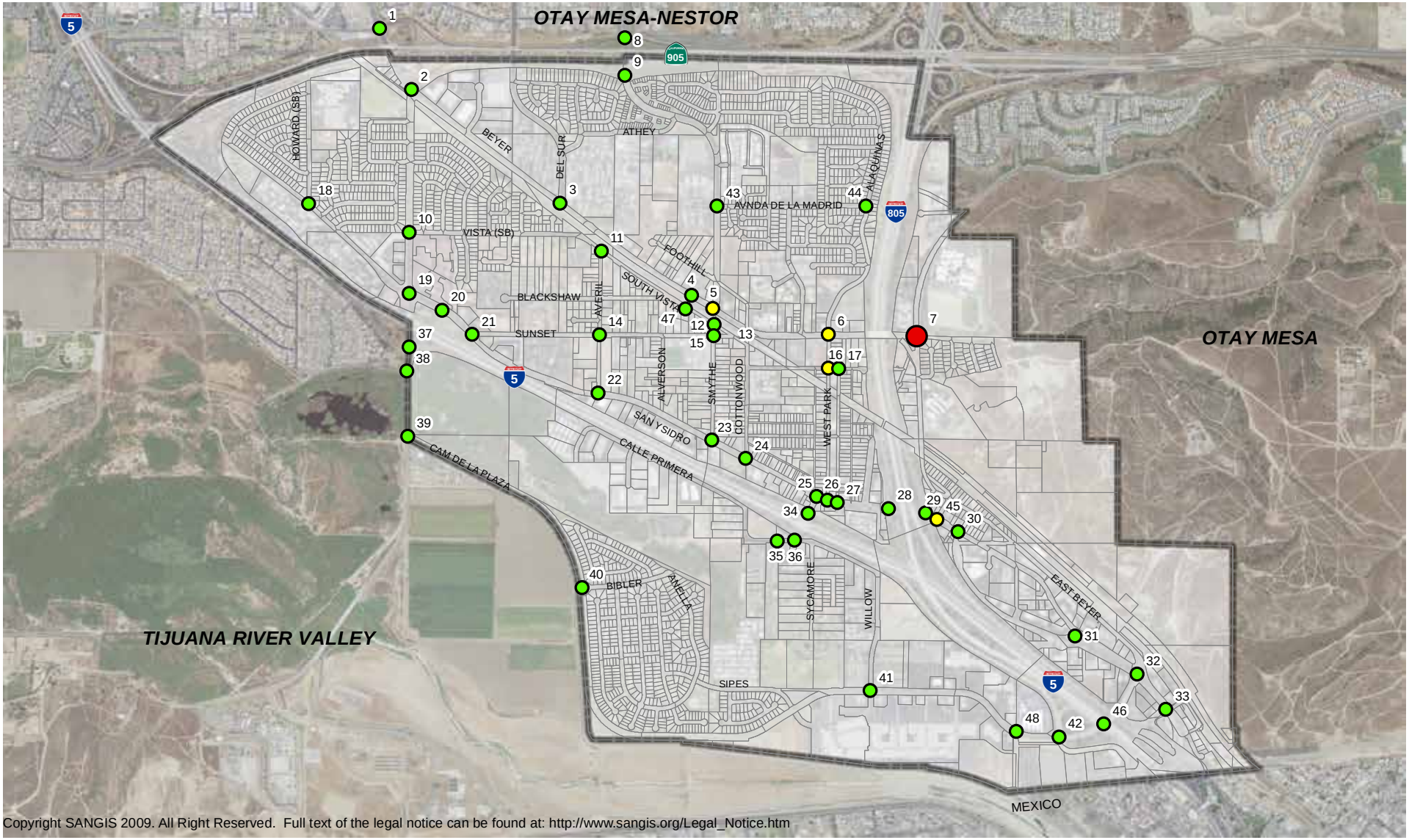
Bold values indicate intersections operating at LOS E or F.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 8

The saturation flow rate at the intersection of Camino de la Plaza and I-5 Soutbound Ramps was adjusted to replicate existing conditions when the I-5 Southbound inspection lane is open entering Mexico.



LEGEND

- LOS: A, B, C
- LOS: D
- LOS: F (150-200 sec)
- Community Plan Boundary
- Parcel Boundaries
- XX Intersection # (See Tables 3-8)

Figure 21.a

Summary of Intersection Analysis - Preferred Alternative with Improvements (Weekday - AM)

N

0 400 800 1,600 Feet

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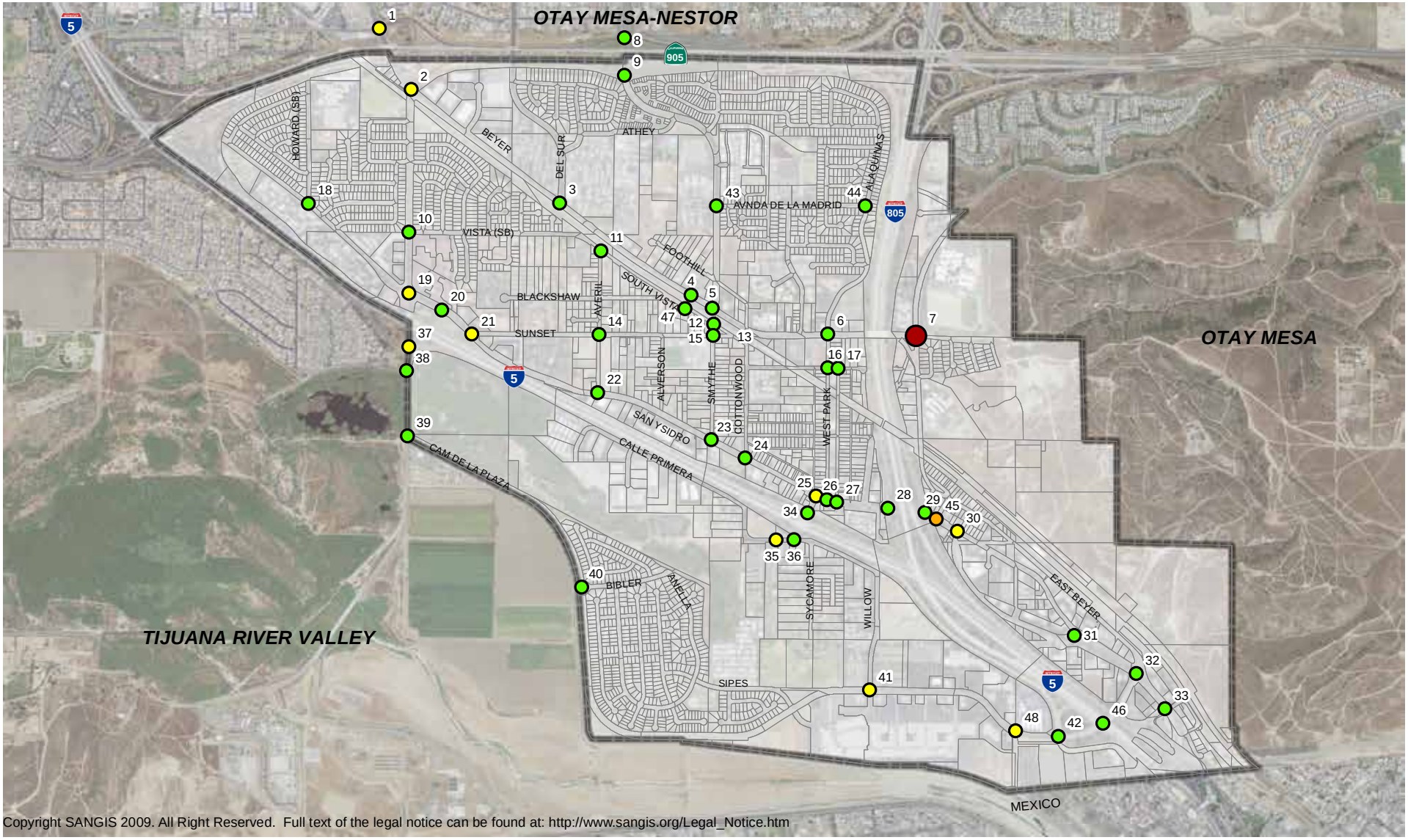


LEGEND

- LOS: A, B, C
- LOS: D
- LOS: E
- LOS: F (<100 sec)
- LOS: F (150-200 sec)
- Community Plan Boundary
- Parcel Boundaries
- XX Intersection # (See Tables 3-8)

Figure 21.b

Summary of Intersection Analysis - Preferred Alternative with Improvements (Weekday - PM)

N

0 400 800 1,600 Feet

Kimley»Horn

rrmdesigngroup

SanGIS

Multi-Modal Recommended Improvements

Bicycling

The existing conditions evaluation report found the community of San Ysidro to have an incomplete bicycle network. The existing bicycle system lacks the connectivity and accessibility required to connect the major attractors within the community. The following is a list of facilities that are recommended to complement the existing bicycle network within the community. **Figure 22** illustrates the different types of bicycle facilities used in the City of San Diego.

Class I (Dedicated Bike Path)

- A new Class I (dedicated Bike Path) facility is recommended within MTS right-of way along the Blueline Trolley line. This facility would connect the northwest end of the community to the Border Village area and the San Ysidro Intermodal Transit Center. To cross the I-805 freeway, a new bicycle designated bridge would need to be constructed to keep bicycles at the same elevation than the trolley lines.

Class II (Bike Lanes)

- To complete a full bicycle network around the perimeter of the Community, two Class II (Bike Lane) connections are needed and recommended. These two locations would be completed with the widening of the Dairy Mart Road and the Camino de la Plaza bridges over the I-5 interchange. Below are the two segments:
    - Dairy Mart Road between West San Ysidro Boulevard and Camino de la Plaza (see **Figure 10**); and
    - Camino de la Plaza between the I-5 Southbound Ramps and East San Ysidro Boulevard (see **Figure 13**).
- As part of the one-way couplet system recommended for the Border Village area, two new Class II sections are recommended (see **Figure 11**):
    - Border Village Road (eastbound only) between both ends of East San Ysidro Boulevard; and
- Along West and East San Ysidro Boulevard between Dairy Mart Road and Camino de la Plaza, where sufficient width is available.; and
- Along Beyer Boulevard, between Dairy Mart Road and East Beyer Boulevard (see **Figure 9** and **Figure 16**)
- Along Otay Mesa Road north of Beyer Boulevard.

Class III – Bike Routes

Several other corridors within the community shall be classified as Class III. These facilities will connect the different attractors within the community and provide a complete bicycle network. The focus on the Class III is to reduce vehicular speed by implementing traffic calming measures, such as intersection bulb-outs, speed tables, striped parking. The traffic calming measures would enhance the bicycle movement providing a more pleasurable experience for bicyclist. The facilities that should be designated as Class III or Bicycle Boulevards are:

- East and West Park Avenue between Beyer Boulevard and West San Ysidro Boulevard;

- West and East San Ysidro Boulevard between Dairy Mart Road and East Beyer Boulevard/Camino de la Plaza, where sufficient width for providing a buffered bike lane is not available;
- Via de San Ysidro between West San Ysidro Boulevard and Calle Primera;
- Willow Road between Calle Primera and Camino de la Plaza;
- Smythe Avenue between Vista Lane and West San Ysidro Boulevard;
- Vista Lane between Dairy Mart Road and Cottonwood Road;
- Cottonwood Road between Vista Lane and West San Ysidro Boulevard; and
- Sunset Lane between West San Ysidro Boulevard and Vista Lane.

Class IV or Cycle Tracks

At specific locations within the community, the installation of cycle tracks is recommended to increase connectivity and access to alternative modes of transportation. The following locations are recommended for the installation of cycle tracks:

- Hall Avenue between Olive Street and East Park Avenue (see **Figure 14** and **Figure 15**)
- Vista Lane between Cottonwood Road and Smythe Crossing (See **Figure 16**);

Figure 23 illustrates the locations of existing and future potential new bicycle facilities within the community.

Figure 24 provides a summary of all the recommended bicycle improvements and illustrates the consistency with other documents prepared for the Community. Table 7 also illustrates how these recommended bicycle facilities would increase one of the following measures of effectiveness:

- Extends of New/Enhanced Active Transportation Opportunity;
- Improves Bicycle Connectivity/Accessibility
- Easy to implement

The regional bike plan, Riding to 2050, identifies three bike routes of regional importance within or near San Ysidro. One such route, the Border Access Corridor, is primarily within San Ysidro. This 6.4 mile route connects the international border crossing in San Ysidro with the Bayshore Bikeway route in Otay Mesa Nestor. Within San Ysidro, the route uses Beyer and East Beyer Boulevard which are currently Class III bike routes. This route is planned to be upgraded to a Class II facility (bike lanes) under the Riding to 2050 plan.

The City of San Diego's Bicycle Master Plan, approved in July 2013, identifies several new bicycle facilities for the Community of San Ysidro. Although the majority of the recommendations are consistent with the above listed recommendations, there are a few locations where the San Diego's Bicycle Master Plan may not be consistent with the recommendation of this study. Below are the locations where a discrepancy between the plan and our recommendations are found:

- The City's Bicycle Master Plan also recommends Willow Road as a new Class II bicycle facility. To accommodate the new Class II bicycle facility, parking along both sides of the

street would need to be removed. It is recommended that instead of adding bike lanes, this corridor be classified as a Class III facility with traffic calming measures;
- The City's Bicycle Master Plan recommends Border Village Road as a Class III facility. With the one-way couplet configuration a buffered bike lane can be provided along this segment;
- The City's Bicycle Master Plan recommends Via de San Ysidro as a Class II facility. Due to the lack of space available to provide room for a Class II facility, a Class III facility is recommended instead.

The San Ysidro Mobility Strategy document, prepared in January 2009 is consistent with the recommendations included in the City's Bicycle Master Plan for all the Class II facilities. The San Ysidro Mobility Strategy recommended Willow Road as a Class III facility, while the City's Master Plan describes Willow Road as a Class II or Bike Lane. The City's Bicycle Master Plan also included Class III facilities along Vista Lane, Cottonwood Road and Sunset Lane, which the San Ysidro Mobility Strategy did not include within its recommendations.

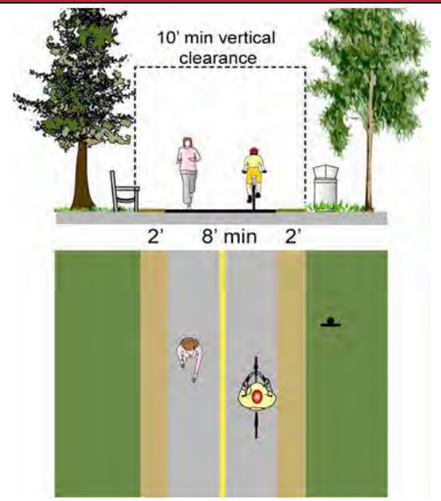
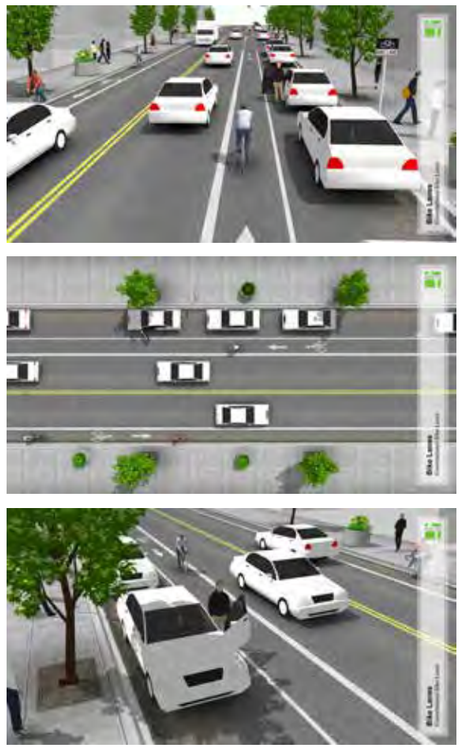
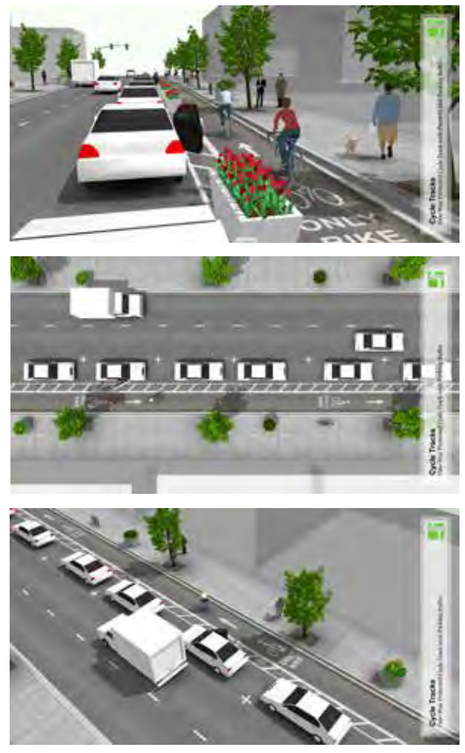
The San Ysidro International Transportation Center Study, prepared by SANDAG in July 2014, includes as its recommendations the construction of a bike center situated in the pedestrian plaza with direct access to and from dedicated bike lanes on San Ysidro Boulevard. This recommendation is consistent with the recommendations to provide a buffered bike lane along San Ysidro Boulevard where there is sufficient room.

The Border Health Equity Transportation Study, prepared in August 2014, provides a list of 14 recommendations for improving bicycling within the Community. From the list of 14 recommendations, the study prioritized the following three facilities for early implementation:

- Create a landscape active transportation corridor traversing the community. This improvements is the Class I facility proposed along the existing MTS right-of-way;
- Install a Class II bicycle lane extending the length of Otay Mesa Road; and
- Establish a Class III bicycle route running the length of West Park Avenue.

As shown In Table 7, all recommended bicycle improvements would extend new/enhance active transportation opportunities within the Community. All recommendations would also improve connectivity and accessibility. With the exception of the Class I facilities and the Class II facilities along Dairy Mart Road and Camino de la Plaza, the implementation of the other facilities would require striping and minor roadway improvements and are easily implementable.

In addition to the bicycle facilities listed above, it is recommended that bicycle parking facilities be installed at all major activity centers and at each of the Trolley Stations.

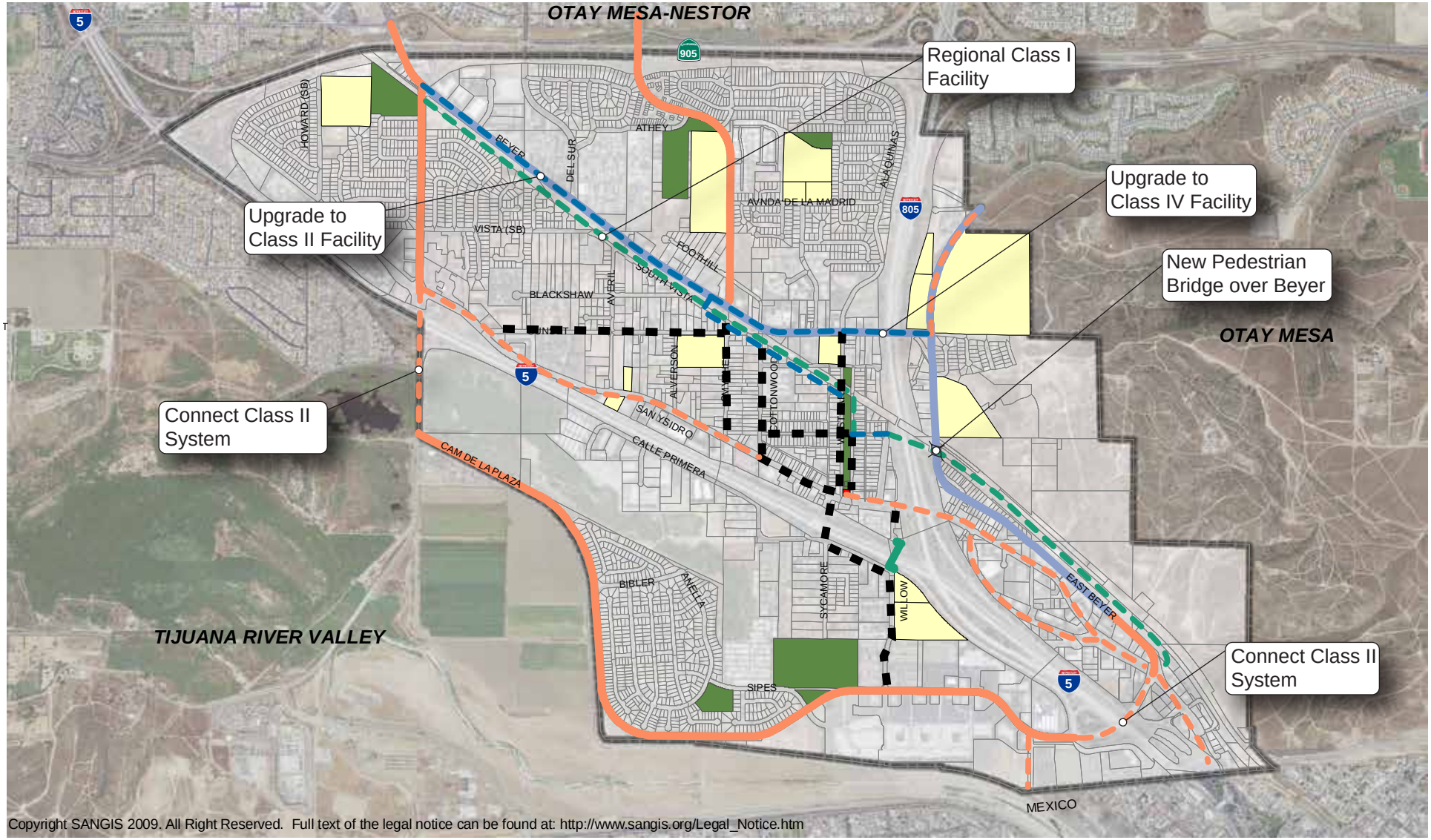
Class Description	Example Graphic
Class I – Bike Path Bike paths, also termed shared-use or multi-use paths, are paved right-of-way for exclusive use by bicyclists, pedestrians, and those using non-motorized modes of travel. They are physically separated from vehicular traffic and can be constructed in roadway right-of-way or exclusive right-of-way. Bike paths provide critical connections in the city where roadways are absent or are not conducive to bicycle travel. **Display in Report** Existing Recommended	
Class II – Bike Lane Bike lanes are defined by pavement striping and signage used to allocate a portion of a roadway for exclusive or preferential bicycle travel. Bike lanes are one-way facilities on either side of a roadway. Whenever possible, Bike Lanes should be enhanced with treatments that improve safety and connectivity by addressing site-specific issues, such as additional warning or wayfinding signage. Bike lanes enable bicyclists to ride at their preferred speed without interference from prevailing traffic conditions. Bike lanes also facilitate predictable behavior and movements between bicyclists and motorists. **Display in Report** Existing Recommended	
Class III - Bike Route Bike routes provide shared use with motor vehicle traffic within the same travel lane. Designated by signs, Bike Routes provide continuity to other bike facilities or designate preferred routes through corridors with high demand. Whenever possible, Bike Routes should be enhanced with treatments that improve safety and connectivity, such as the use of "Sharrows" or shared lane markings to delineate that the road is a shared-use facility. **Display in Report** Existing Recommended	
Class IV – Cycle Track A Cycle Track is a hybrid type bicycle facility that combines the experience of a separated path with the on-street infrastructure of a conventional Bike Lane. Cycle tracks are bikeways located in roadway right-of-way but separated from vehicle lanes by physical barriers or buffers. Cycle tracks provide for one-way bicycle travel in each direction adjacent to vehicular travel lanes and are exclusively for bicycle use. Cycle tracks are not recognized by Caltrans Highway Design Manual as a bikeway facility. A Cycle track is proposed as a pilot project along a 7.6-mile segment of the San Diego bikeway network. To provide bicyclists with the option of riding outside of the Cycle Track to position themselves for a left or right turn, parallel bikeways should be added adjacent to Cycle Track facilities whenever feasible. **Display in Report** Existing Recommended	

Sources:

- City of San Diego Bicycle Master Plan Update 2011
- NACTO Urban Bikeway Design Guide, 2014

Figure 22

Types of Bicycle Facilities



LEGEND

- Existing Class I
- Existing Class II
- Existing Class III
- Existing Class IV
- Community Plan Boundary
- Parcel Boundaries
- Recommended Class I Facility
- Recommended Class II Facility
- Recommended Class II or III Facility
- Recommended Class IV Facility
- City Park
- Schools
- Libraries

Figure 23

New Bicycle Network

N

0 400 800 1,600 Feet

Kimley»Horn rrmdesigngroup SanGIS

	Description	Riding to 2050 (SANDAG)	Bicycle Master Plan (City of SD)	San Ysidro Mobility Strategy	San Ysidro Intermodal Transportation Center Study (SANDAG)	Health Equity Transportation Study (SANDAG)	Extend New/Enhanced Active Transportation Opportunity	Improves Bicycle Connectivity/Accessibility	Easy to Implement
A	**Class I or Bike Path**								
A-1	Class I along MTS right-of-way between Dairy Mart and ITC	X	X	X		X	X	X	
B	**Class II or Buffered Bike Lanes**								
B-1	Dairy Mart Rd between W.San Ysidro Blvd and Camino de la Plaza		X	X		X	X	X	
B-2	Camino de la Plaza between I-5 SB ramps and East San Ysidro Blvd		X	X			X	X	
B-3	Beyer Boulevard between Dairy Mart Rd and E. Beyer Blvd		X	X			X	X	X
B-4	Border Village Rd between E. San Ysidro Blvd						X	X	X
B-5	W. and E San Ysidro Blvd between Dairy Mart Road and San Ysidro ITC		X	X	X		X	X	X
B-5	Otay Mesa Road		X	X		X	X	X	X
C	**Class III or Bike Routes**								
C-1	E. and W. Park between Beyer Blvd and W. San Ysidro Blvd		X	X		X	X	X	X
C-2	W. and E. San Ysidro Blvd between Dairy Mart Rd to E. Beyer Blvd					X	X	X	X
C-3	Via de San Ysidro between W. San Ysidro Blvd and Calle Primera						X	X	X
C-4	Willow Rd between W. San Ysidro Blvd and Camino de la Plaza			X			X	X	X
C-5	Vista Ln between Dairy Mart Rd and Cottonwood Rd		X				X	X	X
C-6	Cottonwood Rd between Vista Ln and W. San Ysidro Blvd		X			X	X	X	X
C-7	Sunset Ln between W. San Ysidro Blvd and Vista Ln		X			X	X	X	X
D	**Class IV or Cycle Tracks**								
D-1	Hall Ave between Olive St and E. Park Ave						X	X	X
D-2	Vista Ln between Cotonwood Rd and Smythe Crossing						X	X	X

Figure 24

Pedestrian

Walking is a popular mode of travel in San Ysidro. The Existing conditions evaluation identified several area for improvements with regards to pedestrian accessibility and pedestrian connectivity. The following are the recommendation to improve the pedestrian network within San Ysidro:

New Pedestrian Bridge over MTS Blueline Trolley Line:

A new pedestrian bridge is recommended across the MTS Blueline Trolley Line at Del Sur Boulevard. This new bridge would provide transit access to a large residential area north of Vista Lane, south of the MTS tracks. Without this bridge, this residential area is outside of the normal maximum walking distance to transit. **Figure 9** (Cross Section C) illustrates this improvement.

Existing Pedestrian Bridge Improvements:

There are two existing pedestrian bridges in the Community that provide connection across the I-5 and I-805 freeways. The Willow Bridge provides a connection across the I-5 and the Beyer Bridge provides connection across the I-805. It is recommended that lighting improvements be implemented along each of these two bridges in addition to landscape improvements at both ends of the bridges. The recommended lighting and landscape improvements would enhance the pedestrian connectivity and encourage active transportation through the community by making these two important pedestrian connections more inviting to residents and tourist.

Creation of a Class I shared pedestrian/bike facility:

The creation of a “green spine”, which is described as a linear walkable, bikeable link that would be constructed with the MTS right of way along Beyer Boulevard, has been a priority of the Community for encouraging and facilitating active transportation throughout its limits. This recommendation is consistent with the Regional Bike Master Plan, the City’s Master Plan, the San Ysidro Mobility Strategy and more recently with the Border Health Equity Transportation Study, which rated this projects as high priority project for the Community. This facility would connect the northwest end of the community to the Border Village area and the San Ysidro Intermodal Transit Center.

Construct or improve sidewalks:

Construct or improve sidewalks at several locations along the Community by providing wider and/or ADA compliant pedestrian travel path with pedestrian scale lighting at several locations:

- Dairy Mart Road (both sides) between West San Ysidro Boulevard and Camino de la Plaza;
- Smythe Crossing (west side) between Vista Lane and Beyer Boulevard;
- Old Otay Mesa Road (east side) between Beyer Boulevard and the north Community Border;
- Seward Avenue (south side) between Smythe Crossing and West Park Boulevard;
- East and West Park Boulevard (both sides) between East San Ysidro Boulevard and Beyer Boulevard;
- Olive Street (both sides) between Hall Avenue and East San Ysidro Boulevard;

- East and West San Ysidro Boulevard (both sides) between Dairy Mart Road and San Ysidro Border Crossing;
- Border Village Road (both sides) between East San Ysidro Boulevard;
- Camino de la Plaza (both sides) between the I-5 Southbound ramps and East San Ysidro Boulevard;
- Calle Primera (north side) between Via de San Ysidro and Willow Road;
- Howard Avenue (East Side) between Village Pine Drive and Iris;
- Smythe Avenue (both sides) between Beyer Boulevard and SR-905;
- Via de San Ysidro (both sides) between Calle Primera and West San Ysidro Boulevard; and
- Cottonwood Road (both sides) between West San Ysidro Boulevard and Vista Lane.

Bulb-outs and crossing improvements:

At key intersections within the community is it recommended the installation of bulb-outs and high visibility crosswalks to improve pedestrian connectivity and enhance access to Schools and Transit. Although other intersections should also be considered for evaluation and or implementation, the following intersection should be a priority for the Community:

- Cypress Drive and Sellsway Street;
- Seaward Avenue and West Park Boulevard;
- Olive Drive and Hall Avenue;
- Hall Avenue and East Park Avenue; and
- Hall Avenue and West Park Avenue.

Traffic Calming

In addition to the improvements listed above, the *City of San Diego's Pedestrian Master Plan,* identified several corridors where pedestrian improvements are needed to enhance pedestrian visibility through better lighting, signage and traffic calming techniques. The following corridors where identified:

- Sunset Lane between West San Ysidro Boulevard and Vista Avenue; and
- East Beyer Boulevard between Beyer Boulevard and Camino de la Plaza.

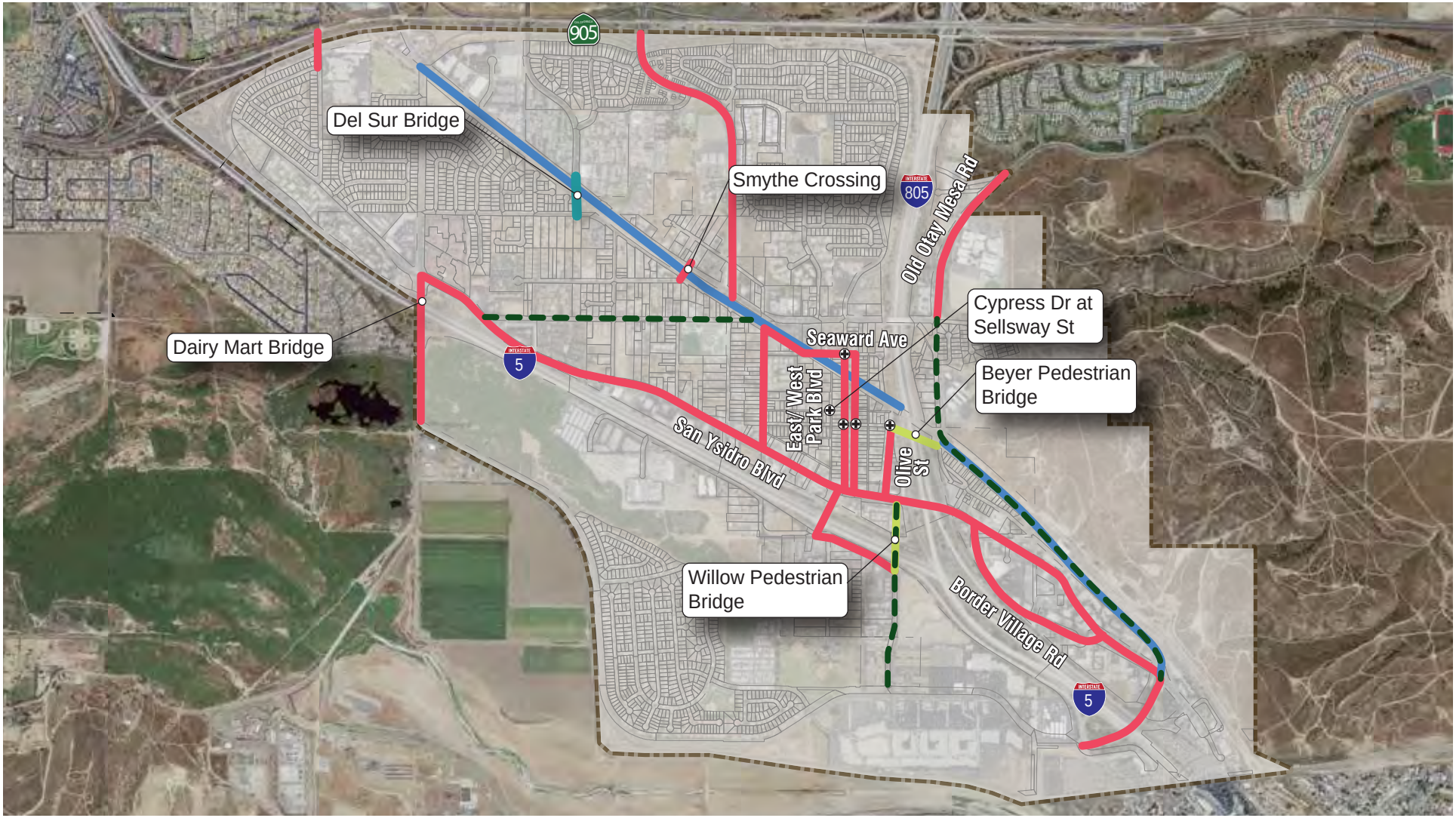
Figure 25 illustrates the locations where pedestrian improvements are recommended within the San Ysidro Community.

Figure 26 provides a summary of all the recommended pedestrian improvements and illustrates the consistency with other documents prepared for the Community. Figure 24 also illustrates how these recommended pedestrian improvements would increase one of the following measures of effectiveness:

- Extends of New/Enhanced Active Transportation Opportunity;
- Improves Pedestrian Connectivity/Accessibility

- Easy to implement

As shown In Figure 24, all recommended pedestrian improvements would extend new/enhance active transportation opportunities within the Community. All recommendations would also improve connectivity and accessibility.



LEGEND

- New Pedestrian Bridge
- New/ Improved Sidewalks with Pedestrian Scale Lighting
- New Class I Pedestrian/ Bicycle Shared Facility
- Improved Existing Pedestrian Birdges
- Intersection Improvements
- Traffic Calming

Figure 25

Pedestrian Network Improvements

N

NOT TO SCALE

Kimley»Horn rmdesigngroup SanGIS

	Description	City of San Diego's Pedestrian Master Plan	Health Equity Transportation Study (SANDAG)	San Ysidro Mobility Strategy	San Ysidro Intermodal Transportation Center Study (SANDAG)	Improving Walkability in San Ysidro (Walk-San Diego)	Extend New/Enhanced Active Transportation Opportunity	Improves Pedestrian Connectivity/Accessib	Easy to Implement
A	**New Pedestrian Bridge**								
A-1	At Del Sur Boulevard across MTS tracks		X	X			X	X	
B	**Existing Pedestrian Bridge Improvements**								
B-1	Willow Road						X	X	
B-2	East Beyer Boulevard		X				X	X	
C	**Creation of Class I Share Bike/Ped Facility**								
C-1	From Dairy Mart Road to ITC (MTS Right of way)	X	X	X			X	X	
D	**Construct or Improve Sidewalks**								
D-1	Dairy Mart Road (both sides) between West San Ysidro Boulevard and Camino de la Plaza		X	X			X	X	
D-2	Smythe Crossing (west side) between Vista Lane and Beyer Boulevard			X			X	X	
D-3	Old Otay Mesa Road (east side) between Beyer Boulevard and the north Community Border	X	X				X	X	
D-4	Seward Avenue (south side) between Smythe Crossing and West Park Boulevard	X	X	X			X	X	
D-5	East and West Park Boulevard (both sides) between East San Ysidro Boulevard and Beyer Boulevard	X	X	X			X	X	
D-6	Olive Street (both sides) between Hall Avenue and East San Ysidro Boulevard		X				X	X	
D-7	East and West San Ysidro Boulevard (both sides) between Dairy Mart Road and San Ysidro Border Crossing		X	X			X	X	
D-8	Border Village Road (both sides) between East San Ysidro Boulevard						X	X	
D-9	Camino de la Plaza (both sides) between the I-5 Southbound ramps and East San Ysidro Boulevard			X			X	X	
D-10	Calle Primera (north side) between Via de San Ysidro and Willow Road	X	X	X			X	X	
D-11	Howard Avenue (East Side) between Village Pine Drive and Iris						X	X	
D-12	Smythe Avenue (both sides) between Beyer Boulevard and SR-905	X		X			X	X	
D-13	Via de San Ysidro (both sides) between Calle Primera and West San Ysidro Boulevard			X			X	X	
D-14	Cottonwood Road (both sides) between West San Ysidro Boulevard and Vista Lane						X	X	
E	**Bulb-outs and Crossing Improvements**								
E-1	Cypress Drive and Sellsway Street					X	X	X	X
E-2	Seaward Avenue and West Park Boulevard					X	X	X	X
E-3	Olive Drive and Hall Avenue		X			X	X	X	X
E-4	Hall Avenue and East Park Avenue		X			X	X	X	X
E-5	Hall Avenue and West Park Avenue		X			X	X	X	X
F	**Traffic Calming**								
F-1	Sunset Lane between West San Ysidro Boulevard and Vista Avenue	X	X				X	X	X
F-2	East Beyer Boulevard between Beyer Boulevard and Camino de la Plaza	X	X				X	X	X

Figure 26

Summary of Pedestrian Improvement Recommendations

Transit

A key focus of the Regional Transportation Plan (RTP) prepared by the San Diego Association of Governments (SANDAG) is to develop an ambitious and far-reaching transit network that significantly expands the role that transit plays within our region. Vital to achieving this goal is the improvement of the current system to provide more convenient and timely bus and rail services, the implementation of new transit services to improve connections and access, the implementation of new service types to attract new riders to transit, and the enhancement of the transit customer's experience to make transit easier, safer, and more enjoyable to use. While this is a regional goal, the same focuses are applied to the local transit networks in the communities of San Ysidro.

The SANDAG 2050 Regional Transportation Plan (2050 RTP), identified the following improvement under the Revenue Constrained scenario for the Community of San Ysidro:

- Implementation of a new Bus Rapid Transit (BRT) route connecting San Ysidro with Downtown and Kearny Mesa. This new route would use HOV lanes and shoulders along the I-5 freeway;
- Implementation of a new BRT route connecting San Ysidro with Sorrento Mesa. This new route would use HOV lanes and shoulders along the I-805 freeway;
- Implementation of a new Rapid bus route connecting San Ysidro with Otay Mesa. This new route would travel along the 905 corridor.
- Construction of an Intermodal Transit Center at the San Ysidro Border Crossing.

SANDAG and the City of San Diego recently completed the San Ysidro Intermodal Transportation Center (ITC) Study. As part of this study, several transit oriented recommendations where provided as part of the implementation of the San Ysidro ITC. Below is a summary of the recommendations:

- Expand existing Trolley Platform;
- Combine MTS and Intercity Bus Center in an extended elevated new platform;
- Expand and relocate passenger automobile pick-up/drop-off area within the station;
- Create a bike center with bicycle parking;
- Implement a pedicab pick-up/drop-off area, adjacent to the bike center;
- Relocate the existing trolley tracks to the north of the SYITC;
- Expand the pedestrian plaza with landscaping, wayfinding information, public art and water features that ties all the SYITC elements together and links the facility to the surrounding San Ysidro Community.

SANDAG's *Developing Mobility/Built Environmental Recommendations Border Health Equity Transportation Study* also included transit related improvements that should be taken into consideration. The following is the summary of these recommended improvements:

- Create a distinctive gateway from the Beyer Boulevard Trolley Station entrance at Cypress Drive; and
- Relocate the Camiones Way Transit Station to accommodate MTS bus and private bus unloading to a new Station along Virginia Avenue.

The expected growth for the San Ysidro Community would be located along Transit Oriented Development areas like the Border Villa Area and the Beyer Station area. Having an increased density around established transit areas would allow for a sustainable growth of the community without relying in the automotive as a mode of transportation.

In order to complete the existing and proposed transit routes for the Community, an internal transit route is recommended to connect several points within the heart of the community. This new transit route could be served initially by private transit provider (Jitney route) and could expand or converted to the street car route. This route would connect with the Beyer Trolley Station, the commercial area along West San Ysidro Boulevard, the Border Village area, and the San Ysidro future Intermodal Transit Center, and the soon to be constructed Virginia Avenue Transit Center. Potential locations for parking structures that would be needed to accommodate parking demand for the commercial development along West and East San Ysidro Boulevard should be constructed along this new transit route. These parking structures would have direct access to freeway interchanges and would alleviate vehicular traffic through the community. Visitor and commercial shoppers would be able to park at one of these facilities and access the rest of the commercial areas using the new transit route, whether this route is a private jitney or a street car route.

INTELLIGENT TRANSPORTATION SYSTEM (ITS)

ITS uses advanced technology to better manage traffic flows. Under existing conditions, there are not major ITS applications implemented within the community of San Ysidro. The following are recommendations for the implementation of ITS technology as way to improve the following:

- Wayfinding signing to attractions within the community,
- Parking management strategies of directing visitors to available parking spaces,
- Transit service enhancements such as next bus identification and transit signal priority measures,
- Traffic congestion relief through better signal operations.

Due to the variability of traffic patterns in San Ysidro caused by conditions at the international border, advanced management of traffic would be beneficial. Intelligent Transportation System techniques could be applied to the surface streets to better manage traffic that changes based on conditions at the border check points. Along key arterials, such as San Ysidro Boulevard, Via San Ysidro Boulevard, and Camino De La Plaza, it is recommended that either responsive or adaptive traffic signal control be implemented so that traffic signal timing can automatically change with changes in traffic patterns. Adaptive systems change continuously based on traffic patterns. Responsive systems select from a set of pre-calculated traffic coordination plans, based on traffic patterns. Either system would be beneficial in dealing with the unpredictability of traffic conditions near the border.

Please contact me at (619) 744-0136 or Leo.Espelet@kimley-horn.com should you have any questions or comments to this letter report.

Sincerely,

Leo Espelet, P.E., T.E.
Project Manager
RCE 71532

APPENDIX A

PROPOSED FUTURE LAND USE ALTERNATIVE – TRIP GENERATION INPUT

Zone	Code	Name	Type	Amount	Trips Person	Trips Vehicle
4545	122	MULTI-FAMILY O20	du	72.0	619.	435.
4545	4112	FREEWAY	acre	2.5	0.	0.
4545	5054	NEIGHBORHOOD COMMERCIAL	ksf	113.0	19152.	13555.
4545		TOTAL			19771.	13989.
4551	111	SF ESTATE	du	2.0	34.	24.
4551	112	SINGLE FAMILY	du	6.0	77.	54.
4551	113	SINGLE FAMILY U20	du	2.0	26.	18.
4551	2113	LIGHT INDUSTRY - GENERAL	ksf	765.4	14160.	11709.
4551	2311	SCRAP YARD/LANDFILL	acre	2.0	15.	12.
4551	4112	FREEWAY	acre	17.5	0.	0.
4551	4121	RAIL/TRANSIT STATION	acre	2.2	847.	647.
4551	5057	ARTERIAL COMMERCIAL	ksf	6.1	336.	244.
4551	6124	POST OFFICE	ksf	15.0	6468.	4495.
4551	7613	OPEN SPACE PRESERVE	acre	6.2	0.	0.
4551	9101	INACTIVE USE	acre	2.5	0.	0.
4551		TOTAL			21964.	17204.
4561	111	SF ESTATE	du	4.0	69.	48.
4561	112	SINGLE FAMILY	du	103.0	1329.	927.
4561	113	SINGLE FAMILY U20	du	2.0	26.	18.
4561	121	MULTI-FAMILY U20	du	370.0	4218.	2961.
4561	122	MULTI-FAMILY O20	du	136.0	1170.	821.
4561	131	MOBILE HOME PARK	du	223.0	1672.	1109.
4561	4112	FREEWAY	acre	12.5	0.	0.
4561	4121	RAIL/TRANSIT STATION	acre	0.6	237.	181.
4561	5013	SUPERMARKET	ksf	4.6	957.	695.
4561	6815	JUNIOR HIGH OR MIDDLE SCHOOL	other	1618.0	3721.	2286.
4561	7607	RESIDENTIAL RECREATION	acre	1.7	0.	0.
4561	9101	INACTIVE USE	acre	0.2	0.	0.
4561		TOTAL			13399.	9047.
4563	112	SINGLE FAMILY	du	361.0	4657.	3251.
4563	4112	FREEWAY	acre	14.9	0.	0.
4563		TOTAL			4657.	3251.
4567	112	SINGLE FAMILY	du	499.0	6437.	4493.
4567	4112	FREEWAY	acre	39.7	0.	0.
4567	6816	ELEMENTARY SCHOOL	other	394.0	2049.	1145.
4567	7611	ACTIVE PARK	acre	10.3	792.	521.
4567		TOTAL			9278.	6159.
4568	112	SINGLE FAMILY	du	236.0	3044.	2125.
4568	4112	FREEWAY	acre	7.5	0.	0.
4568		TOTAL			3044.	2125.
4572	121	MULTI-FAMILY U20	du	558.0	6361.	4466.
4572	122	MULTI-FAMILY O20	du	336.0	2890.	2029.
4572	4112	FREEWAY	acre	15.0	0.	0.
4572	5025	GAS STATION FOOD MART	other	4.0	825.	601.
4572	7607	RESIDENTIAL RECREATION	acre	0.5	0.	0.
4572		TOTAL			10076.	7095.

Zone	Code	Name	Type	Amount	Trips Person	Trips Vehicle
4577	112	SINGLE FAMILY	du	142.0	1832.	1279.
4577	4112	FREEWAY	acre	17.0	0.	0.
4577		TOTAL			1832.	1279.
4578	121	MULTI-FAMILY U20	du	36.0	410.	288.
4578	122	MULTI-FAMILY O20	du	286.0	2460.	1727.
4578	2113	LIGHT INDUSTRY - GENERAL	ksf	258.5	4783.	3955.
4578	4112	FREEWAY	acre	26.3	0.	0.
4578		TOTAL			7653.	5970.
4580	112	SINGLE FAMILY	du	151.0	1948.	1360.
4580	121	MULTI-FAMILY U20	du	3.0	34.	24.
4580	4112	FREEWAY	acre	8.2	0.	0.
4580	9101	INACTIVE USE	acre	1.8	0.	0.
4580		TOTAL			1982.	1384.
4581	112	SINGLE FAMILY	du	402.0	5186.	3620.
4581	113	SINGLE FAMILY U20	du	2.0	26.	18.
4581	131	MOBILE HOME PARK	du	89.0	668.	443.
4581	4112	FREEWAY	acre	68.0	0.	0.
4581	6816	ELEMENTARY SCHOOL	other	670.0	3484.	1947.
4581	7611	ACTIVE PARK	acre	1.8	139.	91.
4581	9101	INACTIVE USE	acre	2.2	0.	0.
4581		TOTAL			9502.	6118.
4587	112	SINGLE FAMILY	du	1.0	13.	9.
4587	2114	WAREHOUSING	ksf	34.3	209.	175.
4587	4112	FREEWAY	acre	0.9	0.	0.
4587	5057	ARTERIAL COMMERCIAL	ksf	8.5	469.	341.
4587	6122	CHURCH NO DAY CARE	ksf	8.0	52.	40.
4587	6816	ELEMENTARY SCHOOL	other	877.0	4560.	2548.
4587	7611	ACTIVE PARK	acre	6.8	524.	345.
4587		TOTAL			5827.	3458.
4596	112	SINGLE FAMILY	du	209.0	2696.	1882.
4596	113	SINGLE FAMILY U20	du	2.0	26.	18.
4596	121	MULTI-FAMILY U20	du	5.0	57.	40.
4596	4112	FREEWAY	acre	19.1	0.	0.
4596		TOTAL			2779.	1940.
4600	112	SINGLE FAMILY	du	2.0	26.	18.
4600	121	MULTI-FAMILY U20	du	80.0	912.	640.
4600	122	MULTI-FAMILY O20	du	398.0	3423.	2403.
4600	4112	FREEWAY	acre	5.1	0.	0.
4600	6126	OTHER PUBLIC SERVICES	ksf	114.0	1573.	1138.
4600	6816	ELEMENTARY SCHOOL	other	991.0	5153.	2880.
4600	7611	ACTIVE PARK	acre	8.0	616.	405.
4600		TOTAL			11703.	7484.
4601	112	SINGLE FAMILY	du	208.0	2683.	1873.
4601	4112	FREEWAY	acre	9.0	0.	0.
4601		TOTAL			2683.	1873.

Zone	Code	Name	Type	Amount	Person Trips	Vehicle Trips
4602	4112	FREEWAY	acre	4.0	0.	0.
4602	6815	JUNIOR HIGH OR MIDDLE SCHOOL	other	1134.0	2608.	1602.
4602	6817	OTHER SCHOOL	ksf	134.3	2928.	2417.
4602	7613	OPEN SPACE PRESERVE	acre	0.2	0.	0.
4602		TOTAL			5536.	4019.
4603	112	SINGLE FAMILY	du	1020.0	13158.	9184.
4603	121	MULTI-FAMILY U20	du	18.0	205.	144.
4603	122	MULTI-FAMILY O20	du	144.0	1238.	869.
4603	4112	FREEWAY	acre	30.4	0.	0.
4603		TOTAL			14602.	10198.
4613	111	SF ESTATE	du	2.0	34.	24.
4613	112	SINGLE FAMILY	du	169.0	2180.	1522.
4613	121	MULTI-FAMILY U20	du	194.0	2212.	1553.
4613	122	MULTI-FAMILY O20	du	290.0	2494.	1751.
4613	4112	FREEWAY	acre	13.5	0.	0.
4613	4114	PARKING	acre	0.3	0.	0.
4613	5025	GAS STATION FOOD MART	other	4.0	825.	601.
4613	5057	ARTERIAL COMMERCIAL	ksf	44.4	2441.	1773.
4613	6122	CHURCH NO DAY CARE	ksf	27.6	180.	138.
4613	6519	OTHER HEALTH CARE	ksf	48.3	3250.	2413.
4613	9101	INACTIVE USE	acre	0.7	0.	0.
4613		TOTAL			13616.	9774.
4614	122	MULTI-FAMILY O20	du	332.0	2855.	2005.
4614	1511	LOW-RISE HOTEL	room	120.0	1956.	1204.
4614	4112	FREEWAY	acre	17.7	0.	0.
4614	5053	COMMUNITY COMMERCIAL	ksf	10.8	1167.	826.
4614	5060	RESTAURANT FAST FOOD	ksf	6.6	6310.	4583.
4614		TOTAL			12288.	8617.
4615	112	SINGLE FAMILY	du	10.0	129.	90.
4615	113	SINGLE FAMILY U20	du	36.0	464.	324.
4615	121	MULTI-FAMILY U20	du	18.0	205.	144.
4615	122	MULTI-FAMILY O20	du	113.0	972.	682.
4615	1514	MOTEL	room	10.0	146.	90.
4615	4112	FREEWAY	acre	9.5	0.	0.
4615	6122	CHURCH NO DAY CARE	ksf	8.4	55.	42.
4615	9101	INACTIVE USE	acre	0.8	0.	0.
4615		TOTAL			1971.	1372.
4616	112	SINGLE FAMILY	du	78.0	1006.	702.
4616	113	SINGLE FAMILY U20	du	4.0	52.	36.
4616	121	MULTI-FAMILY U20	du	261.0	2975.	2089.
4616	122	MULTI-FAMILY O20	du	149.0	1281.	900.
4616	4112	FREEWAY	acre	3.9	0.	0.
4616	6122	CHURCH NO DAY CARE	ksf	5.9	38.	30.
4616	9101	INACTIVE USE	acre	0.9	0.	0.
4616		TOTAL			5353.	3756.
4620	112	SINGLE FAMILY	du	51.0	658.	459.

Zone	Code	Name	Type	Amount	Person Trips	Vehicle Trips
4620	113	SINGLE FAMILY U20	du	36.0	464.	324.

4620	121	MULTI-FAMILY U20	du	301.0	3431.	2409.
4620	122	MULTI-FAMILY O20	du	337.0	2898.	2035.
4620	131	MOBILE HOME PARK	du	23.0	172.	114.
4620	4112	FREEWAY	acre	12.4	0.	0.
4620	4114	PARKING	acre	1.0	0.	0.
4620	5057	ARTERIAL COMMERCIAL	ksf	10.9	598.	435.
4620	6114	CHURCH WITH DAY CARE	ksf	12.8	251.	193.
4620	6122	CHURCH NO DAY CARE	ksf	0.8	5.	4.
4620	6816	ELEMENTARY SCHOOL	other	910.0	4732.	2644.
4620	9101	INACTIVE USE	acre	0.3	0.	0.
4620		TOTAL			13211.	8617.
4636	112	SINGLE FAMILY	du	9.0	116.	81.
4636	113	SINGLE FAMILY U20	du	10.0	129.	90.
4636	121	MULTI-FAMILY U20	du	44.0	502.	352.
4636	122	MULTI-FAMILY O20	du	23.0	198.	139.
4636	4112	FREEWAY	acre	3.8	0.	0.
4636		TOTAL			944.	662.
4637	112	SINGLE FAMILY	du	1.0	13.	9.
4637	121	MULTI-FAMILY U20	du	27.0	308.	216.
4637	122	MULTI-FAMILY O20	du	29.0	249.	175.
4637	2111	INDUSTRIAL PARK	ksf	46.9	915.	760.
4637	2113	LIGHT INDUSTRY - GENERAL	ksf	75.3	1394.	1153.
4637	2115	PUBLIC STORAGE	ksf	166.9	401.	336.
4637	4112	FREEWAY	acre	11.9	0.	0.
4637	4114	PARKING	acre	3.9	0.	0.
4637	5051	WHOLESALE TRADE	ksf	148.9	14876.	10550.
4637	7611	ACTIVE PARK	acre	2.9	223.	147.
4637	7613	OPEN SPACE PRESERVE	acre	86.0	0.	0.
4637		TOTAL			18379.	13345.
4638	112	SINGLE FAMILY	du	57.0	735.	513.
4638	113	SINGLE FAMILY U20	du	2.0	26.	18.
4638	121	MULTI-FAMILY U20	du	353.0	4024.	2825.
4638	122	MULTI-FAMILY O20	du	88.0	757.	531.
4638	4112	FREEWAY	acre	8.1	0.	0.
4638	6123	LIBRARY	ksf	15.0	1104.	748.
4638	6816	ELEMENTARY SCHOOL	other	493.0	2564.	1433.
4638	7611	ACTIVE PARK	acre	43.9	3380.	2224.
4638	9101	INACTIVE USE	acre	0.1	0.	0.
4638		TOTAL			12590.	8293.
4640	112	SINGLE FAMILY	du	22.0	284.	198.
4640	113	SINGLE FAMILY U20	du	26.0	335.	234.
4640	121	MULTI-FAMILY U20	du	10.0	114.	80.
4640	122	MULTI-FAMILY O20	du	346.0	2976.	2089.
4640	4112	FREEWAY	acre	6.2	0.	0.
4640	6012	LOW RISE OFFICE LOW	ksf	3.7	121.	93.
4640	6122	CHURCH NO DAY CARE	ksf	2.0	13.	10.
4640	7611	ACTIVE PARK	acre	1.6	123.	81.

Zone	Code	Name	Type	Amount	Trips Person	Trips Vehicle
4640	9101	INACTIVE USE	acre	0.2	0.	0.
4640		TOTAL			3966.	2785.
4642	4112	FREEWAY	acre	13.9	0.	0.

4642	4114	PARKING	acre	0.2	0.	0.
4642	5053	COMMUNITY COMMERCIAL	ksf	192.2	20742.	14677.
4642	5057	ARTERIAL COMMERCIAL	ksf	12.6	695.	505.
4642	6112	COMMUNITY POST OFFICE	ksf	10.9	3012.	2094.
4642	6813	JUNIOR COLLEGE	other	2300.0	4830.	3820.
4642		TOTAL			29278.	21095.
4645	112	SINGLE FAMILY	du	20.0	258.	180.
4645	113	SINGLE FAMILY U20	du	12.0	155.	108.
4645	121	MULTI-FAMILY U20	du	15.0	171.	120.
4645	122	MULTI-FAMILY O20	du	135.0	1161.	815.
4645	4112	FREEWAY	acre	31.6	0.	0.
4645	5025	GAS STATION FOOD MART	other	8.0	1650.	1202.
4645	5057	ARTERIAL COMMERCIAL	ksf	62.8	3454.	2509.
4645	9101	INACTIVE USE	acre	0.3	0.	0.
4645		TOTAL			6849.	4934.
4646	112	SINGLE FAMILY	du	23.0	297.	207.
4646	113	SINGLE FAMILY U20	du	27.0	348.	243.
4646	121	MULTI-FAMILY U20	du	4.0	46.	32.
4646	122	MULTI-FAMILY O20	du	313.0	2692.	1890.
4646	1511	LOW-RISE HOTEL	room	20.0	326.	201.
4646	4112	FREEWAY	acre	55.5	0.	0.
4646	5025	GAS STATION FOOD MART	other	18.0	3713.	2704.
4646	5031	MONEY EXCHANGE	ksf	7.0	1436.	1043.
4646	5053	COMMUNITY COMMERCIAL	ksf	205.9	22212.	15718.
4646	5054	NEIGHBORHOOD COMMERCIAL	ksf	5.1	863.	611.
4646	5057	ARTERIAL COMMERCIAL	ksf	79.7	4381.	3182.
4646	5060	RESTAURANT FAST FOOD	ksf	12.6	12185.	8851.
4646	6012	LOW RISE OFFICE LOW	ksf	3.3	108.	83.
4646	9101	INACTIVE USE	acre	0.2	0.	0.
4646		TOTAL			48607.	34764.
4648	122	MULTI-FAMILY O20	du	184.0	1582.	1111.
4648	4112	FREEWAY	acre	20.6	0.	0.
4648	5025	GAS STATION FOOD MART	other	12.0	2476.	1803.
4648	5057	ARTERIAL COMMERCIAL	ksf	50.3	2769.	2011.
4648	6125	FIRE OR POLICE STATION	ksf	9.8	399.	294.
4648		TOTAL			7226.	5219.
4651	112	SINGLE FAMILY	du	19.0	245.	171.
4651	113	SINGLE FAMILY U20	du	10.0	129.	90.
4651	121	MULTI-FAMILY U20	du	147.0	1676.	1177.
4651	122	MULTI-FAMILY O20	du	508.0	4369.	3067.
4651	131	MOBILE HOME PARK	du	130.0	975.	647.
4651	1511	LOW-RISE HOTEL	room	301.0	4906.	3020.
4651	1514	MOTEL	room	25.0	365.	225.
4651	4112	FREEWAY	acre	10.2	0.	0.

Zone	Code	Name	Type	Amount	Trips Person	Trips Vehicle
4651	5011	RESTAURANT (HI TURNOVER)	ksf	4.6	814.	591.
4651	5025	GAS STATION FOOD MART	other	18.0	3713.	2704.
4651	5057	ARTERIAL COMMERCIAL	ksf	16.5	905.	657.
4651	7611	ACTIVE PARK	acre	20.4	1571.	1034.
4651	7613	OPEN SPACE PRESERVE	acre	9.9	0.	0.
4651		TOTAL			19668.	13382.

4655	4112	FREEWAY	acre	7.1	0.	0.
4655	5053	COMMUNITY COMMERCIAL	ksf	110.9	11968.	8469.
4655	5057	ARTERIAL COMMERCIAL	ksf	0.0	2.	2.
4655	7613	OPEN SPACE PRESERVE	acre	41.0	0.	0.
4655	9101	INACTIVE USE	acre	0.8	0.	0.
4655		TOTAL			11971.	8471.
4656	122	MULTI-FAMILY O20	du	167.0	1436.	1008.
4656	4112	FREEWAY	acre	1.0	0.	0.
4656	5025	GAS STATION FOOD MART	other	16.0	3301.	2403.
4656	5053	COMMUNITY COMMERCIAL	ksf	32.3	3482.	2464.
4656	5057	ARTERIAL COMMERCIAL	ksf	12.4	684.	497.
4656		TOTAL			8903.	6372.
4657	112	SINGLE FAMILY	du	498.0	6424.	4484.
4657	113	SINGLE FAMILY U20	du	2.0	26.	18.
4657	4112	FREEWAY	acre	33.5	0.	0.
4657	7607	RESIDENTIAL RECREATION	acre	3.0	0.	0.
4657	9101	INACTIVE USE	acre	5.9	0.	0.
4657		TOTAL			6450.	4502.
4660	112	SINGLE FAMILY	du	1.0	13.	9.
4660	122	MULTI-FAMILY O20	du	302.0	2597.	1823.
4660	1511	LOW-RISE HOTEL	room	69.0	1125.	692.
4660	4112	FREEWAY	acre	20.9	0.	0.
4660	4114	PARKING	acre	0.3	0.	0.
4660	5053	COMMUNITY COMMERCIAL	ksf	18.9	2037.	1441.
4660	5054	NEIGHBORHOOD COMMERCIAL	ksf	101.1	17128.	12122.
4660	5057	ARTERIAL COMMERCIAL	ksf	155.1	8533.	6198.
4660	5060	RESTAURANT FAST FOOD	ksf	4.9	4681.	3400.
4660		TOTAL			36114.	25686.
4661	122	MULTI-FAMILY O20	du	212.0	1823.	1280.
4661	4112	FREEWAY	acre	3.2	0.	0.
4661	4124	BORDER PARK-AND-RIDE	other	141.0	747.	572.
4661	5052	REGIONAL COMMERCIAL	ksf	291.9	16519.	11669.
4661	6816	ELEMENTARY SCHOOL	other	802.0	4170.	2330.
4661	9101	INACTIVE USE	acre	1.0	0.	0.
4661		TOTAL			23260.	15852.
4662	4112	FREEWAY	acre	0.9	0.	0.
4662	4114	PARKING	acre	3.2	0.	0.
4662	4121	RAIL/TRANSIT STATION	acre	0.1	39.	30.
4662	5057	ARTERIAL COMMERCIAL	ksf	41.2	2269.	1648.
4662	6126	OTHER PUBLIC SERVICES	ksf	137.7	1901.	1375.
4662		TOTAL			4209.	3053.

Zone	Code	Name	Type	Amount	Trips Person	Trips Vehicle
4663	1511	LOW-RISE HOTEL	room	30.0	489.	301.
4663	2115	PUBLIC STORAGE	ksf	13.4	32.	27.
4663	5053	COMMUNITY COMMERCIAL	ksf	0.7	73.	52.
4663	5054	NEIGHBORHOOD COMMERCIAL	ksf	162.9	27603.	19536.
4663		TOTAL			28198.	19916.
4664	4112	FREEWAY	acre	2.0	0.	0.
4664	4114	PARKING	acre	1.9	0.	0.

4664	4124	BORDER PARK-AND-RIDE	other	426.0	2258.	1729.
4664	5011	RESTAURANT (HI TURNOVER)	ksf	9.8	1752.	1273.
4664	5022	FINANCIAL INST DRV THRU	ksf	11.5	3170.	2303.
4664	5032	MEX AUTO INSURANCE	ksf	9.3	509.	370.
4664	5052	REGIONAL COMMERCIAL	ksf	573.0	32429.	22908.
4664	5060	RESTAURANT FAST FOOD	ksf	4.8	4642.	3372.
4664		TOTAL			44761.	31954.
4665	4112	FREEWAY	acre	2.1	0.	0.
4665	4134	BORDER DROP/PICK UP	other	4989.0	13470.	10314.
4665		TOTAL			13470.	10314.
4683	111	SF ESTATE	du	1.0	17.	12.
4683	1511	LOW-RISE HOTEL	room	45.0	733.	452.
4683	4112	FREEWAY	acre	7.9	0.	0.
4683	4124	BORDER PARK-AND-RIDE	other	499.0	2645.	2025.
4683	4129	OTHER TRANSPORTATION	acre	4.4	35.	27.
4683	4134	BORDER DROP/PICK UP	other	4989.0	13470.	10314.
4683	5057	ARTERIAL COMMERCIAL	ksf	125.1	6881.	4998.
4683	6126	OTHER PUBLIC SERVICES	ksf	78.8	1087.	786.
4683	7613	OPEN SPACE PRESERVE	acre	13.5	0.	0.
4683	9101	INACTIVE USE	acre	0.2	0.	0.
4683		TOTAL			24868.	18613.
4684	121	MULTI-FAMILY U20	du	219.0	2497.	1753.
4684	122	MULTI-FAMILY O20	du	74.0	636.	447.
4684	131	MOBILE HOME PARK	du	177.0	1328.	880.
4684	1511	LOW-RISE HOTEL	room	71.0	1157.	712.
4684	4112	FREEWAY	acre	32.4	0.	0.
4684	5053	COMMUNITY COMMERCIAL	ksf	50.9	5488.	3884.
4684	5057	ARTERIAL COMMERCIAL	ksf	0.6	36.	26.
4684	5060	RESTAURANT FAST FOOD	ksf	9.7	9361.	6799.
4684		TOTAL			20503.	14501.
4685	112	SINGLE FAMILY	du	2.0	26.	18.
4685	121	MULTI-FAMILY U20	du	37.0	422.	296.
4685	122	MULTI-FAMILY O20	du	263.0	2262.	1588.
4685	1511	LOW-RISE HOTEL	room	100.0	1630.	1003.
4685	4112	FREEWAY	acre	6.2	0.	0.
4685	5025	GAS STATION FOOD MART	other	8.0	1650.	1202.
4685	5060	RESTAURANT FAST FOOD	ksf	6.3	6044.	4390.
4685		TOTAL			12034.	8497.
4686	112	SINGLE FAMILY	du	13.0	168.	117.

Zone	Code	Name	Type	Amount	Trips Person	Trips Vehicle
4686	113	SINGLE FAMILY U20	du	8.0	103.	72.
4686	121	MULTI-FAMILY U20	du	49.0	559.	392.
4686	122	MULTI-FAMILY O20	du	89.0	765.	537.
4686	4112	FREEWAY	acre	4.6	0.	0.
4686	5019	FURNITURE STORE	ksf	2.9	24.	18.
4686	5055	SPECIALTY COMMERCIAL	ksf	4.6	260.	184.
4686	5057	ARTERIAL COMMERCIAL	ksf	58.0	3192.	2318.
4686	6033	GOV'T OFFICE OR CENTER	ksf	6.0	238.	179.
4686	6122	CHURCH NO DAY CARE	ksf	1.8	11.	9.
4686	7611	ACTIVE PARK	acre	1.8	139.	91.
4686		TOTAL			5459.	3918.

4687	122	MULTI-FAMILY O20	du	133.0	1144.	803.
4687	4112	FREEWAY	acre	6.1	0.	0.
4687	5054	NEIGHBORHOOD COMMERCIAL	ksf	16.0	2709.	1918.
4687	5057	ARTERIAL COMMERCIAL	ksf	10.9	599.	435.
4687	6114	CHURCH WITH DAY CARE	ksf	108.2	2122.	1631.
4687		TOTAL			6574.	4786.
4688	5011	RESTAURANT (HI TURNOVER)	ksf	8.0	1433.	1041.
4688	5052	REGIONAL COMMERCIAL	ksf	371.8	21043.	14865.
4688		TOTAL			22476.	15905.

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APPENDIX B

2035 TRAFFIC MODEL PLOT

SANDAG Series 12 2035
Revenue Constrained
2011 RTP Highway Network
Forecasted Daily Volumes

SAN YSIDRO

Model Rerun 05/14/14
San Ysidro CPU
2035 Scenario D - Proposed LU 2, Hybrid Network

Forecasted Volumes:

- # Adjusted Volume
- # Unadjusted Volume
- # Traffic Analysis Zone

Feet 0 500 1,000
Meters 60 180 300

SANDAG
San Diego's Regional Planning Agency

May 15, 2014

Otay Mesa-Nestor

CHULA VISTA
Otay Mesa

Otay Mesa Nestor
Otay Mesa

Otay Mesa-Nestor
San Ysidro

Otay Mesa
San Ysidro

San Ysidro
Tijuana River Valley

San Ysidro
TIJUANA

APPENDIX C

POST MODEL ADJUSTMENT FOR 2035 ADT VOLUMES

APPENDIX C
ROADWAY SEGMENT VOLUME POST-MODELING ADJUSTMENTS

ROADWAY SEGMENT	EXISTING				2035 ALTERNATIVE B		NOTES
	Model	Counted	Model minus Count	Model vs Count	Model	*Recommended Volume*	
Beyer Blvd.							
SR-905 WB Off-Ramp to Dairy Mart Rd.	17,600	16,371	1,229	8%	20,200	***20,200***	Within acceptable margin - kept model volume
Dairy Mart Rd. to Del Sur Blvd.	8,300	8,260	40	0%	13,400	***13,400***	Within acceptable margin - kept model volume
Del Sur Blvd. to Smythe Ave.	8,700	7,560	1,140	15%	12,300	***11,200***	Reduced trips by **-1,100** to account for difference between counts and calibrated model.
Smythe Ave to W. Park Ave	10,600	10,046	554	6%	28,600	***28,600***	Within acceptable margin - kept model volume
W. Park Ave. to E. Beyer Blvd.	7,100	7,511	-411	-5%	28,100	***28,100***	Within acceptable margin - kept model volume
Otay Mesa Rd.							
North of Beyer Blvd.	8,200	5,440	2,760	51%	14,600	***11,900***	Reduced trips by **-2,700** to account for difference between Counts and Calibration
E. Beyer Blvd.							
Beyer Blvd. to E. San Ysidro Blvd.	7,000	2,734	4,266	156%	21,200	***17,000***	Reduced trips by **-4,200** to account for difference between Counts and Calibration
Del Sur Blvd.							
SR-905 EB Ramps to Beyer Blvd.	2,600	1,441	1,159	80%	9,600	***8,500***	Reduced trips by **-1,100** to account for difference between Counts and Calibration
Smythe Ave.							
SR-905 EB Ramps to Beyer Blvd.	17,300	7,256	10,044	138%	23,200	***13,200***	Reduced trips by **-10,000** to account for difference between Counts and Calibration
S. Vista Ave. to Sunset Ln.		4,345		-100%	8,300	***8,300***	Within acceptable margin - kept model volume
Sunset Ln. to W. San Ysidro Blvd.	1,500	840	660	79%	3,000	***2,400***	Reduced trips by **-600** to account difference between Counts and Calibration
Dairy Mart Rd.							
Beyer Blvd to S. Vista Ln	13,800	8,630	5,170	60%	11,800	***11,800***	Within acceptable margin - kept model volume
S. Vista Ln. to W. San Ysidro Blvd.	11,200	11,246	-46	0%	14,000	***14,000***	Within acceptable margin - kept model volume
W. San Ysidro Blvd. to I-5 SB Ramps	17,300	17,283	17	0%	19,900	***19,900***	Within acceptable margin - kept model volume
I-5 SB Ramps to Servando Ave.	10,300	14,609	-4,309	-29%	13,200	***17,600***	Increased trips by **4,400** to account for difference between Counts and Calibration
Servando Ave. to Camino de la Plaza	8,800	8,771	29	0%	11,600	***11,600***	Within acceptable margin - kept model volume
W. San Ysidro Blvd.							
Howard Ave. to Dairy Mart Rd.	7,900	5,813	2,087	36%	9,500	***7,500***	Reduced trips by **-2,000** to account for difference between Counts and Calibration
Dairy Mart Rd. to Sunset Ln.	18,400	14,301	4,099	29%	17,500	***13,500***	Reduced trips by **-4,000** to account for difference between Counts and Calibration
Sunset Ln. to Averil Rd.	10,400	12,674	-2,274	-18%	11,300	***13,600***	Increased trips by **2,300** to account for difference between Counts and Calibration
Averil Rd. to Symthe Ave.	14,400	11,519	2,881	25%	15,800	***13,500***	Reduced trips by **-3,300** to account for difference between Counts and Calibration
Smythe Ave. to Cottonwood Rd.	10,900	14,440	-3,540	-25%	10,800	***14,400***	Increased trips by **3,600** to account for difference between Counts and Calibration
Cottonwood Rd. to Via de San Ysidro	13,400	14,440	-1,040	-7%	20,600	***20,600***	Within acceptable margin - kept model volume
Via de San Ysidro to W. Park Ave	--	16,756	--		25,100	***23,000***	Reduced trips by **2,100** to smooth volumes to other side of the roadway
E. San Ysidro Blvd.							
W. Park Ave. to I-805 SB Ramps	20,500	23,764	-3,264	-14%	29,700	***33,000***	Increased trips by **3,300** to account for difference between Counts and Calibration
I-805 SB Ramps to I-805 NB Ramps	16,600	22,139	-5,539	-25%	26,300	***31,900***	Increased trips by **5,600** to account for difference between Counts and Calibration
I-805 NB Ramps to Border Village Rd. (west)	22,600	22,509	91	0%	39,400	***39,400***	Within acceptable margin - kept model volume
Border Village Rd. (west) to Border Village Rd (east)	16,000	12,615	3,385	27%	28,300	***25,000***	Reduced trips by **-3,300** to account for difference between Counts and Calibration
Border Village Rd. (south) to E. Beyer Blvd./Camino de la Plaza	7,300	15,820	-8,520	-54%	29,100	***37,700***	Increased trips by **8,400** to account for difference between Counts and Calibration
Border Village Rd .							
San Ysidro Blvd. to San Ysidro Blvd.	4,000	3,228	772	24%	11,100	***10,400***	Reduced trips by **-700** to account for difference between Counts and Calibration
Via de San Ysidro							
W. San Ysidro Blvd. to I-5 NB Ramps	16,500	17,064	-564	-3%	24,100	***24,100***	Within acceptable margin - kept model volume
I-5 NB Ramps to Calle Primera	18,100	19,619	-1,519	-8%	26,100	***26,100***	Within acceptable margin - kept model volume
Calle Primera							
West of Via de San Ysidro	10,000	3,224	6,776	210%	8,800	***8,800***	Within acceptable margin - kept model volume

APPENDIX C
ROADWAY SEGMENT VOLUME POST-MODELING ADJUSTMENTS

ROADWAY SEGMENT	EXISTING				2035 ALTERNATIVE B		NOTES
	Model	Counted	Model minus Count	Model vs Count	Model	*Recommended Volume*	
Willow Rd.							
Calle Primera to Camino De La Plaza	10,100	8,690	1,410	16%	19,500	***18,100***	Reduced trips by **-1,400** to account for difference between Counts and Calibration
Bibler Dr.							
East of Camino De La Plaza	3,400	4,332	-932	-22%	3,200	***4,400***	Changed to **4,400** (existing conditions should not change)
Camino De La Plaza.							
Dairy Mart Rd. to Bibler Dr.	8,200	8,166	34	0%	11,000	***11,000***	Within acceptable margin - kept model volume
Bibler Dr. to Willow Rd.	4,500	4,431	69	2%	7,200	***7,200***	Within acceptable margin - kept model volume
Willow Rd. to I-5 SB Ramp	21,000	9,796	11,204	114%	30,000	***18,800***	Reduced trips by **-11,200** to account for difference between Counts and Calibration
I-5 SB Ramp to E. San Ysidro Blvd.	20,500	17,300	3,200	18%	29,100	***25,900***	Reduced trips by **-3,200** to account for difference between Counts and Calibration
Vista Ln.							
Dairy Mart Rd. to Averil Rd.	2,000	2,371	-371	-16%	7,700	***8,100***	Increased trips by 4**00** to account for difference between Counts and Calibration.
Averil Rd. to Symthe Ave.	6,000	3,660	2,340	64%	4,600	***4,600***	Within acceptable margin - kept model volume
Sunset Ln.							
W. San Ysidro Blvd. to Averil Rd.	2,600	2,695	-95	-4%	7,500	***5,000***	Reduced trips by **-2,500** to account for shift to W. San Ysidro.
Averil Rd. to Symthe Ave.	3,400	2,410	990	41%	7,000	***4,500***	Reduced trips by **-2,500** to account for shift to W. San Ysidro.
Cottonwood Rd.							
Sunset Ln. to W San Ysidro Blvd.	5,500	3,787	1,713	45%	11,200	***7,700***	Reduced trips by **-3,500** to account for shift to W. San Ysidro.
W. Park Ave.							
Beyer Blvd. to Seward Ave.	4,300	5,301	-1,001	-19%	6,900	***8,000***	Increased trips by **1,100** to account for difference between Counts and Calibration.
Seward Ave. to W. San Ysidro Blvd.	4,300	3,129	1,171	37%	3,900	***3,900***	Within acceptable margin - kept model volume
E. Park Ave.							
Seward Ave. to W. San Ysidro Blvd.	2,300	2,172	128	6%	3,300	***3,300***	Within acceptable margin - kept model volume
Seward Ave.							
W. Park Ave. to E. Park Ave.	2,300	2,469	-169	-7%	4,100	***4,100***	Within acceptable margin - kept model volume
Howard Ave.							
North of W. San Ysidro Blvd.	4,600	4,113	487	12%	6,200	***5,800***	Reduced trips by **-400** to account for difference between Counts and Calibration.
Avenida de la Madrid							
Smythe Ave. to Alaquinas Dr.	3,800	2,003	1,797	90%	4,000	***2,300***	Reduced trips by -**1,700** to account for difference between Counts and Calibration.
Alaquinas Dr.							
Beyer Blvd. to Avenida de la Madrid.	2,800	1,495	1,305	87%	1,300	***1,700***	Change to **1,700** (assumed small growth from existing conditions)

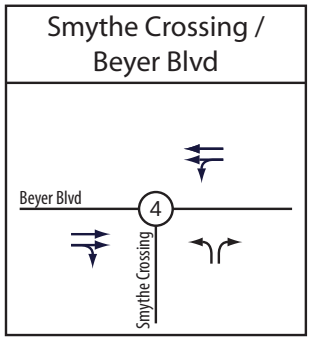
Notes:

Volumes from the Model are acceptable and changes were not needed.
Volumes from the Model were decreased to account for difference between Counts and Calibration.
Volumes from the Model were increased to account for difference between Counts and Calibration.
Volumes from the Model were modified, see notes for specific explanation

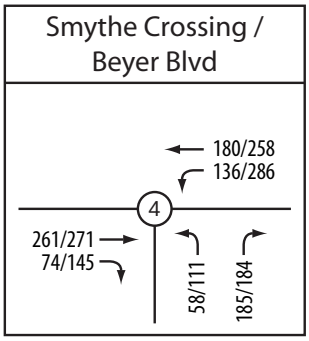
504,900 486,588

APPENDIX D

SIGNAL WARRANT ANALYSIS WORKSHEETS



Intersection Geometrics

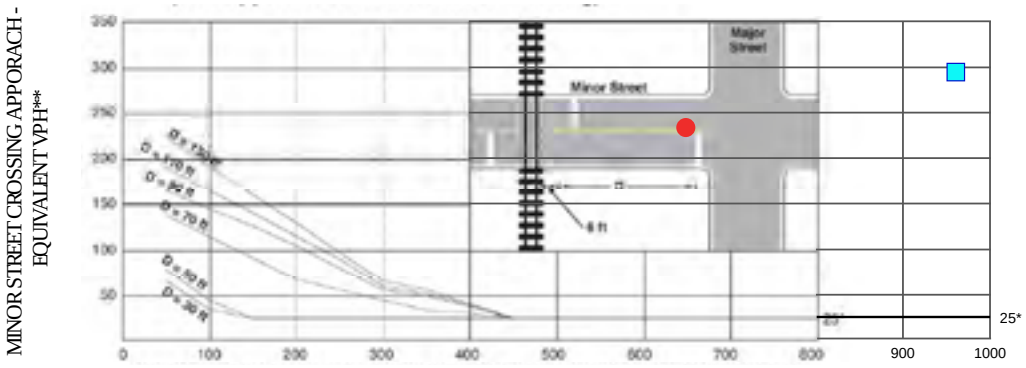


Year 2035 Alternative 2

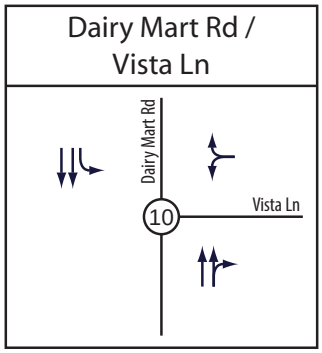
Major Street: Beyer Blvd (35 MPH)
Volume (both approaches): **651 / 960** VPH

Minor Street: Smythe Crossing
Volume (one approach): **243 / 295** VPH

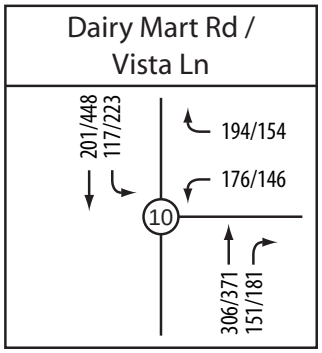
Figure 4C-10. Warrant 9, Intersection Near a Grade Crossing (One Approach Lane at the Track Crossing)



*25 vph applies as the lower threshold volume
** VPH after applying the adjustment factors in Tables 4C-2, 4C-3, and/or 4C-4, if appropriate



Intersection Geometrics

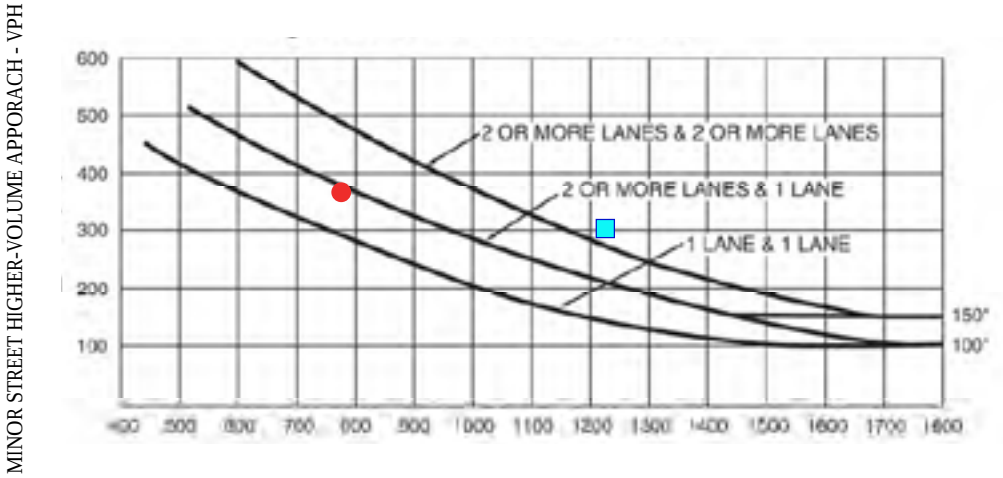


Year 2035 Alternative 2

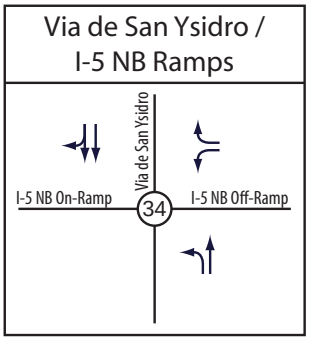
Major Street: Dairy Mart Rd (30 MPH)
Volume (both approaches): **775 / 1223** VPH

Minor Street: Vista Ln
Volume (one approach): **370 / 300** VPH

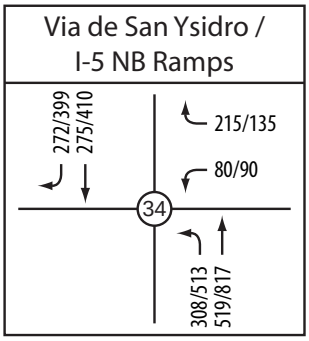
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.



Intersection Geometrics

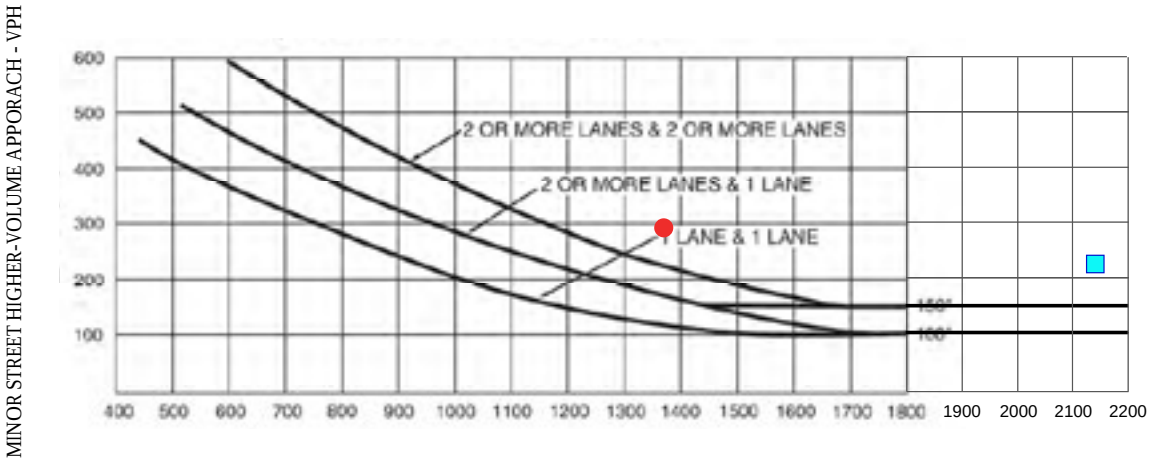


Year 2035 Alternative 2

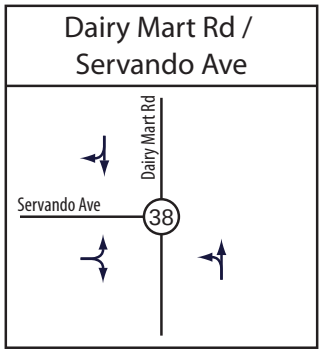
Major Street: Via de San Ysidro (30 MPH)
Volume (both approaches): **1374 / 2139** VPH

Minor Street: I-5 NB Ramps
Volume (one approach): **295 / 225** VPH

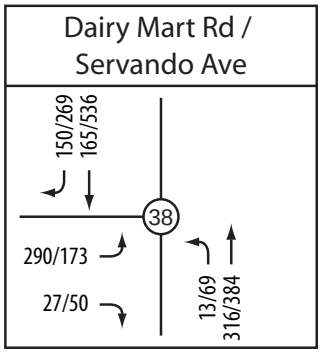
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.



Intersection Geometrics

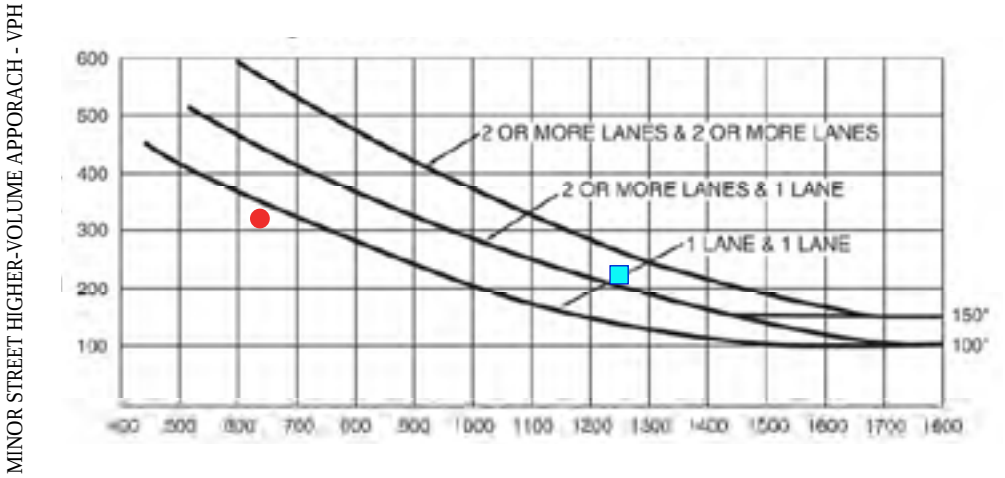


Year 2035 Alternative 2

Major Street: Dairy Mart Rd (40 MPH)
Volume (both approaches): **644 / 1258** VPH

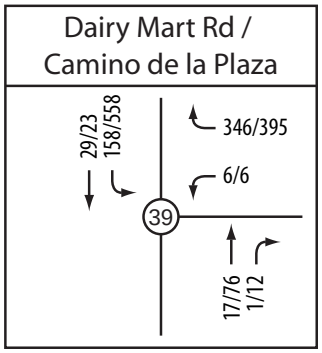
Minor Street: Servando Ave
Volume (one approach): **317 / 223** VPH

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Geometrics

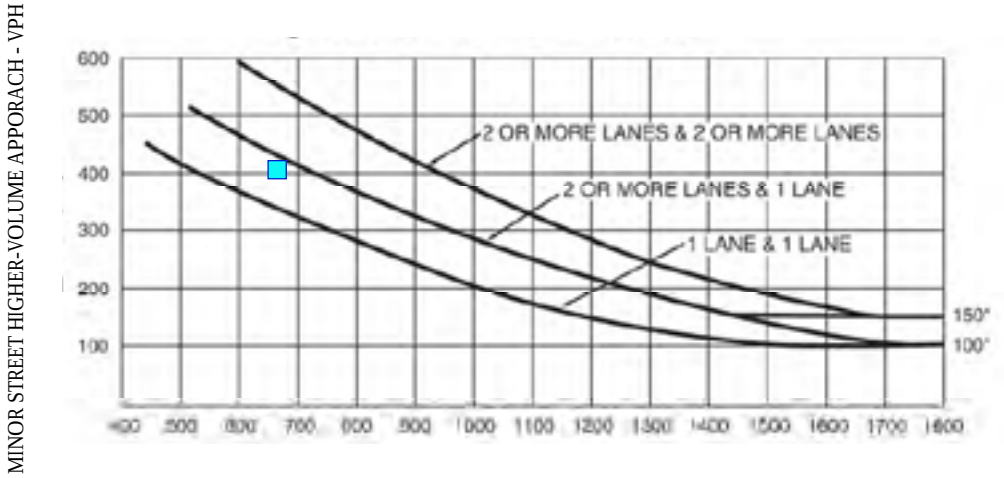


Year 2035 Alternative 2

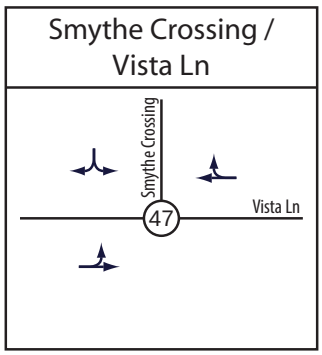
Major Street: Dairy Mart Rd (40 MPH)
Volume (both approaches): **205 / 669** VPH

Minor Street: Camino de la Plaza
Volume (one approach): **352 / 401** VPH

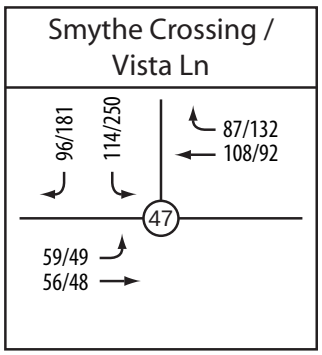
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.



Intersection Geometrics

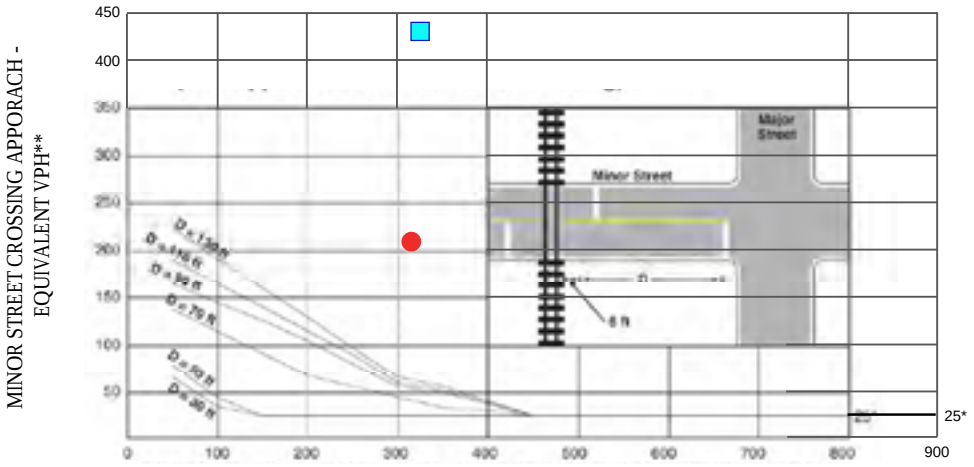


Year 2035 Alternative 2

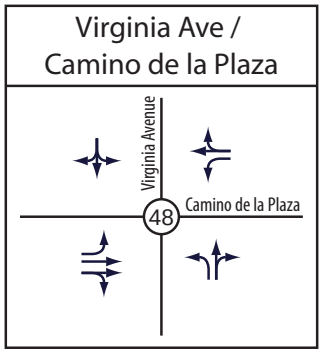
Major Street: Vista Ln (25 MPH)
Volume (both approaches): **310 / 321** VPH

Minor Street: Smythe Crossing
Volume (one approach): **210 / 431** VPH

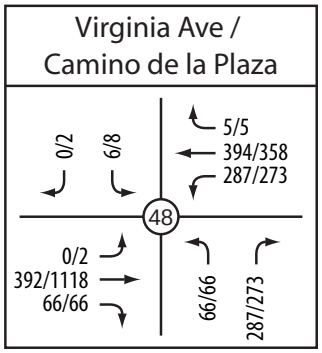
Figure 4C-10. Warrant 9, Intersection Near a Grade Crossing (One Approach Lane at the Track Crossing)



*25 vph applies as the lower threshold volume
** VPH after applying the adjustment factors in Tables 4C-2, 4C-3, and/or 4C-4, if appropriate



Intersection Geometrics

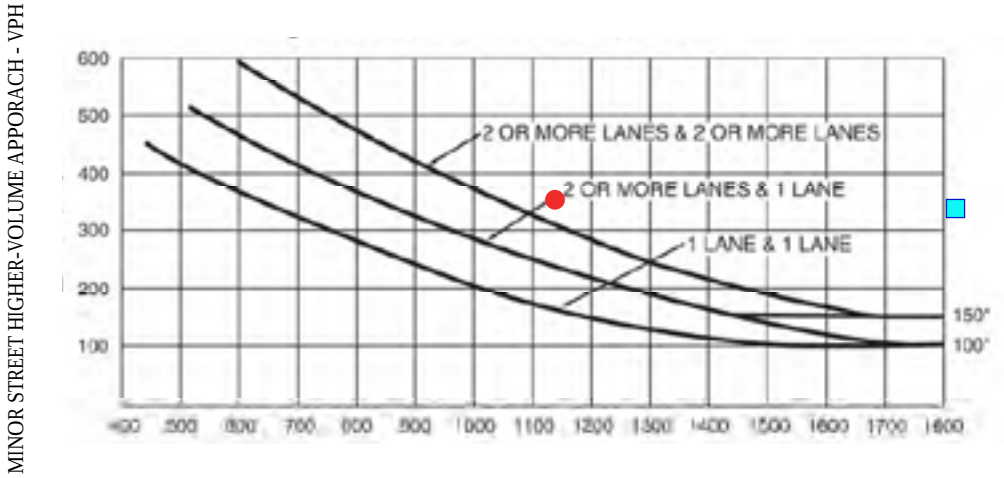


Year 2035 Alternative 2

Major Street: Camino de la Plaza (30 MPH)
Volume (both approaches): **1144 / 1820** VPH

Minor Street: Virginia Ave
Volume (one approach): **353 / 339** VPH

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

APPENDIX E

PROPOSED FUTURE LAND USE ALTERNATIVE – PEAK-HOUR VOLUMES
SYNCHRO CALCULATION WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	80	162	101	148	131	89	213	109	71	215	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			5.0	5.0	3.5	4.5		3.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.95		1.00	0.97	
Flt Protected		0.99			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1687			1826	1560	1770	3360		1770	3405	
Flt Permitted		0.99			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1687			1826	1560	1770	3360		1770	3405	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.90	0.90	0.90	0.87	0.87	0.87
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	64	100	202	129	189	168	109	260	133	90	272	77
RTOR Reduction (vph)	0	50	0	0	0	130	0	72	0	0	28	0
Lane Group Flow (vph)	0	316	0	0	318	38	109	321	0	90	321	0
Confl. Peds. (#/hr)	3		12	1		3	1					1
Turn Type	Split	NA		Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases						4						
Actuated Green, G (s)		17.7			17.1	17.1	7.1	18.2		4.7	15.8	
Effective Green, g (s)		17.7			17.1	17.1	7.1	18.2		4.7	15.8	
Actuated g/C Ratio		0.24			0.23	0.23	0.09	0.24		0.06	0.21	
Clearance Time (s)		4.5			5.0	5.0	3.5	4.5		3.5	4.5	
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.3		2.0	4.3	
Lane Grp Cap (vph)		397			415	354	167	813		110	715	
v/s Ratio Prot		c0.19			c0.17		0.06	c0.10		c0.05	0.09	
v/s Ratio Perm						0.02						
v/c Ratio		0.79			0.77	0.11	0.65	0.39		0.82	0.45	
Uniform Delay, d1		27.0			27.2	23.0	32.9	23.9		34.8	25.9	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.8			7.4	0.0	6.8	0.5		34.2	0.7	
Delay (s)		36.9			34.6	23.1	39.7	24.4		69.0	26.6	
Level of Service		D			C	C	D	C		E	C	
Approach Delay (s)		36.9			30.6			27.7			35.3	
Approach LOS		D			C			C			D	

Intersection Summary				
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	17.5	
Intersection Capacity Utilization	64.1%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	113	192	60	91	5	52	49	238	86	168	169	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0	4.2	5.5		4.2	5.5	3.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1765	1583		1779	1583	1770	3398		1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.15	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1765	1583		273	1583	1770	3398		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.82	0.82	0.82	0.81	0.81	0.81	0.88	0.88	0.88
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	135	230	72	122	7	70	67	323	117	210	211	211
RTOR Reduction (vph)	0	0	58	0	0	50	0	31	0	0	0	107
Lane Group Flow (vph)	121	244	14	0	129	20	67	409	0	210	211	104
Turn Type	Split	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4			3		5	2		1	6	4
Permitted Phases			4	3		3						6
Actuated Green, G (s)	18.5	18.5	18.5		26.6	26.6	5.9	18.8		15.5	28.4	46.9
Effective Green, g (s)	18.5	18.5	18.5		26.6	26.6	5.9	18.8		15.5	28.4	46.9
Actuated g/C Ratio	0.19	0.19	0.19		0.28	0.28	0.06	0.20		0.16	0.30	0.49
Clearance Time (s)	3.0	3.0	3.0		3.0	3.0	4.2	5.5		4.2	5.5	3.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0	2.0	4.3		2.0	4.3	2.0
Lane Grp Cap (vph)	327	343	307		76	442	109	671		288	1056	780
v/s Ratio Prot	0.07	c0.14					0.04	c0.12		c0.12	0.06	0.03
v/s Ratio Perm			0.01		c0.47	0.01						0.04
v/c Ratio	0.37	0.71	0.05		1.70	0.04	0.61	0.61		0.73	0.20	0.13
Uniform Delay, d1	33.2	35.8	31.1		34.2	25.0	43.5	34.8		37.8	24.9	13.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	5.7	0.0		363.6	0.0	7.0	2.0		7.6	0.1	0.0
Delay (s)	33.5	41.5	31.1		397.8	25.0	50.5	36.8		45.4	25.0	13.1
Level of Service	C	D	C		F	C	D	D		D	C	B
Approach Delay (s)		37.6			266.7			38.6			27.8	
Approach LOS		D			F			D			C	

Intersection Summary				
HCM 2000 Control Delay	60.1	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.02			
Actuated Cycle Length (s)	95.1	Sum of lost time (s)	15.7	
Intersection Capacity Utilization	52.2%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	125	271	332	180	126	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.5	5.5		4.9	4.9
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3353		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3353		1770	1583
Peak-hour factor, PHF	0.97	0.97	0.90	0.90	0.88	0.88
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	142	307	406	220	158	271
RTOR Reduction (vph)	0	0	113	0	0	220
Lane Group Flow (vph)	142	307	513	0	158	51
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	5.7	26.4	16.3		8.6	8.6
Effective Green, g (s)	5.7	26.4	16.3		8.6	8.6
Actuated g/C Ratio	0.13	0.58	0.36		0.19	0.19
Clearance Time (s)	4.4	5.5	5.5		4.9	4.9
Vehicle Extension (s)	2.0	5.0	5.0		2.0	2.0
Lane Grp Cap (vph)	222	2057	1203		335	299
v/s Ratio Prot	c0.08	0.09	c0.15		c0.09	
v/s Ratio Perm						0.03
v/c Ratio	0.64	0.15	0.43		0.47	0.17
Uniform Delay, d1	18.9	4.4	11.0		16.4	15.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.4	0.1	0.5		0.4	0.1
Delay (s)	23.3	4.4	11.5		16.8	15.5
Level of Service	C	A	B		B	B
Approach Delay (s)		10.4	11.5		16.0	
Approach LOS		B	B		B	

Intersection Summary				
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	45.4	Sum of lost time (s)	14.8	
Intersection Capacity Utilization	44.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	261	74	136	180	58	185
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.86	0.86	0.76	0.76
Hourly flow rate (vph)	346	98	174	230	84	268
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				343		
pX, platoon unblocked						
vC, conflicting volume			444		858	222
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			444		858	222
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			84		66	66
cM capacity (veh/h)			1113		250	782

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	231	213	251	153	352
Volume Left	0	0	174	0	84
Volume Right	0	98	0	0	268
cSH	1700	1700	1113	1700	772
Volume to Capacity	0.14	0.13	0.16	0.09	0.46
Queue Length 95th (ft)	0	0	14	0	60
Control Delay (s)	0.0	0.0	6.6	0.0	13.5
Lane LOS			A		B
Approach Delay (s)	0.0		4.1		13.5
Approach LOS					B

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	161	893	764	485	791	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.9	4.9
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3333		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3333		1770	1583
Peak-hour factor, PHF	0.77	0.77	0.88	0.88	0.61	0.61
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	230	1276	955	606	1426	341
RTOR Reduction (vph)	0	0	78	0	0	73
Lane Group Flow (vph)	230	1276	1483	0	1426	268
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	1	6	2		8	
Permitted Phases						8
Actuated Green, G (s)	10.6	56.1	41.1		64.1	64.1
Effective Green, g (s)	10.6	56.1	41.1		64.1	64.1
Actuated g/C Ratio	0.08	0.43	0.32		0.49	0.49
Clearance Time (s)	4.4	4.9	4.9		4.9	4.9
Vehicle Extension (s)	2.0	3.6	4.0		2.0	2.0
Lane Grp Cap (vph)	144	1527	1053		872	780
v/s Ratio Prot	c0.13	0.36	c0.44		c0.81	
v/s Ratio Perm						0.17
v/c Ratio	1.60	0.84	1.41		1.64	0.34
Uniform Delay, d1	59.7	32.9	44.5		33.0	20.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	298.8	4.3	189.5		291.1	0.1
Delay (s)	358.5	37.1	233.9		324.1	20.2
Level of Service	F	D	F		F	C
Approach Delay (s)		86.2	233.9		265.4	
Approach LOS		F	F		F	

Intersection Summary				
HCM 2000 Control Delay	199.4	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.55			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.2	
Intersection Capacity Utilization	110.2%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	1083	57	296	1108	156	64	84	436	209	62	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.90			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	
Satd. Flow (prot)	1770	3513		1770	3474			1666			1774	
Flt Permitted	0.95	1.00		0.95	1.00			0.91			0.29	
Satd. Flow (perm)	1770	3513		1770	3474			1529			526	
Peak-hour factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93	0.73	0.73	0.73	0.89	0.89	0.89
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	32	1354	71	350	1311	185	96	127	657	258	77	41
RTOR Reduction (vph)	0	3	0	0	7	0	0	71	0	0	3	0
Lane Group Flow (vph)	32	1422	0	350	1489	0	0	809	0	0	373	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4			4		
Actuated Green, G (s)	3.2	46.0		18.6	61.2			71.9			71.9	
Effective Green, g (s)	3.2	46.0		18.6	61.2			71.9			71.9	
Actuated g/C Ratio	0.02	0.30		0.12	0.41			0.48			0.48	
Clearance Time (s)	4.4	4.9		4.4	5.1			5.1			5.1	
Vehicle Extension (s)	2.0	5.3		2.0	5.4			2.0			2.0	
Lane Grp Cap (vph)	37	1070		218	1408			728			250	
v/s Ratio Prot	0.02	c0.40		c0.20	0.43							
v/s Ratio Perm								0.53			c0.71	
v/c Ratio	0.86	1.33		1.61	1.06			1.11			1.49	
Uniform Delay, d1	73.6	52.5		66.2	44.9			39.5			39.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	92.4	154.6		292.8	40.8			68.1			241.2	
Delay (s)	166.1	207.1		359.0	85.6			107.6			280.7	
Level of Service	F	F		F	F			F			F	
Approach Delay (s)		206.2			137.4			107.6			280.7	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM 2000 Control Delay	165.5	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.45			
Actuated Cycle Length (s)	150.9	Sum of lost time (s)	14.6	
Intersection Capacity Utilization	126.0%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	557	803	329	856	918	219	452	369	796	135	260	504
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9		4.9		4.9	4.9			5.2	
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85		0.99		1.00	0.90			0.92	
Flt Protected	0.95	0.99	1.00		0.98		0.95	1.00			0.99	
Satd. Flow (prot)	1681	1751	1583		1797		1770	1672			1709	
Flt Permitted	0.21	0.13	1.00		0.16		0.17	1.00			0.08	
Satd. Flow (perm)	373	226	1583		291		314	1672			141	
Peak-hour factor, PHF	0.87	0.87	0.87	0.62	0.62	0.62	0.86	0.86	0.86	0.84	0.84	0.84
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	704	1015	416	1519	1629	389	578	472	1018	177	340	660
RTOR Reduction (vph)	0	0	143	0	5	0	0	97	0	0	57	0
Lane Group Flow (vph)	429	1290	273	0	3532	0	578	1393	0	0	1120	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			1			8			4	
Permitted Phases	2		2	1			8			4		
Actuated Green, G (s)	19.0	19.0	19.0		18.0		28.3	28.3			28.0	
Effective Green, g (s)	19.0	19.0	19.0		18.0		28.3	28.3			28.0	
Actuated g/C Ratio	0.24	0.24	0.24		0.22		0.35	0.35			0.35	
Clearance Time (s)	4.9	4.9	4.9		4.9		4.9	4.9			5.2	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	88	53	375		65		111	591			49	
v/s Ratio Prot								0.83				
v/s Ratio Perm	1.15	c5.71	0.17		c12.12		1.84				c7.92	
v/c Ratio	4.88	24.34	0.73		54.33		5.21	2.36			22.85	
Uniform Delay, d1	30.5	30.5	28.1		31.0		25.9	25.9			26.0	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	
Incremental Delay, d2	1769.1	10538.1	6.9		24027.5		1913.1	616.0			9872.1	
Delay (s)	1799.6	10568.6	35.1		24058.5		1939.0	641.8			9898.1	
Level of Service	F	F	D		F		F	F			F	
Approach Delay (s)		6754.2			24058.5			1004.4			9898.1	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM 2000 Control Delay	12699.6	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	31.74			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	315.4%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	252	0	89	235	237	0	0	349	418
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6	4.6	4.2	5.0			5.0	5.0
Lane Util. Factor					1.00	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1770	1583	1770	3539			3539	1583
Flt Permitted					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1770	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.77	0.77	0.77	0.90	0.90	0.90	0.91	0.91	0.91
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	0	0	360	0	127	287	290	0	0	422	505
RTOR Reduction (vph)	0	0	0	0	0	88	0	0	0	0	0	371
Lane Group Flow (vph)	0	0	0	0	360	39	287	290	0	0	422	134
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)					17.4	17.4	10.1	29.2			14.9	14.9
Effective Green, g (s)					17.4	17.4	10.1	29.2			14.9	14.9
Actuated g/C Ratio					0.31	0.31	0.18	0.52			0.27	0.27
Clearance Time (s)					4.6	4.6	4.2	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					548	490	318	1838			938	419
v/s Ratio Prot							c0.16	0.08			c0.12	
v/s Ratio Perm					0.20	0.02						0.08
v/c Ratio					0.66	0.08	0.90	0.16			0.45	0.32
Uniform Delay, d1					16.8	13.7	22.6	7.1			17.2	16.6
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					2.8	0.1	27.2	0.0			0.3	0.4
Delay (s)					19.7	13.8	49.7	7.1			17.6	17.0
Level of Service					B	B	D	A			B	B
Approach Delay (s)		0.0			18.1			28.3			17.3	
Approach LOS		A			B			C			B	

Intersection Summary				
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	56.2	Sum of lost time (s)	13.8	
Intersection Capacity Utilization	69.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	0	160	0	0	0	0	331	367	225	399	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6					5.0		4.2	5.0	
Lane Util. Factor		1.00	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.92		1.00	1.00	
Flt Protected		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583					3260		1770	3539	
Flt Permitted		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)		1770	1583					3260		1770	3539	
Peak-hour factor, PHF	0.83	0.83	0.83	0.25	0.25	0.25	0.88	0.88	0.88	0.76	0.76	0.76
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	138	0	212	0	0	0	0	414	459	326	578	0
RTOR Reduction (vph)	0	0	174	0	0	0	0	233	0	0	0	0
Lane Group Flow (vph)	0	138	38	0	0	0	0	640	0	326	578	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4									
Actuated Green, G (s)		9.9	9.9					16.7		15.4	36.3	
Effective Green, g (s)		9.9	9.9					16.7		15.4	36.3	
Actuated g/C Ratio		0.18	0.18					0.30		0.28	0.65	
Clearance Time (s)		4.6	4.6					5.0		4.2	5.0	
Vehicle Extension (s)		3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)		314	280					975		488	2302	
v/s Ratio Prot								c0.20		c0.18	0.16	
v/s Ratio Perm		0.08	0.02									
v/c Ratio		0.44	0.13					0.66		0.67	0.25	
Uniform Delay, d1		20.5	19.3					17.0		17.9	4.1	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		1.0	0.2					1.6		3.5	0.1	
Delay (s)		21.5	19.6					18.6		21.4	4.1	
Level of Service		C	B					B		C	A	
Approach Delay (s)		20.3			0.0			18.6			10.4	
Approach LOS		C			A			B			B	

Intersection Summary				
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	55.8	Sum of lost time (s)	13.8	
Intersection Capacity Utilization	69.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	176	194	306	151	117	201
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.68	0.68	0.81	0.81	0.86	0.86
Hourly flow rate (vph)	285	314	416	205	150	257
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			877			406
pX, platoon unblocked						
vC, conflicting volume	946	310			621	
vC1, stage 1 conf vol	518					
vC2, stage 2 conf vol	428					
vCu, unblocked vol	946	310			621	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	33	54			84	
cM capacity (veh/h)	425	686			956	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	599	277	344	150	129	129
Volume Left	285	0	0	150	0	0
Volume Right	314	0	205	0	0	0
cSH	531	1700	1700	956	1700	1700
Volume to Capacity	1.13	0.16	0.20	0.16	0.08	0.08
Queue Length 95th (ft)	495	0	0	14	0	0
Control Delay (s)	105.8	0.0	0.0	9.5	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	105.8	0.0		3.5		
Approach LOS	F					

Intersection Summary				
Average Delay	39.8			
Intersection Capacity Utilization	55.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	100	44	6	191	97	15
Peak Hour Factor	0.80	0.80	0.60	0.60	0.68	0.68
Hourly flow rate (vph)	138	60	11	350	157	24

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	198	361	181
Volume Left (vph)	0	11	157
Volume Right (vph)	61	0	24
Hadj (s)	-0.15	0.04	0.13
Departure Headway (s)	4.7	4.7	5.3
Degree Utilization, x	0.26	0.47	0.27
Capacity (veh/h)	718	736	612
Control Delay (s)	9.4	11.8	10.3
Approach Delay (s)	9.4	11.8	10.3
Approach LOS	A	B	B

Intersection Summary				
Delay		10.8		
Level of Service		B		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	98	135	74	137	121	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	431	594	326	603	532	163
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1025		1982	728
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1025		1982	728
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			52		0	62
cM capacity (veh/h)			677		35	423

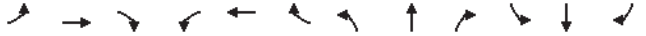
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1025	928	695
Volume Left	0	326	532
Volume Right	594	0	163
cSH	1700	677	45
Volume to Capacity	0.60	0.48	15.57
Queue Length 95th (ft)	0	66	Err
Control Delay (s)	0.0	12.6	Err
Lane LOS		B	F
Approach Delay (s)	0.0	12.6	Err
Approach LOS			F

Intersection Summary				
Average Delay		2628.7		
Intersection Capacity Utilization		47.1%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	111	0	11	131	1	122
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.70	0.70	0.80	0.80
Hourly flow rate (vph)	127	0	17	206	1	168
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			127		368	127
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			127		368	127
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	82
cM capacity (veh/h)			1459		625	923

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	127	223	169
Volume Left	0	17	1
Volume Right	0	0	168
cSH	1700	1459	919
Volume to Capacity	0.07	0.01	0.18
Queue Length 95th (ft)	0	1	17
Control Delay (s)	0.0	0.7	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	0.7	9.8
Approach LOS			A

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	54	216	30	32	153	61	10	42	39	112	97	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	258	36	38	183	73	12	50	47	134	116	128

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	359	294	109	378
Volume Left (vph)	65	38	12	134
Volume Right (vph)	36	73	47	128
Hadj (s)	0.01	-0.09	-0.20	-0.10
Departure Headway (s)	6.1	6.1	6.6	6.1
Degree Utilization, x	0.61	0.50	0.20	0.64
Capacity (veh/h)	546	533	434	559
Control Delay (s)	18.1	15.1	11.3	19.0
Approach Delay (s)	18.1	15.1	11.3	19.0
Approach LOS	C	C	B	C

Intersection Summary			
Delay	17.0		
Level of Service	C		
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	169	71	180	32	45	19	83	68	87	16	113	92
Peak Hour Factor	0.59	0.59	0.59	0.55	0.55	0.55	0.69	0.69	0.69	0.85	0.85	0.85
Hourly flow rate (vph)	315	132	336	64	90	38	132	108	139	21	146	119

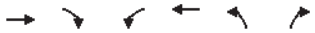
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	783	192	379	286
Volume Left (vph)	315	64	132	21
Volume Right (vph)	336	38	139	119
Hadj (s)	-0.14	-0.02	-0.12	-0.20
Departure Headway (s)	6.8	7.9	7.2	7.4
Degree Utilization, x	1.0	0.42	0.76	0.59
Capacity (veh/h)	524	413	485	455
Control Delay (s)	249.5	16.6	29.7	20.6
Approach Delay (s)	249.5	16.6	29.7	20.6
Approach LOS	F	C	D	C

Intersection Summary				
Delay			131.5	
Level of Service			F	
Intersection Capacity Utilization			71.7%	ICU Level of Service
Analysis Period (min)			15	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	95	0	13	10	7	367	0	0	0	15	223	45
Peak Hour Factor	0.97	0.97	0.97	0.64	0.64	0.64	0.38	0.38	0.38	0.72	0.72	0.72
Hourly flow rate (vph)	108	0	15	17	12	631	0	0	0	23	341	69

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	122	660	432
Volume Left (vph)	108	17	23
Volume Right (vph)	15	631	69
Hadj (s)	0.14	-0.53	-0.05
Departure Headway (s)	6.4	5.0	5.9
Degree Utilization, x	0.22	0.91	0.71
Capacity (veh/h)	527	714	591
Control Delay (s)	11.2	37.6	21.7
Approach Delay (s)	11.2	37.6	21.7
Approach LOS	B	E	C

Intersection Summary				
Delay			29.3	
Level of Service			D	
Intersection Capacity Utilization			59.5%	ICU Level of Service
Analysis Period (min)			15	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	13	0	0	105	308	42
Peak Hour Factor	0.70	0.70	0.53	0.53	0.60	0.60
Hourly flow rate (vph)	20	0	0	218	565	77

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	20	218	642
Volume Left (vph)	0	0	565
Volume Right (vph)	0	0	77
Hadj (s)	0.03	0.03	0.14
Departure Headway (s)	6.0	5.6	4.7
Degree Utilization, x	0.03	0.34	0.85
Capacity (veh/h)	561	604	747
Control Delay (s)	9.2	11.5	28.0
Approach Delay (s)	9.2	11.5	28.0
Approach LOS	A	B	D

Intersection Summary				
Delay	23.5			
Level of Service	C			
Intersection Capacity Utilization	34.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	67	44	21	332	269	27
Peak Hour Factor	0.72	0.72	0.62	0.62	0.56	0.56
Hourly flow rate (vph)	102	67	37	589	528	53

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total (vph)	170	626	528	53
Volume Left (vph)	102	0	528	0
Volume Right (vph)	0	589	0	53
Hadj (s)	0.15	-0.53	0.23	-0.57
Departure Headway (s)	7.1	5.6	6.4	3.2
Degree Utilization, x	0.34	0.98	0.95	0.05
Capacity (veh/h)	499	629	551	1121
Control Delay (s)	13.7	53.5	50.9	6.4
Approach Delay (s)	13.7	53.5	46.8	
Approach LOS	B	F	E	

Intersection Summary				
Delay	45.8			
Level of Service	E			
Intersection Capacity Utilization	56.8%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	228	67	65	140	198	166	237	577	221	139	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9	4.4	4.9	4.9	4.4	5.5	4.4	4.4	5.4	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.65	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1206	1863	1583	552	1863	1583
Peak-hour factor, PHF	0.81	0.81	0.81	0.84	0.84	0.84	0.79	0.79	0.79	0.80	0.80	0.80
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	58	281	83	77	167	236	210	300	730	276	174	89
RTOR Reduction (vph)	0	0	62	0	0	165	0	0	216	0	0	0
Lane Group Flow (vph)	58	281	21	77	167	71	210	300	514	276	174	89
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6	8		8	4		Free
Actuated Green, G (s)	3.8	17.3	17.3	7.5	21.0	21.0	19.6	15.5	23.0	30.1	21.6	69.6
Effective Green, g (s)	3.8	17.3	17.3	7.5	21.0	21.0	19.6	15.5	23.0	30.1	21.6	69.6
Actuated g/C Ratio	0.05	0.25	0.25	0.11	0.30	0.30	0.28	0.22	0.33	0.43	0.31	1.00
Clearance Time (s)	4.4	4.9	4.9	4.4	4.9	4.9	4.4	5.5	4.4	4.4	5.4	
Vehicle Extension (s)	2.0	2.9	2.9	2.0	2.9	2.9	2.0	3.9	2.0	2.0	3.9	
Lane Grp Cap (vph)	96	463	393	190	562	477	372	414	523	415	578	1583
v/s Ratio Prot	0.03	c0.15		0.04	c0.09		0.03	0.16	c0.11	c0.10	0.09	
v/s Ratio Perm			0.01			0.04	0.13		0.22	0.19		0.06
v/c Ratio	0.60	0.61	0.05	0.41	0.30	0.15	0.56	0.72	0.98	0.67	0.30	0.06
Uniform Delay, d1	32.2	23.1	19.9	29.0	18.6	17.8	20.6	25.1	23.1	14.2	18.3	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.2	2.2	0.1	0.5	0.3	0.1	1.2	6.6	34.8	3.1	0.4	0.1
Delay (s)	39.3	25.3	20.0	29.5	18.9	17.9	21.8	31.6	57.9	17.3	18.6	0.1
Level of Service	D	C	B	C	B	B	C	C	E	B	B	A
Approach Delay (s)		26.2			20.1			45.4			14.9	
Approach LOS		C			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	69.6	Sum of lost time (s)	19.2	
Intersection Capacity Utilization	71.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	320	707	475	253	139	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.2	4.6	4.6	4.6
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	1770	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.96	0.96	0.81	0.81
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	383	845	544	290	189	185
RTOR Reduction (vph)	0	67	0	0	0	132
Lane Group Flow (vph)	383	778	544	290	189	53
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Actuated Green, G (s)	8.0	23.8	17.8	30.0	15.8	15.8
Effective Green, g (s)	8.0	23.8	17.8	30.0	15.8	15.8
Actuated g/C Ratio	0.15	0.43	0.32	0.55	0.29	0.29
Clearance Time (s)	4.6	4.6	4.2	4.6	4.6	4.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	514	817	572	1930	508	454
v/s Ratio Prot	0.11	c0.27	c0.31	0.08	0.11	
v/s Ratio Perm		0.22				0.03
v/c Ratio	0.75	0.95	0.95	0.15	0.37	0.12
Uniform Delay, d1	22.5	15.1	18.2	6.2	15.6	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	20.6	25.9	0.0	0.5	0.1
Delay (s)	28.3	35.7	44.0	6.2	16.1	14.6
Level of Service	C	D	D	A	B	B
Approach Delay (s)	33.4			30.9	15.3	
Approach LOS	C			C	B	

Intersection Summary				
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	1.06			
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	84.4%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	77	237	412	90	109	319
Sign Control	Stop		Free			Free
Grade	0%		15%			0%
Peak Hour Factor	0.80	0.80	0.86	0.86	0.82	0.82
Hourly flow rate (vph)	96	296	479	105	133	389
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						525
pX, platoon unblocked	0.88					
vC, conflicting volume	1186	531			584	
vC1, stage 1 conf vol	531					
vC2, stage 2 conf vol	655					
vCu, unblocked vol	1143	531			584	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	46			87	
cM capacity (veh/h)	379	548			991	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	96	296	584	133	389
Volume Left	96	0	0	133	0
Volume Right	0	296	105	0	0
cSH	379	548	1700	991	1700
Volume to Capacity	0.25	0.54	0.34	0.13	0.23
Queue Length 95th (ft)	25	80	0	12	0
Control Delay (s)	17.7	19.0	0.0	9.2	0.0
Lane LOS	C	C		A	
Approach Delay (s)	18.7		0.0	2.3	
Approach LOS	C				

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	48.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	24	265	5	5	315	55	1	0	0	101	0	67
Peak Hour Factor	0.89	0.89	0.89	0.90	0.90	0.90	0.25	0.25	0.25	0.71	0.71	0.71
Hourly flow rate (vph)	30	328	6	6	385	67	4	0	0	156	0	104

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	30	334	391	67	4	260
Volume Left (vph)	30	0	6	0	4	156
Volume Right (vph)	0	6	0	67	0	104
Hadj (s)	0.53	0.02	0.04	-0.67	0.23	-0.09
Departure Headway (s)	6.5	6.0	5.9	5.2	6.9	5.9
Degree Utilization, x	0.05	0.55	0.64	0.10	0.01	0.42
Capacity (veh/h)	525	583	594	667	420	565
Control Delay (s)	8.7	14.9	17.5	7.5	10.0	13.1
Approach Delay (s)	14.4		16.1		10.0	13.1
Approach LOS	B		C		A	B

Intersection Summary				
Delay	14.8			
Level of Service	B			
Intersection Capacity Utilization	38.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	199	8	4	345	32	2	14	6	50	12	186
Sign Control		Free			Free			Stop			Stop	
Grade		0%			15%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.38	0.38	0.38	0.86	0.86	0.86
Hourly flow rate (vph)	55	231	9	5	401	37	5	37	16	58	14	216
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					579							
pX, platoon unblocked	0.92						0.92	0.92		0.92	0.92	0.92
vC, conflicting volume	438			241			979	793	236	804	779	420
vC1, stage 1 conf vol							345	345		429	429	
vC2, stage 2 conf vol							634	448		375	350	
vCu, unblocked vol	345			241			933	731	236	743	715	324
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			98	92	98	88	97	67
cM capacity (veh/h)	1116			1326			244	460	803	470	487	659

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	55	241	5	438	58	288
Volume Left	55	0	5	0	5	58
Volume Right	0	9	0	37	16	216
cSH	1116	1700	1326	1700	477	600
Volume to Capacity	0.05	0.14	0.00	0.26	0.12	0.48
Queue Length 95th (ft)	4	0	0	0	10	65
Control Delay (s)	8.4	0.0	7.7	0.0	13.6	16.4
Lane LOS	A		A		B	C
Approach Delay (s)	1.6		0.1		13.6	16.4
Approach LOS					B	C

Intersection Summary				
Average Delay	5.6			
Intersection Capacity Utilization	55.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	232	3	5	279	198	5	5	9	215	3	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9			4.9	4.9		4.9			4.9	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.93			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.96	
Satd. Flow (prot)	1770	1859			1861	1583		1719			1748	
Flt Permitted	0.51	1.00			0.99	1.00		0.89			0.74	
Satd. Flow (perm)	954	1859			1848	1583		1557			1354	
Peak-hour factor, PHF	0.83	0.83	0.83	0.91	0.91	0.91	0.65	0.65	0.65	0.73	0.73	0.73
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	52	307	4	6	337	239	8	8	15	324	5	68
RTOR Reduction (vph)	0	1	0	0	0	153	0	9	0	0	16	0
Lane Group Flow (vph)	52	310	0	0	343	86	0	22	0	0	381	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	13.2	13.2			13.2	13.2		15.3			15.3	
Effective Green, g (s)	13.2	13.2			13.2	13.2		15.3			15.3	
Actuated g/C Ratio	0.34	0.34			0.34	0.34		0.40			0.40	
Clearance Time (s)	4.9	4.9			4.9	4.9		4.9			4.9	
Vehicle Extension (s)	2.5	2.5			2.5	2.5		2.0			2.0	
Lane Grp Cap (vph)	328	640			636	545		621			540	
v/s Ratio Prot		0.17										
v/s Ratio Perm	0.05				c0.19	0.05		0.01			c0.28	
v/c Ratio	0.16	0.48			0.54	0.16		0.04			0.71	
Uniform Delay, d1	8.7	9.9			10.1	8.7		7.0			9.6	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.2	0.4			0.7	0.1		0.0			3.4	
Delay (s)	8.9	10.3			10.8	8.8		7.0			13.1	
Level of Service	A	B			B	A		A			B	
Approach Delay (s)		10.1			10.0			7.0			13.1	
Approach LOS		B			A			A			B	

Intersection Summary				
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	38.3	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	65.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	244	167	362	206	0	275	0	510	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.9	4.4	4.9			4.4	4.4			
Lane Util. Factor		0.95	1.00	0.97	1.00			1.00	1.00			
Frt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3539	1583	3433	1863			1770	1583			
Flt Permitted		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)		3539	1583	3433	1863			1770	1583			
Peak-hour factor, PHF	0.70	0.70	0.70	0.92	0.92	0.92	0.87	0.87	0.87	0.25	0.25	0.25
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	383	262	433	246	0	348	0	645	0	0	0
RTOR Reduction (vph)	0	0	190	0	0	0	0	0	102	0	0	0
Lane Group Flow (vph)	0	383	73	433	246	0	0	348	543	0	0	0
Turn Type		NA	Perm	Prot	NA		Split	NA	pm+ov			Perm
Protected Phases		2		1	6		8	8	1			
Permitted Phases			2						8			8 2 6
Actuated Green, G (s)		14.5	14.5	9.5	28.4			14.7	24.2			
Effective Green, g (s)		14.5	14.5	9.5	28.4			14.7	24.2			
Actuated g/C Ratio		0.28	0.28	0.18	0.54			0.28	0.46			
Clearance Time (s)		4.9	4.9	4.4	4.9			4.4	4.4			
Vehicle Extension (s)		4.8	4.8	2.0	4.8			2.0	2.0			
Lane Grp Cap (vph)		979	438	622	1009			496	864			
v/s Ratio Prot		c0.11		0.13	0.13			0.20	c0.11			
v/s Ratio Perm			0.05						0.23			
v/c Ratio		0.39	0.17	0.70	0.24			0.70	0.63			
Uniform Delay, d1		15.4	14.4	20.1	6.3			16.9	10.7			
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2		0.5	0.3	2.7	0.2			3.7	1.0			
Delay (s)		15.9	14.7	22.8	6.6			20.5	11.7			
Level of Service		B	B	C	A			C	B			
Approach Delay (s)		15.4			16.9			14.8			0.0	
Approach LOS		B			B			B			A	

Intersection Summary				
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	13.7	
Intersection Capacity Utilization	50.8%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	776	576	0	0	158
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.96	0.96	0.70	0.70
Hourly flow rate (vph)	0	970	660	0	0	248
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		233	383			
pX, platoon unblocked					0.92	
vC, conflicting volume	660				1145	330
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	660				993	330
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	63
cM capacity (veh/h)	924				224	666

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	485	485	330	330	248
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	248
cSH	1700	1700	1700	1700	666
Volume to Capacity	0.29	0.29	0.19	0.19	0.37
Queue Length 95th (ft)	0	0	0	0	43
Control Delay (s)	0.0	0.0	0.0	0.0	13.6
Lane LOS					B
Approach Delay (s)	0.0		0.0		13.6
Approach LOS					B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	36.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	191	651	554	46	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.42	0.42
Hourly flow rate (vph)	233	796	662	55	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		382	234			
pX, platoon unblocked					0.97	
vC, conflicting volume	717				1555	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	717				1517	359
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	73				100	100
cM capacity (veh/h)	879				79	638

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	233	398	398	442	276
Volume Left	233	0	0	0	0
Volume Right	0	0	0	0	55
cSH	879	1700	1700	1700	1700
Volume to Capacity	0.27	0.23	0.23	0.26	0.16
Queue Length 95th (ft)	27	0	0	0	0
Control Delay (s)	10.6	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	2.4			0.0	
Approach LOS					

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	36.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	709	157	57	331	0	0	0	0	317	1	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.2	4.6					4.6	4.6	4.6
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.93	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1532	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.98	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1532	1504
Peak-hour factor, PHF	0.94	0.94	0.94	0.81	0.81	0.81	0.25	0.25	0.25	0.78	0.78	0.78
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	830	184	77	450	0	0	0	0	447	1	419
RTOR Reduction (vph)	0	0	53	0	0	0	0	0	0	0	48	205
Lane Group Flow (vph)	0	830	131	77	450	0	0	0	0	299	243	72
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		2		1	6					4	4	
Permitted Phases			2									4
Actuated Green, G (s)		45.0	45.0	4.6	53.8					22.0	22.0	22.0
Effective Green, g (s)		45.0	45.0	4.6	53.8					22.0	22.0	22.0
Actuated g/C Ratio		0.53	0.53	0.05	0.63					0.26	0.26	0.26
Clearance Time (s)		4.6	4.6	4.2	4.6					4.6	4.6	4.6
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1873	838	185	2239					435	396	389
v/s Ratio Prot		c0.23		c0.02	0.13					c0.18	0.16	
v/s Ratio Perm			0.08									0.05
v/c Ratio		0.44	0.16	0.42	0.20					0.69	0.61	0.18
Uniform Delay, d1		12.3	10.3	38.9	6.6					28.4	27.8	24.5
Progression Factor		1.00	1.00	1.00	0.68					1.00	1.00	1.00
Incremental Delay, d2		0.8	0.4	1.3	0.2					4.5	2.8	0.2
Delay (s)		13.1	10.7	40.4	4.7					32.9	30.6	24.7
Level of Service		B	B	D	A					C	C	C
Approach Delay (s)		12.6			9.9			0.0			29.5	
Approach LOS		B			A			A			C	

Intersection Summary				
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)		13.4
Intersection Capacity Utilization	49.9%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	223	753	0	0	378	424	70	0	268	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6			4.6			4.6	4.6			
Lane Util. Factor	0.97	0.95			0.95			1.00	1.00			
Frt	1.00	1.00			0.92			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	3539			3258			1770	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	3539			3258			1770	1583			
Peak-hour factor, PHF	0.95	0.95	0.95	0.82	0.82	0.82	0.85	0.85	0.85	0.25	0.25	0.25
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	258	872	0	0	507	569	91	0	347	0	0	0
RTOR Reduction (vph)	0	0	0	0	184	0	0	0	101	0	0	0
Lane Group Flow (vph)	258	872	0	0	892	0	0	91	246	0	0	0
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases							4		4			
Actuated Green, G (s)	9.5	57.6			43.9			18.2	18.2			
Effective Green, g (s)	9.5	57.6			43.9			18.2	18.2			
Actuated g/C Ratio	0.11	0.68			0.52			0.21	0.21			
Clearance Time (s)	4.2	4.6			4.6			4.6	4.6			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	383	2398			1682			378	338			
v/s Ratio Prot	c0.08	0.25			c0.27							
v/s Ratio Perm								0.05	c0.16			
v/c Ratio	0.67	0.36			0.53			0.24	0.73			
Uniform Delay, d1	36.3	5.9			13.7			27.7	31.1			
Progression Factor	0.80	0.45			1.00			1.00	1.00			
Incremental Delay, d2	4.2	0.4			1.2			0.3	7.6			
Delay (s)	33.2	3.0			14.9			28.0	38.7			
Level of Service	C	A			B			C	D			
Approach Delay (s)		9.9			14.9			36.4			0.0	
Approach LOS		A			B			D			A	

Intersection Summary				
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	49.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	274	620	0	383	156	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.92	
Flt Protected	1.00	1.00		1.00	0.98	
Satd. Flow (prot)	1863	1583		1863	1677	
Flt Permitted	1.00	1.00		1.00	0.98	
Satd. Flow (perm)	1863	1583		1863	1677	
Peak-hour factor, PHF	0.89	0.89	0.81	0.81	0.67	0.67
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	339	766	0	520	256	396
RTOR Reduction (vph)	0	602	0	0	62	0
Lane Group Flow (vph)	339	164	0	520	590	0
Turn Type	NA	Perm		NA	Prot	
Protected Phases	2			6	8	
Permitted Phases		2				
Actuated Green, G (s)	19.1	19.1		25.1	30.1	
Effective Green, g (s)	19.1	19.1		25.1	30.1	
Actuated g/C Ratio	0.21	0.21		0.28	0.34	
Clearance Time (s)	4.9	4.9		4.9	4.9	
Vehicle Extension (s)	2.5	2.5		2.5	2.0	
Lane Grp Cap (vph)	399	339		525	567	
v/s Ratio Prot	c0.18			c0.28	c0.35	
v/s Ratio Perm		0.10				
v/c Ratio	0.85	0.48		0.99	1.04	
Uniform Delay, d1	33.6	30.6		31.8	29.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.2	0.8		36.7	49.0	
Delay (s)	48.8	31.4		68.5	78.4	
Level of Service	D	C		E	E	
Approach Delay (s)	36.8			68.5	78.4	
Approach LOS	D			E	E	

Intersection Summary				
HCM 2000 Control Delay	55.9	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	89.0	Sum of lost time (s)	14.7	
Intersection Capacity Utilization	56.1%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	380	20	167	342	3	16	0	140	2	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9			4.9	4.9		4.9	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1770	1849		1770	3535			1770	1583		1719	
Flt Permitted	0.95	1.00		0.95	1.00			0.75	1.00		0.93	
Satd. Flow (perm)	1770	1849		1770	3535			1394	1583		1609	
Peak-hour factor, PHF	0.84	0.84	0.84	0.74	0.74	0.74	0.73	0.73	0.73	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	5	498	26	248	508	4	24	0	211	3	4	7
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	189	0	6	0
Lane Group Flow (vph)	5	522	0	248	512	0	0	24	22	0	8	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	0.6	25.6		13.2	38.2			6.2	6.2		6.2	
Effective Green, g (s)	0.6	25.6		13.2	38.2			6.2	6.2		6.2	
Actuated g/C Ratio	0.01	0.43		0.22	0.65			0.10	0.10		0.10	
Clearance Time (s)	4.4	4.9		4.4	4.9			4.9	4.9		4.9	
Vehicle Extension (s)	2.0	3.2		2.0	2.1			2.0	2.0		2.0	
Lane Grp Cap (vph)	17	799		394	2281			145	165		168	
v/s Ratio Prot	0.00	c0.28		c0.14	0.14							
v/s Ratio Perm								c0.02	0.01		0.00	
v/c Ratio	0.29	0.65		0.63	0.22			0.17	0.13		0.05	
Uniform Delay, d1	29.1	13.3		20.8	4.4			24.1	24.1		23.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	3.5	2.0		2.3	0.0			0.2	0.1		0.0	
Delay (s)	32.6	15.3		23.1	4.4			24.3	24.2		23.9	
Level of Service	C	B		C	A			C	C		C	
Approach Delay (s)		15.4			10.5			24.2			23.9	
Approach LOS		B			B			C			C	

Intersection Summary				
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	14.2	
Intersection Capacity Utilization	49.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	235	158	48	67	16	263	141	277	51	89	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9	4.4	4.9		4.9	4.9	4.9		5.8	4.0
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539	2787	1770	3438		1681	1743	1583		1830	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539	2787	1770	3438		1681	1743	1583		1830	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.83	0.83	0.83	0.86	0.86	0.86	0.65	0.65	0.65
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	127	287	193	64	89	21	336	180	354	86	151	103
RTOR Reduction (vph)	0	0	103	0	18	0	0	0	271	0	0	0
Lane Group Flow (vph)	127	287	90	64	92	0	255	261	83	0	237	103
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA	Perm	Split	NA	Free
Protected Phases	5	2	3	1	6		3	3		4	4	
Permitted Phases			2						3			Free
Actuated Green, G (s)	10.3	17.1	34.6	5.2	12.0		17.5	17.5	17.5		14.8	74.6
Effective Green, g (s)	10.3	17.1	34.6	5.2	12.0		17.5	17.5	17.5		14.8	74.6
Actuated g/C Ratio	0.14	0.23	0.46	0.07	0.16		0.23	0.23	0.23		0.20	1.00
Clearance Time (s)	4.4	4.9	4.9	4.4	4.9		4.9	4.9	4.9		5.8	
Vehicle Extension (s)	2.0	6.0	2.0	2.0	3.1		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	244	811	1475	123	553		394	408	371		363	1583
v/s Ratio Prot	c0.07	c0.08	0.01	0.04	0.03		c0.15	0.15			c0.13	
v/s Ratio Perm			0.02						0.05			0.07
v/c Ratio	0.52	0.35	0.06	0.52	0.17		0.65	0.64	0.22		0.65	0.07
Uniform Delay, d1	29.9	24.1	11.0	33.5	27.0		25.8	25.7	23.1		27.5	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.8	0.0	1.8	0.1		2.7	2.4	0.1		3.2	0.1
Delay (s)	30.8	24.9	11.0	35.3	27.1		28.5	28.1	23.2		30.7	0.1
Level of Service	C	C	B	D	C		C	C	C		C	A
Approach Delay (s)		21.7			30.1			26.2			21.4	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	74.6	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	49.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	197	485	167	73	0	0	0	0	0	131	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0						4.0	
Lane Util. Factor	1.00	1.00			1.00						1.00	
Frt	1.00	0.89			1.00						0.98	
Flt Protected	0.95	1.00			0.97						1.00	
Satd. Flow (prot)	1770	1664			1800						1816	
Flt Permitted	0.95	1.00			0.97						1.00	
Satd. Flow (perm)	1770	1664			1800						1816	
Peak-hour factor, PHF	0.90	0.90	0.90	0.79	0.79	0.79	0.25	0.25	0.25	0.78	0.78	0.78
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	244	241	593	233	102	0	0	0	0	0	185	42
RTOR Reduction (vph)	0	98	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	244	736	0	0	335	0	0	0	0	0	218	0
Turn Type	Split	NA		Split	NA						NA	
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	40.0	40.0			17.7						14.2	
Effective Green, g (s)	40.0	40.0			17.7						14.2	
Actuated g/C Ratio	0.48	0.48			0.21						0.17	
Clearance Time (s)	4.0	4.0			4.0						4.0	
Vehicle Extension (s)	3.0	3.0			3.0						3.0	
Lane Grp Cap (vph)	843	793			379						307	
v/s Ratio Prot	0.14	c0.44			c0.19						c0.12	
v/s Ratio Perm												
v/c Ratio	0.29	0.93			0.88						0.71	
Uniform Delay, d1	13.3	20.6			32.1						32.9	
Progression Factor	1.00	1.00			1.00						1.00	
Incremental Delay, d2	0.2	16.8			20.9						7.3	
Delay (s)	13.5	37.3			53.0						40.2	
Level of Service	B	D			D						D	
Approach Delay (s)		32.0			53.0			0.0			40.2	
Approach LOS		C			D			A			D	

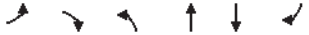
Intersection Summary				
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	83.9	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	78.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	80	0	215	308	519	0	0	275	272
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.88	0.88	0.88	0.82	0.82	0.82	0.78	0.78	0.78
Hourly flow rate (vph)	0	0	0	100	0	269	413	696	0	0	388	384
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								312			223	
pX, platoon unblocked	0.47	0.47		0.47	0.47	0.47				0.47		
vC, conflicting volume	2102	2102	386	1716	2294	696	771			696		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2786	2786	386	1962	3196	0	771			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	0	100	47	51			100		
cM capacity (veh/h)	1	4	613	11	2	508	839			759		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	369	413	696	259	513
Volume Left	100	413	0	0	0
Volume Right	269	0	0	0	384
cSH	38	839	1700	1700	1700
Volume to Capacity	9.76	0.49	0.41	0.15	0.30
Queue Length 95th (ft)	Err	69	0	0	0
Control Delay (s)	Err	13.4	0.0	0.0	0.0
Lane LOS	F	B			
Approach Delay (s)	Err	5.0		0.0	
Approach LOS	F				

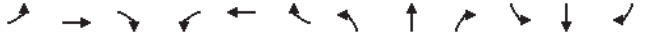
Intersection Summary				
Average Delay	1641.5			
Intersection Capacity Utilization	57.5%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	97	349	0	759	401	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00		1.00	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		1863	3539	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		1863	3539	
Peak-hour factor, PHF	0.79	0.79	0.70	0.70	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	135	486	0	1193	588	0
RTOR Reduction (vph)	0	222	0	0	0	0
Lane Group Flow (vph)	135	264	0	1193	588	0
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	4			3	
Permitted Phases		3 4		7		
Actuated Green, G (s)	21.5	65.2		69.8	43.7	
Effective Green, g (s)	21.5	65.2		69.8	43.7	
Actuated g/C Ratio	0.18	0.54		0.58	0.36	
Clearance Time (s)	4.6	4.6		4.6	4.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	317	920		1083	1288	
v/s Ratio Prot	0.08	0.05			0.17	
v/s Ratio Perm		0.12		c0.64		
v/c Ratio	0.43	0.29		1.10	0.46	
Uniform Delay, d1	43.8	14.8		25.1	29.1	
Progression Factor	1.00	1.00		1.08	1.00	
Incremental Delay, d2	0.9	0.2		53.1	0.3	
Delay (s)	44.7	15.0		80.1	29.4	
Level of Service	D	B		F	C	
Approach Delay (s)	21.5			80.1	29.4	
Approach LOS	C			F	C	

Intersection Summary				
HCM 2000 Control Delay	52.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	57.5%	ICU Level of Service	B	
Analysis Period (min)	15			

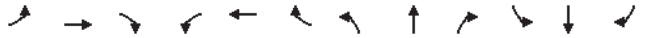
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	183	31	13	163	686	20	25	27	406	13	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6			4.6	4.6	4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.92		1.00	0.86	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1822			1856	1583	1770	1717		1770	1603	
Flt Permitted	0.95	1.00			0.58	1.00	0.57	1.00		0.71	1.00	
Satd. Flow (perm)	1770	1822			1072	1583	1066	1717		1322	1603	
Peak-hour factor, PHF	0.81	0.81	0.81	0.85	0.85	0.85	0.79	0.79	0.79	0.81	0.81	0.81
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	340	249	42	17	211	888	28	35	38	551	18	234
RTOR Reduction (vph)	0	5	0	0	0	259	0	16	0	0	98	0
Lane Group Flow (vph)	340	286	0	0	228	629	28	57	0	551	154	0
Turn Type	Prot	NA		Perm	NA	custom	Perm	NA		Perm	NA	
Protected Phases	5	2			6			7			3 4	
Permitted Phases				6		3 6	7			3 4		
Actuated Green, G (s)	20.8	41.0			16.0	64.3	69.8	69.8		69.8	69.8	
Effective Green, g (s)	20.8	41.0			16.0	64.3	69.8	69.8		69.8	69.8	
Actuated g/C Ratio	0.17	0.34			0.13	0.54	0.58	0.58		0.58	0.58	
Clearance Time (s)	4.2	4.6			4.6		4.6	4.6				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	306	622			142	848	620	998		768	932	
v/s Ratio Prot	c0.19	0.16						0.03			0.10	
v/s Ratio Perm					c0.21	c0.40	0.03			c0.42		
v/c Ratio	1.11	0.46			1.61	0.74	0.05	0.06		0.72	0.17	
Uniform Delay, d1	49.6	30.8			52.0	21.5	10.8	10.9		18.0	11.6	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		0.54	0.01	
Incremental Delay, d2	84.7	0.5			302.8	3.5	0.0	0.0		2.9	0.1	
Delay (s)	134.3	31.4			354.8	25.0	10.8	10.9		12.7	0.1	
Level of Service	F	C			F	C	B	B		B	A	
Approach Delay (s)		86.8			92.4			10.9			8.7	
Approach LOS		F			F			B			A	

Intersection Summary				
HCM 2000 Control Delay	62.6	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	76.8%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	443	0	287	0	0	0	0	469	149	140	124	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6					4.6	4.6	4.2	4.6	
Lane Util. Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1770	1583					1863	1583	1770	1863	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1770	1583					1863	1583	1770	1863	
Peak-hour factor, PHF	0.80	0.80	0.80	0.50	0.50	0.50	0.88	0.88	0.88	0.81	0.81	0.81
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	554	0	359	0	0	0	0	533	169	173	153	0
RTOR Reduction (vph)	0	0	230	0	0	0	0	0	64	0	0	0
Lane Group Flow (vph)	0	554	129	0	0	0	0	533	105	173	153	0
Turn Type	Split	NA	Prot					NA	Perm	Prot	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases									2			
Actuated Green, G (s)		29.1	29.1					27.2	27.2	11.2	42.6	
Effective Green, g (s)		29.1	29.1					27.2	27.2	11.2	42.6	
Actuated g/C Ratio		0.36	0.36					0.34	0.34	0.14	0.53	
Clearance Time (s)		4.6	4.6					4.6	4.6	4.2	4.6	
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		636	569					626	532	245	981	
v/s Ratio Prot		c0.31	0.08					c0.29		c0.10	0.08	
v/s Ratio Perm									0.07			
v/c Ratio		0.87	0.23					0.85	0.20	0.71	0.16	
Uniform Delay, d1		24.2	18.1					25.0	19.1	33.3	9.9	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		12.5	0.2					10.8	0.2	8.9	0.1	
Delay (s)		36.6	18.3					35.8	19.3	42.2	10.0	
Level of Service		D	B					D	B	D	A	
Approach Delay (s)		29.4			0.0			31.8			27.1	
Approach LOS		C			A			C			C	

Intersection Summary				
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	68.2%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	290	27	13	316	165	150
Peak Hour Factor	0.77	0.77	0.82	0.82	0.80	0.80
Hourly flow rate (vph)	377	35	16	385	206	188

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	412	401	394
Volume Left (vph)	377	16	0
Volume Right (vph)	35	0	188
Hadj (s)	0.17	0.04	-0.25
Departure Headway (s)	6.3	6.1	5.8
Degree Utilization, x	0.72	0.67	0.63
Capacity (veh/h)	542	568	583
Control Delay (s)	23.7	20.7	18.3
Approach Delay (s)	23.7	20.7	18.3
Approach LOS	C	C	C

Intersection Summary			
Delay	20.9		
Level of Service	C		
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	346	17	1	158	29
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.75	0.75	0.79	0.79
Hourly flow rate (vph)	7	428	25	1	220	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	506	26			26	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	506	26			26	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	59			86	
cM capacity (veh/h)	453	1050			1588	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	7	428	26	260
Volume Left	7	0	0	220
Volume Right	0	428	1	0
cSH	453	1050	1700	1588
Volume to Capacity	0.02	0.41	0.02	0.14
Queue Length 95th (ft)	1	50	0	12
Control Delay (s)	13.1	10.8	0.0	6.6
Lane LOS	B	B		A
Approach Delay (s)	10.8		0.0	6.6
Approach LOS	B			

Intersection Summary				
Average Delay		8.9		
Intersection Capacity Utilization		33.6%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	4	210	109	3	77	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.3		4.0	5.3
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3525		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3525		1770	3539
Peak-hour factor, PHF	0.71	0.71	0.80	0.80	0.87	0.87
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	6	325	150	4	97	167
RTOR Reduction (vph)	0	265	3	0	0	0
Lane Group Flow (vph)	6	60	151	0	97	167
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	5.9	5.9	9.0		3.6	16.6
Effective Green, g (s)	5.9	5.9	9.0		3.6	16.6
Actuated g/C Ratio	0.19	0.19	0.28		0.11	0.52
Clearance Time (s)	4.0	4.0	5.3		4.0	5.3
Vehicle Extension (s)	2.0	2.0	3.6		2.0	3.6
Lane Grp Cap (vph)	328	293	997		200	1847
v/s Ratio Prot	0.00		c0.04		c0.05	0.05
v/s Ratio Perm		c0.04				
v/c Ratio	0.02	0.21	0.15		0.48	0.09
Uniform Delay, d1	10.6	11.0	8.5		13.2	3.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.1	0.1		0.7	0.0
Delay (s)	10.6	11.1	8.6		13.9	3.8
Level of Service	B	B	A		B	A
Approach Delay (s)	11.1		8.6			7.5
Approach LOS	B		A			A

Intersection Summary				
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.23			
Actuated Cycle Length (s)	31.8	Sum of lost time (s)	13.3	
Intersection Capacity Utilization	27.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	122	11	17	96	177	5	28	15	161	46	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.90		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3497		1770	3195		1770	1763		1770	1723	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3497		1770	3195		1770	1763		1770	1723	
Peak-hour factor, PHF	0.90	0.90	0.90	0.71	0.71	0.71	0.80	0.80	0.80	0.89	0.89	0.89
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	84	149	13	26	149	274	7	38	21	199	57	57
RTOR Reduction (vph)	0	9	0	0	218	0	0	17	0	0	36	0
Lane Group Flow (vph)	84	153	0	26	205	0	7	42	0	199	78	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	3.4	13.4		0.6	10.6		0.6	9.9		9.8	19.1	
Effective Green, g (s)	3.4	13.4		0.6	10.6		0.6	9.9		9.8	19.1	
Actuated g/C Ratio	0.07	0.26		0.01	0.20		0.01	0.19		0.19	0.37	
Clearance Time (s)	4.4	4.9		4.4	4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)	2.0	3.3		2.0	3.3		2.0	2.0		2.0	2.7	
Lane Grp Cap (vph)	115	895		20	647		20	333		331	629	
v/s Ratio Prot	c0.05	c0.04		0.01	c0.06		0.00	0.02		c0.11	c0.05	
v/s Ratio Perm												
v/c Ratio	0.73	0.17		1.30	0.32		0.35	0.13		0.60	0.12	
Uniform Delay, d1	24.0	15.1		25.8	17.8		25.7	17.6		19.5	11.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.4	0.1		306.7	0.3		3.8	0.1		2.1	0.1	
Delay (s)	42.4	15.2		332.5	18.1		29.5	17.7		21.6	11.1	
Level of Service	D	B		F	B		C	B		C	B	
Approach Delay (s)		24.5			36.3			18.9			17.8	
Approach LOS		C			D			B			B	

Intersection Summary				
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.38			
Actuated Cycle Length (s)	52.3	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	41.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	269	4	7	176	84	5	2	26	297	30	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6		4.2	4.6	4.6	4.2	4.6	4.2	4.6	4.6	4.2
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3531		1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3531		1770	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.67	0.67	0.67	0.86	0.86	0.86	0.81	0.81	0.81	0.84	0.84	0.84
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	105	442	7	9	225	107	7	3	35	389	39	445
RTOR Reduction (vph)	0	1	0	0	0	56	0	0	29	0	0	214
Lane Group Flow (vph)	105	448	0	9	225	51	7	3	6	389	39	231
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	8.8	20.1		3.5	14.8	33.3	0.9	9.2	12.7	18.5	27.2	36.0
Effective Green, g (s)	8.8	20.1		3.5	14.8	33.3	0.9	9.2	12.7	18.5	27.2	36.0
Actuated g/C Ratio	0.13	0.29		0.05	0.21	0.48	0.01	0.13	0.18	0.27	0.39	0.52
Clearance Time (s)	4.2	4.6		4.2	4.6	4.6	4.2	4.6	4.2	4.6	4.6	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	1024		89	397	865	22	247	290	472	731	822
v/s Ratio Prot	c0.06	0.13		0.01	c0.12	0.02	0.00	0.00	0.00	c0.22	0.02	c0.04
v/s Ratio Perm						0.02			0.00			0.11
v/c Ratio	0.47	0.44		0.10	0.57	0.06	0.32	0.01	0.02	0.82	0.05	0.28
Uniform Delay, d1	28.1	20.0		31.4	24.4	9.6	33.9	26.1	23.2	23.9	13.1	9.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.3		0.5	1.9	0.0	8.2	0.0	0.0	11.2	0.0	0.2
Delay (s)	29.6	20.3		31.9	26.2	9.7	42.1	26.1	23.2	35.0	13.1	9.6
Level of Service	C	C		C	C	A	D	C	C	D	B	A
Approach Delay (s)		22.1			21.2			26.4			21.1	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	69.3	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	50.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	22	56	61	32	258	63	413	46	203	680	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.8		4.0	4.8	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.94			0.90		1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1720			1664		1770	3486		1770	3486	
Flt Permitted		0.55			0.90		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		966			1502		1770	3486		1770	3486	
Peak-hour factor, PHF	0.54	0.54	0.54	0.68	0.68	0.68	0.89	0.89	0.89	0.94	0.94	0.94
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	106	45	114	99	52	417	78	510	57	238	796	88
RTOR Reduction (vph)	0	48	0	0	174	0	0	13	0	0	12	0
Lane Group Flow (vph)	0	217	0	0	394	0	78	554	0	238	872	0
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		17.6			17.6		3.7	18.8		6.3	21.4	
Effective Green, g (s)		17.6			17.6		3.7	18.8		6.3	21.4	
Actuated g/C Ratio		0.32			0.32		0.07	0.34		0.11	0.39	
Clearance Time (s)		4.0			4.0		4.0	4.8		4.0	4.8	
Vehicle Extension (s)		2.0			2.0		2.0	4.1		2.0	4.1	
Lane Grp Cap (vph)		306			476		118	1180		200	1344	
v/s Ratio Prot							0.04	c0.16		c0.13	c0.25	
v/s Ratio Perm		0.22			c0.26							
v/c Ratio		0.71			0.83		0.66	0.47		1.19	0.65	
Uniform Delay, d1		16.7			17.5		25.3	14.4		24.6	14.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		6.1			10.8		10.3	0.4		124.3	1.2	
Delay (s)		22.7			28.3		35.5	14.9		148.9	15.2	
Level of Service		C			C		D	B		F	B	
Approach Delay (s)		22.7			28.3			17.4			43.6	
Approach LOS		C			C			B			D	

Intersection Summary				
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	12.8	
Intersection Capacity Utilization	62.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Yield			Stop	Stop	
Volume (vph)	14	120	193	40	24	43
Peak Hour Factor	0.65	0.65	0.56	0.56	0.64	0.64
Hourly flow rate (vph)	24	203	379	79	41	74

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	227	458	115
Volume Left (vph)	24	379	0
Volume Right (vph)	203	0	74
Hadj (s)	-0.48	0.20	-0.35
Departure Headway (s)	4.8	4.8	4.7
Degree Utilization, x	0.30	0.61	0.15
Capacity (veh/h)	682	717	708
Control Delay (s)	9.9	15.2	8.6
Approach Delay (s)	9.9	15.2	8.6
Approach LOS	A	C	A

Intersection Summary			
Delay	12.7		
Level of Service	B		
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	52	1059	560	90	0	176
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	76	1553	821	132	0	258
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		119	310			
pX, platoon unblocked					0.90	
vC, conflicting volume	953				1816	477
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	953				1680	477
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	52
cM capacity (veh/h)	717				69	535

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	76	777	777	548	406	258
Volume Left	76	0	0	0	0	0
Volume Right	0	0	0	0	132	258
cSH	717	1700	1700	1700	1700	535
Volume to Capacity	0.11	0.46	0.46	0.32	0.24	0.48
Queue Length 95th (ft)	9	0	0	0	0	65
Control Delay (s)	10.6	0.0	0.0	0.0	0.0	17.9
Lane LOS	B					C
Approach Delay (s)	0.5			0.0		17.9
Approach LOS						C

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	38.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1080			
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1085			1623	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	0.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	59	56	108	87	114	96
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	87	82	158	128	167	141
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	612	405	475	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	612	405	475	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	64	83	64	88	90	
cM capacity (veh/h)	238	480	438	1085	1623	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	169	286	308
Volume Left	87	0	167
Volume Right	0	128	141
cSH	316	597	1623
Volume to Capacity	0.53	0.48	0.10
Queue Length 95th (ft)	74	65	9
Control Delay (s)	28.8	16.5	4.4
Lane LOS	D	C	A
Approach Delay (s)	28.8	16.5	4.4
Approach LOS	D	C	

Intersection Summary				
Average Delay		14.3		
Intersection Capacity Utilization		42.3%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	392	66	287	394	5	66	0	287	6	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	575	97	421	578	7	97	0	421	9	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)					570							
pX, platoon unblocked												
vC, conflicting volume	585			672			2043	2050	336	2132	2095	582
vC1, stage 1 conf vol							623	623		1423	1423	
vC2, stage 2 conf vol							1420	1427		708	672	
vCu, unblocked vol	585			672			2043	2050	336	2132	2095	582
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			54			0	100	36	0	100	100
cM capacity (veh/h)	986			915			75	103	660	6	31	457

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	383	288	421	585	97	421	9
Volume Left	0	0	421	0	97	0	9
Volume Right	0	97	0	7	0	421	0
cSH	1700	1700	915	1700	75	660	6
Volume to Capacity	0.23	0.17	0.46	0.34	1.30	0.64	1.36
Queue Length 95th (ft)	0	0	61	0	189	115	49
Control Delay (s)	0.0	0.0	12.2	0.0	299.8	19.6	1228.3
Lane LOS			B		F	C	F
Approach Delay (s)	0.0		5.1		72.0		1228.3
Approach LOS					F		F

Intersection Summary				
Average Delay		24.1		
Intersection Capacity Utilization		61.3%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	72	283	242	227	192	145	393	131	82	588	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			5.0	5.0	3.5	4.5		3.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.96		1.00	0.97	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1689			1816	1583	1770	3407		1770	3421	
Flt Permitted		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1689			1816	1583	1770	3407		1770	3421	
Peak-hour factor, PHF	0.85	0.85	0.85	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	138	93	366	286	268	227	170	460	153	100	719	205
RTOR Reduction (vph)	0	38	0	0	0	128	0	21	0	0	17	0
Lane Group Flow (vph)	0	559	0	0	554	99	170	592	0	100	907	0
Confl. Peds. (#/hr)												
Turn Type	Split	NA		Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases						4						
Actuated Green, G (s)		42.5			40.0	40.0	12.5	38.9		11.1	37.5	
Effective Green, g (s)		42.5			40.0	40.0	12.5	38.9		11.1	37.5	
Actuated g/C Ratio		0.28			0.27	0.27	0.08	0.26		0.07	0.25	
Clearance Time (s)		4.5			5.0	5.0	3.5	4.5		3.5	4.5	
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.3		2.0	4.3	
Lane Grp Cap (vph)		478			484	422	147	883		130	855	
v/s Ratio Prot		c0.33			c0.31		c0.10	0.17		0.06	c0.27	
v/s Ratio Perm						0.06						
v/c Ratio		1.17			1.14	0.24	1.16	0.67		0.77	1.06	
Uniform Delay, d1		53.8			55.0	43.0	68.8	49.8		68.2	56.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		96.8			87.1	0.1	122.4	2.3		21.4	48.1	
Delay (s)		150.5			142.1	43.1	191.2	52.0		89.6	104.4	
Level of Service		F			F	D	F	D		F	F	
Approach Delay (s)		150.5			113.3			82.3			102.9	
Approach LOS		F			F			F			F	

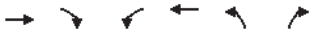
Intersection Summary				
HCM 2000 Control Delay	109.3	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.13			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5	
Intersection Capacity Utilization	105.3%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	202	217	90	128	117	100	86	309	102	269	288	554
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0	4.0	5.5		4.2	5.5	3.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95		1.00	0.94	1.00	0.98		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1502		1815	1494	1770	3340		1770	3539	1550
Flt Permitted	0.95	1.00	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1502		1815	1494	1770	3340		1770	3539	1550
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.85	0.85	0.85	0.90	0.90	0.90
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	239	257	106	153	140	120	111	400	132	329	352	677
RTOR Reduction (vph)	0	0	82	0	0	89	0	23	0	0	0	99
Lane Group Flow (vph)	215	281	24	0	293	31	111	509	0	329	352	578
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases			4			3						6
Actuated Green, G (s)	25.3	25.3	25.3		22.4	22.4	11.8	24.8		25.3	38.5	63.8
Effective Green, g (s)	25.3	25.3	25.3		22.4	22.4	11.8	24.8		25.3	38.5	63.8
Actuated g/C Ratio	0.22	0.22	0.22		0.20	0.20	0.10	0.22		0.22	0.34	0.56
Clearance Time (s)	3.0	3.0	3.0		3.0	3.0	4.0	5.5		4.2	5.5	3.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0	3.0	4.3		2.0	4.3	2.0
Lane Grp Cap (vph)	374	392	334		358	294	184	729		394	1200	871
v/s Ratio Prot	0.13	c0.16			c0.16		0.06	0.15		c0.19	0.10	c0.15
v/s Ratio Perm			0.02			0.02						0.22
v/c Ratio	0.57	0.72	0.07		0.82	0.11	0.60	0.70		0.84	0.29	0.66
Uniform Delay, d1	39.3	40.8	34.8		43.6	37.3	48.6	40.9		42.1	27.5	17.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	5.1	0.0		12.9	0.1	5.5	3.3		13.6	0.2	1.5
Delay (s)	40.6	45.9	34.9		56.5	37.4	54.1	44.2		55.7	27.7	18.8
Level of Service	D	D	C		E	D	D	D		E	C	B
Approach Delay (s)		42.1			50.9			45.9			30.1	
Approach LOS		D			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	113.5	Sum of lost time (s)	15.7	
Intersection Capacity Utilization	78.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	203	313	263	136	208	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.5	5.5		4.9	4.9
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3292		1770	1508
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3292		1770	1508
Peak-hour factor, PHF	0.91	0.91	0.85	0.85	0.95	0.95
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	245	378	340	176	241	227
RTOR Reduction (vph)	0	0	69	0	0	183
Lane Group Flow (vph)	245	378	447	0	241	44
Confl. Peds. (#/hr)	30			30	30	30
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	14.6	58.3	39.3		16.3	16.3
Effective Green, g (s)	14.6	58.3	39.3		16.3	16.3
Actuated g/C Ratio	0.17	0.69	0.46		0.19	0.19
Clearance Time (s)	4.4	5.5	5.5		4.9	4.9
Vehicle Extension (s)	2.0	5.0	5.0		2.0	2.0
Lane Grp Cap (vph)	304	2427	1522		339	289
v/s Ratio Prot	c0.14	0.11	c0.14		c0.14	
v/s Ratio Perm						0.03
v/c Ratio	0.81	0.16	0.29		0.71	0.15
Uniform Delay, d1	33.8	4.7	14.2		32.1	28.6
Progression Factor	1.00	1.00	0.46		1.00	1.00
Incremental Delay, d2	13.6	0.1	0.4		5.8	0.1
Delay (s)	47.5	4.8	6.9		37.9	28.7
Level of Service	D	A	A		D	C
Approach Delay (s)		21.6	6.9		33.4	
Approach LOS		C	A		C	

Intersection Summary				
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	14.8	
Intersection Capacity Utilization	67.9%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	271	145	286	258	111	184
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.80	0.80	0.89	0.89
Hourly flow rate (vph)	331	177	393	355	137	227
Pedestrians	30			30	30	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	3			3	3	
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				343		
pX, platoon unblocked						
vC, conflicting volume			538		1444	314
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			538		1444	314
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			61		0	65
cM capacity (veh/h)			1000		71	648

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	221	288	512	236	365
Volume Left	0	0	393	0	137
Volume Right	0	177	0	0	227
cSH	1700	1700	1000	1700	161
Volume to Capacity	0.13	0.17	0.39	0.14	2.27
Queue Length 95th (ft)	0	0	47	0	751
Control Delay (s)	0.0	0.0	9.5	0.0	635.3
Lane LOS			A		F
Approach Delay (s)	0.0		6.5		635.3
Approach LOS					F

Intersection Summary				
Average Delay	145.9			
Intersection Capacity Utilization	52.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	86	547	575	275	506	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.9	4.9
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3319		1770	1510
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3319		1770	1510
Peak-hour factor, PHF	0.80	0.80	0.84	0.84	0.84	0.84
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	118	752	753	360	663	166
RTOR Reduction (vph)	0	0	67	0	0	101
Lane Group Flow (vph)	118	752	1046	0	663	65
Confl. Peds. (#/hr)	30			30	30	30
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	1	6	2		8	
Permitted Phases						8
Actuated Green, G (s)	6.9	41.9	30.6		33.3	33.3
Effective Green, g (s)	6.9	41.9	30.6		33.3	33.3
Actuated g/C Ratio	0.08	0.49	0.36		0.39	0.39
Clearance Time (s)	4.4	4.9	4.9		4.9	4.9
Vehicle Extension (s)	2.0	3.6	4.0		2.0	2.0
Lane Grp Cap (vph)	143	1744	1194		693	591
v/s Ratio Prot	c0.07	0.21	c0.32		c0.37	
v/s Ratio Perm						0.04
v/c Ratio	0.83	0.43	0.88		0.96	0.11
Uniform Delay, d1	38.5	13.9	25.4		25.1	16.4
Progression Factor	0.99	0.92	1.00		1.00	1.00
Incremental Delay, d2	29.2	0.8	9.2		23.6	0.0
Delay (s)	67.2	13.5	34.6		48.8	16.5
Level of Service	E	B	C		D	B
Approach Delay (s)		20.8	34.6		42.3	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.91			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	14.2	
Intersection Capacity Utilization	76.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	740	131	115	648	73	68	37	88	71	49	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	5.1			5.1			5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.98			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.99	
Frt	1.00	0.98		1.00	0.98			0.94			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1770	3419		1770	3459			1682			1742	
Flt Permitted	0.95	1.00		0.95	1.00			0.80			0.71	
Satd. Flow (perm)	1770	3419		1770	3459			1377			1273	
Peak-hour factor, PHF	0.74	0.74	0.74	0.91	0.91	0.91	0.89	0.89	0.89	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	76	1100	195	139	783	88	84	46	109	104	72	50
RTOR Reduction (vph)	0	14	0	0	8	0	0	42	0	0	14	0
Lane Group Flow (vph)	76	1281	0	139	863	0	0	197	0	0	212	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4			4		
Actuated Green, G (s)	5.3	37.9		7.5	39.9			25.2			25.2	
Effective Green, g (s)	5.3	37.9		7.5	39.9			25.2			25.2	
Actuated g/C Ratio	0.06	0.45		0.09	0.47			0.30			0.30	
Clearance Time (s)	4.4	4.9		4.4	5.1			5.1			5.1	
Vehicle Extension (s)	2.0	5.3		2.0	5.4			2.0			2.0	
Lane Grp Cap (vph)	110	1524		156	1623			408			377	
v/s Ratio Prot	0.04	c0.37		c0.08	0.25							
v/s Ratio Perm								0.14			c0.17	
v/c Ratio	0.69	0.84		0.89	0.53			0.48			0.56	
Uniform Delay, d1	39.0	20.9		38.3	15.9			24.6			25.2	
Progression Factor	1.00	1.00		0.62	0.38			1.00			1.00	
Incremental Delay, d2	14.0	5.8		6.1	0.1			0.3			1.1	
Delay (s)	53.1	26.6		29.8	6.1			24.9			26.4	
Level of Service	D	C		C	A			C			C	
Approach Delay (s)		28.1			9.4			24.9			26.4	
Approach LOS		C			A			C			C	

Intersection Summary				
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	14.6	
Intersection Capacity Utilization	70.1%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	580	205	1018	657	79	123	118	586	223	126	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9		4.9		4.9	4.9			5.2	
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.91		1.00		1.00	0.92			0.99	
Flpb, ped/bikes	1.00	1.00	1.00		0.99		0.99	1.00			1.00	
Frt	1.00	1.00	0.85		0.99		1.00	0.88			0.97	
Flt Protected	0.95	1.00	1.00		0.97		0.95	1.00			0.98	
Satd. Flow (prot)	1681	1768	1448		1769		1755	1503			1741	
Flt Permitted	0.58	0.99	1.00		0.47		0.47	1.00			0.10	
Satd. Flow (perm)	1027	1760	1448		853		865	1503			177	
Peak-hour factor, PHF	0.90	0.90	0.90	0.45	0.45	0.45	0.84	0.84	0.84	0.90	0.90	0.90
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	97	709	251	2488	1606	193	161	155	767	273	154	142
RTOR Reduction (vph)	0	0	192	0	2	0	0	209	0	0	14	0
Lane Group Flow (vph)	87	719	59	0	4285	0	161	713	0	0	555	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			1			8			4	
Permitted Phases	2		2	1			8			4		
Actuated Green, G (s)	20.1	20.1	20.1		20.1		30.1	30.1			29.8	
Effective Green, g (s)	20.1	20.1	20.1		20.1		30.1	30.1			29.8	
Actuated g/C Ratio	0.24	0.24	0.24		0.24		0.35	0.35			0.35	
Clearance Time (s)	4.9	4.9	4.9		4.9		4.9	4.9			5.2	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	242	416	342		201		306	532			62	
v/s Ratio Prot								0.47				
v/s Ratio Perm	0.08	c0.41	0.04		c5.02		0.19				c3.13	
v/c Ratio	0.36	1.73	0.17		21.32		0.53	1.34			8.95	
Uniform Delay, d1	27.1	32.5	25.8		32.5		21.8	27.4			27.6	
Progression Factor	0.41	0.59	0.61		1.00		1.00	1.00			1.00	
Incremental Delay, d2	2.6	334.1	0.7		9152.0		1.6	165.2			3608.5	
Delay (s)	13.7	353.3	16.5		9184.5		23.4	192.7			3636.1	
Level of Service	B	F	B		F		C	F			F	
Approach Delay (s)		245.4			9184.5			167.5			3636.1	
Approach LOS		F			F			F			F	

Intersection Summary					
HCM 2000 Control Delay	5986.8	HCM 2000 Level of Service		F	
HCM 2000 Volume to Capacity ratio	10.40				
Actuated Cycle Length (s)	85.0	Sum of lost time (s)		15.0	
Intersection Capacity Utilization	233.7%	ICU Level of Service		H	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	375	0	299	177	728	0	0	420	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6	4.6	4.2	5.0			5.0	5.0
Lane Util. Factor					1.00	1.00	1.00	0.95			0.95	1.00
Frpb, ped/bikes					1.00	0.97	1.00	1.00			1.00	0.92
Flpb, ped/bikes					0.98	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1730	1529	1770	3539			3539	1462
Flt Permitted					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1730	1529	1770	3539			3539	1462
Peak-hour factor, PHF	0.25	0.25	0.25	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	0	0	444	0	354	209	861	0	0	502	337
RTOR Reduction (vph)	0	0	0	0	0	59	0	0	0	0	0	221
Lane Group Flow (vph)	0	0	0	0	444	295	209	861	0	0	502	116
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)					28.3	28.3	13.6	47.1			29.3	29.3
Effective Green, g (s)					28.3	28.3	13.6	47.1			29.3	29.3
Actuated g/C Ratio					0.33	0.33	0.16	0.55			0.34	0.34
Clearance Time (s)					4.6	4.6	4.2	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					575	509	283	1961			1219	503
v/s Ratio Prot							c0.12	c0.24			0.14	
v/s Ratio Perm					0.26	0.19						0.08
v/c Ratio					0.77	0.58	0.74	0.44			0.41	0.23
Uniform Delay, d1					25.5	23.4	34.0	11.2			21.3	19.8
Progression Factor					1.00	1.00	1.11	0.53			1.00	1.00
Incremental Delay, d2					6.4	1.7	6.7	0.5			1.0	1.1
Delay (s)					31.8	25.1	44.4	6.4			22.3	20.9
Level of Service					C	C	D	A			C	C
Approach Delay (s)		0.0			28.9			13.8			21.7	
Approach LOS		A			C			B			C	

Intersection Summary					
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.64				
Actuated Cycle Length (s)	85.0	Sum of lost time (s)		13.8	
Intersection Capacity Utilization	74.3%	ICU Level of Service		D	
Analysis Period (min)	15				
c Critical Lane Group					

9: Smythe Ave/Picador Blvd & I-905 EB Off Ramp/I-905 EB On Ramp

Timing Plan: PM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	431	0	396	0	0	0	0	410	370	160	605	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6					5.0		4.2	5.0	
Lane Util. Factor		1.00	1.00					0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.96					0.96		1.00	1.00	
Flpb, ped/bikes		0.98	1.00					1.00		1.00	1.00	
Frt		1.00	0.85					0.93		1.00	1.00	
Flt Protected		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		1726	1526					3142		1770	3539	
Flt Permitted		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)		1726	1526					3142		1770	3539	
Peak-hour factor, PHF	0.91	0.91	0.91	0.33	0.33	0.33	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	521	0	479	0	0	0	0	490	442	189	716	0
RTOR Reduction (vph)	0	0	94	0	0	0	0	183	0	0	0	0
Lane Group Flow (vph)	0	521	385	0	0	0	0	749	0	189	716	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4									
Actuated Green, G (s)		30.1	30.1					29.5		11.6	45.3	
Effective Green, g (s)		30.1	30.1					29.5		11.6	45.3	
Actuated g/C Ratio		0.35	0.35					0.35		0.14	0.53	
Clearance Time (s)		4.6	4.6					5.0		4.2	5.0	
Vehicle Extension (s)		3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)		611	540					1090		241	1886	
v/s Ratio Prot								c0.24		c0.11	0.20	
v/s Ratio Perm		0.30	0.25									
v/c Ratio		0.85	0.71					0.69		0.78	0.38	
Uniform Delay, d1		25.4	23.7					23.8		35.5	11.6	
Progression Factor		1.00	1.00					1.00		0.88	0.56	
Incremental Delay, d2		11.1	4.4					3.5		13.5	0.5	
Delay (s)		36.5	28.2					27.3		44.7	7.0	
Level of Service		D	C					C		D	A	
Approach Delay (s)		32.5			0.0			27.3			14.9	
Approach LOS		C			A			C			B	

Intersection Summary				
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.8	
Intersection Capacity Utilization	74.3%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

10: Dairy Mart Rd & Vista Ln

Timing Plan: PM PEAK HOUR

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	146	154	371	181	223	448
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.78	0.78	0.92	0.92
Hourly flow rate (vph)	209	220	523	255	267	536
Pedestrians	30		30			30
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	3		3			3
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			877			406
pX, platoon unblocked						
vC, conflicting volume	1512	449			808	
vC1, stage 1 conf vol	681					
vC2, stage 2 conf vol	831					
vCu, unblocked vol	1512	449			808	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	6	58			66	
cM capacity (veh/h)	222	530			792	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	429	349	430	267	268	268
Volume Left	209	0	0	267	0	0
Volume Right	220	0	255	0	0	0
cSH	316	1700	1700	792	1700	1700
Volume to Capacity	1.36	0.21	0.25	0.34	0.16	0.16
Queue Length 95th (ft)	538	0	0	37	0	0
Control Delay (s)	212.2	0.0	0.0	11.8	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	212.2	0.0		3.9		
Approach LOS	F					

Intersection Summary			
Average Delay	46.8		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	81	82	16	190	125	16
Peak Hour Factor	0.93	0.93	0.74	0.74	0.86	0.86
Hourly flow rate (vph)	96	97	24	282	160	20

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	193	306	180
Volume Left (vph)	0	24	160
Volume Right (vph)	97	0	20
Hadj (s)	-0.27	0.05	0.14
Departure Headway (s)	4.5	4.7	5.2
Degree Utilization, x	0.24	0.40	0.26
Capacity (veh/h)	750	736	642
Control Delay (s)	8.9	10.7	10.0
Approach Delay (s)	8.9	10.7	10.0
Approach LOS	A	B	B

Intersection Summary				
Delay		10.0		
Level of Service		B		
Intersection Capacity Utilization	44.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	191	92	103	78	121	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	840	405	453	343	532	0
Pedestrians	30			30	30	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	3			3	3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1275		2352	1103
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1275		2352	1103
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			15		0	100
cM capacity (veh/h)			531		5	244

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1245	796	532
Volume Left	0	453	532
Volume Right	405	0	0
cSH	1700	531	5
Volume to Capacity	0.73	0.85	97.09
Queue Length 95th (ft)	0	226	Err
Control Delay (s)	0.0	39.6	Err
Lane LOS		E	F
Approach Delay (s)	0.0	39.6	Err
Approach LOS			F

Intersection Summary				
Average Delay	2080.4			
Intersection Capacity Utilization	50.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	232	5	30	130	0	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.77	0.77	0.80	0.80
Hourly flow rate (vph)	319	7	43	186	0	62
Pedestrians	30			30	30	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	3			3	3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			356		654	382
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			356		654	382
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	90
cM capacity (veh/h)			1173		395	632

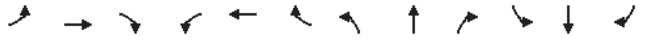
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	326	229	62
Volume Left	0	43	0
Volume Right	7	0	62
cSH	1700	1173	632
Volume to Capacity	0.19	0.04	0.10
Queue Length 95th (ft)	0	3	8
Control Delay (s)	0.0	1.8	11.3
Lane LOS		A	B
Approach Delay (s)	0.0	1.8	11.3
Approach LOS			B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	43.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	76	111	27	21	106	25	48	95	17	26	129	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	133	32	25	127	30	57	114	20	31	154	121

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	256	182	191	306
Volume Left (vph)	91	25	57	31
Volume Right (vph)	32	30	20	121
Hadj (s)	0.03	-0.04	0.03	-0.18
Departure Headway (s)	5.7	5.7	5.7	5.3
Degree Utilization, x	0.40	0.29	0.31	0.45
Capacity (veh/h)	584	559	560	625
Control Delay (s)	12.4	11.1	11.3	12.7
Approach Delay (s)	12.4	11.1	11.3	12.7
Approach LOS	B	B	B	B

Intersection Summary				
Delay	12.0			
Level of Service	B			
Intersection Capacity Utilization	55.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	48	33	46	0	21	0	32	37	13	6	67	114
Peak Hour Factor	0.89	0.89	0.89	0.83	0.83	0.83	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	59	41	57	0	28	0	42	48	17	8	88	149

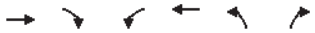
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	157	28	107	245
Volume Left (vph)	59	0	42	8
Volume Right (vph)	57	0	17	149
Hadj (s)	-0.11	0.03	0.02	-0.33
Departure Headway (s)	4.6	4.9	4.6	4.2
Degree Utilization, x	0.20	0.04	0.14	0.28
Capacity (veh/h)	723	660	733	822
Control Delay (s)	8.8	8.1	8.4	8.8
Approach Delay (s)	8.8	8.1	8.4	8.8
Approach LOS	A	A	A	A

Intersection Summary					
Delay			8.7		
Level of Service			A		
Intersection Capacity Utilization			44.6%	ICU Level of Service	A
Analysis Period (min)			15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣						✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	16	5	26	24	26	179	0	0	0	20	193	40
Peak Hour Factor	0.49	0.49	0.49	0.85	0.85	0.85	0.25	0.25	0.25	0.87	0.87	0.87
Hourly flow rate (vph)	36	11	58	31	34	232	0	0	0	25	244	51

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	106	296	320
Volume Left (vph)	36	31	25
Volume Right (vph)	58	232	51
Hadj (s)	-0.23	-0.41	-0.05
Departure Headway (s)	4.9	4.5	4.8
Degree Utilization, x	0.14	0.37	0.43
Capacity (veh/h)	678	760	713
Control Delay (s)	8.7	10.0	11.3
Approach Delay (s)	8.7	10.0	11.3
Approach LOS	A	B	B

Intersection Summary					
Delay			10.4		
Level of Service			B		
Intersection Capacity Utilization			46.9%	ICU Level of Service	A
Analysis Period (min)			15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	25	0	0	91	126	102
Peak Hour Factor	0.62	0.62	0.75	0.75	0.86	0.86
Hourly flow rate (vph)	44	0	0	133	161	130

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	44	133	292
Volume Left (vph)	0	0	161
Volume Right (vph)	0	0	130
Hadj (s)	0.03	0.03	-0.12
Departure Headway (s)	4.8	4.7	4.2
Degree Utilization, x	0.06	0.17	0.34
Capacity (veh/h)	696	722	825
Control Delay (s)	8.1	8.6	9.4
Approach Delay (s)	8.1	8.6	9.4
Approach LOS	A	A	A

Intersection Summary				
Delay		9.0		
Level of Service		A		
Intersection Capacity Utilization		32.1%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	30	59	64	252	189	33
Peak Hour Factor	0.70	0.70	0.81	0.81	0.83	0.83
Hourly flow rate (vph)	47	93	87	342	250	44

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total (vph)	140	429	250	44
Volume Left (vph)	47	0	250	0
Volume Right (vph)	0	342	0	44
Hadj (s)	0.10	-0.44	0.23	-0.57
Departure Headway (s)	5.2	4.4	5.4	3.2
Degree Utilization, x	0.20	0.52	0.38	0.04
Capacity (veh/h)	641	785	609	1121
Control Delay (s)	9.6	12.1	11.7	6.3
Approach Delay (s)	9.6	12.1	10.9	
Approach LOS	A	B	B	

Intersection Summary				
Delay		11.3		
Level of Service		B		
Intersection Capacity Utilization		50.8%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	210	138	190	166	240	149	278	731	327	232	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9	4.4	4.9	4.9	4.4	5.5	4.4	4.4	5.4	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	1.00	0.95	1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1473	1770	1863	1505	1731	1863	1551	1765	1863	1528
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	1770	1863	1473	1770	1863	1505	1103	1863	1551	417	1863	1528
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.88	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	66	228	150	216	189	273	159	296	778	348	247	24
RTOR Reduction (vph)	0	0	106	0	0	170	0	0	160	0	0	0
Lane Group Flow (vph)	66	228	44	216	189	103	159	296	618	348	247	24
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6	8		8	4		Free
Actuated Green, G (s)	6.2	24.8	24.8	13.5	32.1	32.1	19.9	15.9	29.4	32.0	23.6	85.0
Effective Green, g (s)	6.2	24.8	24.8	13.5	32.1	32.1	19.9	15.9	29.4	32.0	23.6	85.0
Actuated g/C Ratio	0.07	0.29	0.29	0.16	0.38	0.38	0.23	0.19	0.35	0.38	0.28	1.00
Clearance Time (s)	4.4	4.9	4.9	4.4	4.9	4.9	4.4	5.5	4.4	4.4	5.4	
Vehicle Extension (s)	2.0	2.9	2.9	2.0	2.9	2.9	2.0	3.9	2.0	2.0	3.9	
Lane Grp Cap (vph)	129	543	429	281	703	568	287	348	536	340	517	1528
v/s Ratio Prot	0.04	c0.12		0.12	0.10		0.03	0.16	c0.18	c0.14	0.13	
v/s Ratio Perm			0.03			0.07	0.10		0.22	c0.25		0.02
v/c Ratio	0.51	0.42	0.10	0.77	0.27	0.18	0.55	0.85	1.15	1.02	0.48	0.02
Uniform Delay, d1	37.9	24.3	22.0	34.3	18.3	17.7	27.7	33.4	27.8	22.8	25.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.81	0.57	1.00	1.00	1.00
Incremental Delay, d2	1.4	2.4	0.5	10.8	0.9	0.7	0.1	2.0	70.8	55.0	0.9	0.0
Delay (s)	39.4	26.7	22.4	45.1	19.3	18.4	20.4	29.2	86.6	77.7	26.5	0.0
Level of Service	D	C	C	D	B	B	C	C	F	E	C	A
Approach Delay (s)		27.1			27.1			64.3			54.3	
Approach LOS		C			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	19.2	
Intersection Capacity Utilization	98.3%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	650	516	435	398	88	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.2	4.6	4.6	4.6
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1546	1770	3539	1770	1506
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1546	1770	3539	1770	1506
Peak-hour factor, PHF	0.97	0.97	0.95	0.95	0.89	0.89
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	737	585	504	461	109	141
RTOR Reduction (vph)	0	50	0	0	0	107
Lane Group Flow (vph)	737	535	504	461	109	34
Confl. Peds. (#/hr)		30	30		30	30
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Actuated Green, G (s)	8.7	20.2	14.8	27.7	11.5	11.5
Effective Green, g (s)	8.7	20.2	14.8	27.7	11.5	11.5
Actuated g/C Ratio	0.18	0.42	0.31	0.57	0.24	0.24
Clearance Time (s)	4.6	4.6	4.2	4.6	4.6	4.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	636	792	541	2025	420	357
v/s Ratio Prot	c0.21	c0.16	c0.28	0.13	0.06	
v/s Ratio Perm		0.19				0.02
v/c Ratio	1.16	0.68	0.93	0.23	0.26	0.09
Uniform Delay, d1	19.9	11.4	16.3	5.1	15.0	14.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	88.2	2.3	23.0	0.1	0.3	0.1
Delay (s)	108.0	13.7	39.3	5.1	15.3	14.5
Level of Service	F	B	D	A	B	B
Approach Delay (s)	66.3			23.0	14.9	
Approach LOS	E			C	B	

Intersection Summary				
HCM 2000 Control Delay	44.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	71.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	32	142	507	111	177	494
Sign Control	Stop		Free			Free
Grade	0%		15%			0%
Peak Hour Factor	0.87	0.87	0.93	0.93	0.95	0.95
Hourly flow rate (vph)	37	163	545	119	186	520
Pedestrians	30		30			30
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	3		3			3
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						525
pX, platoon unblocked	0.80					
vC, conflicting volume	1557	665			695	
vC1, stage 1 conf vol	635					
vC2, stage 2 conf vol	923					
vCu, unblocked vol	1572	665			695	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	63			79	
cM capacity (veh/h)	246	437			879	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	37	163	665	186	520
Volume Left	37	0	0	186	0
Volume Right	0	163	119	0	0
cSH	246	437	1700	879	1700
Volume to Capacity	0.15	0.37	0.39	0.21	0.31
Queue Length 95th (ft)	13	43	0	20	0
Control Delay (s)	22.2	18.0	0.0	10.2	0.0
Lane LOS	C	C		B	
Approach Delay (s)	18.8		0.0	2.7	
Approach LOS	C				

Intersection Summary				
Average Delay		3.6		
Intersection Capacity Utilization		63.4%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	448	5	8	438	101	5	0	5	145	5	41
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.77	0.77	0.77	0.75	0.75	0.75
Hourly flow rate (vph)	40	542	6	10	541	125	7	0	7	213	7	60

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	40	548	551	125	14	280
Volume Left (vph)	40	0	10	0	7	213
Volume Right (vph)	0	6	0	125	7	60
Hadj (s)	0.53	0.03	0.04	-0.67	-0.17	0.06
Departure Headway (s)	7.2	6.6	6.6	5.9	8.2	7.1
Degree Utilization, x	0.08	1.0	1.0	0.20	0.03	0.55
Capacity (veh/h)	493	548	539	605	413	499
Control Delay (s)	9.6	66.1	65.1	9.2	11.4	18.4
Approach Delay (s)	62.3		54.7		11.4	18.4
Approach LOS	F		F		B	C

Intersection Summary				
Delay		50.6		
Level of Service		F		
Intersection Capacity Utilization		57.9%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	124	493	5	6	528	40	2	0	6	26	0	168
Sign Control		Free			Free			Stop			Stop	
Grade		0%			15%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.67	0.67	0.67	0.96	0.96	0.96
Hourly flow rate (vph)	135	536	5	6	550	42	3	0	9	27	0	175
Pedestrians		30			30			30			30	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			3			3			3	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					579							
pX, platoon unblocked	0.78						0.78	0.78		0.78	0.78	0.78
vC, conflicting volume	622			571			1606	1472	599	1458	1454	631
vC1, stage 1 conf vol							838	838		613	613	
vC2, stage 2 conf vol							768	634		844	841	
vCu, unblocked vol	380			571			1635	1465	599	1446	1442	391
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	85			99			97	100	98	89	100	64
cM capacity (veh/h)	901			976			106	235	477	247	263	490

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	135	541	6	592	12	202
Volume Left	135	0	6	0	3	27
Volume Right	0	5	0	42	9	175
cSH	901	1700	976	1700	254	433
Volume to Capacity	0.15	0.32	0.01	0.35	0.05	0.47
Queue Length 95th (ft)	13	0	0	0	4	61
Control Delay (s)	9.7	0.0	8.7	0.0	19.9	20.4
Lane LOS	A		A		C	C
Approach Delay (s)	1.9		0.1		19.9	20.4
Approach LOS					C	C

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	63.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	602	8	20	524	193	2	2	6	267	3	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9			4.9	4.9		4.9			4.9	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.90		0.97			0.99	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99			0.97	
Frt	1.00	1.00			1.00	0.85		0.92			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.96	
Satd. Flow (prot)	1770	1856			1859	1420		1644			1680	
Flt Permitted	0.28	1.00			0.96	1.00		0.94			0.75	
Satd. Flow (perm)	530	1856			1793	1420		1554			1305	
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.58	0.58	0.58	0.89	0.89	0.89
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	76	736	10	23	613	226	4	4	11	330	4	56
RTOR Reduction (vph)	0	0	0	0	0	47	0	7	0	0	7	0
Lane Group Flow (vph)	76	746	0	0	636	179	0	12	0	0	383	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	47.5	47.5			47.5	47.5		27.7			27.7	
Effective Green, g (s)	47.5	47.5			47.5	47.5		27.7			27.7	
Actuated g/C Ratio	0.56	0.56			0.56	0.56		0.33			0.33	
Clearance Time (s)	4.9	4.9			4.9	4.9		4.9			4.9	
Vehicle Extension (s)	2.5	2.5			2.5	2.5		2.0			2.0	
Lane Grp Cap (vph)	296	1037			1001	793		506			425	
v/s Ratio Prot		c0.40										
v/s Ratio Perm	0.14				0.35	0.13		0.01			c0.29	
v/c Ratio	0.26	0.72			0.64	0.23		0.02			0.90	
Uniform Delay, d1	9.7	13.8			12.8	9.5		19.5			27.3	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	2.1	4.3			3.1	0.7		0.0			21.3	
Delay (s)	11.7	18.1			15.9	10.1		19.5			48.6	
Level of Service	B	B			B	B		B			D	
Approach Delay (s)		17.5			14.4			19.5			48.6	
Approach LOS		B			B			B			D	

Intersection Summary					
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.79				
Actuated Cycle Length (s)	85.0	Sum of lost time (s)		9.8	
Intersection Capacity Utilization	91.4%	ICU Level of Service		F	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	599	348	433	412	0	316	0	687	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.9	4.4	4.9			4.4	4.4			
Lane Util. Factor		0.95	1.00	0.97	1.00			1.00	1.00			
Frpb, ped/bikes		1.00	0.96	1.00	1.00			1.00	0.98			
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00			
Frt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3539	1521	3433	1863			1770	1548			
Flt Permitted		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)		3539	1521	3433	1863			1770	1548			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	716	416	518	493	0	378	0	821	0	0	0
RTOR Reduction (vph)	0	0	228	0	0	0	0	0	35	0	0	0
Lane Group Flow (vph)	0	716	188	518	493	0	0	378	786	0	0	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type		NA	Perm	Prot	NA		Split	NA	pm+ov			Perm
Protected Phases		2		1	6		8	8	1			
Permitted Phases			2						8			8 2 6
Actuated Green, G (s)		22.1	22.1	7.9	34.4			18.4	26.3			
Effective Green, g (s)		22.1	22.1	7.9	34.4			18.4	26.3			
Actuated g/C Ratio		0.36	0.36	0.13	0.55			0.30	0.42			
Clearance Time (s)		4.9	4.9	4.4	4.9			4.4	4.4			
Vehicle Extension (s)		4.8	4.8	2.0	4.8			2.0	2.0			
Lane Grp Cap (vph)		1259	541	436	1032			524	765			
v/s Ratio Prot		c0.20		0.15	0.26			0.21	c0.13			
v/s Ratio Perm			0.12						0.38			
v/c Ratio		0.57	0.35	1.19	0.48			0.72	1.03			
Uniform Delay, d1		16.2	14.7	27.1	8.4			19.6	17.9			
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2		0.9	0.8	105.5	0.7			4.1	39.9			
Delay (s)		17.1	15.5	132.6	9.1			23.7	57.8			
Level of Service		B	B	F	A			C	E			
Approach Delay (s)		16.5			72.4			47.0			0.0	
Approach LOS		B			E			D			A	

Intersection Summary				
HCM 2000 Control Delay	44.4	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.91			
Actuated Cycle Length (s)	62.1	Sum of lost time (s)	13.7	
Intersection Capacity Utilization	75.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1239	1045	0	0	117
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.95	0.95	0.91	0.91
Hourly flow rate (vph)	0	1420	1210	0	0	141
Pedestrians		30	30		30	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		233	383			
pX, platoon unblocked					0.84	
vC, conflicting volume	1240				1980	665
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1240				1791	665
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	63
cM capacity (veh/h)	543				58	383

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	710	710	605	605	141
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	141
cSH	1700	1700	1700	1700	383
Volume to Capacity	0.42	0.42	0.36	0.36	0.37
Queue Length 95th (ft)	0	0	0	0	42
Control Delay (s)	0.0	0.0	0.0	0.0	19.8
Lane LOS					C
Approach Delay (s)	0.0		0.0		19.8
Approach LOS					C

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	50.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	97	1192	1002	41	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.69	0.69
Hourly flow rate (vph)	114	1395	1160	47	0	0
Pedestrians		30	30		30	
Lane Width (ft)		12.0	12.0		0.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	3		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		382	234			
pX, platoon unblocked					0.86	
vC, conflicting volume	1238				2168	664
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1238				2030	664
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				100	100
cM capacity (veh/h)	559				33	393

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	114	697	697	773	434
Volume Left	114	0	0	0	0
Volume Right	0	0	0	0	47
cSH	559	1700	1700	1700	1700
Volume to Capacity	0.20	0.41	0.41	0.45	0.26
Queue Length 95th (ft)	19	0	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	1.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		50.8%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	964	552	250	710	0	0	0	0	531	15	604
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.2	4.6					4.6	4.6	4.6
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frpb, ped/bikes		1.00	0.95	1.00	1.00					1.00	0.98	0.96
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	0.91	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539	1507	3433	3539					1681	1477	1446
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.98	1.00
Satd. Flow (perm)		3539	1507	3433	3539					1681	1477	1446
Peak-hour factor, PHF	0.98	0.98	0.98	0.84	0.84	0.84	0.25	0.25	0.25	0.72	0.72	0.72
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	1082	620	327	930	0	0	0	0	811	23	923
RTOR Reduction (vph)	0	0	164	0	0	0	0	0	0	0	49	49
Lane Group Flow (vph)	0	1082	456	327	930	0	0	0	0	608	537	514
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		2		1	6					4	4	
Permitted Phases			2									4
Actuated Green, G (s)		32.0	32.0	9.8	46.0					34.8	34.8	34.8
Effective Green, g (s)		32.0	32.0	9.8	46.0					34.8	34.8	34.8
Actuated g/C Ratio		0.36	0.36	0.11	0.51					0.39	0.39	0.39
Clearance Time (s)		4.6	4.6	4.2	4.6					4.6	4.6	4.6
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1258	535	373	1808					649	571	559
v/s Ratio Prot		c0.31		c0.10	0.26					0.36	c0.36	
v/s Ratio Perm			0.30									0.36
v/c Ratio		0.86	0.85	0.88	0.51					0.94	0.94	0.92
Uniform Delay, d1		26.9	26.8	39.5	14.6					26.5	26.6	26.3
Progression Factor		1.00	1.00	0.72	0.52					1.00	1.00	1.00
Incremental Delay, d2		7.8	15.8	10.5	0.5					21.0	23.8	20.2
Delay (s)		34.7	42.6	38.9	8.1					47.5	50.4	46.5
Level of Service		C	D	D	A					D	D	D
Approach Delay (s)		37.6			16.1			0.0			48.2	
Approach LOS		D			B			A			D	

Intersection Summary					
HCM 2000 Control Delay		35.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio		0.90			
Actuated Cycle Length (s)		90.0	Sum of lost time (s)	13.4	
Intersection Capacity Utilization		91.2%	ICU Level of Service	F	
Analysis Period (min)		15			
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	1326	0	0	839	762	120	0	427	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6			4.6			4.6	4.6			
Lane Util. Factor	0.97	0.95			0.95			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			0.98			1.00	0.96			
Flpb, ped/bikes	1.00	1.00			1.00			0.97	1.00			
Frt	1.00	1.00			0.93			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	3539			3225			1722	1522			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	3539			3225			1722	1522			
Peak-hour factor, PHF	0.91	0.91	0.91	0.97	0.97	0.97	0.89	0.89	0.89	0.25	0.25	0.25
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	302	1603	0	0	951	864	148	0	528	0	0	0
RTOR Reduction (vph)	0	0	0	0	180	0	0	0	51	0	0	0
Lane Group Flow (vph)	302	1603	0	0	1635	0	0	148	478	0	0	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases							4		4			
Actuated Green, G (s)	6.8	51.4			40.4			29.4	29.4			
Effective Green, g (s)	6.8	51.4			40.4			29.4	29.4			
Actuated g/C Ratio	0.08	0.57			0.45			0.33	0.33			
Clearance Time (s)	4.2	4.6			4.6			4.6	4.6			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	259	2021			1447			562	497			
v/s Ratio Prot	c0.09	0.45			c0.51							
v/s Ratio Perm								0.09	c0.31			
v/c Ratio	1.17	0.79			1.13			0.26	0.96			
Uniform Delay, d1	41.6	15.1			24.8			22.3	29.7			
Progression Factor	0.73	0.36			1.00			1.00	1.00			
Incremental Delay, d2	92.3	1.5			67.9			0.3	30.5			
Delay (s)	122.7	7.0			92.7			22.6	60.2			
Level of Service	F	A			F			C	E			
Approach Delay (s)		25.4			92.7			52.0			0.0	
Approach LOS		C			F			D			A	

Intersection Summary				
HCM 2000 Control Delay	57.2	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.07			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	91.2%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	677	1186	290	942	733	423
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.91		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.95	
Flt Protected	1.00	1.00		0.99	0.97	
Satd. Flow (prot)	1863	1442		1841	1666	
Flt Permitted	1.00	1.00		0.07	0.97	
Satd. Flow (perm)	1863	1442		135	1666	
Peak-hour factor, PHF	0.95	0.95	0.93	0.93	0.84	0.84
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	784	1373	343	1114	960	554
RTOR Reduction (vph)	0	653	0	0	24	0
Lane Group Flow (vph)	784	720	0	1457	1490	0
Confl. Peds. (#/hr)		30	30		30	30
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	34.1	34.1		34.1	41.1	
Effective Green, g (s)	34.1	34.1		34.1	41.1	
Actuated g/C Ratio	0.40	0.40		0.40	0.48	
Clearance Time (s)	4.9	4.9		4.9	4.9	
Vehicle Extension (s)	2.5	2.5		2.5	2.0	
Lane Grp Cap (vph)	747	578		54	805	
v/s Ratio Prot	0.42				c0.89	
v/s Ratio Perm		0.50		c10.79		
v/c Ratio	1.05	1.25		26.98	1.85	
Uniform Delay, d1	25.4	25.4		25.4	21.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.7	124.3		11726.2	387.6	
Delay (s)	72.1	149.8		11751.6	409.5	
Level of Service	E	F		F	F	
Approach Delay (s)	121.6			11751.6	409.5	
Approach LOS	F			F	F	

Intersection Summary				
HCM 2000 Control Delay	3511.0	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	13.21			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	197.7%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	878	47	363	851	0	44	6	556	21	2	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9			4.9	4.9		4.9	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.96		0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00		0.99	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.97	
Satd. Flow (prot)	1770	1841		1770	3539			1744	1526		1678	
Flt Permitted	0.95	1.00		0.95	1.00			0.77	1.00		0.85	
Satd. Flow (perm)	1770	1841		1770	3539			1399	1526		1463	
Peak-hour factor, PHF	0.89	0.89	0.89	0.90	0.90	0.90	0.87	0.87	0.87	0.68	0.68	0.68
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	23	1085	58	444	1040	0	56	8	703	34	3	19
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	182	0	12	0
Lane Group Flow (vph)	23	1140	0	444	1040	0	0	64	521	0	44	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	2.0	31.2		9.7	38.9			29.9	29.9		29.9	
Effective Green, g (s)	2.0	31.2		9.7	38.9			29.9	29.9		29.9	
Actuated g/C Ratio	0.02	0.37		0.11	0.46			0.35	0.35		0.35	
Clearance Time (s)	4.4	4.9		4.4	4.9			4.9	4.9		4.9	
Vehicle Extension (s)	2.0	3.2		2.0	2.1			2.0	2.0		2.0	
Lane Grp Cap (vph)	41	675		201	1619			492	536		514	
v/s Ratio Prot	0.01	c0.62		c0.25	0.29							
v/s Ratio Perm								0.05	c0.34		0.03	
v/c Ratio	0.56	1.69		2.21	0.64			0.13	0.97		0.08	
Uniform Delay, d1	41.1	26.9		37.6	17.7			18.7	27.2		18.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	10.0	316.7		559.9	2.0			0.0	31.7		0.0	
Delay (s)	51.1	343.6		597.6	19.7			18.8	58.9		18.4	
Level of Service	D	F		F	B			B	E		B	
Approach Delay (s)		337.8			192.6			55.5			18.4	
Approach LOS		F			F			E			B	

Intersection Summary				
HCM 2000 Control Delay	208.3	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.46			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	14.2	
Intersection Capacity Utilization	122.4%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	181	269	815	92	143	31	642	177	578	33	99	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9	4.4	4.9		4.9	4.9	4.9		5.8	4.0
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.97		1.00	1.00	0.96		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00		0.99	1.00
Satd. Flow (prot)	1770	3539	2713	1770	3355		1681	1720	1513		1840	1550
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00		0.99	1.00
Satd. Flow (perm)	1770	3539	2713	1770	3355		1681	1720	1513		1840	1550
Peak-hour factor, PHF	0.86	0.86	0.86	0.79	0.79	0.79	0.96	0.96	0.96	0.94	0.94	0.94
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	232	344	1042	128	199	43	736	203	662	39	116	154
RTOR Reduction (vph)	0	0	197	0	12	0	0	0	323	0	0	0
Lane Group Flow (vph)	232	344	845	128	230	0	464	475	339	0	155	154
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA	Perm	Split	NA	Free
Protected Phases	5	2	3	1	6		3	3		4	4	
Permitted Phases			2						3			Free
Actuated Green, G (s)	20.8	24.4	67.9	13.1	16.7		43.5	43.5	43.5		20.1	121.1
Effective Green, g (s)	20.8	24.4	67.9	13.1	16.7		43.5	43.5	43.5		20.1	121.1
Actuated g/C Ratio	0.17	0.20	0.56	0.11	0.14		0.36	0.36	0.36		0.17	1.00
Clearance Time (s)	4.4	4.9	4.9	4.4	4.9		4.9	4.9	4.9		5.8	
Vehicle Extension (s)	2.0	6.0	2.0	2.0	3.1		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	304	713	1630	191	462		603	617	543		305	1550
v/s Ratio Prot	c0.13	0.10	c0.19	0.07	0.07		0.28	c0.28			c0.08	
v/s Ratio Perm			0.13						0.22			0.10
v/c Ratio	0.76	0.48	0.52	0.67	0.50		0.77	0.77	0.62		0.51	0.10
Uniform Delay, d1	47.8	42.8	16.5	51.9	48.3		34.4	34.4	32.1		46.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.8	1.5	0.1	7.1	0.9		5.3	5.2	1.6		0.5	0.1
Delay (s)	57.6	44.2	16.6	59.0	49.2		39.7	39.6	33.7		46.5	0.1
Level of Service	E	D	B	E	D		D	D	C		D	A
Approach Delay (s)		28.3			52.6			37.2			23.4	
Approach LOS		C			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	121.1	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	92.5%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

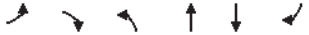
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	85	670	126	37	8	185	138	40	0	247	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.91			1.00			0.99			0.98	
Flpb, ped/bikes	1.00	1.00			1.00			0.98			1.00	
Frt	1.00	0.87			0.99			0.99			0.97	
Flt Protected	0.95	1.00			0.96			0.98			1.00	
Satd. Flow (prot)	1770	1477			1777			1742			1774	
Flt Permitted	0.95	1.00			0.96			0.47			1.00	
Satd. Flow (perm)	1770	1477			1777			837			1774	
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.79	0.79	0.79	0.86	0.86	0.86
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	148	101	792	156	46	10	258	192	56	0	316	83
RTOR Reduction (vph)	0	225	0	0	3	0	0	5	0	0	11	0
Lane Group Flow (vph)	148	668	0	0	209	0	0	501	0	0	388	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Split	NA		Split	NA		Perm	NA			NA	
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	22.0	22.0			13.7			35.0			35.0	
Effective Green, g (s)	22.0	22.0			13.7			35.0			35.0	
Actuated g/C Ratio	0.27	0.27			0.17			0.42			0.42	
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	470	392			294			354			750	
v/s Ratio Prot	0.08	c0.45			c0.12						0.22	
v/s Ratio Perm								c0.60				
v/c Ratio	0.31	1.71			0.71			1.41			0.52	
Uniform Delay, d1	24.3	30.4			32.6			23.9			17.6	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.4	328.0			7.9			202.6			0.6	
Delay (s)	24.7	358.4			40.6			226.4			18.2	
Level of Service	C	F			D			F			B	
Approach Delay (s)		310.9			40.6			226.4			18.2	
Approach LOS		F			D			F			B	

Intersection Summary				
HCM 2000 Control Delay	210.4	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.37			
Actuated Cycle Length (s)	82.7	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	119.9%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	90	0	135	513	817	0	0	410	399
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.62	0.62	0.62	0.88	0.88	0.88	0.98	0.98	0.98	0.88	0.88	0.88
Hourly flow rate (vph)	0	0	0	112	0	169	576	917	0	0	512	499
Pedestrians		30			30			30			30	
Lane Width (ft)		0.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			3			3			3	
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								312			223	
pX, platoon unblocked	0.49	0.49		0.49	0.49	0.49				0.49		
vC, conflicting volume	2891	2891	566	2385	3140	977	1041			947		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	4346	4346	566	3311	4856	430	1041			368		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	0	100	37	13			100		
cM capacity (veh/h)	0	0	456	0	0	266	664			565		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	281	576	917	342	670
Volume Left	112	576	0	0	0
Volume Right	169	0	0	0	499
cSH	1	664	1700	1700	1700
Volume to Capacity	280.49	0.87	0.54	0.20	0.39
Queue Length 95th (ft)	Err	255	0	0	0
Control Delay (s)	Err	35.5	0.0	0.0	0.0
Lane LOS	F	E			
Approach Delay (s)	Err	13.7		0.0	
Approach LOS	F				

Intersection Summary				
Average Delay	1017.0			
Intersection Capacity Utilization	231.2%	ICU Level of Service	H	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	401	994	0	979	537	0
Ideal Flow (vphpl)	1000	1000	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	931	798		1863	3539	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	931	798		1863	3539	
Peak-hour factor, PHF	0.96	0.96	0.93	0.93	0.85	0.85
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	459	1139	0	1158	695	0
RTOR Reduction (vph)	0	307	0	0	0	0
Lane Group Flow (vph)	459	832	0	1158	695	0
Confl. Peds. (#/hr)	30	30	30			30
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	4			3	
Permitted Phases		3 4		7		
Actuated Green, G (s)	37.4	94.8		99.4	57.4	
Effective Green, g (s)	37.4	94.8		99.4	57.4	
Actuated g/C Ratio	0.25	0.63		0.66	0.38	
Clearance Time (s)	4.6	4.6		4.6	4.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	232	528		1234	1354	
v/s Ratio Prot	c0.49	c0.39			0.20	
v/s Ratio Perm		0.65		0.62		
v/c Ratio	1.98	1.58		0.94	0.51	
Uniform Delay, d1	56.3	27.6		22.6	35.6	
Progression Factor	1.00	1.00		1.29	1.00	
Incremental Delay, d2	455.5	268.5		1.7	0.3	
Delay (s)	511.8	296.1		30.8	35.9	
Level of Service	F	F		C	D	
Approach Delay (s)	358.0			30.8	35.9	
Approach LOS	F			C	D	

Intersection Summary				
HCM 2000 Control Delay	183.4	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.27			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	157.1%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	221	473	46	0	240	811	49	44	37	866	29	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1200	1200	1200
Total Lost time (s)	4.2	4.6			4.6	4.6	4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.88	1.00	0.96		1.00	0.89	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.97	1.00		0.93	1.00	
Frt	1.00	0.99			1.00	0.85	1.00	0.93		1.00	0.86	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1822			1863	1400	1721	1659		1043	901	
Flt Permitted	0.95	1.00			1.00	1.00	0.37	1.00		0.69	1.00	
Satd. Flow (perm)	1770	1822			1863	1400	676	1659		756	901	
Peak-hour factor, PHF	0.80	0.80	0.80	0.88	0.88	0.88	0.85	0.85	0.85	0.91	0.91	0.91
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	304	650	63	0	300	1014	63	57	48	1047	35	521
RTOR Reduction (vph)	0	2	0	0	0	290	0	11	0	0	157	0
Lane Group Flow (vph)	304	711	0	0	300	724	63	94	0	1047	399	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Prot	NA			NA	custom	Perm	NA		Perm	NA	
Protected Phases	5	2			6			7			3 4	
Permitted Phases				6		3 6	7			3 4		
Actuated Green, G (s)	18.8	41.4			18.4	75.8	99.4	99.4		99.4	99.4	
Effective Green, g (s)	18.8	41.4			18.4	75.8	99.4	99.4		99.4	99.4	
Actuated g/C Ratio	0.13	0.28			0.12	0.51	0.66	0.66		0.66	0.66	
Clearance Time (s)	4.2	4.6			4.6		4.6	4.6				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	221	502			228	707	447	1099		500	597	
v/s Ratio Prot	0.17	c0.39			0.16			0.06			0.44	
v/s Ratio Perm						0.52	0.09			c1.38		
v/c Ratio	1.38	1.42			1.32	1.02	0.14	0.09		2.09	0.67	
Uniform Delay, d1	65.6	54.3			65.8	37.1	9.4	9.0		25.3	15.3	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		0.75	2.52	
Incremental Delay, d2	194.9	198.7			169.7	39.9	0.1	0.0		492.9	0.3	
Delay (s)	260.5	253.0			235.5	77.0	9.6	9.1		511.8	38.9	
Level of Service	F	F			F	E	A	A		F	D	
Approach Delay (s)		255.2			113.2			9.3			347.8	
Approach LOS		F			F			A			F	

Intersection Summary				
HCM 2000 Control Delay	235.8	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	2.02			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	146.3%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	995	0	861	0	0	0	0	479	264	442	253	0
Ideal Flow (vphpl)	1200	1200	1200	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6					4.6	4.6	4.2	4.6	
Lane Util. Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00	1.00					1.00	0.92	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1118	1000					1863	1453	1770	1863	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1118	1000					1863	1453	1770	1863	
Peak-hour factor, PHF	0.93	0.93	0.93	0.50	0.50	0.50	0.91	0.91	0.91	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	1070	0	926	0	0	0	0	526	290	480	275	0
RTOR Reduction (vph)	0	0	192	0	0	0	0	0	117	0	0	0
Lane Group Flow (vph)	0	1070	734	0	0	0	0	526	173	480	275	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Split	NA	Prot					NA	Perm	Prot	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases									2			
Actuated Green, G (s)		41.4	41.4					21.4	21.4	8.8	34.4	
Effective Green, g (s)		41.4	41.4					21.4	21.4	8.8	34.4	
Actuated g/C Ratio		0.49	0.49					0.25	0.25	0.10	0.40	
Clearance Time (s)		4.6	4.6					4.6	4.6	4.2	4.6	
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		544	487					469	365	183	753	
v/s Ratio Prot		c0.96	0.73					c0.28		c0.27	0.15	
v/s Ratio Perm									0.12			
v/c Ratio		1.97	1.51					1.12	0.47	2.62	0.37	
Uniform Delay, d1		21.8	21.8					31.8	27.0	38.1	17.7	
Progression Factor		1.00	1.00					1.00	1.00	0.75	0.56	
Incremental Delay, d2		441.7	238.9					79.2	4.4	744.6	1.3	
Delay (s)		463.5	260.7					111.0	31.4	773.1	11.2	
Level of Service		F	F					F	C	F	B	
Approach Delay (s)		369.4			0.0			82.7			495.6	
Approach LOS		F			A			F			F	

Intersection Summary				
HCM 2000 Control Delay	330.5	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.79			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	154.8%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	173	50	69	384	536	269
Peak Hour Factor	0.80	0.80	0.88	0.88	0.95	0.95
Hourly flow rate (vph)	216	62	78	436	564	283

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	279	515	847
Volume Left (vph)	216	78	0
Volume Right (vph)	63	0	283
Hadj (s)	0.05	0.06	-0.17
Departure Headway (s)	6.9	6.0	5.7
Degree Utilization, x	0.53	0.86	1.0
Capacity (veh/h)	499	594	633
Control Delay (s)	17.4	34.5	180.2
Approach Delay (s)	17.4	34.5	180.2
Approach LOS	C	D	F

Intersection Summary			
Delay	106.8		
Level of Service	F		
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	395	76	12	558	23
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.73	0.73	0.89	0.89
Hourly flow rate (vph)	7	467	115	18	690	28
Pedestrians	30		30			30
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	3		3			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1591	184			163	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1591	184			163	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	43			50	
cM capacity (veh/h)	56	816			1381	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	7	467	133	718
Volume Left	7	0	0	690
Volume Right	0	467	18	0
cSH	56	816	1700	1381
Volume to Capacity	0.13	0.57	0.08	0.50
Queue Length 95th (ft)	10	92	0	72
Control Delay (s)	78.1	15.1	0.0	10.0
Lane LOS	F	C		A
Approach Delay (s)	16.1		0.0	10.0
Approach LOS	C			

Intersection Summary				
Average Delay		11.2		
Intersection Capacity Utilization		58.3%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	10	133	273	8	203	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.3		4.0	5.3
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.97	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1537	3518		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1537	3518		1770	3539
Peak-hour factor, PHF	0.88	0.88	0.90	0.90	0.88	0.88
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	12	166	334	10	254	486
RTOR Reduction (vph)	0	135	2	0	0	0
Lane Group Flow (vph)	12	31	342	0	254	486
Confl. Peds. (#/hr)	30	30		30	30	
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	9.1	9.1	13.9		12.8	30.7
Effective Green, g (s)	9.1	9.1	13.9		12.8	30.7
Actuated g/C Ratio	0.19	0.19	0.28		0.26	0.63
Clearance Time (s)	4.0	4.0	5.3		4.0	5.3
Vehicle Extension (s)	2.0	2.0	3.6		2.0	3.6
Lane Grp Cap (vph)	328	284	995		461	2212
v/s Ratio Prot	0.01		c0.10		c0.14	0.14
v/s Ratio Perm		c0.02				
v/c Ratio	0.04	0.11	0.34		0.55	0.22
Uniform Delay, d1	16.4	16.6	14.0		15.7	4.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.1	0.3		0.8	0.1
Delay (s)	16.4	16.7	14.2		16.5	4.1
Level of Service	B	B	B		B	A
Approach Delay (s)	16.7		14.2			8.3
Approach LOS	B		B			A

Intersection Summary				
HCM 2000 Control Delay		11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio		0.36		
Actuated Cycle Length (s)		49.1	Sum of lost time (s)	13.3
Intersection Capacity Utilization		50.5%	ICU Level of Service	A
Analysis Period (min)		15		
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	223	39	73	223	454	34	159	105	434	243	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.94		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.90		1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3420		1770	3002		1770	1716		1770	1802	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3420		1770	3002		1770	1716		1770	1802	
Peak-hour factor, PHF	0.84	0.84	0.84	0.86	0.86	0.86	0.94	0.94	0.94	0.85	0.85	0.85
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	177	292	51	93	285	581	40	186	123	562	314	66
RTOR Reduction (vph)	0	18	0	0	462	0	0	29	0	0	8	0
Lane Group Flow (vph)	177	325	0	93	404	0	40	280	0	562	372	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	7.7	18.5		4.7	15.5		3.4	15.4		21.9	33.9	
Effective Green, g (s)	7.7	18.5		4.7	15.5		3.4	15.4		21.9	33.9	
Actuated g/C Ratio	0.10	0.23		0.06	0.20		0.04	0.19		0.28	0.43	
Clearance Time (s)	4.4	4.9		4.4	4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)	2.0	3.3		2.0	3.3		2.0	2.0		2.0	2.7	
Lane Grp Cap (vph)	172	799		105	588		76	334		490	772	
v/s Ratio Prot	c0.10	c0.10		0.05	c0.13		0.02	c0.16		c0.32	0.21	
v/s Ratio Perm												
v/c Ratio	1.03	0.41		0.89	0.69		0.53	0.84		1.15	0.48	
Uniform Delay, d1	35.7	25.7		36.9	29.5		37.1	30.7		28.6	16.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	76.5	0.4		51.9	3.4		3.0	15.9		87.7	0.4	
Delay (s)	112.2	26.0		88.8	32.9		40.1	46.6		116.3	16.7	
Level of Service	F	C		F	C		D	D		F	B	
Approach Delay (s)		55.4			38.4			45.8			76.1	
Approach LOS		E			D			D			E	

Intersection Summary				
HCM 2000 Control Delay	55.3	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	79.1	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	92.2%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	474	625	25	43	432	448	59	23	107	291	170	830
Ideal Flow (vphpl)	1400	1900	1900	1900	1900	1400	1900	1400	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6		4.2	4.6	4.6	4.2	4.6	4.2	4.6	4.6	4.2
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.96	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1304	3507		1770	1863	1108	1770	1373	1519	1770	1863	1533
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1304	3507		1770	1863	1108	1770	1373	1519	1770	1863	1533
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.93	0.93	0.93	0.94	0.94	0.94
Growth Factor (vph)	125%	100%	100%	100%	100%	125%	100%	125%	100%	100%	100%	100%
Adj. Flow (vph)	705	744	30	47	475	615	63	31	115	310	181	883
RTOR Reduction (vph)	0	1	0	0	0	111	0	0	90	0	0	25
Lane Group Flow (vph)	705	773	0	47	475	504	63	31	25	310	181	858
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	52.9	80.2		9.1	36.4	57.8	7.0	12.9	22.0	21.4	27.7	80.6
Effective Green, g (s)	52.9	80.2		9.1	36.4	57.8	7.0	12.9	22.0	21.4	27.7	80.6
Actuated g/C Ratio	0.37	0.57		0.06	0.26	0.41	0.05	0.09	0.16	0.15	0.20	0.57
Clearance Time (s)	4.2	4.6		4.2	4.6	4.6	4.2	4.6	4.2	4.6	4.6	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	487	1986		113	478	488	87	125	236	267	364	872
v/s Ratio Prot	c0.54	0.22		0.03	0.26	c0.16	0.04	0.02	0.01	c0.18	0.10	c0.37
v/s Ratio Perm						0.30			0.01			0.19
v/c Ratio	1.45	0.39		0.42	0.99	1.03	0.72	0.25	0.11	1.16	0.50	0.98
Uniform Delay, d1	44.3	17.1		63.7	52.5	41.9	66.3	59.8	51.4	60.1	50.7	29.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	212.8	0.1		2.5	39.3	49.3	25.6	1.0	0.2	105.8	1.1	26.2
Delay (s)	257.1	17.2		66.2	91.8	91.2	91.9	60.9	51.6	165.9	51.8	56.1
Level of Service	F	B		E	F	F	F	E	D	F	D	E
Approach Delay (s)		131.6			90.4			65.1			80.3	
Approach LOS		F			F			E			F	

Intersection Summary				
HCM 2000 Control Delay	100.3	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.28			
Actuated Cycle Length (s)	141.6	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	109.6%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	8	16	29	8	158	8	431	13	237	483	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.8		4.0	4.8	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99			1.00		0.98	1.00		1.00	1.00	
Frt		0.96			0.89		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1713			1602		1742	3518		1770	3494	
Flt Permitted		0.80			0.95		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1399			1531		1742	3518		1770	3494	
Peak-hour factor, PHF	0.70	0.70	0.70	0.94	0.94	0.94	0.75	0.75	0.75	0.87	0.87	0.87
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	46	13	25	34	9	185	12	632	19	300	611	40
RTOR Reduction (vph)	0	19	0	0	140	0	0	3	0	0	5	0
Lane Group Flow (vph)	0	65	0	0	88	0	12	648	0	300	646	0
Confl. Peds. (#/hr)	30		30	30		30	30		30	30		30
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		13.2			13.2		0.6	20.9		7.5	27.8	
Effective Green, g (s)		13.2			13.2		0.6	20.9		7.5	27.8	
Actuated g/C Ratio		0.24			0.24		0.01	0.38		0.14	0.51	
Clearance Time (s)		4.0			4.0		4.0	4.8		4.0	4.8	
Vehicle Extension (s)		2.0			2.0		2.0	4.1		2.0	4.1	
Lane Grp Cap (vph)		339			371		19	1351		244	1785	
v/s Ratio Prot							0.01	c0.18		c0.17	0.18	
v/s Ratio Perm		0.05			c0.06							
v/c Ratio		0.19			0.24		0.63	0.48		1.23	0.36	
Uniform Delay, d1		16.4			16.6		26.8	12.6		23.4	8.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.1		40.9	0.4		133.8	0.2	
Delay (s)		16.5			16.7		67.7	13.0		157.2	8.2	
Level of Service		B			B		E	B		F	A	
Approach Delay (s)		16.5			16.7			14.0			55.2	
Approach LOS		B			B			B			E	

Intersection Summary				
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	12.8	
Intersection Capacity Utilization	60.0%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Yield			Stop	Stop	
Volume (vph)	43	57	41	54	44	25
Peak Hour Factor	0.88	0.88	0.89	0.89	0.71	0.71
Hourly flow rate (vph)	54	71	51	67	68	39

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	125	117	107
Volume Left (vph)	54	51	0
Volume Right (vph)	71	0	39
Hadj (s)	-0.22	0.12	-0.18
Departure Headway (s)	4.2	4.4	4.1
Degree Utilization, x	0.15	0.14	0.12
Capacity (veh/h)	819	785	842
Control Delay (s)	7.9	8.2	7.7
Approach Delay (s)	7.9	8.2	7.7
Approach LOS	A	A	A

Intersection Summary			
Delay	7.9		
Level of Service	A		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	80	1613	1405	153	0	185
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	117	2366	2061	224	0	271
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		169	260			
pX, platoon unblocked					0.64	
vC, conflicting volume	2285				3590	1143
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2285				3928	1143
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	46				100	0
cM capacity (veh/h)	218				1	194

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	117	1183	1183	1374	911	271
Volume Left	117	0	0	0	0	0
Volume Right	0	0	0	0	224	271
cSH	218	1700	1700	1700	1700	194
Volume to Capacity	0.54	0.70	0.70	0.81	0.54	1.40
Queue Length 95th (ft)	71	0	0	0	0	401
Control Delay (s)	39.1	0.0	0.0	0.0	0.0	254.1
Lane LOS	E					F
Approach Delay (s)	1.8			0.0		254.1
Approach LOS						F

Intersection Summary				
Average Delay	14.6			
Intersection Capacity Utilization	67.3%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians	30		30			30
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	3		3			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1080			
pX, platoon unblocked						
vC, conflicting volume	60	60			30	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60	60			30	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	900	956			1543	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	26.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	49	48	92	132	250	181
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	72	70	135	194	367	265
Pedestrians		30	30		30	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	3		3	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1187	926	1059	60	30	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1187	926	1059	60	30	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	0	64	17	80	76	
cM capacity (veh/h)	32	195	163	956	1543	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	142	329	632
Volume Left	72	0	367
Volume Right	0	194	265
cSH	54	318	1543
Volume to Capacity	2.64	1.03	0.24
Queue Length 95th (ft)	367	294	23
Control Delay (s)	905.4	96.3	5.6
Lane LOS	F	F	A
Approach Delay (s)	905.4	96.3	5.6
Approach LOS	F	F	

Intersection Summary				
Average Delay		148.7		
Intersection Capacity Utilization		60.1%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1118	66	273	358	5	66	0	273	8	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	3	1640	97	400	525	7	97	0	400	12	0	3
Pedestrians		30			30			30			30	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			3			3			3	
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)					570							
pX, platoon unblocked												
vC, conflicting volume	562			1767			3083	3087	928	2616	3132	589
vC1, stage 1 conf vol							1724	1724		1360	1360	
vC2, stage 2 conf vol							1359	1363		1256	1772	
vCu, unblocked vol	562			1767			3083	3087	928	2616	3132	589
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			0			0	0	0	0	0	99
cM capacity (veh/h)	980			340			0	0	256	0	0	429

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	823	917	400	532	97	400	15
Volume Left	3	0	400	0	97	0	12
Volume Right	0	97	0	7	0	400	3
cSH	980	1700	340	1700	0	256	0
Volume to Capacity	0.00	0.54	1.18	0.31	Err	1.56	Err
Queue Length 95th (ft)	0	0	414	0	Err	605	Err
Control Delay (s)	0.1	0.0	139.9	0.0	Err	306.5	Err
Lane LOS	A		F		F	F	F
Approach Delay (s)	0.0		60.1		Err		Err
Approach LOS					F		F

Intersection Summary				
Average Delay		Err		
Intersection Capacity Utilization		88.9%	ICU Level of Service	E
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	80	162	101	148	131	89	213	109	71	215	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0		4.0	5.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.93		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1647		1770	1720		1770	3360		1770	3406	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1647		1770	1720		1770	3360		1770	3406	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.90	0.90	0.90	0.87	0.87	0.87
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	64	100	202	129	189	168	109	260	133	90	272	77
RTOR Reduction (vph)	0	98	0	0	34	0	0	68	0	0	26	0
Lane Group Flow (vph)	64	204	0	129	323	0	109	325	0	90	323	0
Confl. Peds. (#/hr)	3		12	1		3	1					1
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3			7			1	6		5	2	
Permitted Phases		8			4							
Actuated Green, G (s)	4.2	15.6		7.9	17.8		6.7	17.6		4.9	15.8	
Effective Green, g (s)	4.2	15.6		7.9	17.8		6.7	17.6		4.9	15.8	
Actuated g/C Ratio	0.07	0.25		0.13	0.29		0.11	0.28		0.08	0.25	
Clearance Time (s)	4.5	4.0		4.0	5.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	3.0		3.0	2.0		2.0	4.3		2.0	4.3	
Lane Grp Cap (vph)	119	414		225	493		191	953		139	867	
v/s Ratio Prot	0.04			c0.07			c0.06	c0.10		0.05	0.09	
v/s Ratio Perm		0.12			c0.19							
v/c Ratio	0.54	0.49		0.57	0.65		0.57	0.34		0.65	0.37	
Uniform Delay, d1	28.0	19.8		25.5	19.4		26.3	17.6		27.7	19.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.3	0.9		3.5	2.4		2.5	0.3		7.5	0.4	
Delay (s)	30.3	20.7		29.0	21.8		28.8	17.9		35.3	19.4	
Level of Service	C	C		C	C		C	B		D	B	
Approach Delay (s)		22.4			23.7			20.3			22.7	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	17.5	
Intersection Capacity Utilization	50.9%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

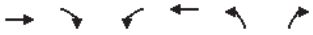
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	113	192	60	91	5	52	49	238	86	168	169	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0		4.2	5.5		4.2	5.5	3.0
Lane Util. Factor	0.95	0.95	1.00		0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.95		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1765	1583		3253		1770	3398		1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.77		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1765	1583		2573		1770	3398		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.82	0.82	0.82	0.81	0.81	0.81	0.88	0.88	0.88
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	135	230	72	122	7	70	67	323	117	210	211	211
RTOR Reduction (vph)	0	0	56	0	61	0	0	30	0	0	0	91
Lane Group Flow (vph)	121	244	16	0	138	0	67	410	0	210	211	120
Turn Type	Split	NA	Perm	Perm	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4			3		5	2		1	6	4
Permitted Phases			4	3								6
Actuated Green, G (s)	16.3	16.3	16.3		9.6		6.2	17.0		14.4	25.2	41.5
Effective Green, g (s)	16.3	16.3	16.3		9.6		6.2	17.0		14.4	25.2	41.5
Actuated g/C Ratio	0.22	0.22	0.22		0.13		0.08	0.23		0.20	0.35	0.57
Clearance Time (s)	3.0	3.0	3.0		3.0		4.2	5.5		4.2	5.5	3.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	4.3		2.0	4.3	2.0
Lane Grp Cap (vph)	375	394	353		338		150	791		349	1221	899
v/s Ratio Prot	0.07	c0.14					0.04	c0.12		c0.12	0.06	0.03
v/s Ratio Perm			0.01		c0.05							0.05
v/c Ratio	0.32	0.62	0.05		0.41		0.45	0.52		0.60	0.17	0.13
Uniform Delay, d1	23.7	25.6	22.2		29.1		31.8	24.4		26.7	16.6	7.4
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	2.0	0.0		0.3		0.8	0.9		2.0	0.1	0.0
Delay (s)	23.9	27.6	22.3		29.4		32.5	25.3		28.7	16.7	7.4
Level of Service	C	C	C		C		C	C		C	B	A
Approach Delay (s)		25.7			29.4			26.3			17.6	
Approach LOS		C			C			C			B	

Intersection Summary				
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	15.7	
Intersection Capacity Utilization	51.9%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	125	271	332	180	126	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.5	5.5		4.9	4.9
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3353		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3353		1770	1583
Peak-hour factor, PHF	0.97	0.97	0.90	0.90	0.88	0.88
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	142	307	406	220	158	271
RTOR Reduction (vph)	0	0	113	0	0	220
Lane Group Flow (vph)	142	307	513	0	158	51
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	5.7	26.4	16.3		8.6	8.6
Effective Green, g (s)	5.7	26.4	16.3		8.6	8.6
Actuated g/C Ratio	0.13	0.58	0.36		0.19	0.19
Clearance Time (s)	4.4	5.5	5.5		4.9	4.9
Vehicle Extension (s)	2.0	5.0	5.0		2.0	2.0
Lane Grp Cap (vph)	222	2057	1203		335	299
v/s Ratio Prot	c0.08	0.09	c0.15		c0.09	
v/s Ratio Perm						0.03
v/c Ratio	0.64	0.15	0.43		0.47	0.17
Uniform Delay, d1	18.9	4.4	11.0		16.4	15.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.4	0.1	0.5		0.4	0.1
Delay (s)	23.3	4.4	11.5		16.8	15.5
Level of Service	C	A	B		B	B
Approach Delay (s)		10.4	11.5		16.0	
Approach LOS		B	B		B	

Intersection Summary				
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	45.4	Sum of lost time (s)	14.8	
Intersection Capacity Utilization	44.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	261	74	136	180	58	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frt	0.97			1.00	1.00	0.85
Flt Protected	1.00			0.98	0.95	1.00
Satd. Flow (prot)	3422			3465	1770	1583
Flt Permitted	1.00			0.68	0.95	1.00
Satd. Flow (perm)	3422			2406	1770	1583
Peak-hour factor, PHF	0.83	0.83	0.86	0.86	0.76	0.76
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	346	98	174	230	84	268
RTOR Reduction (vph)	69	0	0	0	0	134
Lane Group Flow (vph)	375	0	0	404	84	134
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	12.0			12.0	20.0	20.0
Effective Green, g (s)	12.0			12.0	20.0	20.0
Actuated g/C Ratio	0.30			0.30	0.50	0.50
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1026			721	885	791
v/s Ratio Prot	0.11				0.05	
v/s Ratio Perm				c0.17		c0.08
v/c Ratio	0.37			0.56	0.09	0.17
Uniform Delay, d1	11.0			11.8	5.2	5.5
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.2			1.0	0.2	0.5
Delay (s)	11.2			12.8	5.5	5.9
Level of Service	B			B	A	A
Approach Delay (s)	11.2			12.8	5.8	
Approach LOS	B			B	A	

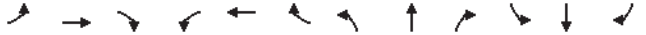
Intersection Summary				
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.32			
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	33.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	161	893	764	485	791	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.91	0.91	0.97	1.00
Frt	1.00	1.00	0.98	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3328	1441	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3328	1441	3433	1583
Peak-hour factor, PHF	0.77	0.77	0.88	0.88	0.61	0.61
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	230	1276	955	606	1426	341
RTOR Reduction (vph)	0	0	9	30	0	167
Lane Group Flow (vph)	230	1276	1079	443	1426	174
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	1	6	2	8	8	
Permitted Phases				2		8
Actuated Green, G (s)	14.9	55.1	35.8	80.9	45.1	45.1
Effective Green, g (s)	14.9	55.1	35.8	80.9	45.1	45.1
Actuated g/C Ratio	0.14	0.50	0.33	0.74	0.41	0.41
Clearance Time (s)	4.4	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	2.0	3.6	4.0	2.0	2.0	2.0
Lane Grp Cap (vph)	239	1772	1083	1123	1407	649
v/s Ratio Prot	c0.13	0.36	c0.32	0.16	c0.42	
v/s Ratio Perm				0.15		0.11
v/c Ratio	0.96	0.72	1.00	0.39	1.01	0.27
Uniform Delay, d1	47.3	21.4	37.0	5.4	32.5	21.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	47.2	2.6	26.4	0.1	27.4	0.1
Delay (s)	94.5	24.0	63.4	5.5	59.8	21.6
Level of Service	F	C	E	A	E	C
Approach Delay (s)		34.8	45.9		52.5	
Approach LOS		C	D		D	

Intersection Summary				
HCM 2000 Control Delay	44.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.00			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.2	
Intersection Capacity Utilization	75.4%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	1083	57	296	1108	156	64	84	436	209	62	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	5.1			5.1	5.1	5.1	5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3513		1770	3474			1823	1583	1770	1766	
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00	0.49	1.00	
Satd. Flow (perm)	1770	3513		1770	3474			1483	1583	906	1766	
Peak-hour factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93	0.73	0.73	0.73	0.89	0.89	0.89
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	32	1354	71	350	1311	185	96	127	657	258	77	41
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	238	0	16	0
Lane Group Flow (vph)	32	1422	0	350	1487	0	0	223	419	258	102	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		
Actuated Green, G (s)	3.0	49.1		24.2	70.1			34.1	34.1	34.1	34.1	
Effective Green, g (s)	3.0	49.1		24.2	70.1			34.1	34.1	34.1	34.1	
Actuated g/C Ratio	0.02	0.40		0.20	0.58			0.28	0.28	0.28	0.28	
Clearance Time (s)	4.4	4.9		4.4	5.1			5.1	5.1	5.1	5.1	
Vehicle Extension (s)	2.0	5.3		2.0	5.4			2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	43	1416		351	1999			415	443	253	494	
v/s Ratio Prot	0.02	c0.40		c0.20	0.43						0.06	
v/s Ratio Perm								0.15	0.26	c0.28		
v/c Ratio	0.74	1.00		1.00	0.74			0.54	0.95	1.02	0.21	
Uniform Delay, d1	59.0	36.3		48.8	19.2			37.2	43.0	43.8	33.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	45.4	24.9		46.9	1.9			0.7	29.1	61.8	0.1	
Delay (s)	104.4	61.3		95.7	21.1			37.8	72.1	105.6	33.6	
Level of Service	F	E		F	C			D	E	F	C	
Approach Delay (s)		62.2			35.3			63.4			83.0	
Approach LOS		E			D			E			F	

Intersection Summary				
HCM 2000 Control Delay	53.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.01			
Actuated Cycle Length (s)	121.8	Sum of lost time (s)	14.6	
Intersection Capacity Utilization	89.9%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

7: East Beyer Blvd/Otay Mesa Rd & Beyer Blvd

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	557	803	329	856	918	219	452	369	796	135	260	504
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.0	4.9	4.9	4.9	4.0	4.9	4.0		5.2	4.9
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	1770	1863	1583		1832	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.72	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	1770	1863	1583		1332	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	666	960	393	1023	1098	262	540	441	952	161	311	603
RTOR Reduction (vph)	0	0	70	0	0	55	0	0	0	0	0	45
Lane Group Flow (vph)	666	960	323	1023	1098	207	540	441	952	0	472	558
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Free	Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases			2			6			Free	4		4
Actuated Green, G (s)	26.9	30.1	50.1	44.1	47.3	47.3	20.0	61.1	150.0		36.8	63.7
Effective Green, g (s)	26.9	30.1	50.1	44.1	47.3	47.3	20.0	61.1	150.0		36.8	63.7
Actuated g/C Ratio	0.18	0.20	0.33	0.29	0.32	0.32	0.13	0.41	1.00		0.25	0.42
Clearance Time (s)	4.9	4.9	4.0	4.9	4.9	4.9	4.0	4.9			5.2	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	615	710	528	520	1115	499	236	758	1583		326	672
v/s Ratio Prot	0.19	c0.27	0.08	c0.58	0.31		c0.31	0.24				0.15
v/s Ratio Perm			0.12			0.13			0.60		c0.35	0.20
v/c Ratio	1.08	1.35	0.61	1.97	0.98	0.41	2.29	0.58	0.60		1.45	0.83
Uniform Delay, d1	61.5	59.9	41.8	53.0	51.0	40.4	65.0	34.5	0.0		56.6	38.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	60.8	167.7	2.1	442.2	23.1	0.6	592.9	1.1	1.7		218.0	8.4
Delay (s)	122.3	227.6	43.9	495.2	74.1	41.0	657.9	35.7	1.7		274.6	46.7
Level of Service	F	F	D	F	E	D	F	D	A		F	D
Approach Delay (s)		157.1			251.2			192.8			146.8	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM 2000 Control Delay	195.2	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.73			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0	
Intersection Capacity Utilization	144.0%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

8: Picador Blvd & SR-905 WB On Ramp/SR-905 WB Off Ramp

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	252	0	89	235	237	0	0	349	418
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6	4.6	4.2	5.0			5.0	5.0
Lane Util. Factor					1.00	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1770	1583	1770	3539			3539	1583
Flt Permitted					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1770	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.77	0.77	0.77	0.90	0.90	0.90	0.91	0.91	0.91
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	0	0	360	0	127	287	290	0	0	422	505
RTOR Reduction (vph)	0	0	0	0	0	88	0	0	0	0	0	371
Lane Group Flow (vph)	0	0	0	0	360	39	287	290	0	0	422	134
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)					17.4	17.4	10.1	29.2			14.9	14.9
Effective Green, g (s)					17.4	17.4	10.1	29.2			14.9	14.9
Actuated g/C Ratio					0.31	0.31	0.18	0.52			0.27	0.27
Clearance Time (s)					4.6	4.6	4.2	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					548	490	318	1838			938	419
v/s Ratio Prot							c0.16	0.08			c0.12	
v/s Ratio Perm					0.20	0.02						0.08
v/c Ratio					0.66	0.08	0.90	0.16			0.45	0.32
Uniform Delay, d1					16.8	13.7	22.6	7.1			17.2	16.6
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					2.8	0.1	27.2	0.0			0.3	0.4
Delay (s)					19.7	13.8	49.7	7.1			17.6	17.0
Level of Service					B	B	D	A			B	B
Approach Delay (s)		0.0			18.1			28.3			17.3	
Approach LOS		A			B			C			B	

Intersection Summary				
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	56.2	Sum of lost time (s)	13.8	
Intersection Capacity Utilization	69.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	0	160	0	0	0	0	331	367	225	399	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6					5.0		4.2	5.0	
Lane Util. Factor		1.00	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.92		1.00	1.00	
Flt Protected		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583					3260		1770	3539	
Flt Permitted		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)		1770	1583					3260		1770	3539	
Peak-hour factor, PHF	0.83	0.83	0.83	0.25	0.25	0.25	0.88	0.88	0.88	0.76	0.76	0.76
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	138	0	212	0	0	0	0	414	459	326	578	0
RTOR Reduction (vph)	0	0	151	0	0	0	0	198	0	0	0	0
Lane Group Flow (vph)	0	138	61	0	0	0	0	675	0	326	578	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4									
Actuated Green, G (s)		11.0	11.0					34.6		10.6	49.4	
Effective Green, g (s)		11.0	11.0					34.6		10.6	49.4	
Actuated g/C Ratio		0.16	0.16					0.49		0.15	0.71	
Clearance Time (s)		4.6	4.6					5.0		4.2	5.0	
Vehicle Extension (s)		3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)		278	248					1611		268	2497	
v/s Ratio Prot								c0.21		c0.18	0.16	
v/s Ratio Perm		0.08	0.04									
v/c Ratio		0.50	0.25					0.42		1.22	0.23	
Uniform Delay, d1		27.0	25.9					11.3		29.7	3.6	
Progression Factor		1.00	1.00					0.80		1.00	1.00	
Incremental Delay, d2		1.4	0.5					0.6		126.5	0.2	
Delay (s)		28.4	26.4					9.6		156.2	3.8	
Level of Service		C	C					A		F	A	
Approach Delay (s)		27.2			0.0			9.6			58.8	
Approach LOS		C			A			A			E	

Intersection Summary				
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.8	
Intersection Capacity Utilization	69.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	176	194	306	151	117	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.93		0.95		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1691		3364		1770	3539
Flt Permitted	0.98		1.00		0.39	1.00
Satd. Flow (perm)	1691		3364		732	3539
Peak-hour factor, PHF	0.68	0.68	0.81	0.81	0.86	0.86
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	285	314	416	205	150	257
RTOR Reduction (vph)	105	0	115	0	0	0
Lane Group Flow (vph)	494	0	506	0	150	257
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	14.5		17.5		17.5	17.5
Effective Green, g (s)	14.5		17.5		17.5	17.5
Actuated g/C Ratio	0.36		0.44		0.44	0.44
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	612		1471		320	1548
v/s Ratio Prot	c0.29		0.15			0.07
v/s Ratio Perm					c0.20	
v/c Ratio	0.81		0.34		0.47	0.17
Uniform Delay, d1	11.5		7.4		8.0	6.8
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	7.7		0.6		4.9	0.2
Delay (s)	19.2		8.1		12.8	7.1
Level of Service	B		A		B	A
Approach Delay (s)	19.2		8.1			9.2
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	100	44	6	191	97	15
Peak Hour Factor	0.80	0.80	0.60	0.60	0.68	0.68
Hourly flow rate (vph)	138	60	11	350	157	24

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	198	361	181
Volume Left (vph)	0	11	157
Volume Right (vph)	61	0	24
Hadj (s)	-0.15	0.04	0.13
Departure Headway (s)	4.7	4.7	5.3
Degree Utilization, x	0.26	0.47	0.27
Capacity (veh/h)	718	736	612
Control Delay (s)	9.4	11.8	10.3
Approach Delay (s)	9.4	11.8	10.3
Approach LOS	A	B	B

Intersection Summary				
Delay		10.8		
Level of Service		B		
Intersection Capacity Utilization		30.0%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	98	135	85	137	122	159
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	161	102	164	146	190
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	451					
pX, platoon unblocked						
vC, conflicting volume			279		565	198
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			279		565	198
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		67	77
cM capacity (veh/h)			1284		448	843

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	279	265	336
Volume Left	0	102	146
Volume Right	161	0	190
cSH	1700	1284	609
Volume to Capacity	0.16	0.08	0.55
Queue Length 95th (ft)	0	6	84
Control Delay (s)	0.0	3.5	17.9
Lane LOS		A	C
Approach Delay (s)	0.0	3.5	17.9
Approach LOS			C

Intersection Summary				
Average Delay		7.9		
Intersection Capacity Utilization		56.0%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	843					
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085

Direction, Lane #	EB 1	WB 1
Volume Total	0	0
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.00	0.00
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	54	216	30	32	153	61	10	42	39	112	97	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	258	36	38	183	73	12	50	47	134	116	128

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	359	294	109	378
Volume Left (vph)	65	38	12	134
Volume Right (vph)	36	73	47	128
Hadj (s)	0.01	-0.09	-0.20	-0.10
Departure Headway (s)	6.1	6.1	6.6	6.1
Degree Utilization, x	0.61	0.50	0.20	0.64
Capacity (veh/h)	546	533	434	559
Control Delay (s)	18.1	15.1	11.3	19.0
Approach Delay (s)	18.1	15.1	11.3	19.0
Approach LOS	C	C	B	C

Intersection Summary			
Delay	17.0		
Level of Service	C		
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	240	0	180	0	0	0	83	155	0	0	161	156
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	287	0	215	0	0	0	99	185	0	0	192	187

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	502	285	379
Volume Left (vph)	287	99	0
Volume Right (vph)	215	0	187
Hadj (s)	-0.11	0.10	-0.26
Departure Headway (s)	5.7	6.2	5.7
Degree Utilization, x	0.79	0.49	0.61
Capacity (veh/h)	605	535	594
Control Delay (s)	27.0	15.2	17.2
Approach Delay (s)	27.0	15.2	17.2
Approach LOS	D	C	C

Intersection Summary					
Delay	20.9				
Level of Service	C				
Intersection Capacity Utilization	70.6%	ICU Level of Service	C		
Analysis Period (min)	15				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	95	0	13	10	7	367	0	0	0	15	223	45
Peak Hour Factor	0.97	0.97	0.97	0.64	0.64	0.64	0.38	0.38	0.38	0.72	0.72	0.72
Hourly flow rate (vph)	108	0	15	17	12	631	0	0	0	23	341	69

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	122	660	432
Volume Left (vph)	108	17	23
Volume Right (vph)	15	631	69
Hadj (s)	0.14	-0.53	-0.05
Departure Headway (s)	6.4	5.0	5.9
Degree Utilization, x	0.22	0.91	0.71
Capacity (veh/h)	527	714	591
Control Delay (s)	11.2	37.6	21.7
Approach Delay (s)	11.2	37.6	21.7
Approach LOS	B	E	C

Intersection Summary					
Delay	29.3				
Level of Service	D				
Intersection Capacity Utilization	59.5%	ICU Level of Service	B		
Analysis Period (min)	15				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	13	0	0	105	308	42
Peak Hour Factor	0.70	0.70	0.53	0.53	0.60	0.60
Hourly flow rate (vph)	20	0	0	218	565	77

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	20	218	642
Volume Left (vph)	0	0	565
Volume Right (vph)	0	0	77
Hadj (s)	0.03	0.03	0.14
Departure Headway (s)	6.0	5.6	4.7
Degree Utilization, x	0.03	0.34	0.85
Capacity (veh/h)	561	604	747
Control Delay (s)	9.2	11.5	28.0
Approach Delay (s)	9.2	11.5	28.0
Approach LOS	A	B	D

Intersection Summary				
Delay	23.5			
Level of Service	C			
Intersection Capacity Utilization	34.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	67	44	21	332	269	27
Peak Hour Factor	0.72	0.72	0.62	0.62	0.56	0.56
Hourly flow rate (vph)	102	67	37	589	528	53

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total (vph)	170	626	528	53
Volume Left (vph)	102	0	528	0
Volume Right (vph)	0	589	0	53
Hadj (s)	0.15	-0.53	0.23	-0.57
Departure Headway (s)	7.1	5.6	6.4	3.2
Degree Utilization, x	0.34	0.98	0.95	0.05
Capacity (veh/h)	499	629	551	1121
Control Delay (s)	13.7	53.5	50.9	6.4
Approach Delay (s)	13.7	53.5	46.8	
Approach LOS	B	F	E	

Intersection Summary				
Delay	45.8			
Level of Service	E			
Intersection Capacity Utilization	56.8%	ICU Level of Service	B	
Analysis Period (min)	15			

19: Dairy Mart Rd & W. San Ysidro Blvd

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	228	67	65	140	198	166	237	577	221	139	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9	4.4	4.9	4.9	4.4	5.5	4.4	4.4	5.4	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.65	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1206	1863	1583	552	1863	1583
Peak-hour factor, PHF	0.81	0.81	0.81	0.84	0.84	0.84	0.79	0.79	0.79	0.80	0.80	0.80
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	58	281	83	77	167	236	210	300	730	276	174	89
RTOR Reduction (vph)	0	0	62	0	0	165	0	0	216	0	0	0
Lane Group Flow (vph)	58	281	21	77	167	71	210	300	514	276	174	89
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6	8		8	4		Free
Actuated Green, G (s)	3.8	17.3	17.3	7.5	21.0	21.0	19.6	15.5	23.0	30.1	21.6	69.6
Effective Green, g (s)	3.8	17.3	17.3	7.5	21.0	21.0	19.6	15.5	23.0	30.1	21.6	69.6
Actuated g/C Ratio	0.05	0.25	0.25	0.11	0.30	0.30	0.28	0.22	0.33	0.43	0.31	1.00
Clearance Time (s)	4.4	4.9	4.9	4.4	4.9	4.9	4.4	5.5	4.4	4.4	5.4	
Vehicle Extension (s)	2.0	2.9	2.9	2.0	2.9	2.9	2.0	3.9	2.0	2.0	3.9	
Lane Grp Cap (vph)	96	463	393	190	562	477	372	414	523	415	578	1583
v/s Ratio Prot	0.03	c0.15		0.04	c0.09		0.03	0.16	c0.11	c0.10	0.09	
v/s Ratio Perm			0.01			0.04	0.13		0.22	0.19		0.06
v/c Ratio	0.60	0.61	0.05	0.41	0.30	0.15	0.56	0.72	0.98	0.67	0.30	0.06
Uniform Delay, d1	32.2	23.1	19.9	29.0	18.6	17.8	20.6	25.1	23.1	14.2	18.3	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.2	2.2	0.1	0.5	0.3	0.1	1.2	6.6	34.8	3.1	0.4	0.1
Delay (s)	39.3	25.3	20.0	29.5	18.9	17.9	21.8	31.6	57.9	17.3	18.6	0.1
Level of Service	D	C	B	C	B	B	C	C	E	B	B	A
Approach Delay (s)		26.2			20.1			45.4			14.9	
Approach LOS		C			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	69.6	Sum of lost time (s)	19.2	
Intersection Capacity Utilization	71.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

20: I-5 NB Ramps & W. San Ysidro Blvd

11/21/2014

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	320	707	475	253	139	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.2	4.6	4.6	4.6
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	1770	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.96	0.96	0.81	0.81
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	383	845	544	290	189	185
RTOR Reduction (vph)	0	69	0	0	0	126
Lane Group Flow (vph)	383	776	544	290	189	59
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Actuated Green, G (s)	11.0	33.4	23.2	38.4	22.4	22.4
Effective Green, g (s)	11.0	33.4	23.2	38.4	22.4	22.4
Actuated g/C Ratio	0.16	0.48	0.33	0.55	0.32	0.32
Clearance Time (s)	4.6	4.6	4.2	4.6	4.6	4.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	556	859	586	1941	566	506
v/s Ratio Prot	0.11	c0.29	c0.31	0.08	0.11	
v/s Ratio Perm		0.20				0.04
v/c Ratio	0.69	0.90	0.93	0.15	0.33	0.12
Uniform Delay, d1	27.9	16.8	22.6	7.8	18.1	16.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	12.7	21.0	0.2	0.4	0.1
Delay (s)	31.4	29.5	43.6	7.9	18.5	16.9
Level of Service	C	C	D	A	B	B
Approach Delay (s)	30.1			31.2	17.7	
Approach LOS	C			C	B	

Intersection Summary				
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	84.4%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	77	237	412	90	109	319
Sign Control	Stop		Free			Free
Grade	0%		15%			0%
Peak Hour Factor	0.80	0.80	0.86	0.86	0.82	0.82
Hourly flow rate (vph)	96	296	479	105	133	389
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						525
pX, platoon unblocked	0.88					
vC, conflicting volume	1186	531			584	
vC1, stage 1 conf vol	531					
vC2, stage 2 conf vol	655					
vCu, unblocked vol	1143	531			584	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	46			87	
cM capacity (veh/h)	379	548			991	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	96	296	584	133	389
Volume Left	96	0	0	133	0
Volume Right	0	296	105	0	0
cSH	379	548	1700	991	1700
Volume to Capacity	0.25	0.54	0.34	0.13	0.23
Queue Length 95th (ft)	25	80	0	12	0
Control Delay (s)	17.7	19.0	0.0	9.2	0.0
Lane LOS	C	C		A	
Approach Delay (s)	18.7		0.0	2.3	
Approach LOS	C				

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	48.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	265	5	5	315	55	1	0	0	101	0	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			15%			0%			0%	
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		1.00			0.95	
Flt Protected	0.95	1.00			1.00	1.00		0.95			0.97	
Satd. Flow (prot)	1770	1858			1722	1465		1770			1711	
Flt Permitted	0.34	1.00			0.99	1.00		0.60			0.97	
Satd. Flow (perm)	625	1858			1713	1465		1118			1711	
Peak-hour factor, PHF	0.89	0.89	0.89	0.90	0.90	0.90	0.25	0.25	0.25	0.71	0.71	0.71
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	30	328	6	6	385	67	4	0	0	156	0	104
RTOR Reduction (vph)	0	1	0	0	0	45	0	0	0	0	74	0
Lane Group Flow (vph)	30	333	0	0	391	22	0	4	0	0	186	0
Parking (#/hr)												0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Split	NA	
Protected Phases		4			8			2		6	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	19.6	19.6			19.6	19.6		17.0			11.4	
Effective Green, g (s)	19.6	19.6			19.6	19.6		17.0			11.4	
Actuated g/C Ratio	0.33	0.33			0.33	0.33		0.28			0.19	
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	204	606			559	478		316			325	
v/s Ratio Prot		0.18									c0.11	
v/s Ratio Perm	0.05				c0.23	0.01		c0.00				
v/c Ratio	0.15	0.55			0.70	0.05		0.01			0.57	
Uniform Delay, d1	14.3	16.6			17.6	13.8		15.5			22.1	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.3	1.1			3.8	0.0		0.1			2.4	
Delay (s)	14.6	17.7			21.4	13.8		15.5			24.5	
Level of Service	B	B			C	B		B			C	
Approach Delay (s)		17.4			20.3			15.5			24.5	
Approach LOS		B			C			B			C	

Intersection Summary						
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service		C		
HCM 2000 Volume to Capacity ratio	0.43					
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		12.0		
Intersection Capacity Utilization	38.9%	ICU Level of Service		A		
Analysis Period (min)	15					

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	199	8	4	345	32	2	14	6	50	12	186
Sign Control		Free			Free			Stop			Stop	
Grade		0%			15%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.38	0.38	0.38	0.86	0.86	0.86
Hourly flow rate (vph)	55	231	9	5	401	37	5	37	16	58	14	216
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					579							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	438			241			979	793	236	804	779	420
vC1, stage 1 conf vol							345	345		429	429	
vC2, stage 2 conf vol							634	448		375	350	
vCu, unblocked vol	334			241			928	723	236	735	708	313
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			98	92	98	88	97	67
cM capacity (veh/h)	1116			1326			245	460	803	471	487	662

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	55	241	5	438	58	288
Volume Left	55	0	5	0	5	58
Volume Right	0	9	0	37	16	216
cSH	1116	1700	1326	1700	478	602
Volume to Capacity	0.05	0.14	0.00	0.26	0.12	0.48
Queue Length 95th (ft)	4	0	0	0	10	65
Control Delay (s)	8.4	0.0	7.7	0.0	13.6	16.4
Lane LOS	A		A		B	C
Approach Delay (s)	1.6		0.1		13.6	16.4
Approach LOS					B	C

Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	55.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	232	3	5	279	198	5	5	9	215	3	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9			4.9	4.9		4.9			4.9	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.93			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.96	
Satd. Flow (prot)	1770	1859			1861	1583		1719			1748	
Flt Permitted	0.50	1.00			0.99	1.00		0.91			0.74	
Satd. Flow (perm)	939	1859			1853	1583		1578			1354	
Peak-hour factor, PHF	0.83	0.83	0.83	0.91	0.91	0.91	0.65	0.65	0.65	0.73	0.73	0.73
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	52	307	4	6	337	239	8	8	15	324	5	68
RTOR Reduction (vph)	0	0	0	0	0	96	0	10	0	0	14	0
Lane Group Flow (vph)	52	311	0	0	343	143	0	21	0	0	383	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	35.4	35.4			35.4	35.4		24.8			24.8	
Effective Green, g (s)	35.4	35.4			35.4	35.4		24.8			24.8	
Actuated g/C Ratio	0.51	0.51			0.51	0.51		0.35			0.35	
Clearance Time (s)	4.9	4.9			4.9	4.9		4.9			4.9	
Vehicle Extension (s)	2.5	2.5			2.5	2.5		2.0			2.0	
Lane Grp Cap (vph)	474	940			937	800		559			479	
v/s Ratio Prot		0.17										
v/s Ratio Perm	0.06				c0.19	0.09		0.01			c0.28	
v/c Ratio	0.11	0.33			0.37	0.18		0.04			0.80	
Uniform Delay, d1	9.1	10.3			10.5	9.4		14.8			20.4	
Progression Factor	1.00	1.00			0.51	0.31		1.00			1.00	
Incremental Delay, d2	0.5	0.9			1.0	0.5		0.0			8.8	
Delay (s)	9.5	11.2			6.4	3.4		14.8			29.2	
Level of Service	A	B			A	A		B			C	
Approach Delay (s)		11.0			5.2			14.8			29.2	
Approach LOS		B			A			B			C	

Intersection Summary				
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	65.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	244	167	362	206	0	275	0	510	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.9	4.4	4.9			4.4	4.4			
Lane Util. Factor		0.95	1.00	0.97	1.00			1.00	1.00			
Frt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3539	1583	3433	1863			1770	1583			
Flt Permitted		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)		3539	1583	3433	1863			1770	1583			
Peak-hour factor, PHF	0.70	0.70	0.70	0.92	0.92	0.92	0.87	0.87	0.87	0.25	0.25	0.25
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	383	262	433	246	0	348	0	645	0	0	0
RTOR Reduction (vph)	0	0	169	0	0	0	0	0	105	0	0	0
Lane Group Flow (vph)	0	383	93	433	246	0	0	348	540	0	0	0
Turn Type		NA	Perm	Prot	NA		Split	NA	pm+ov			Perm
Protected Phases		2		1	6		8	8	1			
Permitted Phases			2						8			8 2 6
Actuated Green, G (s)		24.9	24.9	13.1	42.4			18.3	31.4			
Effective Green, g (s)		24.9	24.9	13.1	42.4			18.3	31.4			
Actuated g/C Ratio		0.36	0.36	0.19	0.61			0.26	0.45			
Clearance Time (s)		4.9	4.9	4.4	4.9			4.4	4.4			
Vehicle Extension (s)		4.8	4.8	2.0	4.8			2.0	2.0			
Lane Grp Cap (vph)		1258	563	642	1128			462	809			
v/s Ratio Prot		c0.11		0.13	0.13			0.20	c0.12			
v/s Ratio Perm			0.06						0.22			
v/c Ratio		0.30	0.17	0.67	0.22			0.75	0.67			
Uniform Delay, d1		16.3	15.4	26.5	6.3			23.8	15.2			
Progression Factor		0.92	1.75	1.00	1.00			1.00	1.00			
Incremental Delay, d2		0.6	0.6	2.2	0.2			6.1	1.6			
Delay (s)		15.5	27.5	28.7	6.5			29.9	16.8			
Level of Service		B	C	C	A			C	B			
Approach Delay (s)		20.4			20.6			21.4			0.0	
Approach LOS		C			C			C			A	

Intersection Summary				
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7	
Intersection Capacity Utilization	50.8%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	776	576	0	0	158
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.96	0.96	0.70	0.70
Hourly flow rate (vph)	0	970	660	0	0	248
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		233	383			
pX, platoon unblocked					0.93	
vC, conflicting volume	660				1145	330
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	660				1005	330
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	63
cM capacity (veh/h)	924				221	666

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	485	485	330	330	248
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	248
cSH	1700	1700	1700	1700	666
Volume to Capacity	0.29	0.29	0.19	0.19	0.37
Queue Length 95th (ft)	0	0	0	0	43
Control Delay (s)	0.0	0.0	0.0	0.0	13.6
Lane LOS					B
Approach Delay (s)	0.0		0.0		13.6
Approach LOS					B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	36.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	191	651	554	46	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.42	0.42
Hourly flow rate (vph)	233	796	662	55	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		382	234			
pX, platoon unblocked					0.97	
vC, conflicting volume	717				1555	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	717				1505	359
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	73				100	100
cM capacity (veh/h)	879				80	638

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	233	398	398	442	276
Volume Left	233	0	0	0	0
Volume Right	0	0	0	0	55
cSH	879	1700	1700	1700	1700
Volume to Capacity	0.27	0.23	0.23	0.26	0.16
Queue Length 95th (ft)	27	0	0	0	0
Control Delay (s)	10.6	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	2.4			0.0	
Approach LOS					

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	36.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	709	157	57	331	0	0	0	0	317	1	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.2	4.6					4.6	4.6	4.6
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.93	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1532	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.98	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1532	1504
Peak-hour factor, PHF	0.94	0.94	0.94	0.81	0.81	0.81	0.25	0.25	0.25	0.78	0.78	0.78
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	830	184	77	450	0	0	0	0	447	1	419
RTOR Reduction (vph)	0	0	74	0	0	0	0	0	0	0	52	187
Lane Group Flow (vph)	0	830	110	77	450	0	0	0	0	299	239	90
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		2		1	6					4	4	
Permitted Phases			2									4
Actuated Green, G (s)		19.4	19.4	2.5	26.1					17.1	17.1	17.1
Effective Green, g (s)		19.4	19.4	2.5	26.1					17.1	17.1	17.1
Actuated g/C Ratio		0.37	0.37	0.05	0.50					0.33	0.33	0.33
Clearance Time (s)		4.6	4.6	4.2	4.6					4.6	4.6	4.6
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1310	586	163	1762					548	499	490
v/s Ratio Prot		c0.23		c0.02	0.13					c0.18	0.16	
v/s Ratio Perm			0.07									0.06
v/c Ratio		0.63	0.19	0.47	0.26					0.55	0.48	0.18
Uniform Delay, d1		13.6	11.2	24.3	7.6					14.5	14.1	12.7
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.0	0.2	2.2	0.1					1.1	0.7	0.2
Delay (s)		14.6	11.3	26.5	7.6					15.6	14.8	12.8
Level of Service		B	B	C	A					B	B	B
Approach Delay (s)		14.0			10.4			0.0			14.4	
Approach LOS		B			B			A			B	

Intersection Summary				
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	52.4	Sum of lost time (s)		13.4
Intersection Capacity Utilization	49.9%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	223	753	378	424	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0		
Lane Util. Factor	0.97	0.95	0.95	1.00		
Frt	1.00	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	1.00		
Satd. Flow (prot)	3433	3539	3539	1583		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	3433	3539	3539	1583		
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	327	1104	554	622	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	327	1104	554	622	0	0
Turn Type	Prot	NA	NA	Free		
Protected Phases	5	2 4	6 8			
Permitted Phases				Free		
Actuated Green, G (s)	8.0	80.0	64.0	80.0		
Effective Green, g (s)	8.0	76.0	64.0	80.0		
Actuated g/C Ratio	0.10	0.95	0.80	1.00		
Clearance Time (s)	4.0					
Vehicle Extension (s)	3.0					
Lane Grp Cap (vph)	343	3362	2831	1583		
v/s Ratio Prot	c0.10	0.31	0.16			
v/s Ratio Perm				c0.39		
v/c Ratio	0.95	0.33	0.20	0.39		
Uniform Delay, d1	35.8	0.1	1.9	0.0		
Progression Factor	1.00	1.00	1.12	1.00		
Incremental Delay, d2	36.2	0.1	0.0	0.5		
Delay (s)	72.0	0.2	2.1	0.5		
Level of Service	E	A	A	A		
Approach Delay (s)		16.6	1.3		0.0	
Approach LOS		B	A		A	

Intersection Summary				
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.6	
Intersection Capacity Utilization	26.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	894	0	539	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9		4.9		
Lane Util. Factor		0.88		0.95		
Frt		0.85		1.00		
Flt Protected		1.00		1.00		
Satd. Flow (prot)		2787		3539		
Flt Permitted		1.00		1.00		
Satd. Flow (perm)		2787		3539		
Peak-hour factor, PHF	0.89	0.89	0.81	0.81	0.67	0.67
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	1105	0	732	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1105	0	732	0	0
Turn Type		Prot	Prot	NA		
Protected Phases		2	1	6		
Permitted Phases						
Actuated Green, G (s)		40.0		40.0		
Effective Green, g (s)		40.0		40.0		
Actuated g/C Ratio		1.00		1.00		
Clearance Time (s)		4.9		4.9		
Vehicle Extension (s)		2.5		2.5		
Lane Grp Cap (vph)		2787		3539		
v/s Ratio Prot		c0.40		0.21		
v/s Ratio Perm						
v/c Ratio		0.40		0.21		
Uniform Delay, d1		0.0		0.0		
Progression Factor		1.00		1.00		
Incremental Delay, d2		0.4		0.0		
Delay (s)		0.4		0.0		
Level of Service		A		A		
Approach Delay (s)	0.4			0.0	0.0	
Approach LOS	A			A	A	

Intersection Summary				
HCM 2000 Control Delay	0.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.9	
Intersection Capacity Utilization	38.5%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	509	3	16	4	520	2	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.9			4.9	4.0		4.9	
Lane Util. Factor					0.95			1.00	0.88		1.00	
Frt					1.00			1.00	0.85		0.89	
Flt Protected					1.00			0.96	1.00		0.99	
Satd. Flow (prot)					3536			1791	2787		1645	
Flt Permitted					1.00			1.00	1.00		0.92	
Satd. Flow (perm)					3536			1863	2787		1533	
Peak-hour factor, PHF	0.84	0.84	0.84	0.74	0.74	0.74	0.73	0.73	0.73	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	0	0	0	757	4	24	6	784	3	0	12
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	0	0	0	761	0	0	30	784	0	1	0
Turn Type					NA		Perm	NA	Free	Perm	NA	
Protected Phases					6			8			4	
Permitted Phases							8		Free	4		
Actuated Green, G (s)					47.4			2.8	60.0		2.8	
Effective Green, g (s)					47.4			2.8	60.0		2.8	
Actuated g/C Ratio					0.79			0.05	1.00		0.05	
Clearance Time (s)					4.9			4.9			4.9	
Vehicle Extension (s)					2.1			2.0			2.0	
Lane Grp Cap (vph)					2793			86	2787		71	
v/s Ratio Prot					0.22							
v/s Ratio Perm								0.02	c0.28		0.00	
v/c Ratio					0.27			0.35	0.28		0.01	
Uniform Delay, d1					1.7			27.7	0.0		27.3	
Progression Factor					1.00			1.00	1.00		1.00	
Incremental Delay, d2					0.2			0.9	0.3		0.0	
Delay (s)					1.9			28.6	0.3		27.3	
Level of Service					A			C	A		C	
Approach Delay (s)		0.0			1.9			1.3			27.3	
Approach LOS		A			A			A			C	

Intersection Summary				
HCM 2000 Control Delay	1.8	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	27.5%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	128	265	212	67	16	263	141	139	29	89	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9	4.4	4.9		4.9	4.9			5.8	4.0
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95		0.97	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.93			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1770	3539	2787	1770	3437		3433	1724			1840	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.81	1.00
Satd. Flow (perm)	1770	3539	2787	1770	3437		3433	1724			1507	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	124	153	317	253	80	19	314	169	166	35	106	73
RTOR Reduction (vph)	0	0	214	0	14	0	0	34	0	0	0	0
Lane Group Flow (vph)	124	153	103	253	85	0	314	301	0	0	141	73
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Perm	NA	Free
Protected Phases	5	2	3	1	6		3	8			4	
Permitted Phases			2							4		Free
Actuated Green, G (s)	9.8	11.7	23.1	16.8	18.7		11.4	28.5			11.3	71.2
Effective Green, g (s)	9.8	11.7	23.1	16.8	18.7		11.4	28.5			11.3	71.2
Actuated g/C Ratio	0.14	0.16	0.32	0.24	0.26		0.16	0.40			0.16	1.00
Clearance Time (s)	4.4	4.9	4.9	4.4	4.9		4.9	4.9			5.8	
Vehicle Extension (s)	2.0	6.0	2.0	2.0	3.1		2.0	2.0			2.0	
Lane Grp Cap (vph)	243	581	1096	417	902		549	690			239	1583
v/s Ratio Prot	0.07	c0.04	0.02	c0.14	0.02		c0.09	0.17				
v/s Ratio Perm			0.02								c0.09	0.05
v/c Ratio	0.51	0.26	0.09	0.61	0.09		0.57	0.44			0.59	0.05
Uniform Delay, d1	28.5	26.0	16.8	24.3	19.8		27.6	15.5			27.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.8	0.7	0.0	1.7	0.0		0.9	0.2			2.4	0.1
Delay (s)	29.2	26.7	16.8	26.0	19.9		28.5	15.7			30.2	0.1
Level of Service	C	C	B	C	B		C	B			C	A
Approach Delay (s)		21.9			24.3			21.9			19.9	
Approach LOS		C			C			C			B	

Intersection Summary				
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	59.9%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	197	218	75	165	0	0	0	0	0	59	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0						4.0	
Lane Util. Factor	1.00	1.00			1.00						1.00	
Frt	1.00	0.92			1.00						0.91	
Flt Protected	0.95	1.00			0.98						1.00	
Satd. Flow (prot)	1770	1716			1834						1704	
Flt Permitted	0.95	1.00			0.98						1.00	
Satd. Flow (perm)	1770	1716			1834						1704	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	239	236	261	90	197	0	0	0	0	0	71	122
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	102	0
Lane Group Flow (vph)	239	437	0	0	287	0	0	0	0	0	91	0
Turn Type	Split	NA		Split	NA						NA	
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	15.8	15.8			12.2						8.0	
Effective Green, g (s)	15.8	15.8			12.2						8.0	
Actuated g/C Ratio	0.33	0.33			0.25						0.17	
Clearance Time (s)	4.0	4.0			4.0						4.0	
Vehicle Extension (s)	3.0	3.0			3.0						3.0	
Lane Grp Cap (vph)	582	564			466						284	
v/s Ratio Prot	0.14	c0.25			c0.16						c0.05	
v/s Ratio Perm												
v/c Ratio	0.41	0.77			0.62						0.32	
Uniform Delay, d1	12.5	14.5			15.8						17.6	
Progression Factor	1.00	1.00			1.00						1.00	
Incremental Delay, d2	0.5	6.6			2.4						0.7	
Delay (s)	13.0	21.1			18.2						18.3	
Level of Service	B	C			B						B	
Approach Delay (s)		18.4			18.2			0.0			18.3	
Approach LOS		B			B			A			B	

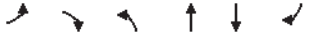
Intersection Summary				
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	48.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	60.5%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	80	0	215	308	519	0	0	275	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00		1.00	1.00	1.00			0.95	
Frt				1.00		0.85	1.00	1.00			0.93	
Flt Protected				0.95		1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770		1583	1770	1863			3275	
Flt Permitted				0.95		1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770		1583	1770	1863			3275	
Peak-hour factor, PHF	0.80	0.80	0.80	0.88	0.88	0.88	0.82	0.82	0.82	0.78	0.78	0.78
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	0	0	100	0	269	413	696	0	0	388	384
RTOR Reduction (vph)	0	0	0	0	0	197	0	0	0	0	286	0
Lane Group Flow (vph)	0	0	0	100	0	72	413	696	0	0	486	0
Turn Type				Perm		Perm	Prot	NA			NA	
Protected Phases							5	2			6	
Permitted Phases				8		8						
Actuated Green, G (s)				8.6		8.6	15.0	31.2			12.2	
Effective Green, g (s)				8.6		8.6	15.0	31.2			12.2	
Actuated g/C Ratio				0.18		0.18	0.31	0.65			0.26	
Clearance Time (s)				4.0		4.0	4.0	4.0			4.0	
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				318		284	555	1216			835	
v/s Ratio Prot							c0.23	c0.37			0.15	
v/s Ratio Perm				c0.06		0.05						
v/c Ratio				0.31		0.25	0.74	0.57			0.58	
Uniform Delay, d1				17.0		16.8	14.7	4.6			15.6	
Progression Factor				1.00		1.00	1.00	1.00			1.00	
Incremental Delay, d2				0.6		0.5	5.4	0.7			1.0	
Delay (s)				17.6		17.3	20.1	5.3			16.6	
Level of Service				B		B	C	A			B	
Approach Delay (s)		0.0			17.4			10.8			16.6	
Approach LOS		A			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	57.5%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	97	349	0	759	401	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00		1.00	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		1863	3539	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		1863	3539	
Peak-hour factor, PHF	0.79	0.79	0.70	0.70	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	135	486	0	1193	588	0
RTOR Reduction (vph)	0	223	0	0	0	0
Lane Group Flow (vph)	135	263	0	1193	588	0
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	4			3	
Permitted Phases		3 4		7		
Actuated Green, G (s)	24.6	75.8		80.4	51.2	
Effective Green, g (s)	24.6	75.8		80.4	51.2	
Actuated g/C Ratio	0.18	0.54		0.57	0.37	
Clearance Time (s)	4.6	4.6		4.6	4.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	311	909		1069	1294	
v/s Ratio Prot	0.08	0.05			0.17	
v/s Ratio Perm		0.12		c0.64		
v/c Ratio	0.43	0.29		1.12	0.45	
Uniform Delay, d1	51.5	17.5		29.8	33.8	
Progression Factor	1.00	1.00		1.07	1.00	
Incremental Delay, d2	1.0	0.2		58.9	0.3	
Delay (s)	52.5	17.6		90.7	34.0	
Level of Service	D	B		F	C	
Approach Delay (s)	25.2			90.7	34.0	
Approach LOS	C			F	C	

Intersection Summary				
HCM 2000 Control Delay	59.9	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	57.5%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	183	31	13	163	686	20	25	27	406	13	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6			4.6	4.6	4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.92		1.00	0.86	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1822			1856	1583	1770	1717		1770	1603	
Flt Permitted	0.95	1.00			0.75	1.00	0.56	1.00		0.71	1.00	
Satd. Flow (perm)	1770	1822			1396	1583	1052	1717		1322	1603	
Peak-hour factor, PHF	0.81	0.81	0.81	0.85	0.85	0.85	0.79	0.79	0.79	0.81	0.81	0.81
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	340	249	42	17	211	888	28	35	38	551	18	234
RTOR Reduction (vph)	0	4	0	0	0	243	0	16	0	0	100	0
Lane Group Flow (vph)	340	287	0	0	228	645	28	57	0	551	152	0
Turn Type	Prot	NA		Perm	NA	custom	Perm	NA		Perm	NA	
Protected Phases	5	2			6			7			3 4	
Permitted Phases				6		3 6	7			3 4		
Actuated Green, G (s)	22.8	50.4			23.4	79.2	80.4	80.4		80.4	80.4	
Effective Green, g (s)	22.8	50.4			23.4	79.2	80.4	80.4		80.4	80.4	
Actuated g/C Ratio	0.16	0.36			0.17	0.57	0.57	0.57		0.57	0.57	
Clearance Time (s)	4.2	4.6			4.6		4.6	4.6				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	288	655			233	895	604	986		759	920	
v/s Ratio Prot	c0.19	0.16						0.03			0.10	
v/s Ratio Perm					c0.16	0.41	0.03			c0.42		
v/c Ratio	1.18	0.44			0.98	0.72	0.05	0.06		0.73	0.17	
Uniform Delay, d1	58.6	34.0			58.1	22.3	13.0	13.1		21.8	14.0	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		0.51	0.00	
Incremental Delay, d2	111.1	0.5			52.3	2.9	0.0	0.0		3.2	0.1	
Delay (s)	169.7	34.5			110.3	25.2	13.1	13.1		14.4	0.1	
Level of Service	F	C			F	C	B	B		B	A	
Approach Delay (s)		107.4			42.6			13.1			9.9	
Approach LOS		F			D			B			A	

Intersection Summary				
HCM 2000 Control Delay	47.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	76.8%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

37: Dairy Mart Rd & I-5 SB Ramps

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	443	0	287	0	0	0	0	469	149	140	124	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.6					4.6	4.6	4.2	4.6	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	0.80	0.80	0.80	0.50	0.50	0.50	0.88	0.88	0.88	0.81	0.81	0.81
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	554	0	359	0	0	0	0	533	169	173	153	0
RTOR Reduction (vph)	0	0	263	0	0	0	0	0	97	0	0	0
Lane Group Flow (vph)	277	277	96	0	0	0	0	533	72	173	153	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	18.7	18.7	18.7					30.0	30.0	7.9	42.1	
Effective Green, g (s)	18.7	18.7	18.7					30.0	30.0	7.9	42.1	
Actuated g/C Ratio	0.27	0.27	0.27					0.43	0.43	0.11	0.60	
Clearance Time (s)	4.6	4.6	4.6					4.6	4.6	4.2	4.6	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	449	449	422					1516	678	387	1120	
v/s Ratio Prot	c0.16	0.16						c0.15		c0.05	0.08	
v/s Ratio Perm			0.06						0.05			
v/c Ratio	0.62	0.62	0.23					0.35	0.11	0.45	0.14	
Uniform Delay, d1	22.5	22.5	20.0					13.5	12.0	29.0	6.1	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	2.5	0.3					0.6	0.3	0.8	0.3	
Delay (s)	25.0	25.0	20.3					14.1	12.3	29.8	6.3	
Level of Service	C	C	C					B	B	C	A	
Approach Delay (s)		23.2			0.0			13.7			18.8	
Approach LOS		C			A			B			B	

Intersection Summary				
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	40.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

38: Dairy Mart Rd & Servando Ave

11/21/2014

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	290	27	13	316	165	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.94	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	1761			1859	1743	
Flt Permitted	0.96			0.98	1.00	
Satd. Flow (perm)	1761			1827	1743	
Peak-hour factor, PHF	0.77	0.77	0.82	0.82	0.80	0.80
Adj. Flow (vph)	377	35	16	385	206	188
RTOR Reduction (vph)	9	0	0	0	73	0
Lane Group Flow (vph)	403	0	0	401	321	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	13.3			18.7	18.7	
Effective Green, g (s)	13.3			18.7	18.7	
Actuated g/C Ratio	0.33			0.47	0.47	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	585			854	814	
v/s Ratio Prot	c0.23				0.18	
v/s Ratio Perm				c0.22		
v/c Ratio	0.69			0.47	0.39	
Uniform Delay, d1	11.6			7.3	7.0	
Progression Factor	1.00			0.98	1.00	
Incremental Delay, d2	3.4			1.7	1.4	
Delay (s)	14.9			8.8	8.4	
Level of Service	B			A	A	
Approach Delay (s)	14.9			8.8	8.4	
Approach LOS	B			A	A	

Intersection Summary				
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	51.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	6	346	17	1	158	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			0.96
Satd. Flow (prot)	1770	1583	1853			1787
Flt Permitted	0.95	1.00	1.00			0.75
Satd. Flow (perm)	1770	1583	1853			1406
Peak-hour factor, PHF	0.89	0.89	0.75	0.75	0.79	0.79
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	7	428	25	1	220	40
RTOR Reduction (vph)	0	342	0	0	0	0
Lane Group Flow (vph)	7	86	26	0	0	260
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	8.0	8.0	24.0			24.0
Effective Green, g (s)	8.0	8.0	24.0			24.0
Actuated g/C Ratio	0.20	0.20	0.60			0.60
Clearance Time (s)	4.0	4.0	4.0			4.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	354	316	1111			843
v/s Ratio Prot	0.00		0.01			
v/s Ratio Perm		c0.05				c0.18
v/c Ratio	0.02	0.27	0.02			0.31
Uniform Delay, d1	12.9	13.5	3.2			3.9
Progression Factor	1.00	1.00	1.00			1.56
Incremental Delay, d2	0.0	0.5	0.0			0.9
Delay (s)	12.9	14.0	3.3			7.0
Level of Service	B	B	A			A
Approach Delay (s)	14.0		3.3			7.0
Approach LOS	B		A			A

Intersection Summary				
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.30			
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	33.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	4	210	109	3	77	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.3		4.0	5.3
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3525		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3525		1770	3539
Peak-hour factor, PHF	0.71	0.71	0.80	0.80	0.87	0.87
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	6	325	150	4	97	167
RTOR Reduction (vph)	0	292	2	0	0	0
Lane Group Flow (vph)	6	33	152	0	97	167
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	7.1	7.1	42.4		7.2	53.6
Effective Green, g (s)	7.1	7.1	42.4		7.2	53.6
Actuated g/C Ratio	0.10	0.10	0.61		0.10	0.77
Clearance Time (s)	4.0	4.0	5.3		4.0	5.3
Vehicle Extension (s)	2.0	2.0	3.6		2.0	3.6
Lane Grp Cap (vph)	179	160	2135		182	2709
v/s Ratio Prot	0.00		c0.04		c0.05	0.05
v/s Ratio Perm		c0.02				
v/c Ratio	0.03	0.21	0.07		0.53	0.06
Uniform Delay, d1	28.4	28.9	5.7		29.8	2.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	0.1		1.5	0.0
Delay (s)	28.4	29.1	5.8		31.3	2.1
Level of Service	C	C	A		C	A
Approach Delay (s)	29.1		5.8			12.8
Approach LOS	C		A			B

Intersection Summary				
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.15			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.3	
Intersection Capacity Utilization	27.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

41: Willow Rd & Camino de la Plaza

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	122	11	17	96	177	5	28	15	161	46	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9	4.4	4.4	4.9		4.4	4.9	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3497		1770	1863	1583	1770	1763		1770	1723	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3497		1770	1863	1583	1770	1763		1770	1723	
Peak-hour factor, PHF	0.90	0.90	0.90	0.71	0.71	0.71	0.80	0.80	0.80	0.89	0.89	0.89
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	84	149	13	26	149	274	7	38	21	199	57	57
RTOR Reduction (vph)	0	9	0	0	0	164	0	17	0	0	36	0
Lane Group Flow (vph)	84	153	0	26	149	110	7	42	0	199	78	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	3.4	14.3		0.6	11.5	21.5	0.6	9.9		10.0	19.3	
Effective Green, g (s)	3.4	14.3		0.6	11.5	21.5	0.6	9.9		10.0	19.3	
Actuated g/C Ratio	0.06	0.27		0.01	0.22	0.40	0.01	0.19		0.19	0.36	
Clearance Time (s)	4.4	4.9		4.4	4.9	4.4	4.4	4.9		4.4	4.9	
Vehicle Extension (s)	2.0	3.3		2.0	3.3	2.0	2.0	2.0		2.0	2.7	
Lane Grp Cap (vph)	112	936		19	401	637	19	326		331	622	
v/s Ratio Prot	c0.05	c0.04		0.01	c0.08	0.03	0.00	0.02		c0.11	c0.05	
v/s Ratio Perm						0.04						
v/c Ratio	0.75	0.16		1.37	0.37	0.17	0.37	0.13		0.60	0.12	
Uniform Delay, d1	24.6	15.0		26.4	17.9	10.2	26.2	18.2		19.9	11.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.8	0.1		338.3	0.6	0.0	4.4	0.1		2.1	0.1	
Delay (s)	46.4	15.1		364.7	18.5	10.3	30.6	18.2		22.0	11.5	
Level of Service	D	B		F	B	B	C	B		C	B	
Approach Delay (s)		25.8			33.5			19.5			18.2	
Approach LOS		C			C			B			B	

Intersection Summary				
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	38.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

42: Camiones Way/I-5 SB Ramps & Camino de la Plaza

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	269	4	7	176	84	5	2	26	297	30	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6		4.2	4.6	4.6	4.2	4.6	4.2	4.6	4.6	4.2
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3531		1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3531		1770	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.67	0.67	0.67	0.86	0.86	0.86	0.81	0.81	0.81	0.84	0.84	0.84
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	105	442	7	9	225	107	7	3	35	389	39	445
RTOR Reduction (vph)	0	1	0	0	0	55	0	0	29	0	0	215
Lane Group Flow (vph)	105	448	0	9	225	52	7	3	6	389	39	230
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	8.3	19.3		3.6	14.6	33.1	0.9	9.0	12.6	18.5	27.0	35.3
Effective Green, g (s)	8.3	19.3		3.6	14.6	33.1	0.9	9.0	12.6	18.5	27.0	35.3
Actuated g/C Ratio	0.12	0.28		0.05	0.21	0.48	0.01	0.13	0.18	0.27	0.39	0.52
Clearance Time (s)	4.2	4.6		4.2	4.6	4.6	4.2	4.6	4.2	4.6	4.6	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	214	996		93	397	872	23	245	291	478	735	816
v/s Ratio Prot	c0.06	0.13		0.01	c0.12	0.02	0.00	0.00	0.00	c0.22	0.02	c0.03
v/s Ratio Perm						0.02			0.00			0.11
v/c Ratio	0.49	0.45		0.10	0.57	0.06	0.30	0.01	0.02	0.81	0.05	0.28
Uniform Delay, d1	28.1	20.2		30.9	24.1	9.4	33.4	25.8	22.9	23.3	12.8	9.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.3		0.5	1.9	0.0	7.4	0.0	0.0	10.2	0.0	0.2
Delay (s)	29.8	20.5		31.3	25.9	9.4	40.8	25.9	22.9	33.5	12.8	9.6
Level of Service	C	C		C	C	A	D	C	C	C	B	A
Approach Delay (s)		22.3			20.9			25.9			20.4	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	50.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

43: Smythe Ave & Avenida de la Madrid

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	22	56	61	32	258	63	413	46	203	680	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.8		4.0	4.8	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.94			0.90		1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1720			1664		1770	3486		1770	3486	
Flt Permitted		0.51			0.88		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		897			1481		1770	3486		1770	3486	
Peak-hour factor, PHF	0.54	0.54	0.54	0.68	0.68	0.68	0.89	0.89	0.89	0.94	0.94	0.94
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	106	45	114	99	52	417	78	510	57	238	796	88
RTOR Reduction (vph)	0	43	0	0	156	0	0	11	0	0	11	0
Lane Group Flow (vph)	0	222	0	0	412	0	78	556	0	238	873	0
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		21.6			21.6		4.4	24.1		11.5	31.2	
Effective Green, g (s)		21.6			21.6		4.4	24.1		11.5	31.2	
Actuated g/C Ratio		0.31			0.31		0.06	0.34		0.16	0.45	
Clearance Time (s)		4.0			4.0		4.0	4.8		4.0	4.8	
Vehicle Extension (s)		2.0			2.0		2.0	4.1		2.0	4.1	
Lane Grp Cap (vph)		276			456		111	1200		290	1553	
v/s Ratio Prot							c0.04	0.16		c0.13	c0.25	
v/s Ratio Perm		0.25			c0.28							
v/c Ratio		0.80			0.90		0.70	0.46		0.82	0.56	
Uniform Delay, d1		22.3			23.2		32.2	17.9		28.3	14.4	
Progression Factor		1.00			1.00		1.00	1.00		0.94	0.93	
Incremental Delay, d2		14.7			20.5		15.1	1.3		15.9	1.5	
Delay (s)		37.0			43.7		47.3	19.2		42.5	14.8	
Level of Service		D			D		D	B		D	B	
Approach Delay (s)		37.0			43.7			22.6			20.7	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.8	
Intersection Capacity Utilization	62.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

44: Avenida de la Madrid & Alaquinas Dr

11/21/2014

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Yield			Stop	Stop	
Volume (vph)	14	120	193	40	24	43
Peak Hour Factor	0.65	0.65	0.56	0.56	0.64	0.64
Hourly flow rate (vph)	24	203	379	79	41	74

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	227	458	115
Volume Left (vph)	24	379	0
Volume Right (vph)	203	0	74
Hadj (s)	-0.48	0.20	-0.35
Departure Headway (s)	4.8	4.8	4.7
Degree Utilization, x	0.30	0.61	0.15
Capacity (veh/h)	682	717	708
Control Delay (s)	9.9	15.2	8.6
Approach Delay (s)	9.9	15.2	8.6
Approach LOS	A	C	A

Intersection Summary			
Delay	12.7		
Level of Service	B		
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	1059	0	0	560	90	70	26	242	0	0	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6			4.6			4.0	4.0			4.0
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00			1.00
Frt	1.00	1.00			0.98			1.00	0.85			0.86
Flt Protected	0.95	1.00			1.00			0.96	1.00			1.00
Satd. Flow (prot)	1770	3539			3466			1797	1583			1611
Flt Permitted	0.25	1.00			1.00			0.96	1.00			1.00
Satd. Flow (perm)	468	3539			3466			1797	1583			1611
Peak-hour factor, PHF	0.95	0.95	0.95	0.82	0.82	0.82	0.85	0.85	0.85	0.25	0.25	0.25
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	30	1226	0	0	751	121	91	34	313	0	0	774
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	48	0	0	108
Lane Group Flow (vph)	30	1226	0	0	854	0	0	125	265	0	0	666
Turn Type	Perm	NA			NA		Perm	NA	Perm			Perm
Protected Phases		2			6 5			8				
Permitted Phases	2						8		8			4
Actuated Green, G (s)	42.4	42.4			42.4			29.0	29.0			29.0
Effective Green, g (s)	42.4	42.4			38.4			29.0	29.0			29.0
Actuated g/C Ratio	0.53	0.53			0.48			0.36	0.36			0.36
Clearance Time (s)	4.6	4.6						4.0	4.0			4.0
Vehicle Extension (s)	3.0	3.0						3.0	3.0			3.0
Lane Grp Cap (vph)	248	1875			1663			651	573			583
v/s Ratio Prot		c0.35			0.25							
v/s Ratio Perm	0.06							0.07	0.17			c0.41
v/c Ratio	0.12	0.65			0.51			0.19	0.46			1.14
Uniform Delay, d1	9.4	13.5			14.4			17.5	19.5			25.5
Progression Factor	1.00	1.00			1.00			1.00	1.00			1.00
Incremental Delay, d2	0.2	0.8			0.3			0.1	0.6			82.9
Delay (s)	9.7	14.3			14.6			17.6	20.1			108.4
Level of Service	A	B			B			B	C			F
Approach Delay (s)		14.2			14.6			19.4			108.4	
Approach LOS		B			B			B			F	

Intersection Summary				
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.6	
Intersection Capacity Utilization	55.9%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	138	454	158	293	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		
Lane Util. Factor	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	1.00		
Satd. Flow (prot)	1770	1863	1863	1583		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	1770	1863	1863	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	165	543	189	350	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	165	543	189	350	0	0
Turn Type	Prot	NA	NA	Free		
Protected Phases	7	4	8			
Permitted Phases				Free		
Actuated Green, G (s)	4.0	18.7	6.7	18.7		
Effective Green, g (s)	4.0	18.7	6.7	18.7		
Actuated g/C Ratio	0.21	1.00	0.36	1.00		
Clearance Time (s)	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	378	1863	667	1583		
v/s Ratio Prot	0.09	c0.29	0.10			
v/s Ratio Perm				0.22		
v/c Ratio	0.44	0.29	0.28	0.22		
Uniform Delay, d1	6.4	0.0	4.3	0.0		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.8	0.1	0.2	0.3		
Delay (s)	7.2	0.1	4.5	0.3		
Level of Service	A	A	A	A		
Approach Delay (s)		1.7	1.8		0.0	
Approach LOS		A	A		A	

Intersection Summary				
HCM 2000 Control Delay	1.8	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	18.7	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	29.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	59	56	108	87	114	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.94		0.94	
Flt Protected		0.97	1.00		0.97	
Satd. Flow (prot)		1816	1750		1701	
Flt Permitted		0.69	1.00		0.97	
Satd. Flow (perm)		1293	1750		1701	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	87	82	158	128	167	141
RTOR Reduction (vph)	0	0	89	0	72	0
Lane Group Flow (vph)	0	169	197	0	236	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		7.4	7.4		11.8	
Effective Green, g (s)		7.4	7.4		11.8	
Actuated g/C Ratio		0.27	0.27		0.43	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		351	476		737	
v/s Ratio Prot			0.11		c0.14	
v/s Ratio Perm		c0.13				
v/c Ratio		0.48	0.41		0.32	
Uniform Delay, d1		8.3	8.1		5.1	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		1.0	0.6		0.3	
Delay (s)		9.3	8.7		5.3	
Level of Service		A	A		A	
Approach Delay (s)		9.3	8.7		5.3	
Approach LOS		A	A		A	

Intersection Summary				
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.38			
Actuated Cycle Length (s)	27.2	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	42.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	392	66	287	394	5	66	0	287	6	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95		1.00	1.00		1.00	1.00			1.00	
Frt		0.98		1.00	1.00		1.00	0.85			1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.95	
Satd. Flow (prot)		3463		1770	1859		1770	1583			1770	
Flt Permitted		1.00		0.95	1.00		0.75	1.00			0.40	
Satd. Flow (perm)		3463		1770	1859		1400	1583			745	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	575	97	421	578	7	97	0	421	9	0	0
RTOR Reduction (vph)	0	22	0	0	0	0	0	340	0	0	0	0
Lane Group Flow (vph)	0	650	0	421	585	0	97	81	0	0	9	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		14.3		15.4	33.7		10.0	10.0			10.0	
Effective Green, g (s)		14.3		15.4	33.7		10.0	10.0			10.0	
Actuated g/C Ratio		0.28		0.30	0.65		0.19	0.19			0.19	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		957		527	1211		270	306			144	
v/s Ratio Prot		c0.19		c0.24	0.31			0.05				
v/s Ratio Perm							c0.07				0.01	
v/c Ratio		0.68		0.80	0.48		0.36	0.27			0.06	
Uniform Delay, d1		16.7		16.7	4.6		18.1	17.7			17.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.9		8.3	0.3		0.8	0.5			0.2	
Delay (s)		18.6		25.0	4.9		18.9	18.2			17.2	
Level of Service		B		C	A		B	B			B	
Approach Delay (s)		18.6			13.3			18.3			17.2	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	51.7	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	61.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	72	283	242	227	192	145	393	131	82	588	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0		4.0	5.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		1.00	0.93		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1591		1770	1721		1770	3406		1770	3405	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1591		1770	1721		1770	3406		1770	3405	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.90	0.90	0.90	0.87	0.87	0.87
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	134	90	354	310	290	246	177	480	160	104	743	212
RTOR Reduction (vph)	0	121	0	0	24	0	0	25	0	0	21	0
Lane Group Flow (vph)	134	323	0	310	512	0	177	615	0	104	934	0
Confl. Peds. (#/hr)	3		12	1		3	1					1
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3			7			1	6		5	2	
Permitted Phases		8			4							
Actuated Green, G (s)	13.0	28.1		23.2	36.8		12.8	36.0		10.6	33.8	
Effective Green, g (s)	13.0	28.1		23.2	36.8		12.8	36.0		10.6	33.8	
Actuated g/C Ratio	0.11	0.25		0.20	0.32		0.11	0.32		0.09	0.30	
Clearance Time (s)	4.5	4.0		4.0	5.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	3.0		3.0	2.0		2.0	4.3		2.0	4.3	
Lane Grp Cap (vph)	202	392		360	556		198	1076		164	1010	
v/s Ratio Prot	0.08			c0.18			c0.10	0.18		0.06	c0.27	
v/s Ratio Perm		0.20			c0.30							
v/c Ratio	0.66	0.83		0.86	0.92		0.89	0.57		0.63	0.92	
Uniform Delay, d1	48.4	40.6		43.8	37.2		49.9	32.5		49.8	38.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.2	13.2		18.6	20.6		35.3	1.0		5.8	13.9	
Delay (s)	54.6	53.8		62.3	57.7		85.2	33.5		55.6	52.7	
Level of Service	D	D		E	E		F	C		E	D	
Approach Delay (s)		54.0			59.4			44.7			53.0	
Approach LOS		D			E			D			D	

Intersection Summary				
HCM 2000 Control Delay	52.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	113.9	Sum of lost time (s)	17.5	
Intersection Capacity Utilization	85.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

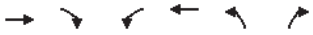
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	202	217	90	128	117	100	86	309	102	269	288	554
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0		4.2	5.5		4.2	5.5	3.0
Lane Util. Factor	0.95	0.95	1.00		0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.96		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583		3324		1770	3407		1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583		3324		1770	3407		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.82	0.82	0.82	0.81	0.81	0.81	0.88	0.88	0.88
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	242	259	108	172	157	134	117	420	139	336	360	692
RTOR Reduction (vph)	0	0	83	0	33	0	0	24	0	0	0	140
Lane Group Flow (vph)	218	283	25	0	430	0	117	535	0	336	360	552
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases			4									6
Actuated Green, G (s)	25.0	25.0	25.0		19.2		11.3	24.5		25.3	38.5	63.5
Effective Green, g (s)	25.0	25.0	25.0		19.2		11.3	24.5		25.3	38.5	63.5
Actuated g/C Ratio	0.23	0.23	0.23		0.18		0.10	0.22		0.23	0.35	0.58
Clearance Time (s)	3.0	3.0	3.0		3.0		4.2	5.5		4.2	5.5	3.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	4.3		2.0	4.3	2.0
Lane Grp Cap (vph)	383	401	360		581		182	760		408	1242	916
v/s Ratio Prot	0.13	c0.16			c0.13		0.07	c0.16		c0.19	0.10	0.14
v/s Ratio Perm			0.02									0.21
v/c Ratio	0.57	0.71	0.07		0.74		0.64	0.70		0.82	0.29	0.60
Uniform Delay, d1	37.6	39.0	33.2		42.9		47.3	39.3		40.1	25.7	14.9
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	4.6	0.0		4.4		5.7	3.3		12.1	0.2	0.8
Delay (s)	38.7	43.5	33.2		47.3		53.0	42.6		52.2	25.9	15.7
Level of Service	D	D	C		D		D	D		D	C	B
Approach Delay (s)		40.0			47.3			44.4			27.2	
Approach LOS		D			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	109.7	Sum of lost time (s)	15.7	
Intersection Capacity Utilization	67.9%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	203	313	263	136	208	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.5	5.5		4.9	4.9
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3358		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3358		1770	1583
Peak-hour factor, PHF	0.97	0.97	0.90	0.90	0.88	0.88
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	230	355	321	166	260	245
RTOR Reduction (vph)	0	0	111	0	0	185
Lane Group Flow (vph)	230	355	376	0	260	60
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	5.7	24.1	14.0		11.1	11.1
Effective Green, g (s)	5.7	24.1	14.0		11.1	11.1
Actuated g/C Ratio	0.12	0.53	0.31		0.24	0.24
Clearance Time (s)	4.4	5.5	5.5		4.9	4.9
Vehicle Extension (s)	2.0	5.0	5.0		2.0	2.0
Lane Grp Cap (vph)	221	1870	1030		430	385
v/s Ratio Prot	c0.13	0.10	c0.11		c0.15	
v/s Ratio Perm						0.04
v/c Ratio	1.04	0.19	0.37		0.60	0.15
Uniform Delay, d1	19.9	5.6	12.3		15.3	13.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	71.6	0.1	0.5		1.6	0.1
Delay (s)	91.5	5.7	12.8		17.0	13.6
Level of Service	F	A	B		B	B
Approach Delay (s)		39.5	12.8		15.3	
Approach LOS		D	B		B	

Intersection Summary				
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	45.6	Sum of lost time (s)	14.8	
Intersection Capacity Utilization	50.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	271	145	286	258	111	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frt	0.95			1.00	1.00	0.85
Flt Protected	1.00			0.97	0.95	1.00
Satd. Flow (prot)	3354			3449	1770	1583
Flt Permitted	1.00			0.62	0.95	1.00
Satd. Flow (perm)	3354			2211	1770	1583
Peak-hour factor, PHF	0.83	0.83	0.86	0.86	0.76	0.76
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	359	192	366	330	161	266
RTOR Reduction (vph)	99	0	0	0	0	194
Lane Group Flow (vph)	452	0	0	696	161	72
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	15.6			15.6	8.7	8.7
Effective Green, g (s)	15.6			15.6	8.7	8.7
Actuated g/C Ratio	0.48			0.48	0.27	0.27
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1619			1067	476	426
v/s Ratio Prot	0.13				c0.09	
v/s Ratio Perm				c0.31		0.05
v/c Ratio	0.28			0.92dl	0.34	0.17
Uniform Delay, d1	5.0			6.3	9.5	9.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			1.4	0.4	0.2
Delay (s)	5.1			7.7	9.9	9.2
Level of Service	A			A	A	A
Approach Delay (s)	5.1			7.7	9.5	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	32.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	86	547	575	275	506	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.91	0.91	0.97	1.00
Frt	1.00	1.00	0.99	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3367	1441	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3367	1441	3433	1583
Peak-hour factor, PHF	0.77	0.77	0.88	0.88	0.61	0.61
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	123	781	719	344	912	229
RTOR Reduction (vph)	0	0	5	56	0	153
Lane Group Flow (vph)	123	781	748	254	912	76
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	1	6	2	8	8	
Permitted Phases				2		8
Actuated Green, G (s)	5.7	29.5	19.4	39.0	19.6	19.6
Effective Green, g (s)	5.7	29.5	19.4	39.0	19.6	19.6
Actuated g/C Ratio	0.10	0.50	0.33	0.66	0.33	0.33
Clearance Time (s)	4.4	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	2.0	3.6	4.0	2.0	2.0	2.0
Lane Grp Cap (vph)	171	1772	1108	1074	1142	526
v/s Ratio Prot	c0.07	0.22	c0.22	0.08	c0.27	
v/s Ratio Perm				0.10		0.05
v/c Ratio	0.72	0.44	0.67	0.24	0.80	0.14
Uniform Delay, d1	25.8	9.4	17.0	4.0	17.9	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.4	0.2	1.8	0.0	3.7	0.0
Delay (s)	37.2	9.6	18.8	4.0	21.6	13.8
Level of Service	D	A	B	A	C	B
Approach Delay (s)		13.4	14.5		20.0	
Approach LOS		B	B		C	

Intersection Summary				
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	14.2	
Intersection Capacity Utilization	53.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

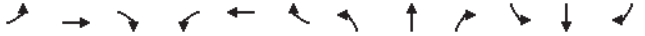
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	740	131	115	648	73	68	37	88	71	49	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	5.1			5.1	5.1	5.1	5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.98			1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3459		1770	3486			1804	1583	1770	1749	
Flt Permitted	0.95	1.00		0.95	1.00			0.74	1.00	0.64	1.00	
Satd. Flow (perm)	1770	3459		1770	3486			1385	1583	1199	1749	
Peak-hour factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93	0.73	0.73	0.73	0.89	0.89	0.89
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	64	925	164	136	766	86	102	56	133	88	61	42
RTOR Reduction (vph)	0	13	0	0	7	0	0	0	109	0	34	0
Lane Group Flow (vph)	64	1076	0	136	845	0	0	158	24	88	69	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		
Actuated Green, G (s)	4.3	32.4		8.7	36.6			12.2	12.2	12.2	12.2	
Effective Green, g (s)	4.3	32.4		8.7	36.6			12.2	12.2	12.2	12.2	
Actuated g/C Ratio	0.06	0.48		0.13	0.54			0.18	0.18	0.18	0.18	
Clearance Time (s)	4.4	4.9		4.4	5.1			5.1	5.1	5.1	5.1	
Vehicle Extension (s)	2.0	5.3		2.0	5.4			2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	112	1655		227	1884			249	285	216	315	
v/s Ratio Prot	0.04	c0.31		c0.08	c0.24						0.04	
v/s Ratio Perm								c0.11	0.02	0.07		
v/c Ratio	0.57	0.65		0.60	0.45			0.63	0.08	0.41	0.22	
Uniform Delay, d1	30.8	13.4		27.9	9.4			25.7	23.1	24.6	23.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	1.3		2.8	0.4			3.9	0.0	0.5	0.1	
Delay (s)	35.1	14.7		30.7	9.8			29.5	23.1	25.0	23.8	
Level of Service	D	B		C	A			C	C	C	C	
Approach Delay (s)		15.8			12.7			26.6			24.4	
Approach LOS		B			B			C			C	

Intersection Summary				
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	14.6	
Intersection Capacity Utilization	59.1%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

7: East Beyer Blvd/Otay Mesa Rd & Beyer Blvd

11/21/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	580	205	1018	657	79	123	118	586	223	126	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.0	4.9	4.9	4.9	4.0	4.9	4.0		5.2	4.9
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	1770	1863	1583		1805	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.72	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	1770	1863	1583		1348	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	94	693	245	1217	786	94	147	141	701	267	151	139
RTOR Reduction (vph)	0	0	134	0	0	39	0	0	0	0	0	55
Lane Group Flow (vph)	94	693	111	1217	786	55	147	141	701	0	418	84
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Free	Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases			2			6			Free	4		4
Actuated Green, G (s)	9.5	26.1	34.1	61.1	77.7	77.7	8.0	48.1	150.0		35.8	45.3
Effective Green, g (s)	9.5	26.1	34.1	61.1	77.7	77.7	8.0	48.1	150.0		35.8	45.3
Actuated g/C Ratio	0.06	0.17	0.23	0.41	0.52	0.52	0.05	0.32	1.00		0.24	0.30
Clearance Time (s)	4.9	4.9	4.0	4.9	4.9	4.9	4.0	4.9			5.2	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	217	615	359	720	1833	819	94	597	1583		321	478
v/s Ratio Prot	0.03	c0.20	0.02	c0.69	0.22		c0.08	0.08				0.01
v/s Ratio Perm			0.05			0.03			0.44		c0.31	0.04
v/c Ratio	0.43	1.13	0.31	1.69	0.43	0.07	1.56	0.24	0.44		1.30	0.18
Uniform Delay, d1	67.7	62.0	48.1	44.5	22.4	18.1	71.0	37.4	0.0		57.1	38.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.4	76.5	0.5	316.6	0.2	0.0	298.8	0.2	0.9		156.9	0.2
Delay (s)	69.0	138.4	48.6	361.1	22.6	18.1	369.8	37.7	0.9		214.0	38.8
Level of Service	E	F	D	F	C	B	F	D	A		F	D
Approach Delay (s)		110.8			218.8			61.0			170.3	
Approach LOS		F			F			E			F	

Intersection Summary				
HCM 2000 Control Delay	155.8	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.46			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0	
Intersection Capacity Utilization	124.6%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

8: Picador Blvd & SR-905 WB On Ramp/SR-905 WB Off Ramp

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	375	0	299	177	728	0	0	420	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6	4.6	4.2	5.0			5.0	5.0
Lane Util. Factor					1.00	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1770	1583	1770	3539			3539	1583
Flt Permitted					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1770	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.77	0.77	0.77	0.90	0.90	0.90	0.91	0.91	0.91
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	0	0	536	0	427	216	890	0	0	508	341
RTOR Reduction (vph)	0	0	0	0	0	52	0	0	0	0	0	255
Lane Group Flow (vph)	0	0	0	0	536	375	216	890	0	0	508	86
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)					26.6	26.6	10.5	31.8			17.1	17.1
Effective Green, g (s)					26.6	26.6	10.5	31.8			17.1	17.1
Actuated g/C Ratio					0.39	0.39	0.15	0.47			0.25	0.25
Clearance Time (s)					4.6	4.6	4.2	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					692	619	273	1655			889	398
v/s Ratio Prot							c0.12	c0.25			0.14	
v/s Ratio Perm					0.30	0.24						0.05
v/c Ratio					0.77	0.61	0.79	0.54			0.57	0.22
Uniform Delay, d1					18.1	16.5	27.7	12.9			22.2	20.1
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					5.4	1.7	14.4	0.3			0.9	0.3
Delay (s)					23.5	18.2	42.1	13.2			23.1	20.4
Level of Service					C	B	D	B			C	C
Approach Delay (s)		0.0			21.1			18.9			22.0	
Approach LOS		A			C			B			C	

Intersection Summary				
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	13.8	
Intersection Capacity Utilization	73.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	431	0	396	0	0	0	0	410	370	160	605	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6					5.0		4.2	5.0	
Lane Util. Factor		1.00	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.93		1.00	1.00	
Flt Protected		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583					3287		1770	3539	
Flt Permitted		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)		1770	1583					3287		1770	3539	
Peak-hour factor, PHF	0.83	0.83	0.83	0.25	0.25	0.25	0.88	0.88	0.88	0.76	0.76	0.76
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	571	0	525	0	0	0	0	512	462	232	876	0
RTOR Reduction (vph)	0	0	63	0	0	0	0	204	0	0	0	0
Lane Group Flow (vph)	0	571	462	0	0	0	0	770	0	232	876	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4									
Actuated Green, G (s)		28.7	28.7					21.1		12.3	37.6	
Effective Green, g (s)		28.7	28.7					21.1		12.3	37.6	
Actuated g/C Ratio		0.38	0.38					0.28		0.16	0.50	
Clearance Time (s)		4.6	4.6					5.0		4.2	5.0	
Vehicle Extension (s)		3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)		669	598					913		286	1753	
v/s Ratio Prot								c0.23		c0.13	0.25	
v/s Ratio Perm		0.32	0.29									
v/c Ratio		0.85	0.77					0.84		0.81	0.50	
Uniform Delay, d1		21.7	20.7					25.8		30.7	12.8	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		10.3	6.1					7.2		15.9	0.2	
Delay (s)		32.0	26.9					33.0		46.5	13.1	
Level of Service		C	C					C		D	B	
Approach Delay (s)		29.5			0.0			33.0			20.1	
Approach LOS		C			A			C			C	

Intersection Summary				
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	13.8	
Intersection Capacity Utilization	73.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	146	154	371	181	223	448
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.93		0.95		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1692		3365		1770	3539
Flt Permitted	0.98		1.00		0.33	1.00
Satd. Flow (perm)	1692		3365		620	3539
Peak-hour factor, PHF	0.68	0.68	0.81	0.81	0.86	0.86
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	236	249	504	246	285	573
RTOR Reduction (vph)	68	0	115	0	0	0
Lane Group Flow (vph)	417	0	635	0	285	573
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	15.0		26.4		26.4	26.4
Effective Green, g (s)	15.0		26.4		26.4	26.4
Actuated g/C Ratio	0.30		0.53		0.53	0.53
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	513		1798		331	1891
v/s Ratio Prot	c0.25		0.19			0.16
v/s Ratio Perm					c0.46	
v/c Ratio	0.81		0.35		0.86	0.30
Uniform Delay, d1	15.9		6.6		9.9	6.4
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	9.6		0.1		19.8	0.1
Delay (s)	25.5		6.7		29.8	6.5
Level of Service	C		A		C	A
Approach Delay (s)	25.5		6.7			14.2
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	49.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	81	82	16	190	125	16
Peak Hour Factor	0.80	0.80	0.60	0.60	0.68	0.68
Hourly flow rate (vph)	111	113	29	348	202	26

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	224	378	228
Volume Left (vph)	0	29	202
Volume Right (vph)	113	0	26
Hadj (s)	-0.27	0.05	0.14
Departure Headway (s)	4.8	4.9	5.5
Degree Utilization, x	0.30	0.51	0.35
Capacity (veh/h)	702	703	598
Control Delay (s)	9.8	13.0	11.4
Approach Delay (s)	9.8	13.0	11.4
Approach LOS	A	B	B

Intersection Summary			
Delay		11.7	
Level of Service		B	
Intersection Capacity Utilization		40.9%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	191	97	133	78	121	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	228	116	159	93	145	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	451					
pX, platoon unblocked						
vC, conflicting volume			344		698	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			344		698	286
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		59	93
cM capacity (veh/h)			1215		354	753

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	344	252	198
Volume Left	0	159	145
Volume Right	116	0	54
cSH	1700	1215	413
Volume to Capacity	0.20	0.13	0.48
Queue Length 95th (ft)	0	11	63
Control Delay (s)	0.0	5.7	21.5
Lane LOS		A	C
Approach Delay (s)	0.0	5.7	21.5
Approach LOS			C

Intersection Summary			
Average Delay		7.2	
Intersection Capacity Utilization		50.6%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	843					
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085

Direction, Lane #	EB 1	WB 1
Volume Total	0	0
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.00	0.00
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	76	111	27	21	106	25	48	95	17	26	129	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	133	32	25	127	30	57	114	20	31	154	121

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	256	182	191	306
Volume Left (vph)	91	25	57	31
Volume Right (vph)	32	30	20	121
Hadj (s)	0.03	-0.04	0.03	-0.18
Departure Headway (s)	5.7	5.7	5.7	5.3
Degree Utilization, x	0.40	0.29	0.31	0.45
Capacity (veh/h)	584	559	560	625
Control Delay (s)	12.4	11.1	11.3	12.7
Approach Delay (s)	12.4	11.1	11.3	12.7
Approach LOS	B	B	B	B

Intersection Summary			
Delay	12.0		
Level of Service	B		
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	81	0	46	0	0	0	32	50	0	0	73	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	97	0	55	0	0	0	38	60	0	0	87	161

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	152	98	249
Volume Left (vph)	97	38	0
Volume Right (vph)	55	0	161
Hadj (s)	-0.06	0.11	-0.36
Departure Headway (s)	4.6	4.6	4.0
Degree Utilization, x	0.19	0.13	0.28
Capacity (veh/h)	728	737	851
Control Delay (s)	8.7	8.3	8.6
Approach Delay (s)	8.7	8.3	8.6
Approach LOS	A	A	A

Intersection Summary					
Delay	8.6				
Level of Service	A				
Intersection Capacity Utilization	36.2%	ICU Level of Service		A	
Analysis Period (min)	15				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	16	5	26	24	26	179	0	0	0	20	193	40
Peak Hour Factor	0.97	0.97	0.97	0.64	0.64	0.64	0.38	0.38	0.38	0.72	0.72	0.72
Hourly flow rate (vph)	18	6	29	41	45	308	0	0	0	31	295	61

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	53	394	387
Volume Left (vph)	18	41	31
Volume Right (vph)	29	308	61
Hadj (s)	-0.23	-0.41	-0.05
Departure Headway (s)	5.2	4.6	4.9
Degree Utilization, x	0.08	0.50	0.53
Capacity (veh/h)	617	742	689
Control Delay (s)	8.7	12.1	13.3
Approach Delay (s)	8.7	12.1	13.3
Approach LOS	A	B	B

Intersection Summary					
Delay	12.4				
Level of Service	B				
Intersection Capacity Utilization	37.7%	ICU Level of Service		A	
Analysis Period (min)	15				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	25	0	0	91	126	102
Peak Hour Factor	0.70	0.70	0.53	0.53	0.60	0.60
Hourly flow rate (vph)	39	0	0	189	231	187

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	39	189	418
Volume Left (vph)	0	0	231
Volume Right (vph)	0	0	187
Hadj (s)	0.03	0.03	-0.12
Departure Headway (s)	5.2	5.0	4.4
Degree Utilization, x	0.06	0.26	0.51
Capacity (veh/h)	627	670	798
Control Delay (s)	8.5	9.7	11.8
Approach Delay (s)	8.5	9.7	11.8
Approach LOS	A	A	B

Intersection Summary				
Delay	11.0			
Level of Service	B			
Intersection Capacity Utilization	26.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	30	59	64	252	189	33
Peak Hour Factor	0.72	0.72	0.62	0.62	0.56	0.56
Hourly flow rate (vph)	46	90	114	447	371	65

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total (vph)	136	561	371	65
Volume Left (vph)	46	0	371	0
Volume Right (vph)	0	447	0	65
Hadj (s)	0.10	-0.44	0.23	-0.57
Departure Headway (s)	6.0	4.9	5.9	3.2
Degree Utilization, x	0.23	0.76	0.61	0.06
Capacity (veh/h)	539	717	575	1121
Control Delay (s)	10.8	21.7	17.7	6.4
Approach Delay (s)	10.8	21.7	16.0	
Approach LOS	B	C	C	

Intersection Summary				
Delay	18.2			
Level of Service	C			
Intersection Capacity Utilization	47.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	210	138	190	166	240	149	278	731	327	232	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9	4.4	4.9	4.9	4.4	5.5	4.4	4.4	5.4	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1128	1863	1583	418	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.88	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	66	228	150	216	189	273	159	296	778	348	247	24
RTOR Reduction (vph)	0	0	106	0	0	170	0	0	215	0	0	0
Lane Group Flow (vph)	66	228	44	216	189	103	159	296	563	348	247	24
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6	8		8	4		Free
Actuated Green, G (s)	6.2	24.8	24.8	13.5	32.1	32.1	19.9	15.9	29.4	32.0	23.6	85.0
Effective Green, g (s)	6.2	24.8	24.8	13.5	32.1	32.1	19.9	15.9	29.4	32.0	23.6	85.0
Actuated g/C Ratio	0.07	0.29	0.29	0.16	0.38	0.38	0.23	0.19	0.35	0.38	0.28	1.00
Clearance Time (s)	4.4	4.9	4.9	4.4	4.9	4.9	4.4	5.5	4.4	4.4	5.4	
Vehicle Extension (s)	2.0	2.9	2.9	2.0	2.9	2.9	2.0	3.9	2.0	2.0	3.9	
Lane Grp Cap (vph)	129	543	461	281	703	597	294	348	547	341	517	1583
v/s Ratio Prot	0.04	c0.12		0.12	0.10		0.03	0.16	c0.16	c0.14	0.13	
v/s Ratio Perm			0.03			0.07	0.10		0.19	c0.24		0.02
v/c Ratio	0.51	0.42	0.09	0.77	0.27	0.17	0.54	0.85	1.03	1.02	0.48	0.02
Uniform Delay, d1	37.9	24.3	21.9	34.3	18.3	17.6	27.6	33.4	27.8	22.8	25.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	2.4	0.4	10.8	0.9	0.6	1.1	18.2	46.4	54.1	0.9	0.0
Delay (s)	39.4	26.7	22.3	45.1	19.3	18.2	28.7	51.7	74.2	76.9	26.5	0.0
Level of Service	D	C	C	D	B	B	C	D	E	E	C	A
Approach Delay (s)		27.1			27.1			62.9			53.8	
Approach LOS		C			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	47.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	19.2	
Intersection Capacity Utilization	85.8%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	650	516	435	398	88	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.2	4.6	4.6	4.6
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	1770	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.96	0.96	0.81	0.81
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	777	617	498	456	120	155
RTOR Reduction (vph)	0	82	0	0	0	134
Lane Group Flow (vph)	777	535	498	456	120	21
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Actuated Green, G (s)	15.2	22.5	16.9	36.3	7.3	7.3
Effective Green, g (s)	15.2	22.5	16.9	36.3	7.3	7.3
Actuated g/C Ratio	0.29	0.43	0.32	0.69	0.14	0.14
Clearance Time (s)	4.6	4.6	4.2	4.6	4.6	4.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1018	812	566	2433	244	218
v/s Ratio Prot	c0.22	c0.09	c0.28	0.13	0.07	
v/s Ratio Perm		0.25				0.01
v/c Ratio	0.76	0.66	0.88	0.19	0.49	0.10
Uniform Delay, d1	17.2	12.1	17.0	3.0	21.0	19.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	1.9	14.5	0.0	1.6	0.2
Delay (s)	20.6	14.0	31.5	3.0	22.6	20.1
Level of Service	C	B	C	A	C	C
Approach Delay (s)	17.7			17.9	21.2	
Approach LOS	B			B	C	

Intersection Summary				
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	69.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	32	142	507	111	177	494
Sign Control	Stop		Free			Free
Grade	0%		15%			0%
Peak Hour Factor	0.80	0.80	0.86	0.86	0.82	0.82
Hourly flow rate (vph)	40	178	590	129	216	602
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						525
pX, platoon unblocked	0.76					
vC, conflicting volume	1688	654			719	
vC1, stage 1 conf vol	654					
vC2, stage 2 conf vol	1034					
vCu, unblocked vol	1748	654			719	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	81	62			76	
cM capacity (veh/h)	209	467			883	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	40	178	719	216	602
Volume Left	40	0	0	216	0
Volume Right	0	178	129	0	0
cSH	209	467	1700	883	1700
Volume to Capacity	0.19	0.38	0.42	0.24	0.35
Queue Length 95th (ft)	17	44	0	24	0
Control Delay (s)	26.3	17.4	0.0	10.4	0.0
Lane LOS	D	C		B	
Approach Delay (s)	19.0		0.0	2.7	
Approach LOS	C				

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	56.6%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	448	5	8	438	101	5	0	5	145	5	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			15%			0%			0%	
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.93			0.97	
Flt Protected	0.95	1.00			1.00	1.00		0.98			0.96	
Satd. Flow (prot)	1770	1860			1721	1465		1695			1743	
Flt Permitted	0.27	1.00			0.99	1.00		0.87			0.96	
Satd. Flow (perm)	502	1860			1705	1465		1512			1743	
Peak-hour factor, PHF	0.89	0.89	0.89	0.90	0.90	0.90	0.25	0.25	0.25	0.71	0.71	0.71
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	41	554	6	10	535	123	22	0	22	225	8	64
RTOR Reduction (vph)	0	1	0	0	0	45	0	39	0	0	14	0
Lane Group Flow (vph)	41	559	0	0	545	78	0	5	0	0	283	0
Parking (#/hr)												0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Split	NA	
Protected Phases		4			8			2		6	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	23.1	23.1			23.1	23.1		5.8			13.5	
Effective Green, g (s)	23.1	23.1			23.1	23.1		5.8			13.5	
Actuated g/C Ratio	0.42	0.42			0.42	0.42		0.11			0.25	
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	213	789			723	622		161			432	
v/s Ratio Prot		0.30									c0.16	
v/s Ratio Perm	0.08				c0.32	0.05		c0.00				
v/c Ratio	0.19	0.71			0.75	0.13		0.03			0.66	
Uniform Delay, d1	9.8	12.9			13.2	9.5		21.8			18.4	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.4	2.9			4.5	0.1		0.1			3.6	
Delay (s)	10.2	15.8			17.7	9.6		21.9			21.9	
Level of Service	B	B			B	A		C			C	
Approach Delay (s)		15.4			16.2			21.9			21.9	
Approach LOS		B			B			C			C	

Intersection Summary					
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.62				
Actuated Cycle Length (s)	54.4	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	57.0%	ICU Level of Service		B	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	124	493	5	6	528	40	2	0	6	26	0	168
Sign Control		Free			Free			Stop			Stop	
Grade		0%			15%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.38	0.38	0.38	0.86	0.86	0.86
Hourly flow rate (vph)	144	573	6	7	614	47	5	0	16	30	0	195
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					579							
pX, platoon unblocked	0.72						0.72	0.72		0.72	0.72	0.72
vC, conflicting volume	660			579			1688	1539	576	1529	1519	637
vC1, stage 1 conf vol							865	865		651	651	
vC2, stage 2 conf vol							823	674		877	867	
vCu, unblocked vol	338			579			1760	1554	576	1540	1526	306
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	84			99			94	100	97	87	100	63
cM capacity (veh/h)	882			995			83	223	517	236	255	530

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	144	579	7	660	21	226
Volume Left	144	0	7	0	5	30
Volume Right	0	6	0	47	16	195
cSH	882	1700	995	1700	224	454
Volume to Capacity	0.16	0.34	0.01	0.39	0.09	0.50
Queue Length 95th (ft)	15	0	1	0	8	68
Control Delay (s)	9.9	0.0	8.6	0.0	22.8	20.5
Lane LOS	A		A		C	C
Approach Delay (s)	2.0		0.1		22.8	20.5
Approach LOS					C	C

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	60.6%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	602	8	20	524	193	2	2	6	267	3	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9			4.9	4.9		4.9			4.9	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.92			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.96	
Satd. Flow (prot)	1770	1859			1859	1583		1690			1753	
Flt Permitted	0.23	1.00			0.74	1.00		0.94			0.75	
Satd. Flow (perm)	433	1859			1379	1583		1601			1366	
Peak-hour factor, PHF	0.83	0.83	0.83	0.91	0.91	0.91	0.65	0.65	0.65	0.73	0.73	0.73
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	82	798	11	24	633	233	3	3	10	402	5	68
RTOR Reduction (vph)	0	1	0	0	0	59	0	6	0	0	8	0
Lane Group Flow (vph)	82	808	0	0	657	174	0	10	0	0	467	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	35.5	35.5			35.5	35.5		25.9			25.9	
Effective Green, g (s)	35.5	35.5			35.5	35.5		25.9			25.9	
Actuated g/C Ratio	0.50	0.50			0.50	0.50		0.36			0.36	
Clearance Time (s)	4.9	4.9			4.9	4.9		4.9			4.9	
Vehicle Extension (s)	2.5	2.5			2.5	2.5		2.0			2.0	
Lane Grp Cap (vph)	215	926			687	789		582			496	
v/s Ratio Prot		0.43										
v/s Ratio Perm	0.19				c0.48	0.11		0.01			c0.34	
v/c Ratio	0.38	0.87			0.96	0.22		0.02			0.94	
Uniform Delay, d1	11.1	15.9			17.1	10.1		14.5			21.9	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.8	9.1			23.8	0.1		0.0			26.1	
Delay (s)	11.9	24.9			41.0	10.2		14.5			48.0	
Level of Service	B	C			D	B		B			D	
Approach Delay (s)		23.7			32.9			14.5			48.0	
Approach LOS		C			C			B			D	

Intersection Summary					
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.95				
Actuated Cycle Length (s)	71.2	Sum of lost time (s)		9.8	
Intersection Capacity Utilization	91.0%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	599	348	433	412	0	316	0	687	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.9	4.4	4.9			4.4	4.4			
Lane Util. Factor		0.95	1.00	0.97	1.00			1.00	1.00			
Frt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3539	1583	3433	1863			1770	1583			
Flt Permitted		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)		3539	1583	3433	1863			1770	1583			
Peak-hour factor, PHF	0.70	0.70	0.70	0.92	0.92	0.92	0.87	0.87	0.87	0.25	0.25	0.25
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	941	547	518	493	0	400	0	869	0	0	0
RTOR Reduction (vph)	0	0	213	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	0	941	334	518	493	0	0	400	852	0	0	0
Turn Type		NA	Perm	Prot	NA		Split	NA	pm+ov			Perm
Protected Phases		2		1	6		8	8	1			
Permitted Phases			2						8			8 2 6
Actuated Green, G (s)		20.9	20.9	8.7	34.0			17.9	26.6			
Effective Green, g (s)		20.9	20.9	8.7	34.0			17.9	26.6			
Actuated g/C Ratio		0.34	0.34	0.14	0.56			0.29	0.43			
Clearance Time (s)		4.9	4.9	4.4	4.9			4.4	4.4			
Vehicle Extension (s)		4.8	4.8	2.0	4.8			2.0	2.0			
Lane Grp Cap (vph)		1208	540	488	1035			517	801			
v/s Ratio Prot		c0.27		0.15	0.26			0.23	c0.15			
v/s Ratio Perm			0.21						0.39			
v/c Ratio		0.78	0.62	1.06	0.48			0.77	1.06			
Uniform Delay, d1		18.1	16.8	26.2	8.2			19.8	17.3			
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2		3.7	2.9	58.0	0.7			6.5	50.1			
Delay (s)		21.8	19.7	84.3	8.9			26.3	67.4			
Level of Service		C	B	F	A			C	E			
Approach Delay (s)		21.1			47.5			54.5			0.0	
Approach LOS		C			D			D			A	

Intersection Summary				
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.04			
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	13.7	
Intersection Capacity Utilization	72.8%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1239	1045	0	0	117
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.96	0.96	0.70	0.70
Hourly flow rate (vph)	0	1549	1197	0	0	184
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		233	383			
pX, platoon unblocked					0.77	
vC, conflicting volume	1197				1972	599
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1197				1671	599
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	59
cM capacity (veh/h)	579				67	445

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	774	774	599	599	184
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	184
cSH	1700	1700	1700	1700	445
Volume to Capacity	0.46	0.46	0.35	0.35	0.41
Queue Length 95th (ft)	0	0	0	0	50
Control Delay (s)	0.0	0.0	0.0	0.0	18.7
Lane LOS					C
Approach Delay (s)	0.0		0.0		18.7
Approach LOS					C

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	46.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	97	1192	1002	41	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.42	0.42
Hourly flow rate (vph)	119	1457	1198	49	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		382	234			
pX, platoon unblocked					0.79	
vC, conflicting volume	1247				2188	624
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1247				1974	624
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	79				100	100
cM capacity (veh/h)	554				34	429

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	119	728	728	799	448
Volume Left	119	0	0	0	0
Volume Right	0	0	0	0	49
cSH	554	1700	1700	1700	1700
Volume to Capacity	0.21	0.43	0.43	0.47	0.26
Queue Length 95th (ft)	20	0	0	0	0
Control Delay (s)	13.3	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	1.0			0.0	
Approach LOS					

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization		46.4%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	964	552	250	710	0	0	0	0	531	15	604
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.2	4.6					4.6	4.6	4.6
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.91	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1513	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.98	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1513	1504
Peak-hour factor, PHF	0.94	0.94	0.94	0.81	0.81	0.81	0.25	0.25	0.25	0.78	0.78	0.78
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	1128	646	340	964	0	0	0	0	749	21	852
RTOR Reduction (vph)	0	0	184	0	0	0	0	0	0	0	56	56
Lane Group Flow (vph)	0	1128	462	340	964	0	0	0	0	562	484	464
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		2		1	6					4	4	
Permitted Phases			2									4
Actuated Green, G (s)		28.3	28.3	8.9	41.4					29.4	29.4	29.4
Effective Green, g (s)		28.3	28.3	8.9	41.4					29.4	29.4	29.4
Actuated g/C Ratio		0.35	0.35	0.11	0.52					0.37	0.37	0.37
Clearance Time (s)		4.6	4.6	4.2	4.6					4.6	4.6	4.6
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1251	559	381	1831					617	556	552
v/s Ratio Prot		c0.32		c0.10	0.27					c0.33	0.32	
v/s Ratio Perm			0.29									0.31
v/c Ratio		0.90	0.83	0.89	0.53					0.91	0.87	0.84
Uniform Delay, d1		24.5	23.6	35.1	12.8					24.1	23.5	23.2
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		10.6	13.2	22.2	1.1					17.7	14.0	11.1
Delay (s)		35.2	36.8	57.2	13.9					41.8	37.5	34.3
Level of Service		D	D	E	B					D	D	C
Approach Delay (s)		35.8			25.2			0.0			37.9	
Approach LOS		D			C			A			D	

Intersection Summary					
HCM 2000 Control Delay		33.6	HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio		0.90			
Actuated Cycle Length (s)		80.0	Sum of lost time (s)		13.4
Intersection Capacity Utilization		80.0%	ICU Level of Service		D
Analysis Period (min)		15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	250	1326	839	762	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6	4.6	4.0		
Lane Util. Factor	0.97	0.95	0.95	1.00		
Frt	1.00	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	1.00		
Satd. Flow (prot)	3433	3539	3539	1583		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	3433	3539	3539	1583		
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	367	1945	1231	1118	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	367	1945	1231	1118	0	0
Turn Type	Prot	NA	NA	Free		
Protected Phases	5	2 4	6 8			
Permitted Phases				Free		
Actuated Green, G (s)	9.8	110.0	91.4	110.0		
Effective Green, g (s)	9.8	110.0	91.4	110.0		
Actuated g/C Ratio	0.09	1.00	0.83	1.00		
Clearance Time (s)	4.2					
Vehicle Extension (s)	3.0					
Lane Grp Cap (vph)	305	3539	2940	1583		
v/s Ratio Prot	c0.11	0.55	0.35			
v/s Ratio Perm				c0.71		
v/c Ratio	1.20	0.55	0.42	0.71		
Uniform Delay, d1	50.1	0.0	2.4	0.0		
Progression Factor	1.00	1.00	1.20	1.00		
Incremental Delay, d2	118.5	0.2	0.0	0.2		
Delay (s)	168.6	0.2	2.9	0.2		
Level of Service	F	A	A	A		
Approach Delay (s)		26.9	1.6		0.0	
Approach LOS		C	A		A	

Intersection Summary				
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	44.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	1863	290	1675	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0	4.9		
Lane Util. Factor		0.88	1.00	0.95		
Frt		0.85	1.00	1.00		
Flt Protected		1.00	0.95	1.00		
Satd. Flow (prot)		2787	1770	3539		
Flt Permitted		1.00	0.95	1.00		
Satd. Flow (perm)		2787	1770	3539		
Peak-hour factor, PHF	0.89	0.89	0.81	0.81	0.67	0.67
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	2303	394	2275	0	0
RTOR Reduction (vph)	0	32	13	0	0	0
Lane Group Flow (vph)	0	2271	381	2275	0	0
Turn Type		Prot	Prot	NA		
Protected Phases		2	1	6		
Permitted Phases						
Actuated Green, G (s)		104.1	27.0	140.0		
Effective Green, g (s)		104.1	27.0	140.0		
Actuated g/C Ratio		0.74	0.19	1.00		
Clearance Time (s)		4.9	4.0	4.9		
Vehicle Extension (s)		2.5	3.0	2.5		
Lane Grp Cap (vph)		2072	341	3539		
v/s Ratio Prot		c0.81	c0.22	0.64		
v/s Ratio Perm						
v/c Ratio		1.10	1.12	0.64		
Uniform Delay, d1		18.0	56.5	0.0		
Progression Factor		1.00	1.00	1.00		
Incremental Delay, d2		51.5	84.4	0.4		
Delay (s)		69.4	140.9	0.4		
Level of Service		E	F	A		
Approach Delay (s)	69.4			21.1	0.0	
Approach LOS	E			C	A	

Intersection Summary				
HCM 2000 Control Delay	43.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.10			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.9	
Intersection Capacity Utilization	96.8%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1214	0	44	25	1434	21	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.9			4.9	4.0		4.9	
Lane Util. Factor					0.95			1.00	0.88		1.00	
Frt					1.00			1.00	0.85		0.95	
Flt Protected					1.00			0.97	1.00		0.97	
Satd. Flow (prot)					3539			1805	2787		1710	
Flt Permitted					1.00			0.82	1.00		0.75	
Satd. Flow (perm)					3539			1536	2787		1329	
Peak-hour factor, PHF	0.84	0.84	0.84	0.74	0.74	0.74	0.73	0.73	0.73	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	0	0	0	1805	0	66	38	2161	31	0	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	21	0
Lane Group Flow (vph)	0	0	0	0	1805	0	0	104	2161	0	31	0
Turn Type					NA		Perm	NA	Free	Perm	NA	
Protected Phases					6			8			4	
Permitted Phases							8		Free	4		
Actuated Green, G (s)					70.7			9.5	90.0		9.5	
Effective Green, g (s)					70.7			9.5	90.0		9.5	
Actuated g/C Ratio					0.79			0.11	1.00		0.11	
Clearance Time (s)					4.9			4.9			4.9	
Vehicle Extension (s)					2.1			2.0			2.0	
Lane Grp Cap (vph)					2780			162	2787		140	
v/s Ratio Prot					0.51							
v/s Ratio Perm								0.07	c0.78		0.02	
v/c Ratio					0.65			0.64	0.78		0.22	
Uniform Delay, d1					4.2			38.6	0.0		36.9	
Progression Factor					1.00			1.00	1.00		1.00	
Incremental Delay, d2					1.2			6.4	2.2		0.3	
Delay (s)					5.4			45.0	2.2		37.2	
Level of Service					A			D	A		D	
Approach Delay (s)		0.0			5.4			4.1			37.2	
Approach LOS		A			A			A			D	

Intersection Summary				
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	54.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	181	153	931	297	143	31	642	177	336	22	99	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.0		4.9	4.9			5.8	4.0
Lane Util. Factor	1.00	1.00	0.88	1.00	0.95		0.97	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.90			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1770	1863	2787	1770	3445		3433	1680			1846	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.80	1.00
Satd. Flow (perm)	1770	1863	2787	1770	3445		3433	1680			1486	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	216	183	1113	355	171	37	768	212	402	26	118	158
RTOR Reduction (vph)	0	0	307	0	12	0	0	51	0	0	0	0
Lane Group Flow (vph)	216	183	806	355	196	0	768	563	0	0	144	158
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		custom	NA	Free
Protected Phases	5	2	3	1			3	8				
Permitted Phases			2		6					4	4	Free
Actuated Green, G (s)	21.8	19.3	50.8	26.6	25.0		31.5	52.4			15.1	113.0
Effective Green, g (s)	21.8	19.3	50.8	26.6	25.0		31.5	52.4			15.1	113.0
Actuated g/C Ratio	0.19	0.17	0.45	0.24	0.22		0.28	0.46			0.13	1.00
Clearance Time (s)	4.9	4.9	4.9	4.9	4.0		4.9	4.9			5.8	
Vehicle Extension (s)	6.0	6.0	2.0	3.1	3.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	341	318	1373	416	762		956	779			198	1583
v/s Ratio Prot	0.12	0.10	c0.16	c0.20			c0.22	c0.34				
v/s Ratio Perm			0.13		c0.06						0.10	0.10
v/c Ratio	0.63	0.58	0.59	0.85	0.26		0.80	0.72			0.73	0.10
Uniform Delay, d1	41.9	43.1	23.3	41.3	36.3		37.9	24.4			47.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	6.3	5.0	0.4	15.6	0.2		4.7	2.8			10.7	0.1
Delay (s)	48.2	48.0	23.7	56.9	36.5		42.5	27.3			57.7	0.1
Level of Service	D	D	C	E	D		D	C			E	A
Approach Delay (s)		30.1			49.4			35.8			27.6	
Approach LOS		C			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	113.0	Sum of lost time (s)	20.5	
Intersection Capacity Utilization	73.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

33: I-5 NB Ramp & E. San Ysidro Blvd

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	85	532	40	131	8	185	138	40	0	38	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.87			0.99			0.99			0.91	
Flt Protected	0.95	1.00			0.99			0.98			1.00	
Satd. Flow (prot)	1770	1622			1831			1789			1703	
Flt Permitted	0.95	1.00			0.69			0.78			1.00	
Satd. Flow (perm)	1770	1622			1276			1424			1703	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	149	102	636	48	157	10	221	165	48	0	45	78
RTOR Reduction (vph)	0	339	0	0	3	0	0	6	0	0	48	0
Lane Group Flow (vph)	149	399	0	0	212	0	0	428	0	0	75	0
Turn Type	Prot	NA		Perm	NA		Perm	NA			NA	
Protected Phases	7				8			2			6	
Permitted Phases		4		8	8		2			6		
Actuated Green, G (s)	8.0	24.7			12.7			20.2			20.2	
Effective Green, g (s)	8.0	24.7			12.7			20.2			20.2	
Actuated g/C Ratio	0.15	0.47			0.24			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	267	757			306			543			650	
v/s Ratio Prot	0.08										0.04	
v/s Ratio Perm		c0.25			c0.17			c0.30				
v/c Ratio	0.56	0.53			0.69			0.79			0.12	
Uniform Delay, d1	20.8	10.0			18.3			14.5			10.6	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.5	0.7			6.6			7.4			0.1	
Delay (s)	23.3	10.6			25.0			21.9			10.7	
Level of Service	C	B			C			C			B	
Approach Delay (s)		12.8			25.0			21.9			10.7	
Approach LOS		B			C			C			B	

Intersection Summary				
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	52.9	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	81.8%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

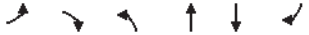
34: Via de San Ysidro & I-5 NB Ramps

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	90	0	135	513	817	0	0	410	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00		1.00	1.00	1.00			0.95	
Frt				1.00		0.85	1.00	1.00			0.93	
Flt Protected				0.95		1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770		1583	1770	1863			3277	
Flt Permitted				0.95		1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770		1583	1770	1863			3277	
Peak-hour factor, PHF	0.80	0.80	0.80	0.88	0.88	0.88	0.82	0.82	0.82	0.78	0.78	0.78
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	0	0	0	112	0	169	688	1096	0	0	578	563
RTOR Reduction (vph)	0	0	0	0	0	134	0	0	0	0	189	0
Lane Group Flow (vph)	0	0	0	112	0	35	688	1096	0	0	952	0
Turn Type				Perm		Perm	Prot	NA			NA	
Protected Phases							5	2			6	
Permitted Phases				8		8						
Actuated Green, G (s)				10.6		10.6	35.2	65.3			26.1	
Effective Green, g (s)				10.6		10.6	35.2	65.3			26.1	
Actuated g/C Ratio				0.13		0.13	0.42	0.78			0.31	
Clearance Time (s)				4.0		4.0	4.0	4.0			4.0	
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				223		199	742	1449			1019	
v/s Ratio Prot							c0.39	0.59			c0.29	
v/s Ratio Perm				c0.06		0.02						
v/c Ratio				0.50		0.18	0.93	0.76			0.93	
Uniform Delay, d1				34.2		32.8	23.1	5.0			28.1	
Progression Factor				1.00		1.00	1.00	1.00			1.00	
Incremental Delay, d2				1.8		0.4	17.5	2.3			14.8	
Delay (s)				36.0		33.2	40.7	7.3			42.8	
Level of Service				D		C	D	A			D	
Approach Delay (s)		0.0			34.3			20.2			42.8	
Approach LOS		A			C			C			D	

Intersection Summary				
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	83.9	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	162.6%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	401	994	0	979	537	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00		1.00	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		1863	3539	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		1863	3539	
Peak-hour factor, PHF	0.79	0.79	0.70	0.70	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	558	1384	0	1538	788	0
RTOR Reduction (vph)	0	461	0	0	0	0
Lane Group Flow (vph)	558	923	0	1538	788	0
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	4			3	
Permitted Phases		3 4		7		
Actuated Green, G (s)	31.4	80.8		85.4	49.4	
Effective Green, g (s)	31.4	80.8		85.4	49.4	
Actuated g/C Ratio	0.22	0.58		0.61	0.35	
Clearance Time (s)	4.6	4.6		4.6	4.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	396	965		1136	1248	
v/s Ratio Prot	0.32	0.21			0.22	
v/s Ratio Perm		0.37		c0.83		
v/c Ratio	1.41	0.96		1.35	0.63	
Uniform Delay, d1	54.3	27.9		27.3	37.7	
Progression Factor	1.00	1.00		1.22	1.00	
Incremental Delay, d2	198.6	19.0		161.8	1.1	
Delay (s)	252.9	47.0		195.2	38.8	
Level of Service	F	D		F	D	
Approach Delay (s)	106.1			195.2	38.8	
Approach LOS	F			F	D	

Intersection Summary				
HCM 2000 Control Delay	125.8	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	91.7%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	221	473	46	0	240	811	49	44	37	866	29	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6			4.6	4.6	4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99			1.00	0.85	1.00	0.93		1.00	0.86	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1838			1863	1583	1770	1734		1770	1601	
Flt Permitted	0.95	1.00			1.00	1.00	0.31	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1838			1863	1583	570	1734		1275	1601	
Peak-hour factor, PHF	0.81	0.81	0.81	0.85	0.85	0.85	0.79	0.79	0.79	0.81	0.81	0.81
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	300	642	62	0	311	1050	68	61	52	1176	39	585
RTOR Reduction (vph)	0	3	0	0	0	303	0	20	0	0	211	0
Lane Group Flow (vph)	300	701	0	0	311	747	68	93	0	1176	413	0
Turn Type	Prot	NA			NA	custom	Perm	NA		Perm	NA	
Protected Phases	5	2			6			7			3 4	
Permitted Phases				6		3 6	7			3 4		
Actuated Green, G (s)	18.8	45.4			22.4	71.8	85.4	85.4		85.4	85.4	
Effective Green, g (s)	18.8	45.4			22.4	71.8	85.4	85.4		85.4	85.4	
Actuated g/C Ratio	0.13	0.32			0.16	0.51	0.61	0.61		0.61	0.61	
Clearance Time (s)	4.2	4.6			4.6		4.6	4.6				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	237	596			298	811	347	1057		777	976	
v/s Ratio Prot	0.17	c0.38			0.17			0.05			0.26	
v/s Ratio Perm						0.47	0.12			c0.92		
v/c Ratio	1.27	1.18			1.04	0.92	0.20	0.09		1.51	0.42	
Uniform Delay, d1	60.6	47.3			58.8	31.5	12.1	11.2		27.3	14.3	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		0.60	0.01	
Incremental Delay, d2	148.7	96.1			64.0	15.7	0.3	0.0		234.3	0.1	
Delay (s)	209.3	143.4			122.8	47.2	12.4	11.3		250.7	0.3	
Level of Service	F	F			F	D	B	B		F	A	
Approach Delay (s)		163.1			64.5			11.7			163.9	
Approach LOS		F			E			B			F	

Intersection Summary				
HCM 2000 Control Delay	126.3	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.50			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	115.3%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	995	0	861	0	0	0	0	479	264	442	253	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.6					4.6	4.6	4.2	4.6	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	0.80	0.80	0.80	0.50	0.50	0.50	0.88	0.88	0.88	0.81	0.81	0.81
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	1244	0	1076	0	0	0	0	544	300	546	312	0
RTOR Reduction (vph)	0	0	181	0	0	0	0	0	173	0	0	0
Lane Group Flow (vph)	622	622	895	0	0	0	0	544	127	546	312	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	58.1	58.1	58.1					19.7	19.7	18.0	41.9	
Effective Green, g (s)	58.1	58.1	58.1					19.7	19.7	18.0	41.9	
Actuated g/C Ratio	0.53	0.53	0.53					0.18	0.18	0.16	0.38	
Clearance Time (s)	4.6	4.6	4.6					4.6	4.6	4.2	4.6	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	894	894	842					638	285	565	714	
v/s Ratio Prot	0.37	0.37						c0.15		c0.16	0.17	
v/s Ratio Perm			c0.57						0.08			
v/c Ratio	0.70	0.70	1.06					0.85	0.45	0.97	0.44	
Uniform Delay, d1	19.0	19.0	25.6					43.3	39.9	45.3	24.9	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	2.4	49.3					10.7	1.1	29.2	0.4	
Delay (s)	21.4	21.4	74.8					54.0	41.0	74.5	25.3	
Level of Service	C	C	E					D	D	E	C	
Approach Delay (s)		46.2			0.0			49.4			56.6	
Approach LOS		D			A			D			E	

Intersection Summary				
HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.00			
Actuated Cycle Length (s)	109.2	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	74.3%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	173	50	69	384	536	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.97			1.00	0.95	
Flt Protected	0.96			0.99	1.00	
Satd. Flow (prot)	1739			1849	1779	
Flt Permitted	0.96			0.57	1.00	
Satd. Flow (perm)	1739			1061	1779	
Peak-hour factor, PHF	0.77	0.77	0.82	0.82	0.80	0.80
Adj. Flow (vph)	225	65	84	468	670	336
RTOR Reduction (vph)	15	0	0	0	24	0
Lane Group Flow (vph)	275	0	0	552	982	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	14.4			47.6	47.6	
Effective Green, g (s)	14.4			47.6	47.6	
Actuated g/C Ratio	0.21			0.68	0.68	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	357			721	1209	
v/s Ratio Prot	c0.16				c0.55	
v/s Ratio Perm				0.52		
v/c Ratio	0.77			0.77	0.81	
Uniform Delay, d1	26.2			7.5	8.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	9.8			7.6	6.0	
Delay (s)	36.1			15.1	14.0	
Level of Service	D			B	B	
Approach Delay (s)	36.1			15.1	14.0	
Approach LOS	D			B	B	

Intersection Summary				
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	91.3%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	6	395	76	12	558	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.98			1.00
Flt Protected	0.95	1.00	1.00			0.95
Satd. Flow (prot)	1770	1583	1828			1777
Flt Permitted	0.95	1.00	1.00			0.64
Satd. Flow (perm)	1770	1583	1828			1198
Peak-hour factor, PHF	0.89	0.89	0.75	0.75	0.79	0.79
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	7	488	111	18	777	32
RTOR Reduction (vph)	0	440	3	0	0	0
Lane Group Flow (vph)	7	48	126	0	0	809
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	8.8	8.8	73.2			73.2
Effective Green, g (s)	8.8	8.8	73.2			73.2
Actuated g/C Ratio	0.10	0.10	0.81			0.81
Clearance Time (s)	4.0	4.0	4.0			4.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	173	154	1486			974
v/s Ratio Prot	0.00		0.07			
v/s Ratio Perm		c0.03				c0.68
v/c Ratio	0.04	0.31	0.08			0.83
Uniform Delay, d1	36.8	37.8	1.7			4.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.1	1.2	0.1			8.2
Delay (s)	36.9	38.9	1.8			13.0
Level of Service	D	D	A			B
Approach Delay (s)	38.9		1.8			13.0
Approach LOS	D		A			B

Intersection Summary				
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	52.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	10	133	273	8	203	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.3		4.0	5.3
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3524		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3524		1770	3539
Peak-hour factor, PHF	0.71	0.71	0.80	0.80	0.87	0.87
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	15	206	375	11	257	492
RTOR Reduction (vph)	0	187	2	0	0	0
Lane Group Flow (vph)	15	19	384	0	257	492
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	6.4	6.4	35.5		14.8	54.3
Effective Green, g (s)	6.4	6.4	35.5		14.8	54.3
Actuated g/C Ratio	0.09	0.09	0.51		0.21	0.78
Clearance Time (s)	4.0	4.0	5.3		4.0	5.3
Vehicle Extension (s)	2.0	2.0	3.6		2.0	3.6
Lane Grp Cap (vph)	161	144	1787		374	2745
v/s Ratio Prot	0.01		c0.11		c0.15	0.14
v/s Ratio Perm		c0.01				
v/c Ratio	0.09	0.13	0.21		0.69	0.18
Uniform Delay, d1	29.1	29.2	9.5		25.5	2.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.2	0.3		4.1	0.1
Delay (s)	29.2	29.4	9.8		29.6	2.2
Level of Service	C	C	A		C	A
Approach Delay (s)	29.4		9.8			11.6
Approach LOS	C		A			B

Intersection Summary				
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.33			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.3	
Intersection Capacity Utilization	35.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

41: Willow Rd & Camino de la Plaza

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	223	39	73	223	454	34	159	105	434	243	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9	4.4	4.4	4.9		4.4	4.9	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3460		1770	1863	1583	1770	1752		1770	1814	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3460		1770	1863	1583	1770	1752		1770	1814	
Peak-hour factor, PHF	0.90	0.90	0.90	0.71	0.71	0.71	0.80	0.80	0.80	0.89	0.89	0.89
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	165	273	48	113	345	703	47	219	144	536	300	63
RTOR Reduction (vph)	0	15	0	0	0	104	0	23	0	0	7	0
Lane Group Flow (vph)	165	306	0	113	345	599	47	340	0	536	356	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6	7	3			7	4	
Permitted Phases						6		8			4	
Actuated Green, G (s)	10.0	23.1		7.6	20.7	51.3	4.1	21.1		30.6	47.6	
Effective Green, g (s)	10.0	23.1		7.6	20.7	51.3	4.1	21.1		30.6	47.6	
Actuated g/C Ratio	0.10	0.23		0.08	0.20	0.51	0.04	0.21		0.30	0.47	
Clearance Time (s)	4.4	4.9		4.4	4.9	4.4	4.4	4.9		4.4	4.9	
Vehicle Extension (s)	2.0	3.3		2.0	3.3	2.0	2.0	2.0		2.0	2.7	
Lane Grp Cap (vph)	175	791		133	381	804	71	366		536	854	
v/s Ratio Prot	c0.09	0.09		0.06	c0.19	0.23	0.03			c0.30	0.20	
v/s Ratio Perm						0.15		c0.19				
v/c Ratio	0.94	0.39		0.85	0.91	0.74	0.66	0.93		1.00	0.42	
Uniform Delay, d1	45.2	33.0		46.1	39.2	19.7	47.8	39.2		35.2	17.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	50.8	0.4		35.7	24.5	3.3	16.5	28.9		38.9	0.3	
Delay (s)	96.1	33.3		81.8	63.7	23.0	64.3	68.2		74.1	17.8	
Level of Service	F	C		F	E	C	E	E		E	B	
Approach Delay (s)		54.6			40.8			67.7			51.4	
Approach LOS		D			D			E			D	

Intersection Summary				
HCM 2000 Control Delay	50.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	101.0	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	79.3%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

42: Camiones Way/I-5 SB Ramps & Camino de la Plaza

11/21/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	474	625	25	43	432	448	59	23	107	291	170	830
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.6		4.2	4.6	4.6	4.2	4.6	4.2	4.6	4.6	4.2
Lane Util. Factor	0.97	1.00		1.00	0.95	0.88	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1852		1770	3539	2787	1770	1863	1583	1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1852		1770	3539	2787	1770	1863	1583	1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	567	747	30	51	517	536	71	28	128	348	203	992
RTOR Reduction (vph)	0	1	0	0	0	256	0	0	108	0	0	133
Lane Group Flow (vph)	567	776	0	51	517	280	71	28	20	348	203	859
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	24.2	49.5		8.4	33.7	55.1	5.7	8.0	16.4	21.4	24.1	48.3
Effective Green, g (s)	24.2	49.5		8.4	33.7	55.1	5.7	8.0	16.4	21.4	24.1	48.3
Actuated g/C Ratio	0.23	0.47		0.08	0.32	0.52	0.05	0.08	0.16	0.20	0.23	0.46
Clearance Time (s)	4.2	4.6		4.2	4.6	4.6	4.2	4.6	4.2	4.6	4.6	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	788	870		141	1132	1580	95	141	246	359	426	1278
v/s Ratio Prot	c0.17	c0.42		0.03	0.15	0.04	0.04	0.02	0.01	c0.20	0.11	c0.15
v/s Ratio Perm						0.06			0.01			0.15
v/c Ratio	0.72	0.89		0.36	0.46	0.18	0.75	0.20	0.08	0.97	0.48	0.67
Uniform Delay, d1	37.4	25.5		45.9	28.5	13.2	49.1	45.6	38.0	41.6	35.1	22.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	11.4		1.6	0.3	0.1	27.0	0.7	0.1	38.9	0.8	1.4
Delay (s)	40.6	36.9		47.5	28.8	13.2	76.1	46.3	38.1	80.5	36.0	23.7
Level of Service	D	D		D	C	B	E	D	D	F	D	C
Approach Delay (s)		38.4			22.1			51.0			38.1	
Approach LOS		D			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.91			
Actuated Cycle Length (s)	105.3	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	78.9%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	8	16	29	8	158	8	431	13	237	483	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.8		4.0	4.8	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.89		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1738			1647		1770	3524		1770	3507	
Flt Permitted		0.45			0.95		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		796			1569		1770	3524		1770	3507	
Peak-hour factor, PHF	0.54	0.54	0.54	0.68	0.68	0.68	0.89	0.89	0.89	0.94	0.94	0.94
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	59	16	33	47	13	256	10	533	16	277	565	37
RTOR Reduction (vph)	0	27	0	0	212	0	0	3	0	0	5	0
Lane Group Flow (vph)	0	81	0	0	104	0	10	546	0	277	597	0
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		8.7			8.7		0.7	14.4		14.6	28.3	
Effective Green, g (s)		8.7			8.7		0.7	14.4		14.6	28.3	
Actuated g/C Ratio		0.17			0.17		0.01	0.29		0.29	0.56	
Clearance Time (s)		4.0			4.0		4.0	4.8		4.0	4.8	
Vehicle Extension (s)		2.0			2.0		2.0	4.1		2.0	4.1	
Lane Grp Cap (vph)		137			270		24	1004		511	1965	
v/s Ratio Prot							0.01	c0.15		c0.16	0.17	
v/s Ratio Perm		c0.10			0.07							
v/c Ratio		0.59			0.39		0.42	0.54		0.54	0.30	
Uniform Delay, d1		19.3			18.5		24.7	15.3		15.1	5.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.1			0.3		4.2	0.8		0.6	0.1	
Delay (s)		23.4			18.9		28.9	16.1		15.8	6.0	
Level of Service		C			B		C	B		B	A	
Approach Delay (s)		23.4			18.9			16.3			9.1	
Approach LOS		C			B			B			A	

Intersection Summary				
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	12.8	
Intersection Capacity Utilization	51.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Yield			Stop	Stop	
Volume (vph)	43	57	41	54	44	25
Peak Hour Factor	0.65	0.65	0.56	0.56	0.64	0.64
Hourly flow rate (vph)	73	96	81	106	76	43

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	169	187	119
Volume Left (vph)	73	81	0
Volume Right (vph)	96	0	43
Hadj (s)	-0.22	0.12	-0.18
Departure Headway (s)	4.4	4.6	4.3
Degree Utilization, x	0.21	0.24	0.14
Capacity (veh/h)	766	758	784
Control Delay (s)	8.5	9.0	8.1
Approach Delay (s)	8.5	9.0	8.1
Approach LOS	A	A	A

Intersection Summary			
Delay	8.6		
Level of Service	A		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	1613	0	0	1405	153	120	40	387	0	0	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6			4.6			4.6	4.6			4.6
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00			1.00
Frt	1.00	1.00			0.99			1.00	0.85			0.86
Flt Protected	0.95	1.00			1.00			0.96	1.00			1.00
Satd. Flow (prot)	1770	3539			3487			1796	1583			1611
Flt Permitted	0.07	1.00			1.00			0.96	1.00			1.00
Satd. Flow (perm)	128	3539			3487			1796	1583			1611
Peak-hour factor, PHF	0.95	0.95	0.95	0.82	0.82	0.82	0.85	0.85	0.85	0.25	0.25	0.25
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	46	1868	0	0	1885	205	155	52	501	0	0	814
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	37	0	0	37
Lane Group Flow (vph)	46	1868	0	0	2083	0	0	207	464	0	0	777
Turn Type	Perm	NA			NA		Perm	NA	Perm			Perm
Protected Phases		2			6 5			8				
Permitted Phases	2						8		8			4
Actuated Green, G (s)	58.4	58.4			58.8			42.4	42.4			42.4
Effective Green, g (s)	58.4	58.4			58.8			42.4	42.4			42.4
Actuated g/C Ratio	0.53	0.53			0.53			0.39	0.39			0.39
Clearance Time (s)	4.6	4.6						4.6	4.6			4.6
Vehicle Extension (s)	3.0	3.0						3.0	3.0			3.0
Lane Grp Cap (vph)	67	1878			1863			692	610			620
v/s Ratio Prot		0.53			c0.60							
v/s Ratio Perm	0.36							0.12	0.29			c0.48
v/c Ratio	0.69	0.99			1.12			0.30	0.76			1.25
Uniform Delay, d1	19.0	25.6			25.6			23.5	29.4			33.8
Progression Factor	1.00	1.00			1.00			1.00	1.00			1.00
Incremental Delay, d2	38.9	17.9			61.0			0.2	5.4			126.5
Delay (s)	58.0	43.5			86.6			23.7	34.8			160.3
Level of Service	E	D			F			C	C			F
Approach Delay (s)		43.9			86.6			31.6			160.3	
Approach LOS		D			F			C			F	

Intersection Summary				
HCM 2000 Control Delay	75.6	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.23			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.4	
Intersection Capacity Utilization	83.1%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	242	781	815	332	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		
Lane Util. Factor	1.00	1.00	0.95	1.00		
Frt	1.00	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	1.00		
Satd. Flow (prot)	1770	1863	3539	1583		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	1770	1863	3539	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	289	934	974	397	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	289	934	974	397	0	0
Turn Type	Prot	NA	NA	Free		
Protected Phases	7	4	8			
Permitted Phases				Free		
Actuated Green, G (s)	8.0	32.8	16.8	32.8		
Effective Green, g (s)	8.0	32.8	16.8	32.8		
Actuated g/C Ratio	0.24	1.00	0.51	1.00		
Clearance Time (s)	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	431	1863	1812	1583		
v/s Ratio Prot	0.16	c0.50	0.28			
v/s Ratio Perm				0.25		
v/c Ratio	0.67	0.50	0.54	0.25		
Uniform Delay, d1	11.2	0.0	5.4	0.0		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	4.1	0.2	0.3	0.4		
Delay (s)	15.3	0.2	5.7	0.4		
Level of Service	B	A	A	A		
Approach Delay (s)		3.8	4.2		0.0	
Approach LOS		A	A		A	

Intersection Summary				
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	32.8	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	48.5%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

47: Vista Ln & Smythe Crossing

11/21/2014

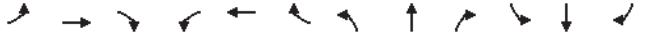
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	49	48	92	132	250	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.92		0.94	
Flt Protected		0.98	1.00		0.97	
Satd. Flow (prot)		1817	1714		1708	
Flt Permitted		0.64	1.00		0.97	
Satd. Flow (perm)		1196	1714		1708	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	72	70	135	194	367	265
RTOR Reduction (vph)	0	0	110	0	54	0
Lane Group Flow (vph)	0	142	219	0	578	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		9.8	9.8		18.0	
Effective Green, g (s)		9.8	9.8		18.0	
Actuated g/C Ratio		0.27	0.27		0.50	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		327	469		858	
v/s Ratio Prot			c0.13		c0.34	
v/s Ratio Perm		0.12				
v/c Ratio		0.43	0.47		0.67	
Uniform Delay, d1		10.7	10.8		6.7	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.9	0.7		2.1	
Delay (s)		11.6	11.6		8.8	
Level of Service		B	B		A	
Approach Delay (s)		11.6	11.6		8.8	
Approach LOS		B	B		A	

Intersection Summary				
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	35.8	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	57.4%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

48: Camino de la Plaza & Virgina Ave

11/21/2014



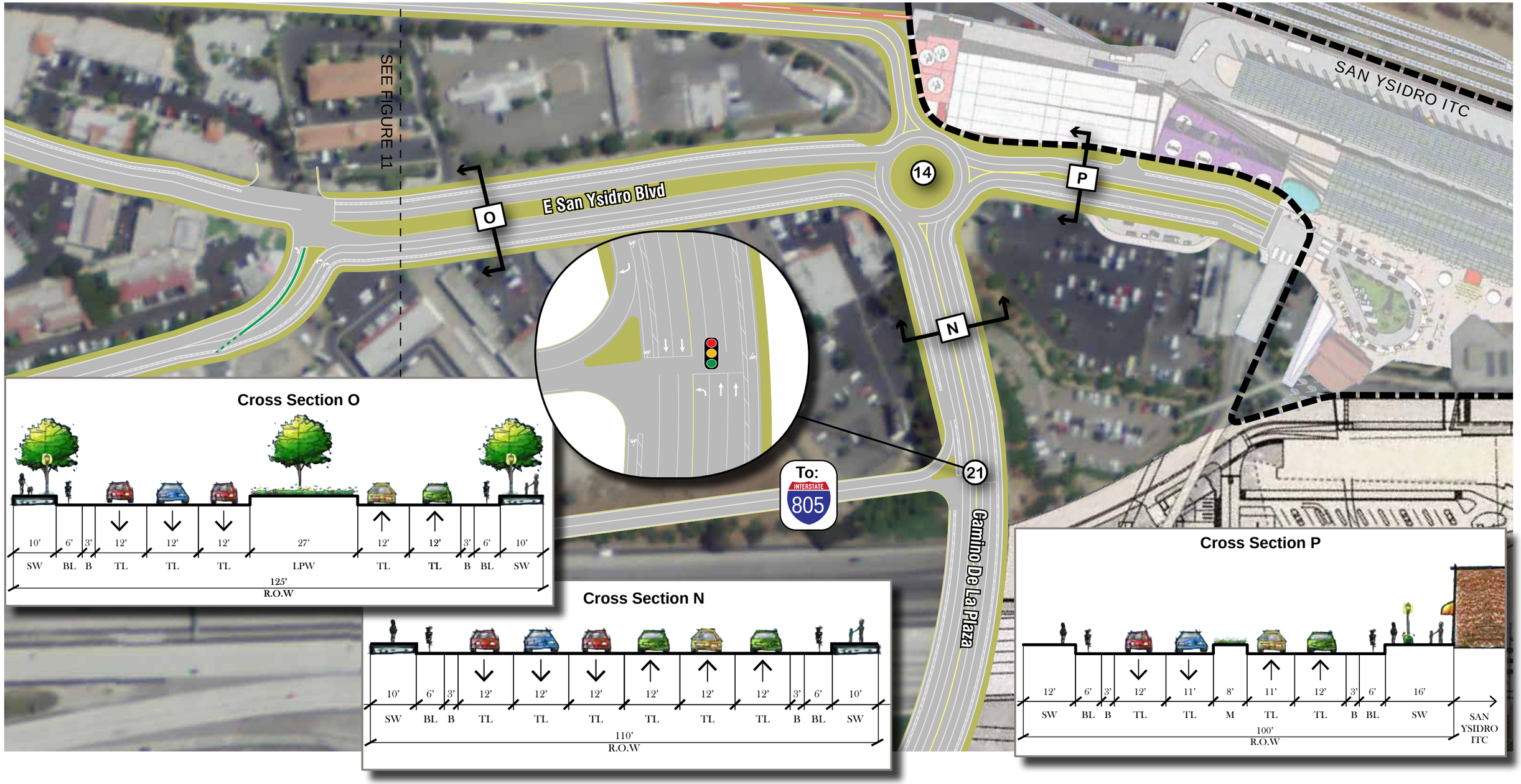
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	1118	66	273	358	5	66	0	273	8	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.96	
Satd. Flow (prot)	1770	3510		1770	1859		1770	1583			1743	
Flt Permitted	0.95	1.00		0.95	1.00		0.75	1.00			0.34	
Satd. Flow (perm)	1770	3510		1770	1859		1393	1583			609	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	3	1640	97	400	525	7	97	0	400	12	0	3
RTOR Reduction (vph)	0	4	0	0	1	0	0	266	0	0	13	0
Lane Group Flow (vph)	3	1733	0	400	531	0	97	134	0	0	2	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	0.8	45.4		20.0	64.6		12.0	12.0			12.0	
Effective Green, g (s)	0.8	45.4		20.0	64.6		12.0	12.0			12.0	
Actuated g/C Ratio	0.01	0.51		0.22	0.72		0.13	0.13			0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	15	1782		395	1343		186	212			81	
v/s Ratio Prot	0.00	c0.49		c0.23	0.29			c0.08				
v/s Ratio Perm							0.07				0.00	
v/c Ratio	0.20	0.97		1.01	0.40		0.52	0.63			0.02	
Uniform Delay, d1	44.0	21.4		34.7	4.8		36.0	36.6			33.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	6.5	15.2		48.5	0.2		2.6	6.0			0.1	
Delay (s)	50.5	36.6		83.2	5.0		38.7	42.7			33.7	
Level of Service	D	D		F	A		D	D			C	
Approach Delay (s)		36.6			38.6			41.9			33.7	
Approach LOS		D			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	89.4	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	81.5%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

APPENDIX F

PROPOSED FUTURE LAND USE ALTERNATIVE – PEAK-HOUR VOLUMES
ROUNDABOUT CALCULATION WORKSHEETS



LEGEND

BL	Bike Lane	TWLT	Two-way Left Turn	New Traffic Signal
P	Parking	BP	Bike Path	
SW	Sidewalk	B	Buffer	
TL	Travel Lane	LPW	Landscaped Parkway	

Figure 13

Recommended Imprvement: Camino de la Plaza

0 150 Feet

LEVEL OF SERVICE

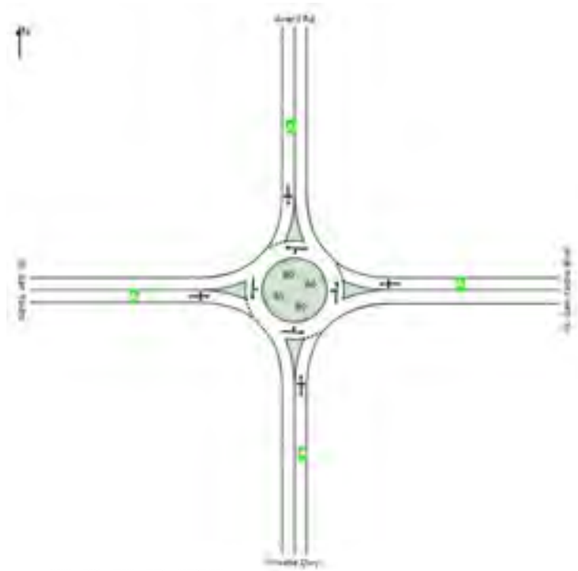
DEGREE OF SATURATION

CONTROL DELAY

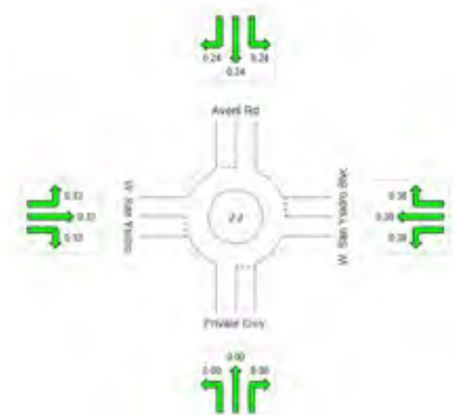
95TH PERCENTILE QUEUE

AM PEAK

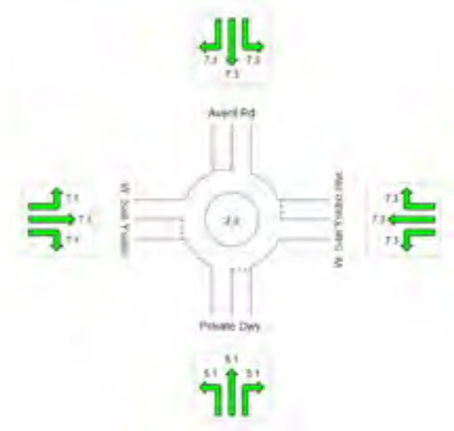
	South	East	North	West	Intersection
LOS	A	A	A	A	A



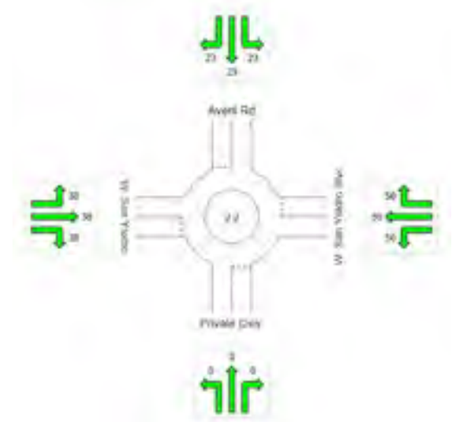
	South	East	North	West	Intersection
Degree of Saturation	0.00	0.38	0.24	0.33	0.38



	South	East	North	West	Intersection
Delay (Control)	5.1	7.3	7.3	7.1	7.2
LOS	A	A	A	A	A



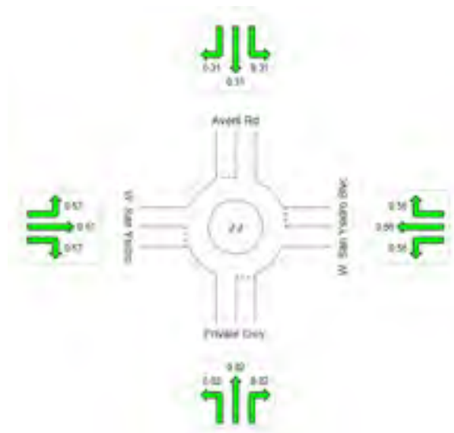
	South	East	North	West	Intersection
Vehicle Queue (%ile)	0	50	23	38	50



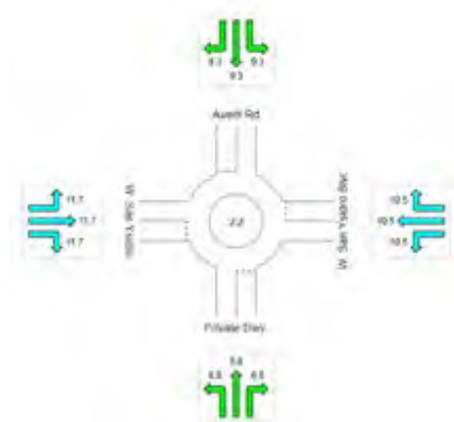
PM PEAK

	South	East	North	West	Intersection
LOS	A	B	A	B	B

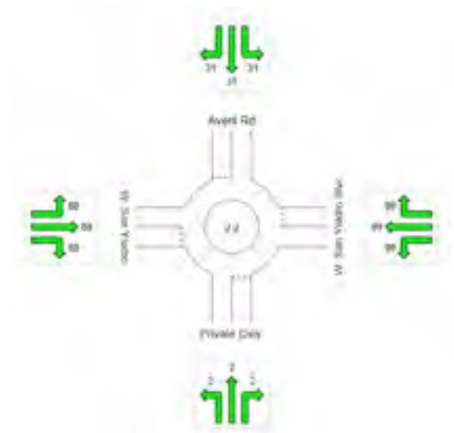
	South	East	North	West	Intersection
Degree of Saturation	0.02	0.56	0.31	0.57	0.57



	South	East	North	West	Intersection
Delay (Control)	6.8	10.5	9.3	11.7	10.8
LOS	A	B	A	B	B



	South	East	North	West	Intersection
Vehicle Queue (%ile)	2	99	31	88	99



LEGEND

Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F Continuous

Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Figure F-2

W San Ysidro Blvd and Averil Rd
Roundabout Analysis

N

NOT TO SCALE

LEVEL OF SERVICE

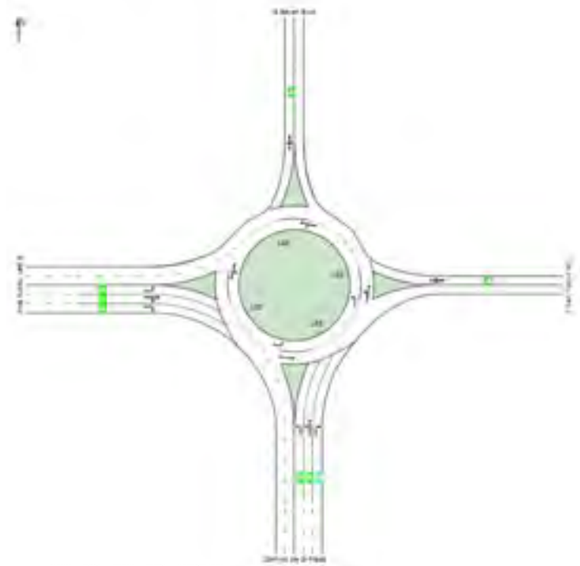
DEGREE OF SATURATION

CONTROL DELAY

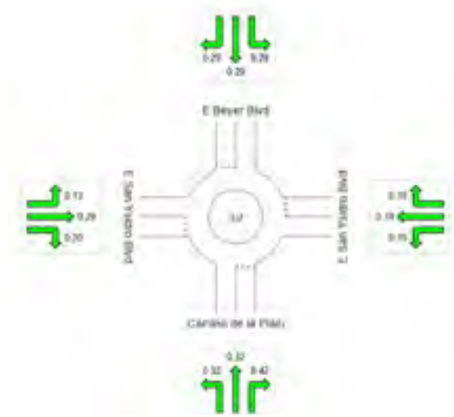
95TH PERCENTILE QUEUE

AM PEAK

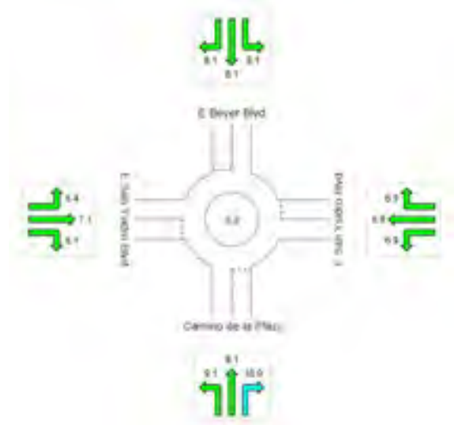
	South	East	North	West	Intersection
LOS	A	A	A	A	A



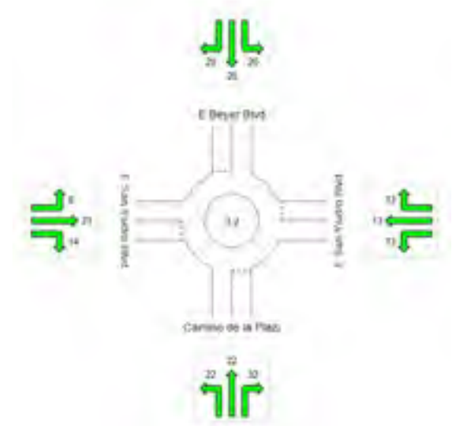
	South	East	North	West	Intersection
Degree of Saturation	0.42	0.19	0.29	0.29	0.42



	South	East	North	West	Intersection
Delay (Control)	9.8	6.9	8.1	6.4	8.2
LOS	A	A	A	A	A

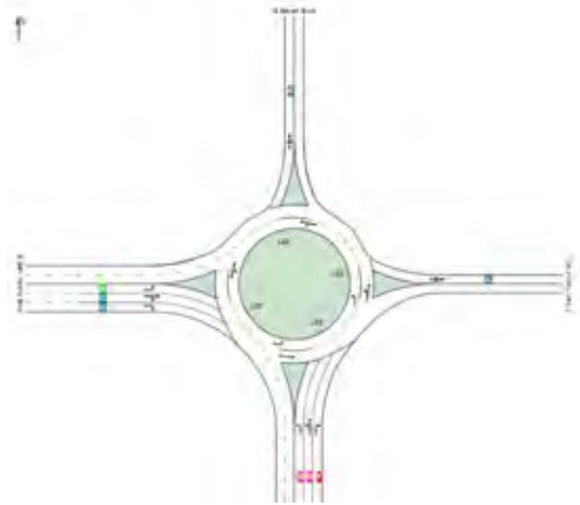


	South	East	North	West	Intersection
Vehicle Queue (%ile)	32	13	20	21	32

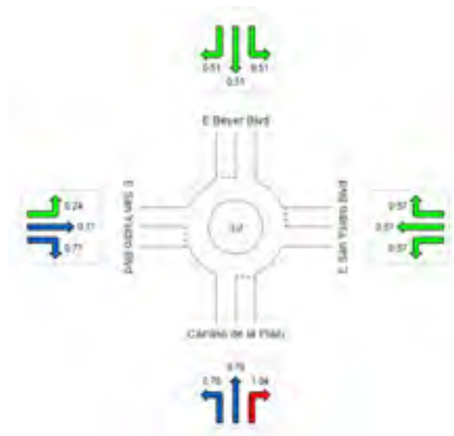


PM PEAK

	South	East	North	West	Intersection
LOS	E	C	C	C	D

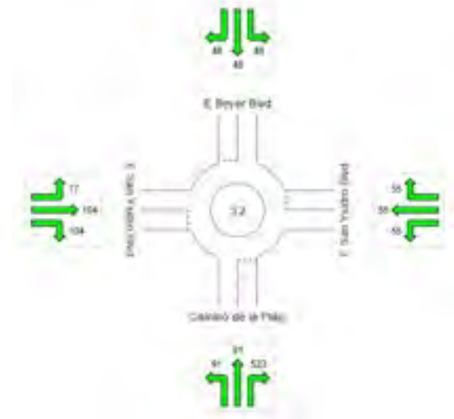


	South	East	North	West	Intersection
Degree of Saturation	1.04	0.57	0.51	0.71	1.04



	South	East	North	West	Intersection
Delay (Control)	46.7	18.7	15.5	16.1	29.7
LOS	E	C	C	C	D

	South	East	North	West	Intersection
Vehicle Queue (%ile)	523	55	48	104	523



LEGEND

Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F Continuous

Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Figure F-3

E San Ysidro Blvd and Camino de la Plaza Roundabout Analysis

N

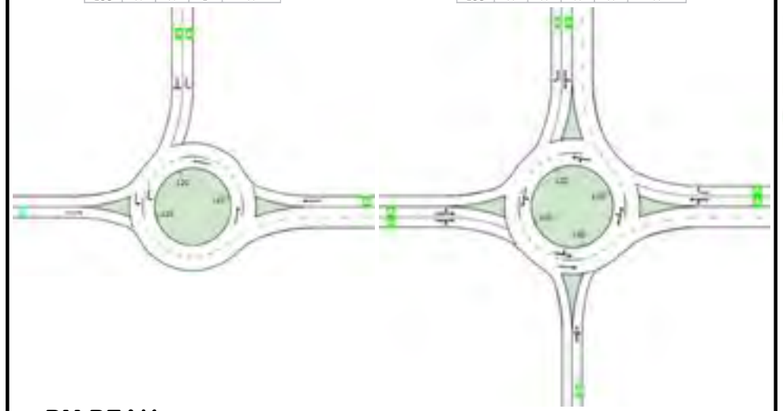
NOT TO SCALE

LEVEL OF SERVICE

AM PEAK

	East	North	West	Intersection
LOS	A	A	B	A

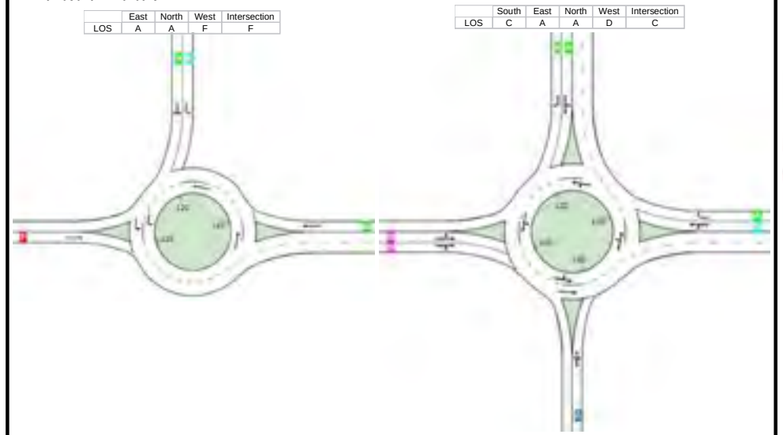
	South	East	North	West	Intersection
LOS	A	A	A	A	A



PM PEAK

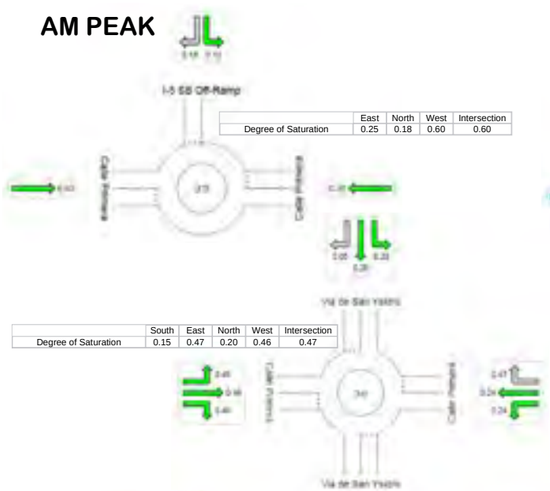
	East	North	West	Intersection
LOS	A	A	F	F

	South	East	North	West	Intersection
LOS	C	A	A	D	C



DEGREE OF SATURATION

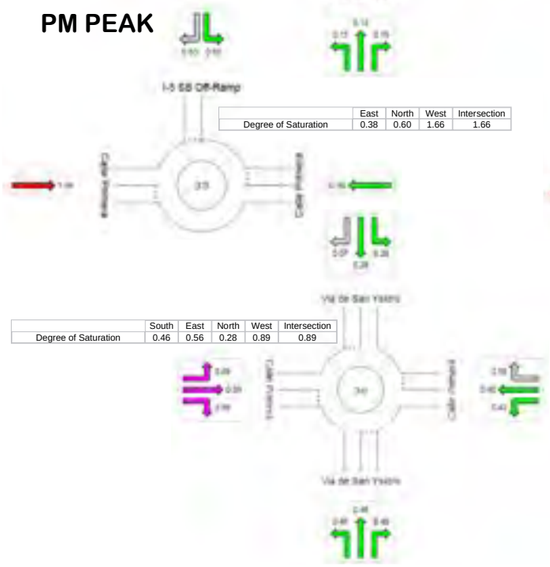
AM PEAK



	East	North	West	Intersection
Degree of Saturation	0.25	0.18	0.60	0.60

	South	East	North	West	Intersection
Degree of Saturation	0.15	0.47	0.20	0.46	0.47

PM PEAK

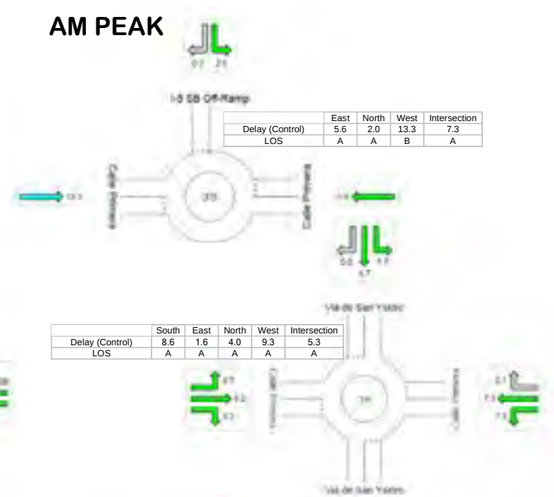


	East	North	West	Intersection
Degree of Saturation	0.38	0.60	1.66	1.66

	South	East	North	West	Intersection
Degree of Saturation	0.46	0.56	0.28	0.89	0.89

CONTROL DELAY

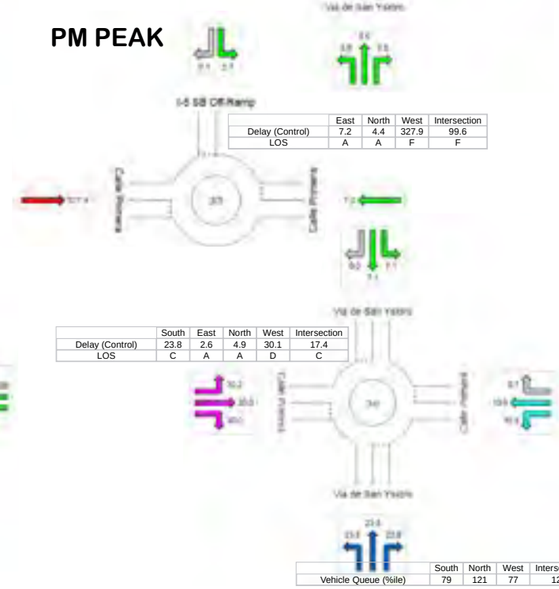
AM PEAK



	East	North	West	Intersection
Delay (Control)	5.6	2.0	13.3	7.3
LOS	A	A	B	A

	South	East	North	West	Intersection
Delay (Control)	8.6	1.6	4.0	9.3	5.3
LOS	A	A	A	A	A

PM PEAK



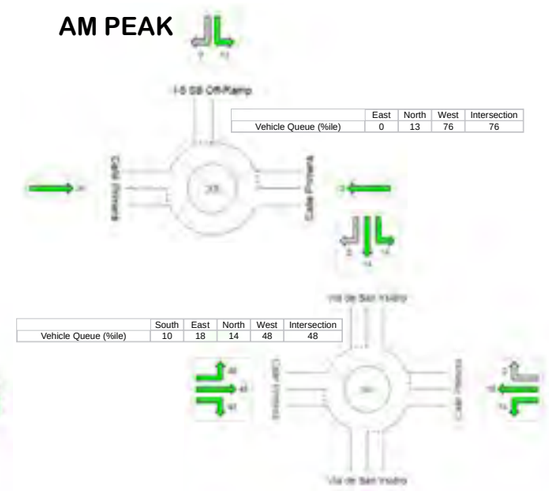
	East	North	West	Intersection
Delay (Control)	7.2	4.4	327.9	99.6
LOS	A	A	F	F

	South	East	North	West	Intersection
Delay (Control)	23.8	2.6	4.9	30.1	17.4
LOS	C	A	A	D	C

	South	North	West	Intersection
Vehicle Queue (%ile)	79	121	77	121

95TH PERCENTILE QUEUE

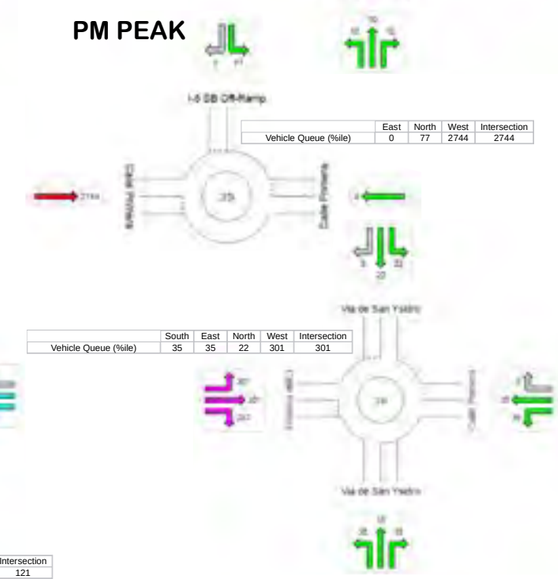
AM PEAK



	East	North	West	Intersection
Vehicle Queue (%ile)	0	13	76	76

	South	East	North	West	Intersection
Vehicle Queue (%ile)	10	18	14	48	48

PM PEAK



	East	North	West	Intersection
Vehicle Queue (%ile)	0	77	2744	2744

	South	East	North	West	Intersection
Vehicle Queue (%ile)	35	35	22	301	301

LEGEND

Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F Continuous

Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Figure F-4

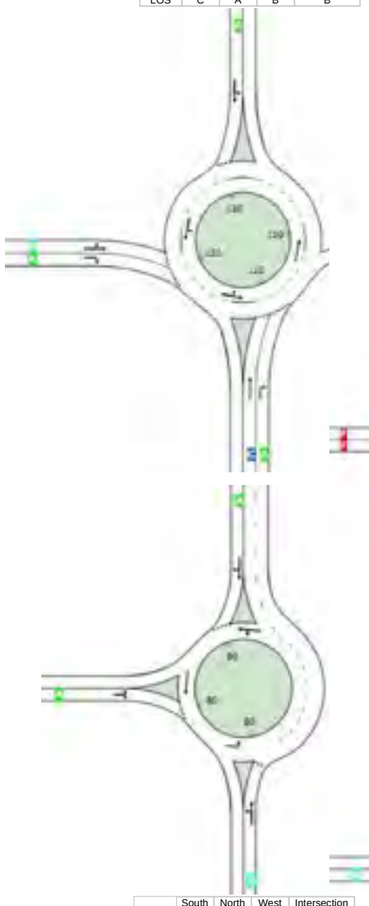
Calle Primera at Via De San Ysidro at I-5 SB Off-Ramp
Roundabout Network Analysis

NOT TO SCALE

LEVEL OF SERVICE

AM PEAK

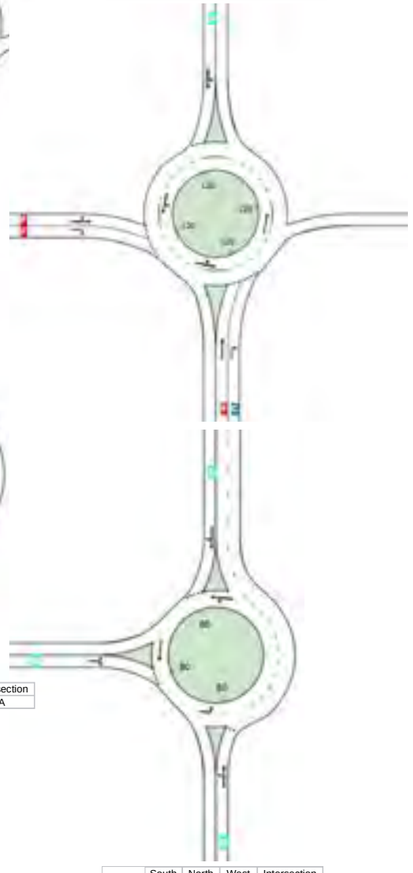
	South	North	West	Intersection
LOS	C	A	B	B



	South	North	West	Intersection
LOS	B	A	A	A

PM PEAK

	South	North	West	Intersection
LOS	F	B	F	F

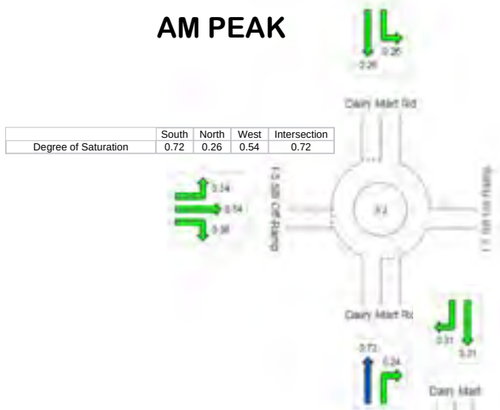


	South	North	West	Intersection
LOS	B	B	B	B

DEGREE OF SATURATION

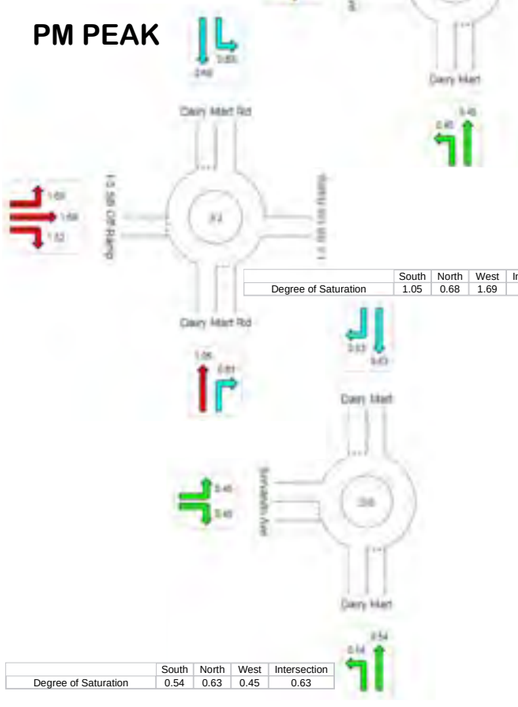
AM PEAK

	South	North	West	Intersection
Degree of Saturation	0.72	0.26	0.54	0.72



	South	North	West	Intersection
Degree of Saturation	0.45	0.31	0.37	0.45

PM PEAK



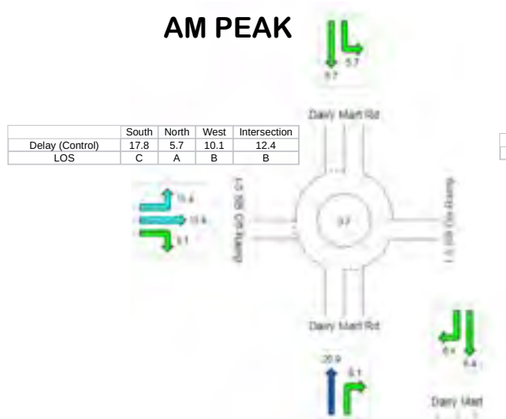
	South	North	West	Intersection
Degree of Saturation	1.05	0.68	1.69	1.69

	South	North	West	Intersection
Degree of Saturation	0.54	0.63	0.45	0.63

CONTROL DELAY

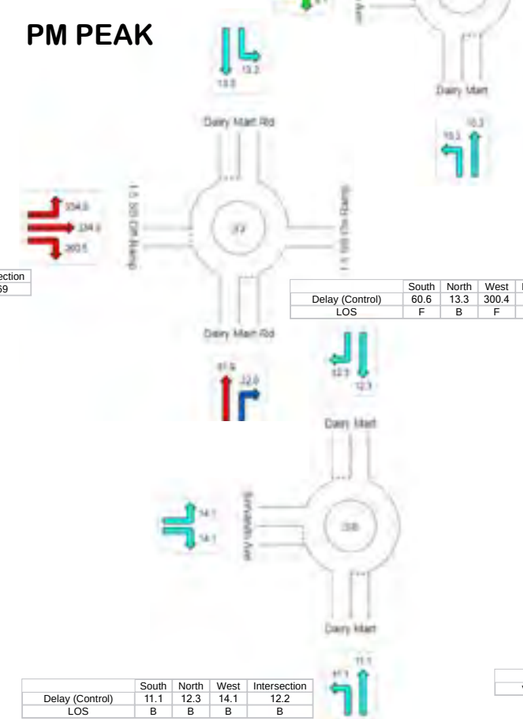
AM PEAK

	South	North	West	Intersection
Delay (Control)	17.8	5.7	10.1	12.4
LOS	C	A	B	B



	South	North	West	Intersection
Delay (Control)	10.3	6.4	8.1	8.3
LOS	B	A	A	A

PM PEAK



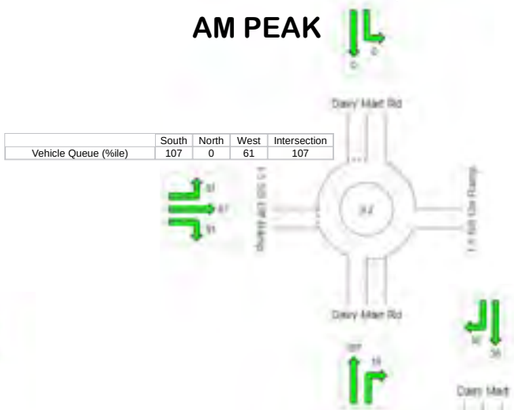
	South	North	West	Intersection
Delay (Control)	60.6	13.3	300.4	185.8
LOS	F	B	F	F

	South	North	West	Intersection
Delay (Control)	11.1	12.3	14.1	12.2
LOS	B	B	B	B

95TH PERCENTILE QUEUE

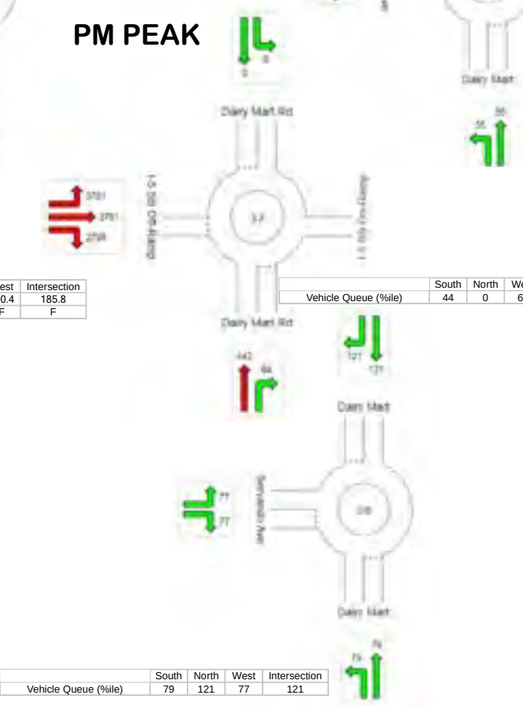
AM PEAK

	South	North	West	Intersection
Vehicle Queue (%ile)	107	0	61	107



	South	North	West	Intersection
Vehicle Queue (%ile)	55	38	45	55

PM PEAK



	South	North	West	Intersection
Vehicle Queue (%ile)	44	0	66	66

	South	North	West	Intersection
Vehicle Queue (%ile)	79	121	77	121

LEGEND

Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F Continuous

Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Figure F-5

Dairy Mart Rd at I-5 SB Ramps and Servando Ave
Roundabout Network Analysis

N

NOT TO SCALE

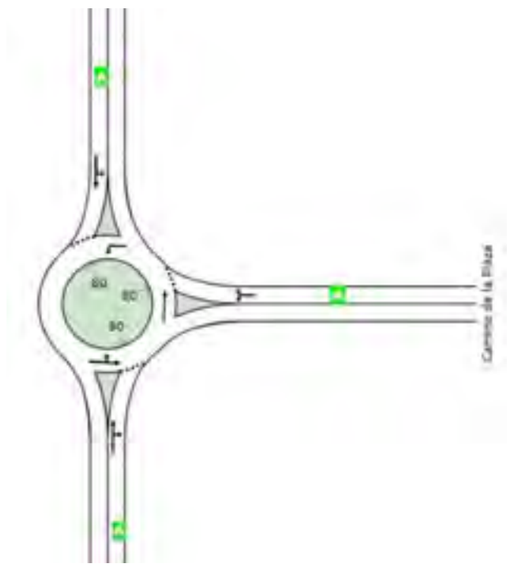
LEVEL OF SERVICE

DEGREE OF SATURATION

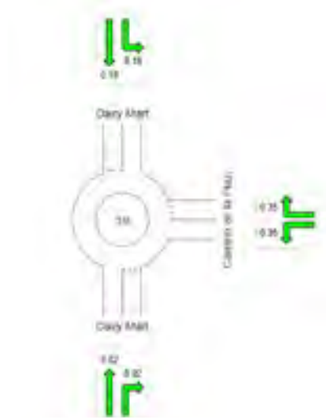
CONTROL DELAY

95TH PERCENTILE QUEUE

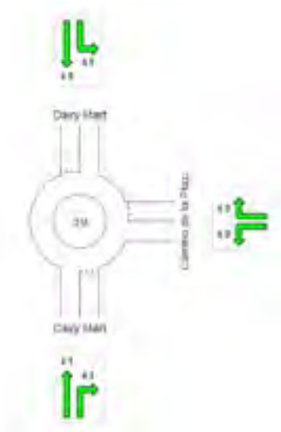
AM PEAK



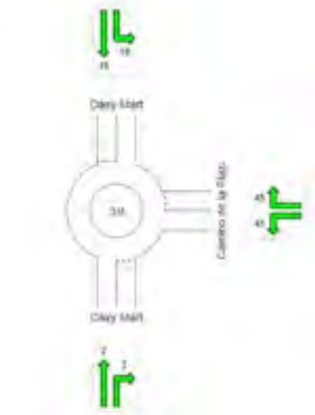
	South	East	North	Intersection
Degree of Saturation	0.02	0.35	0.18	0.35



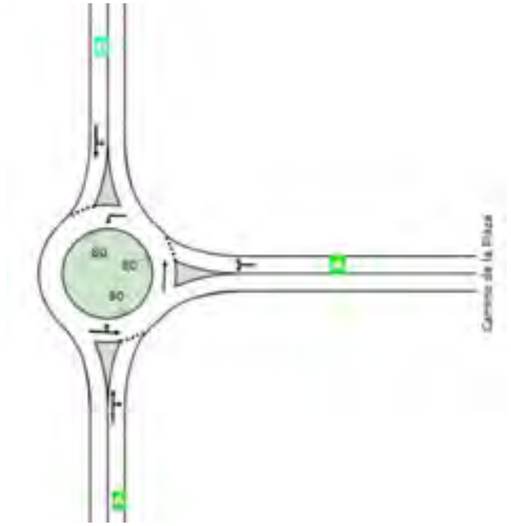
	South	East	North	Intersection
Delay (Control)	4.1	6.9	4.9	6.1
LOS	A	A	A	A



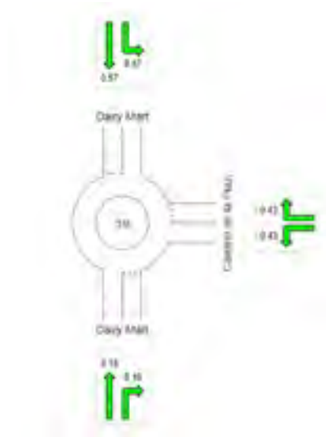
	South	East	North	Intersection
Vehicle Queue (%ile)	2	45	19	45



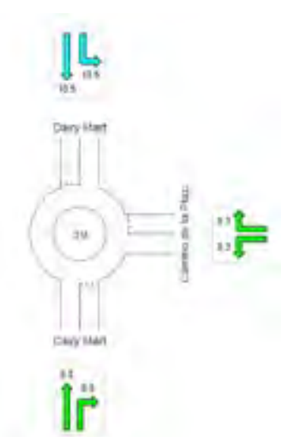
PM PEAK



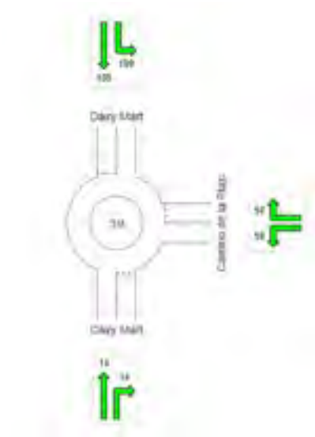
	South	East	North	Intersection
Degree of Saturation	0.16	0.43	0.57	0.57



	South	East	North	Intersection
Delay (Control)	8.0	8.3	10.5	9.4
LOS	A	A	B	A



	South	East	North	Intersection
Vehicle Queue (%ile)	14	58	109	109



LEGEND

Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F Continuous

Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

Figure F-6

Camino de la Plaza and Dairy Mart Rd
Roundabout Analysis

N

NOT TO SCALE

Kimley»Horn rrmdesigngroup SanGIS