

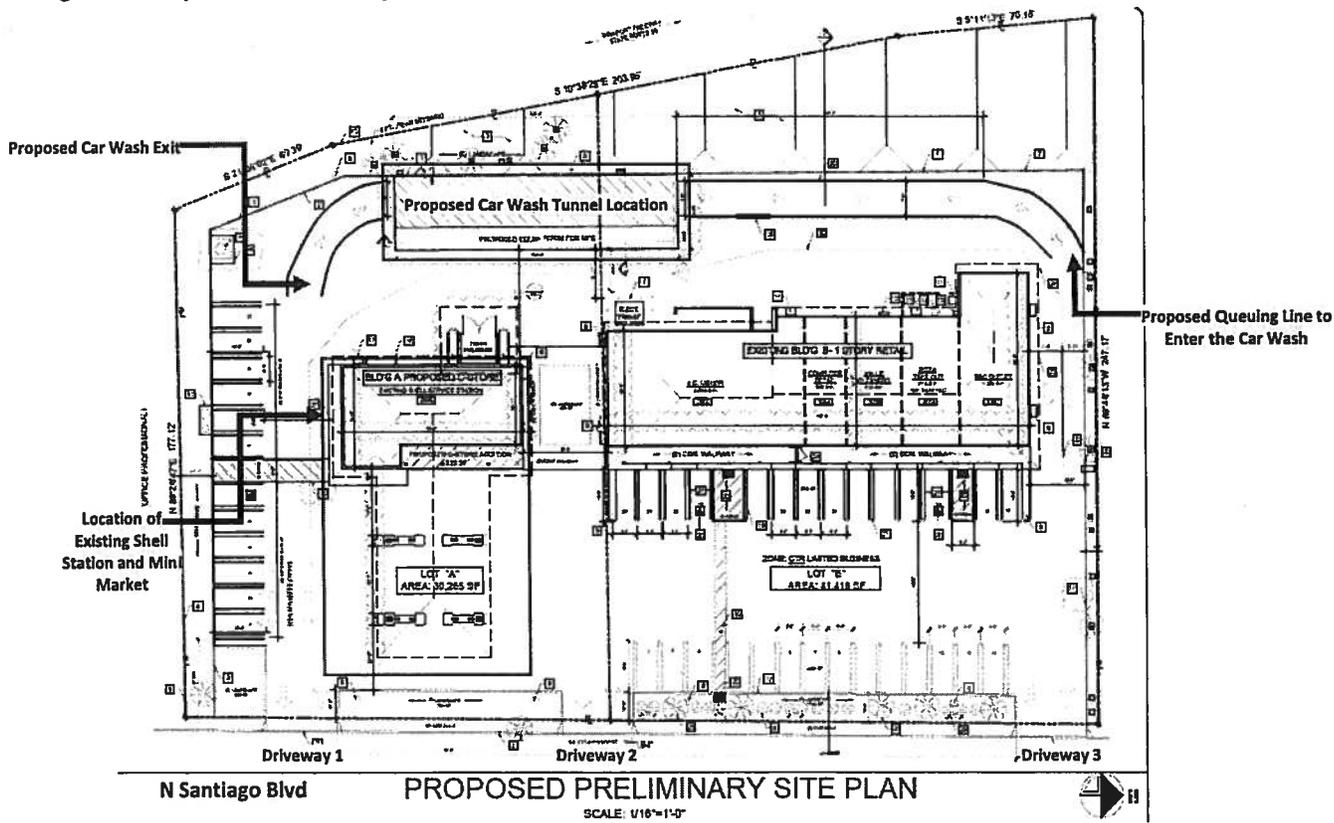


TO: Surinder Multani (S_multani@hotmail.com)
FROM: Transtech Engineers, Inc.
DATE: June 6, 2017
SUBJECT: TRAFFIC ASSESSMENT STUDY OF PARKING AND QUEUING CONDITIONS FOR SHELL SERVICE STATION EXPANSION AND PROPOSED CAR WASH IN THE CITY OF ORANGE

INTRODUCTION:

Transtech has completed a traffic assessment for a proposed self-serve car wash at an existing Shell Gas Station located at 2640 North Santiago Boulevard in the City of Orange. The traffic assessment study analyzes the parking demand at the existing gas station site as well as queuing projections based on a similar site which has a comparable operational car wash tunnel. The purpose of the study is to determine if the proposed site configuration with a new car wash tunnel will provide sufficient parking as well as stacking for vehicles entering and exiting the car wash tunnel. **Figure 1** below shows the proposed preliminary site plan.

Figure 1: Proposed Preliminary Site Plan



TRAFFIC ASSESSMENT STUDY OF PARKING AND QUEUING CONDITIONS FOR SHELL SERVICE STATION EXPANSION AND PROPOSED CAR WASH IN THE CITY OF ORANGE

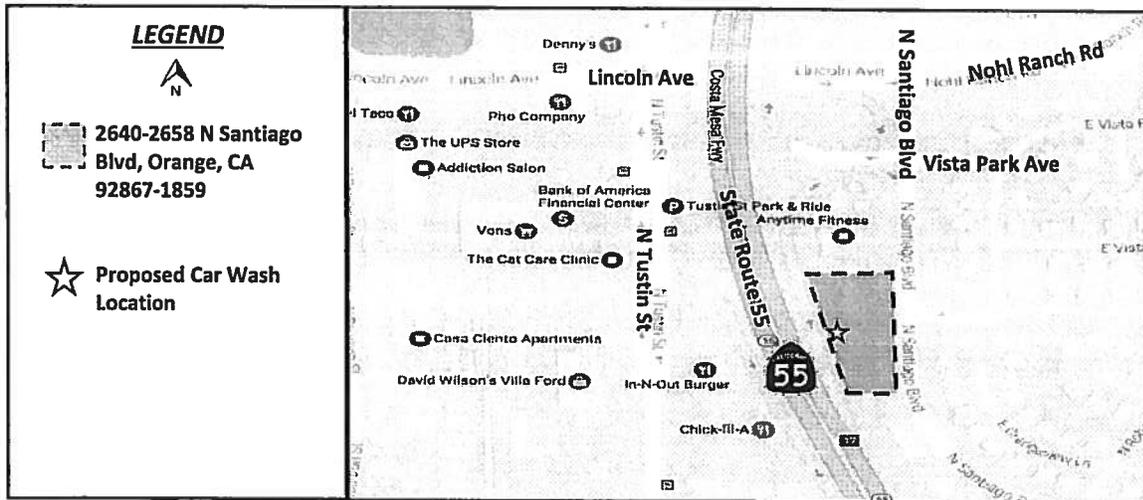
BACKGROUND:

In order to predict the traffic queueing at the proposed car wash site, it is traffic industry practice to assess similar sites that have comparable operations. The comparable site is located at 3017 E. Edinger, Tustin, CA which includes a major gas station with outlying retail shops and a self-serve car wash tunnel, like the proposed project. The City of Orange Planning Department requested a queuing and stacking analysis at a site with a similar car wash configuration to determine if during the peak hours for car washing services the queue or stacking could potentially block or extend into the regular parking areas and affect the functions of the existing commercial use and service station.

Transtech conducted a 10-hour parking count at the existing site as well as performed a 10-hour queuing study on a Friday and Saturday at the similar site with an express car wash in operation located in the City of Tustin. Based on the queuing study conducted at the comparable site, it was determined that the reconfiguration and addition of a self-serve car wash tunnel at the existing Shell Gas Station will not impact parking or have vehicles block on-site circulation by queuing at the car wash tunnel. The proposed site as designed meets the City of Orange Municipal Code Section 17.34.110F.5, 17.34.110F.6 and Section 17.18.070.N standards for businesses providing drive through services.

Please refer to **Figure 2: Vicinity Map** below to see the proposed project location.

Figure 2: Vicinity Map

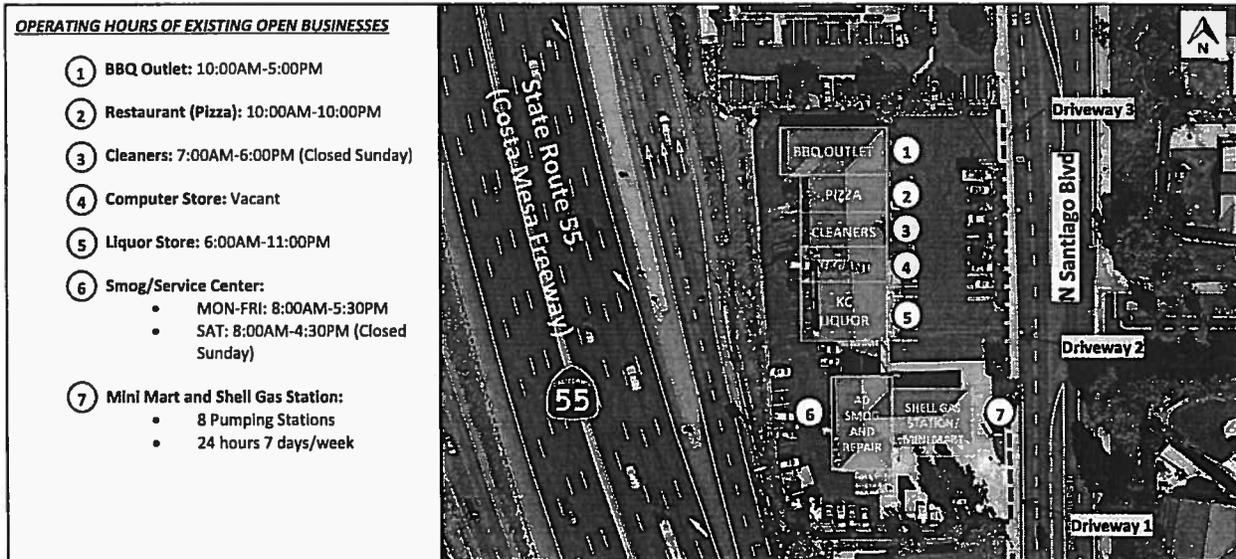


EXISTING CONDITIONS:

Santiago Boulevard: Santiago Boulevard is considered a secondary arterial in the City of Orange’s Mobility Element. The roadway carries 2 lanes in each direction with a two-way left turn pocket. The roadway has a posted speed limit of 35 mph with no on-street parking and a NB striped bike lane. Santiago Boulevard Driveway 2 as shown in **Figure 3: Existing Conditions Site Aerial Map** is shared between the Shell station and commercial center. Santiago Boulevard at Vista Park Avenue just north of the site provides the NB

SR-55 Costa Mesa Freeway off-ramp. Land use surrounding the site is strip commercial to the north (C-TR), offices to the south (Office Professional), SR-55 freeway to the west and to the east of Santiago Boulevard the back yards of residential uses (R-1-10). At the southwest corner of the intersection of Nohl Ranch Road and Santiago Boulevard just north of the site is a Valero gas station with mini mart and hand car wash with detailing stations. This use is different since it depends on labor to detail and wash/dry vehicles.

Figure 3: Existing Conditions Site Aerial Map



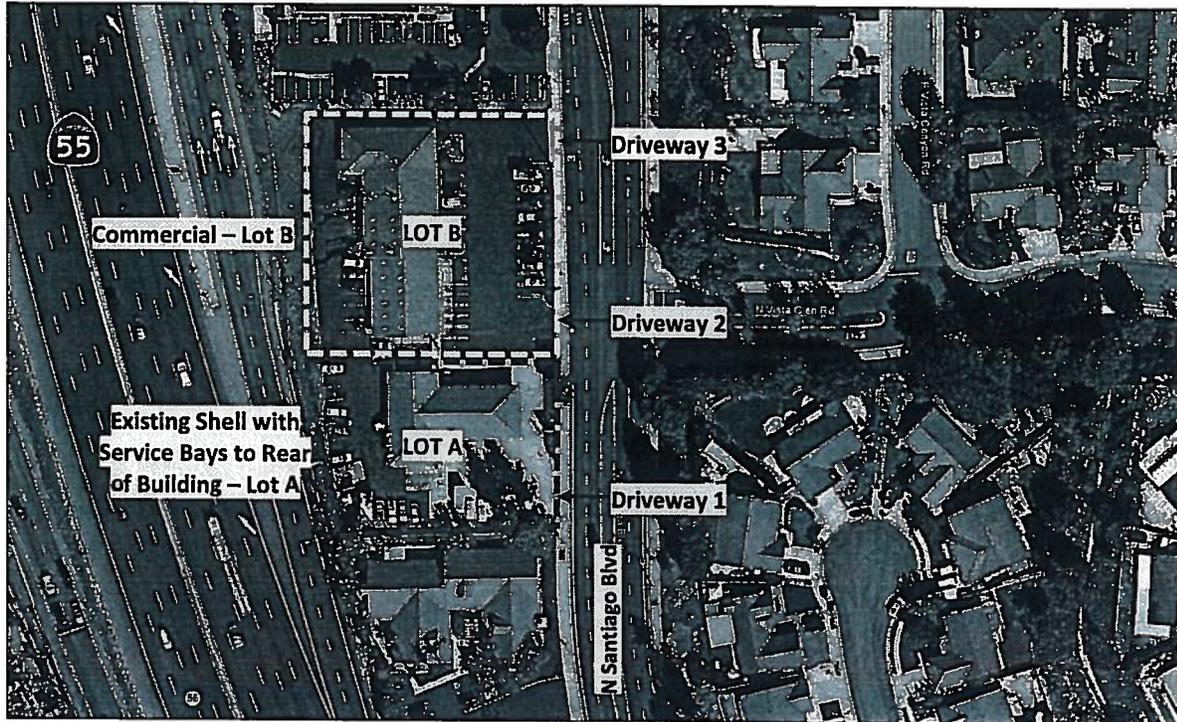
Hours of Operations

1. **BBQ Outlet: 10:00AM-5:00PM**
2. **Restaurant (Pizza): 10:00AM-10:00PM**
3. **Cleaners: 7:00AM-6:00PM (Closed Sunday)**
4. **Computer Store: Vacant**
5. **Liquor Store: 6:00AM-11:00PM**
6. **Smog/Service Center:**
 - MON-FRI: 8:00AM-5:30PM
 - SAT: 8:00AM-4:30PM (Closed Sunday)
7. **Mini Mart and Shell Gas Station:**
 - 8 Pumping Stations
 - 24 hours 7 days/week

Figure 4: Photo of Existing Site – Illustrates the existing Shell Station and Mini Mart



Figure 5: Existing Site – Lots A and B



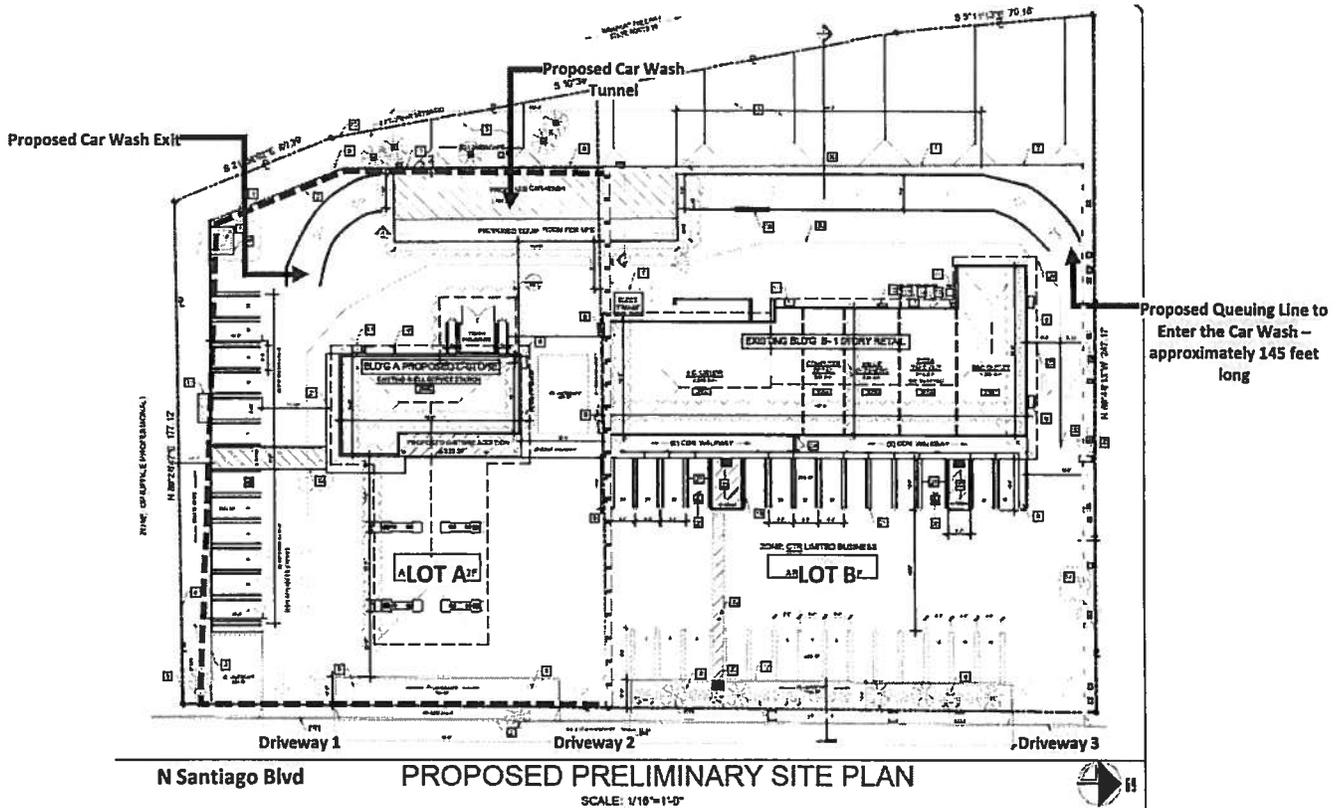
PROPOSED DEVELOPMENT:

The proposed project consists of the expansion and reconfiguration of an existing Shell gas station with mini mart and smog service center by constructing a 100-foot drive-through automatic car wash and expanded mini mart. Street access to the existing site is via 3 driveways fronting Santiago Boulevard. The gas station shares two of the driveways with the commercial center labeled as Lot B on the site plan. Both Lot A and Lot B will be combined as one parcel with the new car wash located behind the center and gas station. Operating hours of the car wash tunnel are going to be from 7:00AM to 9:00PM.

The car wash will be parallel to the SR-55 Freeway. As seen on the site plan, the entrance to the car wash tunnel will be located to the north and behind the commercial center with the exit and vacuum station to the south. The service station will be reconfigured to eliminate the existing smog and service center located behind the mini mart and will remodel and add to the existing building to provide for a 2,640-sq. ft. convenience market (C-Store). The site is located at 2640-2658 N. Santiago Boulevard, Orange, CA.

The Lot B retail use building will remain, however parking for both Lots A and B will be provided to the front of the buildings and lining the south side of the gas station. The new site will provide a total of 39 parking spaces. South of the gas station where parking is provided, there will be one vacuum station for use. Per the Cities preliminary comments the project (lots A and B) will provide the total required (39) on-site parking spaces. Please refer to *Figure 6: Proposed Preliminary Site Plan* for details.

Figure 6: Proposed Preliminary Site Plan



Parking Occupancy Count: In order to determine the amount of parking that is currently needed at the existing site a parking occupancy count was conducted on a Friday and Saturday between the hours of 10:00am to 8:00pm (10 hours) on May 12th and 13th 2017. The count included parking for Lots A and B. It was identified that there are currently 59 marked parking spaces on-site in the front and behind the businesses. The hours given were chosen to look at peak service hours of the existing gas station as well as times that would also include the retail use peaks.

The Friday parking counts showed that the peak parking time for on-site parking was 28 vehicles at 1:00pm to 2:00pm for an occupancy rate of 48%. This included vehicles using parking spaces while waiting for service at the smog station.

On Saturday, the peak parking period was between 2:00pm to 3:00pm with 31 parked vehicles for a parking occupancy rate of 53%. Most of the parking spaces occupied longer term were associated with the Smog/Service station behind the gas station. With the reconfiguration of the project this use will be removed. The parking count showed that even with the reconfiguration of the site, the 39 on-site parking spaces provided will sufficiently accommodate project traffic. The parking count is provided in *Table 1: Friday/Saturday Parking Occupancy Count* on the following page.

Table 1: Friday/Saturday Parking Occupancy Count for Lots A and B:

Friday Count Conducted: May 12, 2017

Saturday Count Conducted: May 13, 2017

Time by Hour	Total Spaces Available	FRIDAY		SATURDAY	
		Spaces Occ.	OCC. (%)	Spaces Occ.	OCC. (%)
10:00-11:00AM	59	20	34%	23	39%
11:00-12:00PM	59	17	29%	21	36%
12:00-1:00PM	59	22	37%	24	41%
1:00-2:00PM	59	28	48%	28	48%
2:00-3:00PM	59	25	42%	31	53%
3:00-4:00PM	59	17	29%	30	51%
4:00-5:00PM	59	20	34%	26	44%
5:00-6:00PM	59	14	24%	26	44%
6:00-7:00PM	59	13	22%	24	41%
7:00-8:00PM	59	9	15%	16	27%

Proposed Car Wash: The proposed automated express exterior car wash will provide a 12-foot-wide by 145-foot-long entry lane with stacking for 7 vehicles to queue. Customers can purchase a car wash from the gas pump, inside the mini mart or can purchase directly from the automated teller located at the entrance to the tunnel. When the car wash is first opened, an attendant will be there to guide the customers as they maneuver the front wheel onto a conveyor belt and to direct customers to put their cars into neutral where the conveyor will pull the car through the car wash. At the end of the tunnel the car is dried. It takes approximately 3 minutes depending on the type of wash chosen to fully move through the car wash. This type of car wash requires no manual prepping, but produces a clean, shiny and completely dry car. The customer has the option of self-vacuuming the vehicle before or after the car wash. There is projected to be one vacuum stall located along the south end of the gas station. Typically, a discount is given for each gallon of gas if a car wash is selected while pumping.

In order to predict the traffic queueing at the proposed car wash site, it is traffic industry practice to assess similar sites that have comparable operations. To determine what type of queue that can be expected for this type of car wash, a queuing count was conducted on Friday, June 2, 2017 and Saturday, June 3, 2017 during the hours of 10:00am to 8:00pm (10 hours). The counts were taken on a regular weekend and weekday on a sunny day. The site that was selected was chosen because it most represented what the proposed site would be. The "similar site" was at a 76 Gas Station with a C-store (Circle K) with a Subway deli, surrounded by commercial use with a conveyor type car wash tunnel. The site is located in the City of Tustin at 3017 Edinger Avenue, Tustin, please refer to **Figure 7** on the following page.

Figure 7: Aerial View of Similar Site (3017 Edinger Avenue, Tustin)

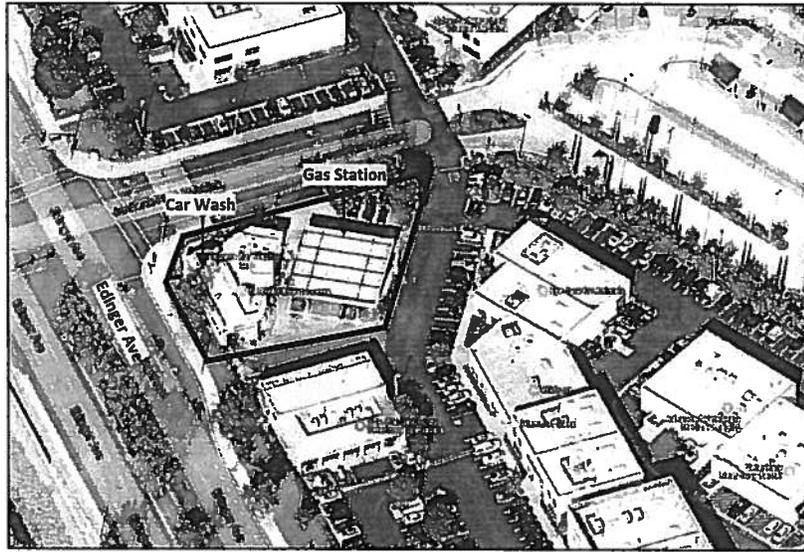


Figure 8: Car Wash Entrance at Similar Size

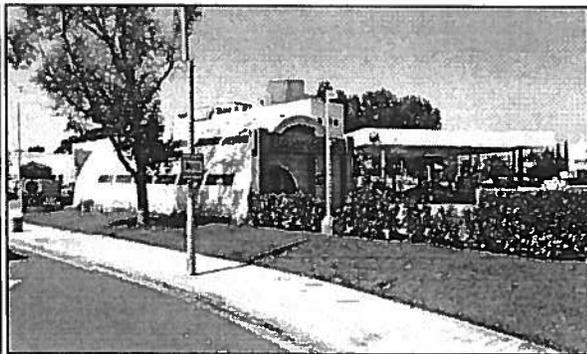


Figure 9: Car Wash Exit at Similar Size

As seen in the following tables the queue counts for the similar site showed that the busiest time for the car wash on a Friday was between 2pm to 3pm with a total of 19 vehicles going through the car wash with the longest queue waiting to enter 4 vehicles. Average time in the tunnel was a little over 3 minutes. The time depends on the type of wash (basic to deluxe) that the customer chose. A queue of 4 vehicles would need 80 feet of stacking in the entrance lane. At this car wash there was never a queue exiting the tunnel. Most vehicles vacuumed their cars before the car wash and then just drove away.

On Saturday the busiest time for the use of the car wash was at 11-12 noon with 23 vehicles entering the car wash in a one hour period with the longest queue at 3 vehicles. The use for the car wash was spread over the one hour period with continual movement through the tunnel.

Table 2: Friday Count - Back of Queue Count at Similar Site (3017 Edinger Avenue, Tustin)

Count Conducted: Friday, June 2, 2017

Time by Hour	Tally of Vehicles Entering Car Wash	Longest Back of Queue in 1 hour	Avg. Time in Tunnel	Queue at Exit
10am to 11am	13	1	3:08 min	0
11am to 12noon	17	2	"	0
12pm to 1pm	18	3	"	0
1pm to 2pm	17	3	"	0
2pm to 3pm	19	4	"	0
3pm to 4pm	11	3	"	0
4pm to 5pm	16	1	"	0
5pm to 6pm	12	2	"	0
6pm to 7pm	10	2	"	0
7pm to 8pm	8	1	"	0

Table 2: Saturday Count - Back of Queue Count at Similar Site (3017 Edinger Avenue, Tustin)

Count Conducted: Saturday, June 3, 2017

Time by Hour	Tally of Vehicles Entering Car Wash	Longest Back of Queue in 1 hour	Avg. Time in Tunnel	Queue at Exit
10am to 11am	13	1	3:08 min	0
11am to 12 noon	23	3	3:06	0
12pm to 1pm	19	4	3:08	0
1pm to 2pm	14	2	"	0
2pm to 3pm	21	4	"	0
3pm to 4pm	17	4	"	0
4pm to 5pm	6	1	"	0
5pm to 6pm	11	1	"	0
6pm to 7pm	13	2	"	0
7pm to 8pm	8	1	"	0

The City of Orange Planning Department asked for a queuing and stacking analysis of a site with a similar car wash configuration to determine if during the peak hours for car washing services the queue or stacking could potentially block or extend into the regular parking areas and affect the functions of the existing commercial use and service station.

Orange Municipal Code (OMC) Section 17.18.070.N provides standards for businesses providing drive-through service:

- Drive through lanes shall not obstruct the circulation routes necessary for access to the property, parking areas (including backup area of parking spaces) and pedestrian walkways.
- Pedestrian walkways shall be emphasized by enriched paving or striping.
- Drive through lanes shall be a minimum of 12 ft. in width.

- A parking or queuing study is required that is based on similar operations, addressing the anticipated traffic volumes and vehicular stacking needs for the proposed car wash.

Project Options:

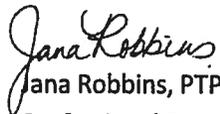
- Assessment of the peak parking demand times for each use, proximity to the mass transit, and the impact of on-site market support.
- Calculate the peak parking demand for each use, including peak hours of a weekday or evening, and/or weekend.
- Sum hourly parking demands to arrive at a total peak hour parking demand volume.

SUMMARY

Based on the weekday and weekend parking occupancy counts at the existing site, it is estimated that the 39 proposed parking spaces will accommodate the needs of the reconfigured gas station/mini mart with car wash and the adjacent retail center labeled as Lot B. The queuing count at a similar site shows that during peak hours the maximum queue of vehicles waiting to enter the car wash tunnel is 4 cars. The proposed stacking lane will provide for 7 vehicles to queue prior to entering the tunnel (based on 20 feet per car). The 145 feet of stacking lane will provide enough room for vehicles to wait in the queue and not extend into or block any vehicular paths of travel for the retail use or gas station. This report as concluded that the project would not have an adverse impact on parking or on-site traffic circulation.

We appreciate the opportunity to assist you in preparing this report. If you have any questions or comments please do not hesitate to call me at (909)595-8599 Ext. 133 or via email at Jana.robbs@transtech.org

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