

MEMORANDUM

July 8, 2022

Project #: 27762

To: Eddmond Alberto, City Traffic Engineer
City of Escondido
City Hall, First Floor
201 North Broadway
Escondido, CA 92025

CC: Michael Okuma, Costco Wholesale
Terry Odle, MG2

From: Chris Brehmer & Mychal Loomis, PE/TE/PTOE/RSP

RE: Projected Escondido Costco Fuel Station Queues

Costco Wholesale proposes to construct a Costco Warehouse and fuel station at 210 E Via Rancho Parkway, the site of a former Sears within the larger Westfield North County Fair Mall. This memorandum documents that anticipated vehicular queuing at the proposed 32-position Costco fuel station will be accommodated on-site.

Background

Costco fuel stations function as ancillary uses to the Costco Warehouse. Access to the fuel stations requires a Costco membership card to activate the pumps for dispensing gasoline. Payment can only be made with a debit or credit card and, unlike traditional gas/service station facilities operations, there are no other automotive services (such as repairs) or other type of sales (including food or sundries) associated with the Costco fuel station. All Costco fuel stations have a minimum of one attendant working during all operating times who is responsible for expediting members' use of the fuel pumps, directing entering vehicles to open pump locations, and managing on-site queues from the pumps.

Site Plan Considerations

The proposed fuel station site plan is shown Figure 1. The proposed fuel station provides a queue waiting area (in addition to those vehicles at the fueling positions) of approximately five to six vehicles per aisle of fueling positions. As shown in Figure 1, the proposed site plan can readily accommodate 44 queued vehicles within the fuel station site without blocking the inbound drive aisle. In total, approximately 76 vehicles are accommodated within the fuel station area, when considering those fueling (up to 32) and those waiting to fuel (44 or more).



SITE PLAN PROVIDED BY MG2 JULY 5, 2022

LEGEND

 VEHICLE IN QUEUE WAITING FOR AN AVAILABLE FUEL POSITION

Costco Queue Waiting Area
Escondido, CA

Figure
1

H:\27\7762 - Escondido Costco\design_CD\27762 Costco fuel figures.dwg Jul 06, 2022 - 11:32am - jhenriksen Layout Tab: auto queue

On-Site Queuing Demand Estimates

Data collected at other Costco fuel station sites was reviewed to estimate queues that could occur at the Escondido site. Table 1 summarizes peak hour maximum fuel queues measured at four 32-fuel position Costco fuel station locations adjacent to a Costco Warehouse. The fuel station queuing data was recorded at 1 minute intervals at each site. The peak hour queuing summarized in Table 1 was identified based on the maximum queue observed waiting for an available fueling position (not including vehicles fueling) during the weekday 4:00-6:00 PM period and Saturday 11:00 AM-2:00 PM period. As shown, peak queuing conditions are typically experienced during the Saturday Midday peak hour.

Table 1: Costco Fuel Station Peak Hour Maximum Queue Observations (for vehicles waiting to fuel, not those being served)

Location	Date Data Collected	Number of Fueling Positions	Maximum Queue (vehicles)	
			Weekday PM Peak Hour	Saturday Midday Peak Hour
Scottsdale, AZ ¹	April 15 and 17, 2021	32	10 (4:00-5:00 PM)	16 (11:15 – 12:15 PM)
El Camino, CA ²	August 5 and 7, 2021	32	19 (4:30 – 5:30 PM)	37 (1:00 – 2:00 PM)
Santee, CA ³	February 20 & 29, 2020	32	10 (4:15-5:15 PM)	15 (11:05-12:05 PM)
South San Francisco, CA ⁴	February 26 & 29, 2020	32	11 (4:30 – 5:30 PM)	25 (12:55 – 1:55 PM)
Average Maximum Queue Observed			13	24

¹ 15255 N Hayden Road, Scottsdale, AZ 85260-2507

² 1600 El Camino Real, South San Francisco, CA 94080-1206

³ 101 Town Center Parkway, Santee, CA 92071-5899

⁴ 451 S Airport Boulevard, South San Francisco, CA 94080-6909

As shown, the observed maximum queues at the four other similar sites could all be readily accommodated within the approximately 44 vehicle on-site queuing area proposed at Escondido.

In reviewing Table 1, note the Santee, CA site data was collected in February 2020 prior to the on-set of the COVID-19 pandemic. Further, while at first glance there appears to be a large variability in the maximum queues, we note that the reported queues at El Camino and South San Francisco both reflect Costco locations near South San Francisco airport where peak demand is uniquely higher compared to the sites at Scottsdale and Santee or the proposed Escondido site because members have been observed to fill up their own personal vehicles as well as rental cars prior to departing for the airport.

Conclusions

Based on our review of observed maximum peak hour queues measured at other 32-fuel position Costco fuel station sites and the Escondido site's proposed layout and queuing area, we conclude that the proposed fuel station queuing can be accommodated on-site.