

February 15, 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 the first week of February 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. The count sheets are included in an attachment to this letter.

During the counts, southbound Centre City Parkway was closed at Citracado Parkway, thus access to southbound I-15 was not possible. Traffic was detoured to southbound I-15 via Citracado Parkway. No signs were provided on Centre City

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Parkway north of Felicita Avenue and hence traffic was not detoured onto Felicita Avenue. Therefore, traffic flow was not impacted due to the detour.

### 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.

TABLE 1  
 COMPARISON OF TRAFFIC VOLUMES

Facility	Peak Hour	Jun-08	Jan-10	Increase / Decrease (xxx)
<b>Daily Segment Volume</b>				
Brotherton Rd W/O Centre City Pkwy	-	1,100	800	(300)
<b>Total Volume Entering Intersection</b>				
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.

TABLE 1  
 INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project + Cumulative Projects	
			Delay <sup>a</sup>	LOS <sup>b</sup>	Delay	LOS
1. Brotherton Rd / Felicita Ave	TWSC <sup>c</sup>	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 <sup>c</sup>	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 <sup>c</sup>	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 <sup>d</sup>	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.

TABLE 2  
 STREET SEGMENT OPERATIONS

Street Segment	Existing Roadway Class <sup>a</sup>	Capacity <sup>b</sup>	ADT <sup>c</sup>	
			Existing	Existing + Project + Cumulative Projects
<b>Brotherton Road</b>				
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.

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
<b>Proposed Project</b>													
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
<b>Total Trips</b>			<b>1,645</b>			<b>48</b>	<b>47</b>	<b>95</b>			<b>73</b>	<b>66</b>	<b>139</b>
<b>Pass By</b>													
Restaurant (Daily and AM: 10% and PM Peak hour: 20%)			66			3	3	6			5	4	9
<b>Subtotal Primary Trips</b>			<b>1,579</b>			<b>45</b>	<b>44</b>	<b>89</b>			<b>68</b>	<b>62</b>	<b>130</b>
<b>Fast Food Alternative</b>													
Fast Food Restaurant	6,000 SF	700 /KSF	4,200	5%	6:4	105	105	210	7%	5:5	147	147	294
<b>Pass By</b>													
Restaurant (Daily and AM: 20% and PM Peak hour: 40%)			(-) 840			(-) 21	(-) 21	(-) 42			(-) 59	(-) 59	(-) 118
<b>Subtotal Primary Trips</b>			<b>3,360</b>			<b>84</b>	<b>84</b>	<b>168</b>			<b>88</b>	<b>88</b>	<b>176</b>
<b>Difference</b>			<b>1,781</b>			<b>39</b>	<b>40</b>	<b>79</b>			<b>20</b>	<b>26</b>	<b>46</b>

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-food 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.

**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. It may be noted that the speed accounts for the stopped time at Stop signs or for yielding to traffic along the route. It is not the actual speed on any specific roadway segment, which is higher.

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.
- 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