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February 10, 2010

Mr. Homi Namdari
Assistant City Engineer
City of Escondido
201 N. Broadway
Escondido, CA 92025

LLG Reference: 3-10-1944

Subject: **Talk-of-The-Town**
City of Escondido

Dear Mr. Namdari:

LLG Engineers prepared a traffic study for the Talk-of-The-Town project in January 2008. This project proposes to construct an automatic Car Wash facility, a two-stall oil change facility and a 4,156 square foot sit-down restaurant at the northwest corner of Centre City Parkway and Brotherton Road in the City of Escondido. This letter report addresses the following three issues:

- Potential conflict between project traffic and school vehicular traffic
- Potential conflict between project traffic and school pedestrian traffic
- Potential impact to nearby residential streets which the project traffic may utilize.

Figure 1 depicts the project location and study area.

1.0 TRAFFIC COUNTS

A traffic study was completed in December 2008 for this project. The analysis contained in that study was based on counts conducted in June 2008, when schools were closed for the summer. New traffic counts were conducted in January 2010, with nearby schools and day-cares in session. These counts also account for the traffic related to the Miller Elementary School, the Kindercare Learning Center on South Center City Parkway, the YMCA daycare on Miller Avenue and Leslie's daycare on Danica Place in the project vicinity.

1.1 PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES

Intersection turning movement counts were conducted during the following three peak periods in order to capture the traffic activity during those peak hours in this residential neighborhood.

- AM peak hour - 7:00 AM and 9:00 AM
- School PM peak hour - 2:00 PM to 4:00 PM
- PM peak hour - 4:00 PM to 6:00 PM

Counts were conducted at the following intersections on Brotherton Road:

- Brotherton Road / Felicita Road
- Brotherton Road / Miller Avenue
- Brotherton Road / Centre City Parkway
- Brotherton Road / Escondido Boulevard

1.2 SEGMENT VOLUMES

72-hour machine traffic counts (ADT) were conducted at the following segments with schools in session.

- Brotherton Road from Felicita Road to Miller Avenue
- Brotherton Road from Miller Avenue to Centre City Parkway

Figure 2 depicts the Year 2010 traffic counts. ***Table 1*** depicts a comparison of the traffic volume counts conducted in June 2008 (summer) and the current year 2010 counts (with schools in session). As seen in *Table 1*, the segment volume on Brotherton Road west of Centre City Parkway has decreased since the summer of June 2008, even though the counts were currently conducted with area schools in session. The segment volumes were conducted for a period of three days and remain consistent over the three-day period.

The total traffic volume entering the intersection during the AM and PM peak hours were also compared. At the Brotherton Road /Felicita Avenue intersection, there is 20% decrease in the AM peak hour and an increase of 10% during the PM peak hour over the June 2008 volumes. At the Brotherton Road / Centre City Parkway intersection, there is an increase of approximately 15% in the AM and PM peak hours over the June 2008 volumes. At the Brotherton Road / Escondido Boulevard intersection, there is practically no change in the volumes. It may be noted, that the traffic on Centre City Parkway and Felicita Avenue includes a large percentage of through traffic and is not indicative of the neighborhood traffic. It is therefore concluded that traffic on Brotherton Road (and the neighborhood) has not increased significantly since the June 2008 report was completed and the analysis remains valid, on the basis of traffic volume counts.

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TABLE 1
COMPARISON OF TRAFFIC VOLUMES

Facility	Peak Hour	Jun-08	Jan-10	Increase / Decrease (xxx)
Daily Segment Volume				
Brotherton Rd W/O Centre City Pkwy	-	1,100	800	(300)
Total Volume Entering Intersection				
Brotherton Rd / Felicita Ave	AM	1,101	875	(226)
	PM	996	1,087	91
Brotherton Rd / Centre City Pkwy	AM	1,707	1,992	285
	PM	2,104	2,420	316
Brotherton Rd / Escondido Blvd	AM	403	394	(9)
	PM	511	508	(3)

Attachment A contains the traffic and pedestrian count sheets.

2.0 TRAFFIC OPERATIONS

2.1 PEAK HOUR OPERATIONS

Figure 3 depicts the Existing + Project + Cumulative projects AM and PM peak hour intersection turning movement volumes and the 24-hour segment volumes. ***Attachment B*** contains the Existing peak hour intersection analysis worksheets.

2.1.1 EXISTING INTERSECTION OPERATIONS

Table 1 summarizes the peak hour intersection operations along Brotherton Road. As seen in *Table 1*, all intersections are calculated to operate at LOS C or better during all three peak periods. The analysis of the School PM peak (2:15 PM to 3:15 PM) is included for comparison purposes only.

2.1.2 EXISTING + PROJECT + CUMULATIVE PROJECTS INTERSECTION OPERATIONS

Table 1 summarizes the peak hour intersection operations along Brotherton Road. As seen in *Table 1*, with the addition of project and other cumulative projects, these intersections are calculated to continue to operate at LOS C or better.

The intersection operations (delay and LOS) are comparable to the operations calculated in the June 2008 report. In some cases, the delay has increased by a couple of seconds. Hence, the conclusions in the June 2008 report remain valid.

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TABLE 1
INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project + Cumulative Projects	
			Delay[a]	LOS[b]	Delay	LOS
1. Brotherton Rd / Felicita Ave	TWSC[c]	AM	23.1	C	23.3	C
		School PM	21.2	C	-	-
		PM	19.3	C	19.6	C
2. Brotherton Rd / Miller Rd	TWSC[c]	AM	12.2	B	12.4	B
		School PM	11.2	B	-	-
		PM	9.9	A	10.0	A
3. Brotherton Rd / Centre City Pkwy	TWSC[c]	AM	13.6	B	15.2	C
		School PM	15.7	C	-	-
		PM	19.1	C	20.0	C
4. Brotherton Rd / Escondido Blvd	AWSC[c]	AM	8.5	A	8.8	A
		School PM	8.9	A	-	-
		PM	9.6	A	10.4	B

Footnotes:
a. Average delay per vehicle in seconds
b. Level of Service
c. Two-Way-STOP-Controlled intersection. Minor street delay is reported.
d. All-Way-STOP-Controlled intersection. Overall intersection delay is reported.

2.2 SEGMENT OPERATIONS

Table 2 summarizes the segment operations along Brotherton Road. As seen in *Table 2*, with the addition of project and other cumulative projects, these segments are calculated to continue to operate at LOS C or better. Therefore, the project traffic has no impact on the subject segments.

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TABLE 2
STREET SEGMENT OPERATIONS

Street Segment	Existing Roadway Class [a]	Capacity [b]	ADT [c]	
			Existing	Existing + Project + Cumulative Projects
Brotherton Road				
Felicita Ave to Miller Ave	Resi Street	2,200	600	815
Miller Ave to Centre City Pkwy	Resi Street	2,200	800	1,015

Footnotes:

a. Existing Roadway classification assumed as base condition.
b. Capacity of Residential Street roadway facility based on City of Escondido standards.
c. Average Daily Traffic

3.0 PROJECT TRAFFIC USING NEIGHBORHOOD STREETS TO ACCESS NORTHBOUND CENTRE CITY PARKWAY

Eastbound left-turns are not permitted at the Brotherton Road / Centre City Parkway intersection. Therefore, project traffic oriented to the north of the project site is not able to return directly to northbound Centre City Parkway. There are several alternative routes available. The neighborhood residents are concerned that traffic could potentially use neighborhood streets to travel north. The most obvious route to the north is to make an eastbound right-turn at the Brotherton Road / Centre City Parkway intersection, proceed south on Centre City Parkway to Citracado Boulevard and make a protected U-turn at the traffic signal at Citracado Parkway and then travel north towards Felicita Avenue.

4.1 PROJECT TRIP GENERATION

Table 3 summarizes the estimated project traffic generation. As seen in *Table 3*, the project is estimated to generate 1,579 daily trips with 95 trips during the AM peak hour and 139 trips during the PM peak hour. It may be noted that the number of trips identified above are primary trips, after accounting for passby traffic.

Based on the project trip distribution percentages assumed in the December 2008 report, 36% of the project traffic will potentially utilize Centre City Parkway to access the project site. Therefore, the total amount of traffic that would need to access northbound Centre City Parkway is estimated to be 296 vehicles over one 24-hour period, with 17 during the AM peak hour and 24 during the PM peak hour. It may be noted that only outbound traffic from the project would potentially utilize the neighborhood streets to travel north of the site.

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TABLE 3
PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity	Daily Trip Ends (ADT)		AM Peak Hour					PM Peak Hour				
		Rate	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Proposed Project													
Car Wash	1 Site	900 / Site	900	4%	5:5	18	18	36	9%	5:5	41	40	81
Oil Change	2 Stall	40 /Stall	80	7%	6:4	3	3	6	11%	5:5	5	4	9
Restaurant	4,156 SF	160 /KSF	665	8%	5:5	27	26	53	8%	6:4	27	22	53
Total Trips			**1,645**			**48**	**47**	**95**			**73**	**66**	**139**
Pass By													
Restaurant (Daily and AM: 10% and PM Peak hour: 20%)			66			3	3	6			5	4	9
Subtotal Primary Trips			**1,579**			**45**	**44**	**89**			**68**	**62**	**130**
Fast Food Alternative													
Fast Food Restaurant	6,000 SF	700 /KSF	4,200	5%	6:4	105	105	210	7%	5:5	147	147	294
Pass By													
Restaurant (Daily and AM: 20% and PM Peak hour: 40%)			(-) 840			(-) 21	(-) 21	(-) 42			(-) 59	(-) 59	(-) 118
Subtotal Primary Trips			**3,360**			**84**	**84**	**168**			**88**	**88**	**176**
Difference			**1,781**			**39**	**40**	**79**			**20**	**26**	**46**

An additional 137 daily trips with 11 AM and 16 PM peak hour trips are estimated to access northbound Escondido Boulevard. These trips that are destined to northbound Escondido Boulevard are however not considered, since it would be more convenient to use southbound Centre City Parkway to Citracado Parkway and then north on Escondido Boulevard.

4.2 TRIP GENERATION FOR THE MOST INTENSE PERMITTED LAND USE

Table 3 also summarizes the estimated traffic generation assuming the most intense permitted land use is constructed. The current permitted land uses at this site include a fast-food restaurant. If the project consisted of a fast-foot restaurant, the project would generate 3,360 daily trips with 168 trips during the AM peak hour and 176 trips during the PM peak hour. It may be noted that the number of trips identified above are primary trips, after accounting for passby traffic. Thus, potentially, the project could have increased the neighborhood traffic by 605 daily trips with 30 AM and 32 PM peak hour trips. However, the currently proposed land uses are estimated to generate much fewer trips.

4.3 TRAVEL TIME ANALYSIS

A travel time analysis of two neighborhood routes and the route on Centre City Parkway was conducted during the peak hours. ***Figure 4*** depicts the three potential routes. As seen in *Figure 4*, the travel time was recorded starting from the project site and ending at the Felicita Avenue / Centre City Parkway intersection for all three routes. ***Table 4*** summarizes the results of this analysis. Three runs each were conducted along each route during each of the three peak hours. Following are the three routes:

Route 1: Charise Street / Darby Street / Montview Drive / U-turn on Centre City Parkway / Felicita Avenue
Route 2: C. City Parkway / U-Turn at Citracado Parkway / Felicita Avenue
Route 3: Charise Street / Darby Street / Montview Drive / Redwood Street / Felicita Avenue / Centre City Parkway

The travel time was recorded during the AM (7:15 AM to 8:15 AM), the school PM peak (2:00 PM to 3:00 PM) and the traditional PM peak hours (4:30 PM to 5:30 PM).

- Generally, few to no vehicular traffic were observed along the two neighborhood routes (Routes 1 & 3).
- Only one pedestrian was encountered on the sidewalk on Charise Street during the entire exercise.

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TABLE 4
TRAVEL TIME ANALYSIS

Peak Hour	Route 1				Route 2				Route 3			
	Total Distance (miles)	**Number of STOP Controlled Intersections**	**Average Travel Time**	**Speed (mph)**	**Total Distance (miles)**	**Number of STOP Controlled Intersections**	**Average Travel Time**	**Speed (mph)**	**Total Distance (miles)**	**Number of STOP Controlled Intersections**	**Average Travel Time**	**Speed (mph)**
AM	0.96	3 Stop Controlled intersections, one park and 1 uncontrolled U-turn	2 min : 47 sec	20.7	1.19	1 Stop Controlled intersection, 1 signalized U-turn	2 min : 45 sec	26.0	0.98	4 Stop Controlled intersections	3 min : 17 sec	18.0
School PM			2 min : 54 sec	19.8			3 min : 17 sec	21.8			3 min : 13 sec	18.1
PM			3 min : 20 sec	17.3			2 min : 55 sec	24.5			3 min : 14 sec	18.3

Notes:
Route 1: Charise Street / Darby Street / Montview / Centre City Parkway / Felicita Avenue
Route 2: Centre City Parkway / U-Turn at Citracado Parkway / Felicita Avenue
Route 3: Charise Street / Darby Street / Mont View / Felicita Avenue / Centre City Parkway

- **Route 1** - There are two STOP controlled intersections (Charise Street / Darby Street and Darby Street / Montview Drive) and one uncontrolled U-turn (Centre City Parkway / Escondido Parkway).
- **Route 2** – There is one STOP controlled intersection (Brotherton Road / Centre City Parkway) and one signalized U-turn (Centre City Parkway / Citracado Parkway.
- **Route 3** – There are 4 STOP controlled intersections (Charise Street / Darby Street and Montview Drive / Darby Street, Montview Drive / Redwood Street and Felicita Avenue / Redwood Street).
- During the AM peak hour, the route with the shortest (average) travel time is Route 2.
- During the School PM peak hour, the route with the shortest travel time is Route 1.
- During the PM peak hour, the route with the shortest travel time is Route 2.
- The difference in travel time between the routes is very small. However, if the overall travel speed is compared, the highest overall travel speed is on Route 2, even though it is the longest route. This is because the posted speed limit on Centre City Parkway is 45 mph, whereas the posted speed limit on the neighborhood streets is 25 mph.

Based on the above, it is concluded that though some people would use the neighborhood streets, most people will use Route 2 to access northbound Centre City Parkway from the site. The people that use the neighborhood streets are likely to be people that live in the neighborhood or in adjacent neighborhoods. One has to be familiar with the neighborhood to use the neighborhood streets. Going through the neighborhood is not much shorter, nor is it faster or more convenient.

Assuming about 50% of the project traffic will use the neighborhood streets to travel north, the traffic in the neighborhood will increase by 148 vehicles over an entire day, or, 9 during the AM peak hour and 12 during the PM peak hour. Therefore, it is concluded, that even though traffic on the neighborhood streets may increase due to the project, the increase is minimal and will substantially change the traffic operations in the neighborhood.

4.0 PEDESTRIAN TRAFFIC

AM peak period and PM peak period pedestrian volume counts were conducted at the following study area intersections and segments. The pedestrian counts were conducted from 7:00 AM to 9:00 AM and 2:00 PM to 6:00 PM to capture school and adjacent street pedestrian traffic.

- Brotherton Road / Felicita Road
- Brotherton Road / Miller Avenue
- Brotherton Road segment from Felicita Road to Miller Avenue
- Brotherton Road segment from Miller Avenue to Centre City Parkway

Figure 2 the pedestrian volumes. *Attachment A* contains the pedestrian count sheets.

The pedestrian traffic counts were conducted during the AM and PM peak hours. The highest pedestrian traffic was observed at the Brotherton Road / Miller Avenue intersection during the school peak hour between 2:15 PM and 3:15 PM, as expected. ***Table 5*** summarizes the pedestrian counts along Brotherton Road during the three peak hours. As seen in *Table 5*, the highest amount of pedestrian traffic is 86 pedestrians or an average of a little more than one pedestrian every minute.

The project will possibly add a maximum of 17 and 24 trips during the AM and PM peak hours assuming all traffic destined north will use neighborhood streets. However, few to none of this traffic is expected to travel west on Brotherton Road.

TABLE 5
PEDESTRIAN COUNTS ON BROTHERTON ROAD

Segment	AM Peak Hour	School PM Peak Hour	PM Peak Hour
West of Miller Avenue	20	56	5
East of Miller Avenue	46	86	8

5.0 CONCLUSIONS

The above analysis indicates the following:

- The traffic counts conducted during the summer of June 2008 are comparable to the latest counts conducted in January 2010 with nearby schools in session (see *Table 1*).
- The intersection and segment operations using the 2010 counts are similar to that in the December 2008 traffic study.
- The trip generation for the project site could be higher by about 2,000 trips per day, if the permitted use of a fast-food restaurant was constructed.
- Field observations indicate 56 to 86 pedestrians along Brotherton Road west of Centre City Parkway during the School PM peak hour (2:15 PM to 3:15 PM). The project is forecasted to add 13 PM peak hour trips to Brotherton Road and therefore conflicts will be minimal.

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- Travel time analysis on three possible routes revealed no significant difference in travel time. There are however, differences in the type of intersection traffic control and number of intersections along each route which could influence the route used by project traffic destined to the north.
- The increase in peak hour traffic due to the project in the neighborhood is 9 trips during the AM peak hour and 12 trips during the PM peak hour and is not expected to significantly impact traffic operations in neighborhood streets.

Sincerely,

Linscott, Law & Greenspan, Engineers

Narasimha Prasad
Senior Transportation Engineer

cc: File

FIGURES

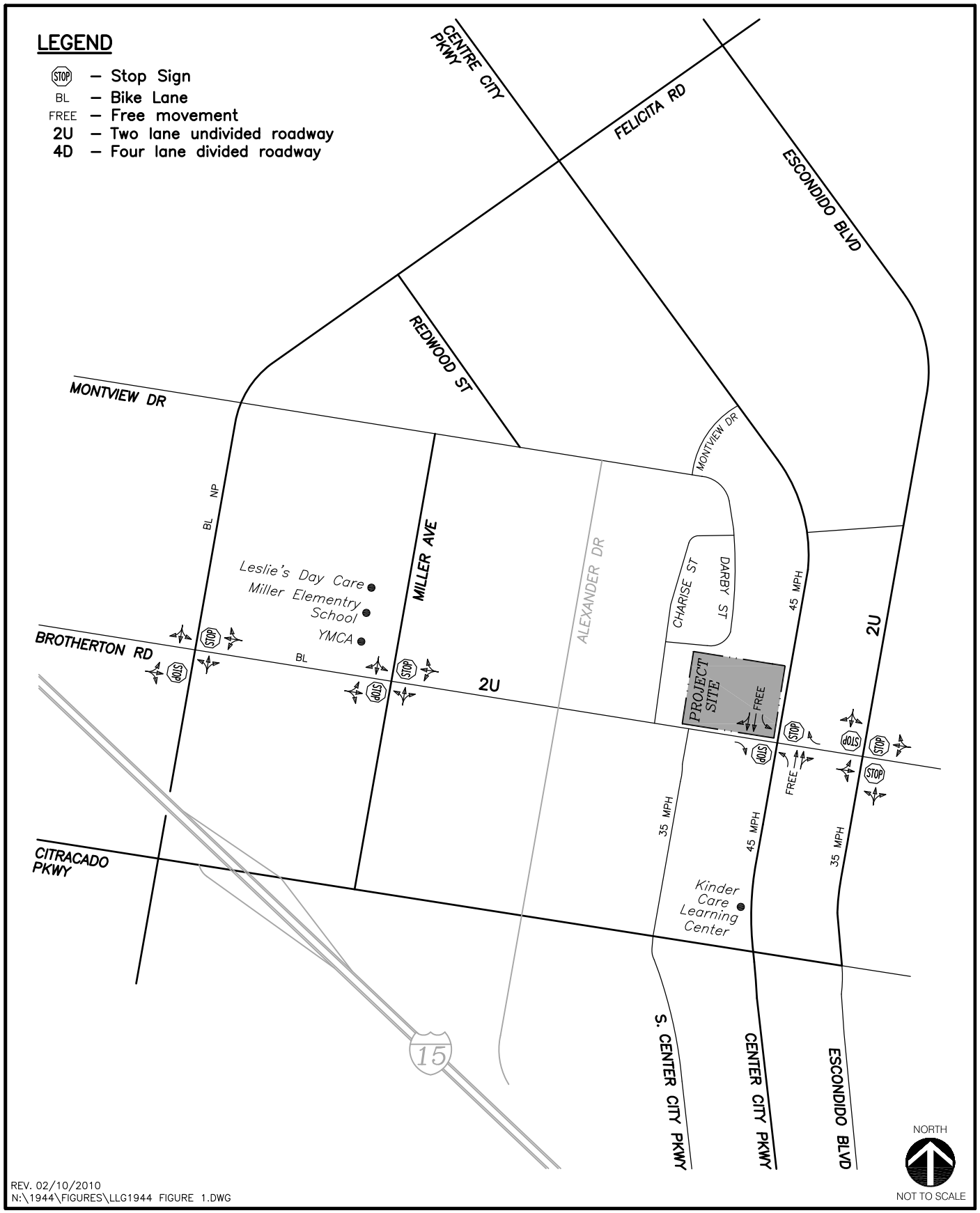

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Figure 1

Existing Conditions Diagram

TALK OF THE TOWN

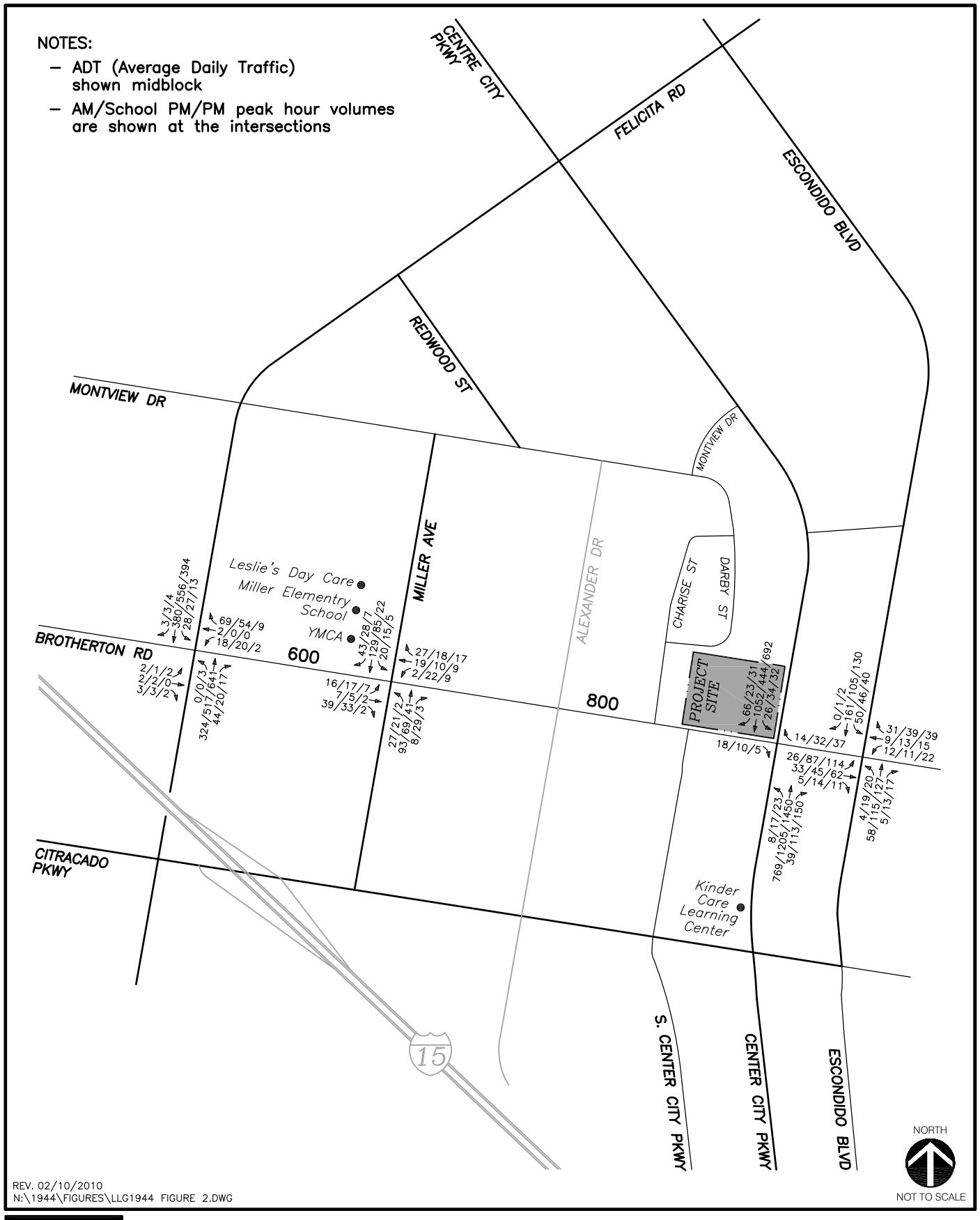

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Figure 2

Existing Traffic Volumes AM/PM Peak Hours & ADT

TALK OF THE TOWN

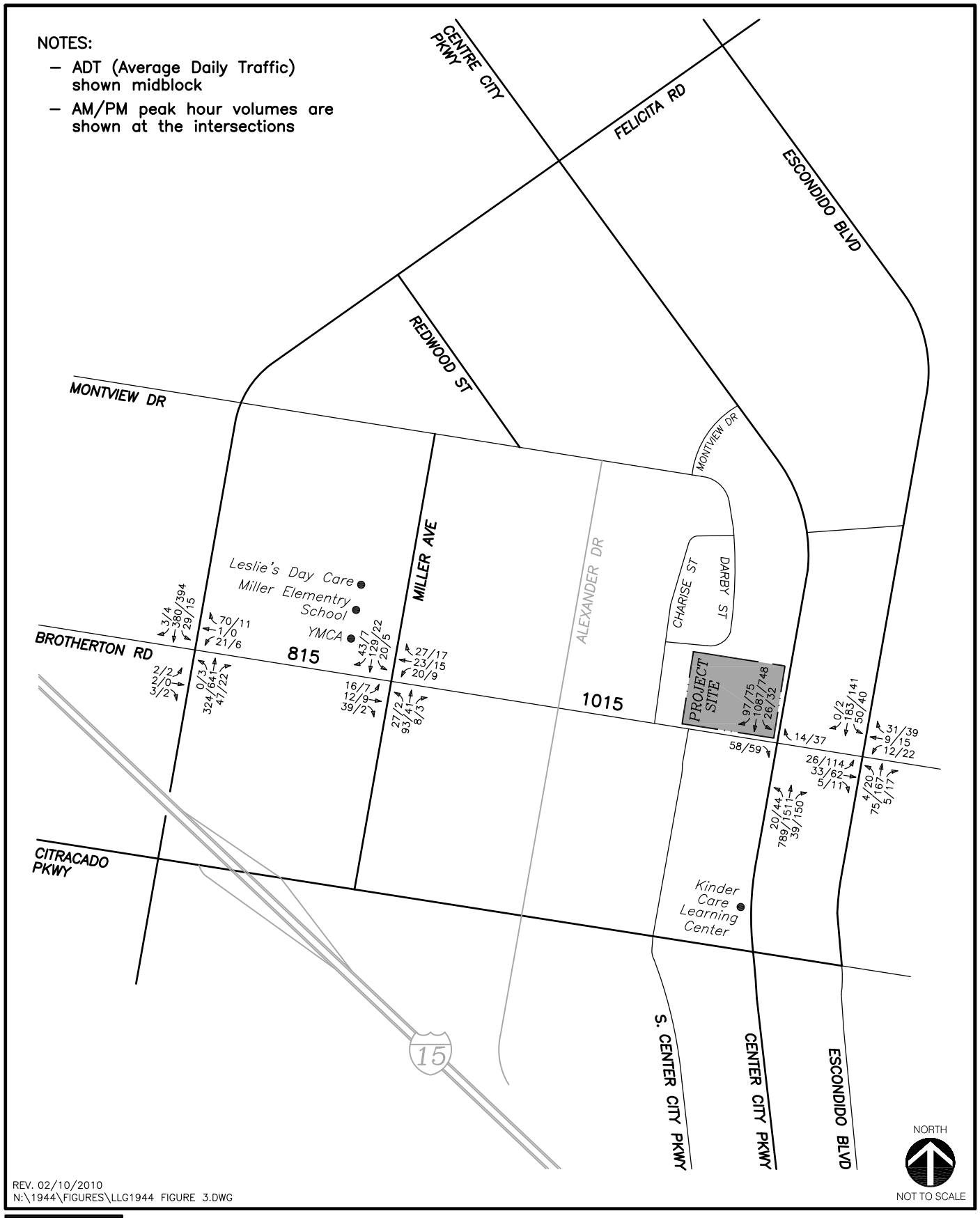

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Figure 3

Existing + Project + Cumulative Project Traffic Volumes AM/PM Peak Hours & ADT

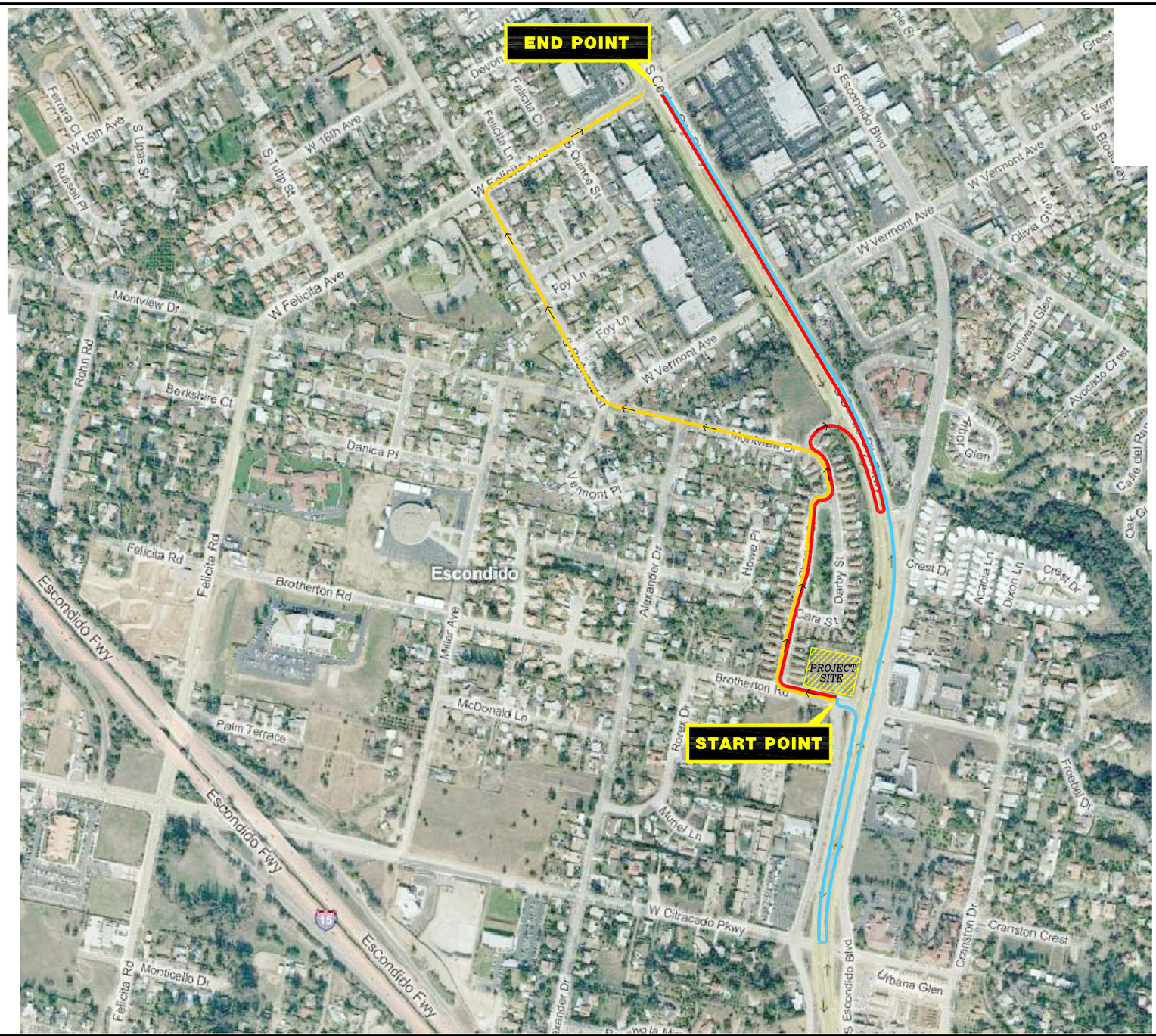
TALK OF THE TOWN

LEGEND

Route #1

Route #2

Route #3



REV. 02/10/2010
N:\1944\FIGURES\LLG1944 FIGURE 4.DWG

NORTH

NOT TO SCALE

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Figure 4

Travel Time Analysis Routes

TALK OF THE TOWN

INTERSECTION ANALYSIS WORKSHEETS

- EXISTING

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	2	3	18	2	69	0	324	44	28	680	3
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)	2	2	3	20	2	75	0	352	48	30	739	3
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	1254	1202	741	1182	1179	376	742			400		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1254	1202	741	1182	1179	376	742			400		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	98	99	99	88	99	89	100			97		
cM capacity (veh/h)	128	180	416	160	185	670	865			1159		

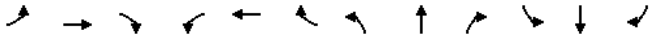
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	97	400	773
Volume Left	2	20	0	30
Volume Right	3	75	48	3
cSH	206	394	865	1159
Volume to Capacity	0.04	0.25	0.00	0.03
Queue Length 95th (ft)	3	24	0	2
Control Delay (s)	23.1	17.1	0.0	0.7
Lane LOS	C	C		A
Approach Delay (s)	23.1	17.1	0.0	0.7
Approach LOS	C	C		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	71.8%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	16	7	39	20	19	27	27	93	8	20	129	43
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)	17	8	42	22	21	29	29	101	9	22	140	47
Pedestrians		6			20						66	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			2						6	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	483	402	170	437	421	191	193			130		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	483	402	170	437	421	191	193			130		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	96	98	95	95	96	96	98			98		
cM capacity (veh/h)	414	507	870	468	494	790	1373			1431		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	67	72	139	209
Volume Left	17	22	29	22
Volume Right	42	29	9	47
cSH	637	572	1373	1431
Volume to Capacity	0.11	0.13	0.02	0.02
Queue Length 95th (ft)	9	11	2	1
Control Delay (s)	11.3	12.2	1.8	0.9
Lane LOS	B	B	A	A
Approach Delay (s)	11.3	12.2	1.8	0.9
Approach LOS	B	B		

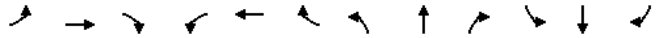
Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	32.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	18	0	0	14	8	769	39	26	1052	66
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)	0	0	20	0	0	15	9	836	42	28	1143	72
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	1686	2132	608	1522	2146	439	1215			878		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1686	2132	608	1522	2146	439	1215			878		
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	96	100	100	97	98			96		
cM capacity (veh/h)	57	46	439	74	45	566	570			765		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	20	15	9	557	321	28	762	453
Volume Left	0	0	9	0	0	28	0	0
Volume Right	20	15	0	0	42	0	0	72
cSH	439	566	570	1700	1700	765	1700	1700
Volume to Capacity	0.04	0.03	0.02	0.33	0.19	0.04	0.45	0.27
Queue Length 95th (ft)	3	2	1	0	0	3	0	0
Control Delay (s)	13.6	11.5	11.4	0.0	0.0	9.9	0.0	0.0
Lane LOS	B	B	B			A		
Approach Delay (s)	13.6	11.5	0.1			0.2		
Approach LOS	B	B						

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	41.2%	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)	26	33	5	12	9	31	4	58	5	50	161	0
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)	28	36	5	13	10	34	4	63	5	54	175	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	70	57	73	229
Volume Left (vph)	28	13	4	54
Volume Right (vph)	5	34	5	0
Hadj (s)	0.07	-0.28	0.00	0.08
Departure Headway (s)	4.7	4.4	4.5	4.4
Degree Utilization, x	0.09	0.07	0.09	0.28
Capacity (veh/h)	704	751	769	793
Control Delay (s)	8.2	7.7	7.9	9.0
Approach Delay (s)	8.2	7.7	7.9	9.0
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.5			
HCM Level of Service	A			
Intersection Capacity Utilization	30.6%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	2	3	20	0	54	0	517	20	27	556	3
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)	1	2	3	22	0	59	0	562	22	29	604	3
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	1296	1248	606	1242	1239	573	608			584		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1296	1248	606	1242	1239	573	608			584		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	99	99	99	85	100	89	100			97		
cM capacity (veh/h)	121	168	497	146	170	519	971			991		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	80	584	637
Volume Left	1	22	0	29
Volume Right	3	59	22	3
cSH	229	307	971	991
Volume to Capacity	0.03	0.26	0.00	0.03
Queue Length 95th (ft)	2	26	0	2
Control Delay (s)	21.2	20.9	0.0	0.8
Lane LOS	C	C		A
Approach Delay (s)	21.2	20.9	0.0	0.8
Approach LOS	C	C		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	65.3%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	17	5	33	22	10	18	21	69	29	15	85	28
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)	18	5	36	24	11	20	23	75	32	16	92	30
Pedestrians		6			20						66	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			2						6	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	374	318	114	335	318	177	129			127		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	374	318	114	335	318	177	129			127		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	96	99	96	96	98	98	98			99		
cM capacity (veh/h)	508	569	934	559	570	805	1450			1435		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	60	54	129	139
Volume Left	18	24	23	16
Volume Right	36	20	32	30
cSH	709	631	1450	1435
Volume to Capacity	0.08	0.09	0.02	0.01
Queue Length 95th (ft)	7	7	1	1
Control Delay (s)	10.5	11.2	1.4	1.0
Lane LOS	B	B	A	A
Approach Delay (s)	10.5	11.2	1.4	1.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	31.1%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	10	0	0	32	17	1205	113	34	444	23
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)	0	0	11	0	0	35	18	1310	123	37	483	25
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	1296	2039	254	1734	1990	716	508			1433		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1296	2039	254	1734	1990	716	508			1433		
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	99	100	100	91	98			92		
cM capacity (veh/h)	101	51	746	51	54	372	1053			470		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	11	35	18	873	559	37	322	186
Volume Left	0	0	18	0	0	37	0	0
Volume Right	11	35	0	0	123	0	0	25
cSH	746	372	1053	1700	1700	470	1700	1700
Volume to Capacity	0.01	0.09	0.02	0.51	0.33	0.08	0.19	0.11
Queue Length 95th (ft)	1	8	1	0	0	6	0	0
Control Delay (s)	9.9	15.7	8.5	0.0	0.0	13.3	0.0	0.0
Lane LOS	A	C	A			B		
Approach Delay (s)	9.9	15.7	0.1			0.9		
Approach LOS	A	C						

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	46.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	87	45	14	11	13	39	19	115	13	46	105	1
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)	95	49	15	12	14	42	21	125	14	50	114	1

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	159	68	160	165
Volume Left (vph)	95	12	21	50
Volume Right (vph)	15	42	14	1
Hadj (s)	0.10	-0.30	0.01	0.09
Departure Headway (s)	4.9	4.6	4.7	4.8
Degree Utilization, x	0.22	0.09	0.21	0.22
Capacity (veh/h)	686	711	725	711
Control Delay (s)	9.2	8.1	8.9	9.1
Approach Delay (s)	9.2	8.1	8.9	9.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.9			
HCM Level of Service	A			
Intersection Capacity Utilization	37.2%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	0	2	2	0	9	3	641	17	13	394	4
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)	2	0	2	2	0	10	3	697	18	14	428	4
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	1181	1180	430	1173	1173	706	433			715		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1181	1180	430	1173	1173	706	433			715		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	99	100	100	99	100	98	100			98		
cM capacity (veh/h)	161	187	625	166	188	436	1127			885		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	12	718	447
Volume Left	2	2	3	14
Volume Right	2	10	18	4
cSH	256	336	1127	885
Volume to Capacity	0.02	0.04	0.00	0.02
Queue Length 95th (ft)	1	3	0	1
Control Delay (s)	19.3	16.1	0.1	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	19.3	16.1	0.1	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	46.0%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	2	2	9	9	17	2	41	3	5	22	7
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)	8	2	2	10	10	18	2	45	3	5	24	8
Pedestrians		6			20						66	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			2						6	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	184	117	34	112	119	132	38			68		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	184	117	34	112	119	132	38			68		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	99	100	100	99	99	98	100			100		
cM capacity (veh/h)	693	753	1034	830	751	852	1565			1508		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	38	50	37
Volume Left	8	10	2	5
Volume Right	2	18	3	8
cSH	749	818	1565	1508
Volume to Capacity	0.02	0.05	0.00	0.00
Queue Length 95th (ft)	1	4	0	0
Control Delay (s)	9.9	9.6	0.3	1.1
Lane LOS	A	A	A	A
Approach Delay (s)	9.9	9.6	0.3	1.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	27.2%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	5	0	0	37	23	1450	150	32	692	31
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)	0	0	5	0	0	40	25	1576	163	35	752	34
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	1717	2628	393	2159	2563	870	786			1739		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1717	2628	393	2159	2563	870	786			1739		
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	99	100	100	86	97			90		
cM capacity (veh/h)	45	21	606	24	23	295	829			358		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	5	40	25	1051	688	35	501	284
Volume Left	0	0	25	0	0	35	0	0
Volume Right	5	40	0	0	163	0	0	34
cSH	606	295	829	1700	1700	358	1700	1700
Volume to Capacity	0.01	0.14	0.03	0.62	0.40	0.10	0.29	0.17
Queue Length 95th (ft)	1	12	2	0	0	8	0	0
Control Delay (s)	11.0	19.1	9.5	0.0	0.0	16.1	0.0	0.0
Lane LOS	B	C	A			C		
Approach Delay (s)	11.0	19.1	0.1			0.7		
Approach LOS	B	C						

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	54.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	114	62	11	22	15	39	20	127	17	40	130	2
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)	124	67	12	24	16	42	22	138	18	43	141	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	203	83	178	187
Volume Left (vph)	124	24	22	43
Volume Right (vph)	12	42	18	2
Hadj (s)	0.12	-0.22	0.00	0.07
Departure Headway (s)	5.1	4.9	4.9	5.0
Degree Utilization, x	0.29	0.11	0.24	0.26
Capacity (veh/h)	662	659	686	677
Control Delay (s)	10.1	8.5	9.5	9.7
Approach Delay (s)	10.1	8.5	9.5	9.7
Approach LOS	B	A	A	A

Intersection Summary				
Delay	9.6			
HCM Level of Service	A			
Intersection Capacity Utilization	39.4%	ICU Level of Service	A	
Analysis Period (min)	15			

INTERSECTION ANALYSIS WORKSHEETS

- EXISTING + PROJECT + CUMULATIVE PROJECTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	2	3	21	2	70	0	324	47	29	680	3
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)	2	2	3	23	2	76	0	352	51	32	739	3
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	1259	1207	741	1186	1183	378	742			403		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1259	1207	741	1186	1183	378	742			403		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	98	99	99	86	99	89	100			97		
cM capacity (veh/h)	127	178	416	159	184	669	865			1155		

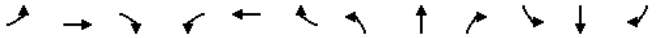
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	101	403	774
Volume Left	2	23	0	32
Volume Right	3	76	51	3
cSH	205	376	865	1155
Volume to Capacity	0.04	0.27	0.00	0.03
Queue Length 95th (ft)	3	27	0	2
Control Delay (s)	23.3	18.1	0.0	0.7
Lane LOS	C	C		A
Approach Delay (s)	23.3	18.1	0.0	0.7
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	73.1%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	16	12	39	20	23	27	27	93	8	20	129	43
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)	17	13	42	22	25	29	29	101	9	22	140	47
Pedestrians		6			20						66	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			2						6	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	485	402	170	440	421	191	193			130		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	485	402	170	440	421	191	193			130		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	96	97	95	95	95	96	98			98		
cM capacity (veh/h)	410	507	870	463	494	790	1373			1431		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	73	76	139	209
Volume Left	17	22	29	22
Volume Right	42	29	9	47
cSH	623	565	1373	1431
Volume to Capacity	0.12	0.13	0.02	0.02
Queue Length 95th (ft)	10	12	2	1
Control Delay (s)	11.5	12.4	1.8	0.9
Lane LOS	B	B	A	A
Approach Delay (s)	11.5	12.4	1.8	0.9
Approach LOS	B	B		

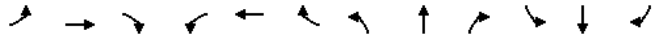
Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	58	0	0	14	20	789	39	26	1087	97
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)	0	0	63	0	0	15	22	858	42	28	1182	105
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	1778	2234	643	1633	2266	450	1287			900		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1778	2234	643	1633	2266	450	1287			900		
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	85	100	100	97	96			96		
cM capacity (veh/h)	48	39	416	54	37	556	535			751		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	63	15	22	572	328	28	788	499
Volume Left	0	0	22	0	0	28	0	0
Volume Right	63	15	0	0	42	0	0	105
cSH	416	556	535	1700	1700	751	1700	1700
Volume to Capacity	0.15	0.03	0.04	0.34	0.19	0.04	0.46	0.29
Queue Length 95th (ft)	13	2	3	0	0	3	0	0
Control Delay (s)	15.2	11.7	12.0	0.0	0.0	10.0	0.0	0.0
Lane LOS	C	B	B			A		
Approach Delay (s)	15.2	11.7	0.3			0.2		
Approach LOS	C	B						

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	43.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	26	33	5	12	9	31	4	75	5	50	183	0
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)	28	36	5	13	10	34	4	82	5	54	199	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	70	57	91	253
Volume Left (vph)	28	13	4	54
Volume Right (vph)	5	34	5	0
Hadj (s)	0.07	-0.28	0.01	0.08
Departure Headway (s)	4.8	4.5	4.5	4.4
Degree Utilization, x	0.09	0.07	0.11	0.31
Capacity (veh/h)	685	729	762	789
Control Delay (s)	8.3	7.9	8.1	9.3
Approach Delay (s)	8.3	7.9	8.1	9.3
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.8			
HCM Level of Service	A			
Intersection Capacity Utilization	31.7%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	0	2	6	0	11	3	641	22	15	394	4
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)	2	0	2	7	0	12	3	697	24	16	428	4
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	1190	1190	430	1180	1180	709	433			721		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1190	1190	430	1180	1180	709	433			721		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	99	100	100	96	100	97	100			98		
cM capacity (veh/h)	157	184	625	164	186	434	1127			881		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	18	724	449
Volume Left	2	7	3	16
Volume Right	2	12	24	4
cSH	251	274	1127	881
Volume to Capacity	0.02	0.07	0.00	0.02
Queue Length 95th (ft)	1	5	0	1
Control Delay (s)	19.6	19.1	0.1	0.6
Lane LOS	C	C	A	A
Approach Delay (s)	19.6	19.1	0.1	0.6
Approach LOS	C	C		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	46.2%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	9	2	9	15	17	2	41	3	5	22	7
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)	8	10	2	10	16	18	2	45	3	5	24	8
Pedestrians		6			20						66	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			2						6	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	188	117	34	116	119	132	38			68		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188	117	34	116	119	132	38			68		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	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 %	99	99	100	99	98	98	100			100		
cM capacity (veh/h)	685	753	1034	819	751	852	1565			1508		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	45	50	37
Volume Left	8	10	2	5
Volume Right	2	18	3	8
cSH	747	805	1565	1508
Volume to Capacity	0.03	0.06	0.00	0.00
Queue Length 95th (ft)	2	4	0	0
Control Delay (s)	10.0	9.7	0.3	1.1
Lane LOS	A	A	A	A
Approach Delay (s)	10.0	9.7	0.3	1.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	27.2%	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			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	59	0	0	37	44	1511	150	32	748	75
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)	0	0	64	0	0	40	48	1642	163	35	813	82
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	1880	2824	447	2360	2784	903	895			1805		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1880	2824	447	2360	2784	903	895			1805		
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	89	100	100	86	94			90		
cM capacity (veh/h)	33	15	559	15	16	280	754			337		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	64	40	48	1095	711	35	542	353
Volume Left	0	0	48	0	0	35	0	0
Volume Right	64	40	0	0	163	0	0	82
cSH	559	280	754	1700	1700	337	1700	1700
Volume to Capacity	0.11	0.14	0.06	0.64	0.42	0.10	0.32	0.21
Queue Length 95th (ft)	10	12	5	0	0	9	0	0
Control Delay (s)	12.3	20.0	10.1	0.0	0.0	16.9	0.0	0.0
Lane LOS	B	C	B			C		
Approach Delay (s)	12.3	20.0	0.3			0.6		
Approach LOS	B	C						

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	56.5%	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)	114	62	11	22	15	39	20	167	17	40	141	2
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)	124	67	12	24	16	42	22	182	18	43	153	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	203	83	222	199
Volume Left (vph)	124	24	22	43
Volume Right (vph)	12	42	18	2
Hadj (s)	0.12	-0.22	0.00	0.07
Departure Headway (s)	5.2	5.1	5.0	5.0
Degree Utilization, x	0.29	0.12	0.30	0.28
Capacity (veh/h)	637	630	682	664
Control Delay (s)	10.4	8.7	10.1	10.0
Approach Delay (s)	10.4	8.7	10.1	10.0
Approach LOS	B	A	B	A

Intersection Summary				
Delay	10.0			
HCM Level of Service	A			
Intersection Capacity Utilization	41.4%	ICU Level of Service	A	
Analysis Period (min)	15			