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Traffic  
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**Linscott, Law &  
Greenspan, Engineers**

2 Executive Circle  
Suite 250  
Irvine, CA 92614  
**949.825.6175** T  
949.825.6173 F  
www.llgengineers.com

Pasadena  
Irvine  
San Diego  
Woodland Hills

May 31, 2022

Mr. Randy Decker  
Joseph C. Truxaw and Associates, Inc.  
1915 W. Orangewood Avenue, Suite 101  
Orange, CA 92868

LLG Reference: 2.22.4552.1

Subject: **Drive Through Lane Modification Assessment for the  
Chick-fil-A #1891 Bristol and MacArthur Project**  
Santa Ana, California

Dear Mr. Decker:

As requested, Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit this Drive Through Lane Modification Assessment for the existing Chick-fil-A #1891 Bristol and MacArthur Project, located at 3601 South Bristol Street in the City of Santa Ana, California. Based on our understanding, a review of the proposed drive through lane modification has been required by the City of Santa Ana to validate that the total drive through storage provided with the proposed modifications is adequate to satisfy existing drive-through queues during peak operations of the existing Chick-fil-A restaurant. Our method of analysis, findings, and recommendations are detailed in the following sections of this letter report.

## PROJECT DESCRIPTION

The project site is located at 3601 South Bristol Street in the City of Santa Ana, California. The project site is currently developed with an existing 3,534 square-foot (SF) Chick-fil-A restaurant with drive-through window with storage for approximately 12 vehicles. The proposed Project will include a 627 SF building addition, resulting in a total restaurant square-footage of 4,161 SF. The proposed Project also includes modifications to the existing drive-through lane to provide two-lanes of drive-through storage on the east side of the building. With the proposed modifications, the drive-through will provide storage for up to nineteen (19) vehicles. In conjunction with the modifications, the existing right-turn in/right-turn out only driveway located along MacArthur Boulevard will be relocated to the east, resulting in the removal of the existing Craig Liquor building. At completion of the project, a total of 52 parking spaces will be provided. **Figure 1** presents the proposed site plan for the proposed Project, prepared by Joseph C. Truxaw & Associates, Inc.

Philip M. Linscott, PE (1924-2000)  
Jack M. Greenspan, PE (Ret.)  
William A. Law, PE (Ret.)  
Paul W. Wilkinson, PE  
John P. Keating, PE  
David S. Shender, PE  
John A. Boorman, PE  
Clare M. Look-Jaeger, PE  
Richard E. Barretto, PE  
Keil D. Maberry, PE

## DRIVE THROUGH LANE ASSESSMENT

Based on operational information provided by Chick-fil-A staff, the peak operations within the drive through lane typically occurs on either a Thursday, Friday and/or Saturday. Therefore, drive-through queuing observations were conducted by Transportation Studies Inc. (TSI) on Thursday May 12, 2022, Friday May 13, 2022 and Saturday May 14, 2022 between 11:00 AM and 8:00 PM. The vehicular queues observed were recorded at 5-minute intervals. It should be noted that the drive-through queuing observations conducted on Saturday May 14, 2022 were only conducted between 11:00 AM and 2:00 PM and 4:00 PM to 8:00 PM, since local area schools, whose students are patrons of the Chick-fil-A #1891 Bristol and MacArthur store, are closed on Saturdays.

*Table 1* summarizes the queue frequency that was observed at the existing restaurant on Thursday May 12, 2022, Friday May 13, 2022 and Saturday May 14, 2022. As shown under the total column of *Table 1*, an average queue of 13 vehicles in the drive-through lane can be expected during peak operations, with an 85<sup>th</sup> percentile queue of 18 vehicles, a 95<sup>th</sup> percentile queue of 20 vehicles and a max queue of 27 vehicles expected during peak operations. It should be noted that the 85<sup>th</sup> percentile queue is generally the industry standard utilized when designing/sizing the length of the proposed drive-through lane.

As shown previously in *Figure 1*, the drive through will provide storage for up to nineteen (19) vehicles with the proposed drive through lane modifications, which will be sufficient to satisfy the observed 85<sup>th</sup> percentile queue of 18 vehicles. The observed 95<sup>th</sup> percentile queue of 20 vehicles, which only occurred ten times throughout the three survey days, can be accommodated on-site within the existing drive-aisles, without impacting traffic flow on Bristol Street and MacArthur Boulevard. It should be noted that the maximum queue of 27 vehicles, which only occurred two times throughout the three survey days, can also be accommodated on-site within the existing drive-aisles, without impacting traffic flow on Bristol Street and MacArthur Boulevard. Therefore, with the proposed drive-through lane modifications, the drive-through lane operation will be significantly improved and sufficient storage will be provided to accommodate the existing observed peak demands on-site.

## DRIVE THROUGH LANE QUEUING CONTINGENCY PLAN

Even though it is anticipated that the drive-through lane with the proposed modifications will accommodate all potential queues on site, Chick-fil-A staff will implement the following additional measures in addition to the current iPad ordering system that occurs at the existing store.

- Deploy additional Chick-fil-A staff with iPad's to take orders and direct traffic, accordingly, if the drive-through queue approaches the 19-vehicle capacity.
- For larger orders that may take longer, Chick-fil-A staff will direct these patrons to one of the parking spaces located in the front of the store in order to not interrupt the typical drive-through service times. These larger orders would be delivered by Chick-fil-A staff to the parked vehicle.

The current program consists of the following as provided by Chick-fil-A management staff and will continue to be implemented on an as-needed basis during their peak operating times:

- Our restaurants are staffed so that if the drive-thru queuing begins stacking outside of the drive-through lanes, team members go out and assist with ordering via Chick-fil-A's iPad ordering system. Our operators use the iPad ordering during our peak hours of 11:30 AM to 1:30 PM and any additional time when needed. The iPad ordering system allows team members to take orders, receive payment, and assist with traffic movement within the parking lot.
- Based on data from our other comparable stores, the iPad ordering system increases the Chick-fil-A drive thru speed of service by 30% than the typical speaker box. Putting people forward in the drive-through is one of our biggest competitive advantages in the market because it personally connects our team members with our valued guest. We want to continue this momentum by building a platform to supporting current and future innovations that increase capacity and put our people forward to care for our guest in every interaction. Our customers enjoy the face to face ordering over the standard drive-thru experience.

We appreciate the opportunity to provide this drive through lane modification assessment. Should you have any questions, please call us at 949.825.6175.

Sincerely,  
**Linscott, Law & Greenspan, Engineers**



Keil D. Maberry  
Principal  
California Registration: TR 1802



Daniel A. Kloos, P.E.  
Associate Principal  
California Registration: TR 2200



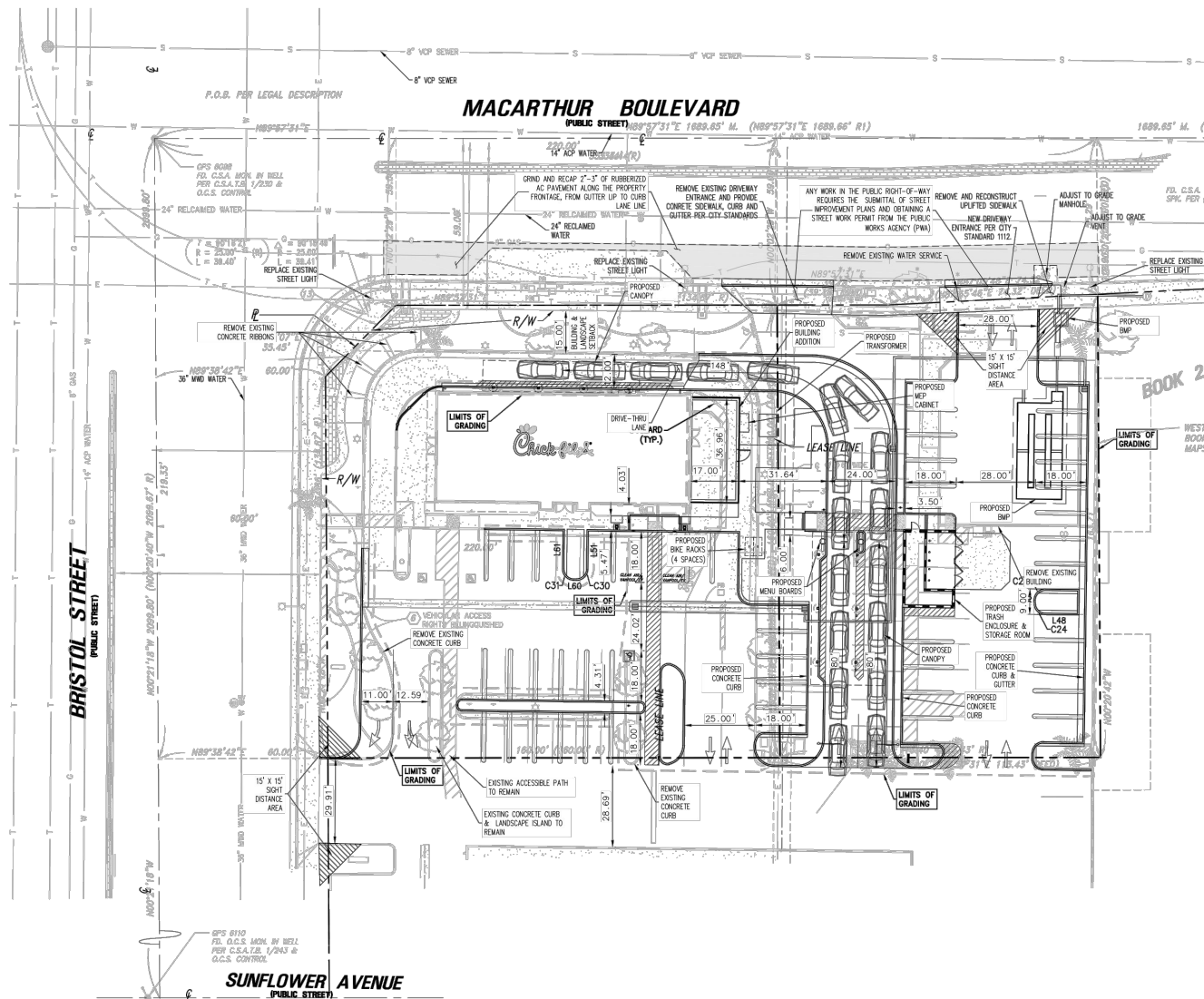


TABLE 1  
QUEUING ANALYSIS SUMMARY<sup>1</sup>  
CHICK-FIL-A #1891 BRISTOL AND MACARTHUR PROJECT, SANTA ANA

Queue Length (Vehicles)	Queue Frequency of Vehicles Observed at Chick-fil-A #1891, Santa Ana				Cumulative	
	Thursday May 12, 2022	Friday May 13, 2022	Saturday May 14, 2022	Total	Frequency	Percentage
0	1	0	0	1	1	0.3%
1	1	0	0	1	2	0.7%
2	1	0	0	1	3	1.0%
3	1	0	0	1	4	1.3%
4	1	0	0	1	5	1.7%
5	2	0	2	4	9	3.0%
6	1	0	2	3	12	4.0%
7	3	1	2	6	18	6.0%
8	8	5	4	17	35	11.7%
9	8	5	1	14	49	16.3%
10	8	8	5	21	70	23.3%
11	10	9	7	26	96	32.0%
12	8	15	9	32	128	42.7%
13	6	14	5	25	153	51.0%
14	4	7	6	17	170	56.7%
15	5	15	8	28	198	66.0%
16	7	6	12	25	223	74.3%
17	9	11	6	26	249	83.0%
18	8	2	5	15	264	88.0%
19	6	2	3	11	275	91.7%
20	2	3	5	10	285	95.0%
21	1	1	2	4	289	96.3%
22	2	1	0	3	292	97.3%
23	0	0	0	0	292	97.3%
24	0	2	0	2	294	98.0%
25	1	1	0	2	296	98.7%
26	2	0	0	2	298	99.3%
27	2	0	0	2	300	100.0%
Total	108	108	84	300	--	--
Average	13.0	14.0	14.0	13.0	--	--
85 <sup>th</sup> Percentile	18.0	17.0	18.0	18.0	--	--
95 <sup>th</sup> Percentile	22.0	20.0	20.0	20.0	--	--
Max	27.0	25.0	21.0	27.0	--	--

<sup>1</sup> The drive-through queuing surveys at Chick-fil-A #1891 (3601 S. Bristol Street, Santa Ana) were conducted by Transportation Studies, Inc. (TSI) on Thursday, May 12, 2022 between 11:00 AM and 8:00 PM, Friday, May 13, 2022 between 11:00 AM and 8:00 PM, and Saturday, May 14, 2022 between 11:00 AM and 2:00 PM and 4:00 PM and 8:00 PM.