



April 8, 2022

Ms. Michelle Bennett, Project Manager  
IN-N-OUT BURGER  
13502 Hamburger Lane  
Baldwin Park, CA 91706

**RE: Traffic Management Plan for Madera Flea Market and In-N-Out**  
Project No. 19379

Dear Ms. Bennett:

Ganddini Group, Inc. is pleased to provide this supplemental Traffic Management Plan for the existing Madera Flea Market and proposed In-N-Out project in the City of Madera, California.

A focused traffic analysis for the proposed project was previously prepared on July 8, 2021. The focused traffic analysis includes evaluation of left turn queuing for various driveways and intersections along the two-way left-turn median lane along Cleveland Avenue between the Commons Center Access and the State Route 99 (SR-99) Southbound Ramps based on the Opening Year (2023) with Project conditions. Additionally, the focused traffic analysis includes an evaluation of the storage capacity for the drive-through lane.

The purpose of this supplemental Traffic Management Plan (TMP) is to evaluate site access conditions during peak hours of operation for the existing Madera Flea Market that takes place on Wednesdays and Sundays. This TMP also provides recommendations to improve any existing deficiencies and maintain adequate circulation with modification of the existing “pork chop” median at The Commons East Access to allow left turn in access from Cleveland Avenue and accommodate addition of the proposed In-N-Out.

The recommendations provided herein are intended to serve as a starting point and may be modified as appropriate based on future observations once the proposed project is in operation and as agreed to by relevant parties (i.e., City of Madera, In-N-Out, and Madera Fairgrounds).

## **EXISTING CONDITIONS**

### **Existing Circulation and Traffic Controls**

Figure 1 shows the existing circulation map for The Commons shopping center and Fairgrounds. The flea market is located at the east end of Fairgrounds Loop Road with parking provided in Lot A and Lot B. Additional parking is also provided in Lot C and Lot D at the south end of The Commons Center Access and the east end of Dutra Way. Based on discussion with Fairgrounds staff, Parking Lot A and Lot B are currently more popular parking areas utilized by flea market patrons, so these two lots typically reach capacity in the morning with heavy inbound traffic on Cleveland Avenue at The Commons Center Access and on Fairgrounds Loop Road. Parking Lot C and Lot D are generally under-utilized even though the website for the flea market directs patrons to utilize these two parking lots.

### **Existing Volumes and Queuing**

Intersection turning movement counts were conducted on a typical Wednesday and Sunday during the flea market hours of operation from 6:00 AM to 3:00 PM in February 2022 at the following key access points most likely to be affected by the proposed “pork chop” median modification:

- The Commons Center Access/Cleveland Avenue
- The Commons East Access/Cleveland Avenue
- The Commons West Access/Fairgrounds Loop Road

Consistent with the focused traffic analysis, the new February 2022 counts were increased by a factor of 1.113 to adjust for pre-lockdown conditions and vehicles making an illegal westbound left turn into The Commons East Access were re-assigned to The Commons Center Access. Vehicle queues were also documented for the existing westbound left turn lane at The Commons Center Access/Cleveland Avenue. Appendix A shows the intersection volume and queuing count worksheets.

Figure 2 graphically shows the observed maximum westbound left turn queues in 15-minute increments for Cleveland Avenue at The Commons Center Access during the flea market hours of operation. As shown on Figure 2, a peak queue of 13 vehicles was observed on Wednesday at approximately 11:45 AM and a peak queue of 25 vehicles was observed on Sunday at approximately 10:00 AM.

Figure 3 illustrates the available storage capacity and the observed peak queues for Wednesday and Sunday conditions. The distance between The Commons Center Access and the raised median at the SR-99 ramps is approximately 800 feet, which can accommodate roughly 32 vehicles. The distance between The Commons East Access and the raised median at the SR-99 ramps is approximately 300 feet, which can accommodate roughly 12 vehicles. As shown in Figure 2 and Figure 3, the existing westbound left turn queues on Cleveland Avenue can be accommodated within the center median for both Wednesday and Sunday conditions without blocking westbound through traffic.

Field observations also indicated that the all-way stop control at The Commons Center Access/Fairgrounds Loop Road causes southbound queues along The Commons Center Access to spill back to Cleveland Avenue, thus contributing to additional queuing in the westbound left turn lane from Cleveland Avenue.

With the proposed In-N-Out project to modify the existing “pork chop” median at The Commons East Access to allow westbound left turn in access from Cleveland Avenue, the westbound left turn storage capacity on Cleveland Avenue between The Commons East Access and the raised median at the SR-99 ramps would be approximately 12 vehicles. As shown on Figure 2, the existing westbound left turn queue lengths on Cleveland Avenue generally did not exceed the 12-vehicle queuing capacity on Wednesday, except by one vehicle for a short duration (less than 15 minutes) at approximately 11:45 AM. Although the proposed “pork chop” modification would allow left turns at The Commons East Access, a portion of the existing westbound left turn volume is expected to continue using the left turn lane at The Commons Center Access. Therefore, no special measures are anticipated to be necessary to manage Wednesday Flea Market conditions. Since the observed queues on Wednesday were substantially less than the observed queue lengths on Sunday, the following sections of this report focus on traffic management measures for peak Sunday Flea Market conditions.

**It is important to note that the peak queue of 25 vehicles occurred at approximately 10:00 AM on Sunday before In-N-Out opens. After 1:00 PM (during typical In-N-Out peak on weekends), the existing queues did not exceed 15 vehicles. Therefore, peak hours of operation for the flea market and In-N-Out do not overlap on Sundays.**

## TRIP GENERATION RATE CALCULATIONS

Table 1 shows the project trip generation forecast on Sundays. Trip generation for the existing sit-down restaurant to be displaced is based on trip generation rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021) for High-Turnover (Sit-Down) Restaurant (Land Use Code 932). The Sunday trip rates for In-N-Out are assumed to be same as the Saturday trip rates used in the project's original Focused Traffic Analysis (Ganddini Group, Inc., July 2021) as derived from trip generation surveys of other In-N-Out restaurants throughout California. Furthermore, a 15 percent internal capture adjustment is assumed during Sundays since an appreciable number of customers are expected to be attracted by the existing shopping center and Flea Market. The vehicles associated with these walk-in customers are existing, would remain parked at the Fairgrounds/shopping center parking lots, and thus would not generate new vehicular trips to/from the In-N-Out site.

As shown in Table 1, the proposed In-N-Out project is forecast to result in 605 net new trips per day on Sundays, including 60 net new trips during the Sunday mid-day peak hour.

For context, the westbound left turn lane at The Commons Center Access/Cleveland Avenue has an existing Sunday peak hour volume of 479 trips per hour. Based on the forecast increase of 36 inbound trips from the westbound direction associated with In-N-Out, the In-N-Out project would represent approximately 7.5 percent of the existing volume.

## TRAFFIC MANAGEMENT PLAN

Figure 4 illustrates a summary of the following recommended traffic management measures to be implemented by the Fairgrounds/Flea Market on Sundays:

- A. Install permanent directional signage along Cleveland Avenue, Schnoor Drive and Dutra Way driveways to direct Fairgrounds visitors to Parking Lots C and D.
- B. When Flea Market parking lots A and B are full, install temporary signage along internal roads to inform visitors the lots are full and provide directions to additional parking in Lots C and D.

Implementation of Measures A and B are recommended first. These measures are expected to become more effective over time as regular Flea Market patrons become accustomed to the new traffic patterns. For purposes of this analysis, Measures A and B are estimated to redirect at least five percent of the trips currently entering from westbound Cleveland Avenue to Schnoor Drive and Dutra Way driveways.

If queues for the westbound left turn lane at The Commons East Access regularly reach the available storage capacity and consistently block the adjacent westbound through lane, the following measure is available as a "last resort" to discourage queuing at The Commons East Access:

- C. If necessary, close ingress only at The Commons East Access with delineators and "Do Not Enter"/directional sign at The Commons East Access during Sunday peak hours (generally 10:00 AM – 12:30 PM and in no event outside the hours of 9:00 AM to 2:00 PM).

Many of the above measures are similar to those utilized by the Fairgrounds during the annual Madera Fair and may also be extended to other large events as necessary.

Although In-N-Out drive through lane queue is not expected to exceed the proposed on-site storage capacity, Figure 5 shows a drive through lane management plan as a contingency measure should drive through lane

queue exceed expectations, in particular during flea market hours of operation when any off-site spillover into Fairgrounds Loop Road could impact internal circulation for the shopping center/Fairgrounds. The major components of the drive through lane management plan for the In-N-Out project include:

- If drive through lane queue exceeds available storage capacity, close drive through lane ingress from Fairgrounds Loop Road with delineator posts, as necessary.
- In-N-Out associates should implement hand-held ordering and direct drive through customers to the back of the drive through lane queue.
- Install temporary directional signage on The Commons East Access and Fairgrounds Loop Road to direct drive through customer to enter from the driveway on The Commons East Access.

### **QUEUING CONDITIONS WITH PROJECT AND TMP MEASURES**

Implementation of the proposed TMP measures would effectively allow for westbound left turn movements at both The Commons Center Access and East Access during non-Flea Market peak hours, maintain the existing westbound left turn lane access at The Commons Center Access only during Sunday Flea Market peak hours (similar to existing conditions), preclude spillover of left turn queues into the westbound through lanes along Cleveland Avenue, and offset additional vehicles/queues generated by the proposed In-N-Out project. The proposed directional signage is anticipated to redirect a portion of the existing westbound left turn traffic on Cleveland Avenue from The Commons Center Access to alternate parking areas (Lot C and Lot D) at the east end of Dutra Way. The proposed temporary internal direction signage would alert Flea Market patrons when Lots A and B are full and direct them to Lots C and D, thereby reducing congestion associated with vehicles searching for a parking space and minimizing queue spill over into Cleveland Avenue. If necessary, the proposed In-N-Out drive through lane management would minimize any off-site overflow and obstructions to Fairgrounds Loop Road.

A simulated queuing analysis was performed using the Synchro/SimTraffic software suite to assess the potential impact of the proposed In-N-Out project during peak Sunday conditions. While existing queues were not calibrated to observations, the simulation is useful for assessing the net effect of additional trips generated by In-N-Out. Based on the SimTraffic queuing analysis, with implementation of no TMP measures, the proposed In-N-Out project is forecast to cause the average queue to increase by less than one vehicle for the westbound left turn lane at The Commons Center Access/Cleveland Avenue during Sunday peak hour conditions. Additionally, the maximum queue for the proposed westbound left turn in at The Commons East Access is forecast to equal 275 feet, which can be accommodated within the available storage length, assuming the directional signage associated with Measures A and B will redirect at least five percent of the trips currently entering from westbound Cleveland Avenue to Schnoor Drive and Dutra Way driveways. Queue worksheets are provided in Appendix B.

### **CONCLUSIONS**

The proposed In-N-Out project is forecast to result in 605 net new trips per day on Sundays, including 60 net new trips during the Sunday mid-day peak hour.

Figure 4 illustrates a summary of the following recommended traffic management measures to be implemented by the Fairgrounds/Flea Market on Sundays:

- A. Install permanent directional signage along Cleveland Avenue, Schnoor Drive and Dutra Way driveways to direct Fairgrounds visitors to Parking Lots C and D.

Ms. Michelle Bennett  
IN-N-OUT BURGER  
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- B. When Flea Market parking lots A and B are full, install temporary signage along internal roads to inform visitors the lots are full and provide directions to additional parking in Lots C and D.

If queues for the westbound left turn lane at The Commons East Access regularly reach the available storage capacity and consistently block the adjacent westbound through lane, the following measure is available as a "last resort" to discourage queuing at The Commons East Access:

- C. If necessary, close ingress only at The Commons East Access with delineators and "Do Not Enter"/directional sign at The Commons East Access during Sunday peak hours (generally 10:00 AM – 12:30 PM and in no event outside the hours of 9:00 AM to 2:00 PM).

With implementation of no TMP measures, the proposed In-N-Out project is forecast to cause the average queue to increase by less than one vehicle for the westbound left turn lane at The Commons Center Access/Cleveland Avenue during Sunday peak hour conditions. Additionally, the maximum queue for the proposed westbound left turn in at The Commons East Access is forecast to equal 275 feet, which can be accommodated within the available storage length, assuming the directional signage associated with Measures A and B will redirect at least five percent of the trips currently entering from westbound Cleveland Avenue to Schnoor Drive and Dutra Way driveways.

The recommendations provided herein are intended to serve as a starting point and may be modified as appropriate based on future observations once the proposed project is in operation and as agreed to by relevant parties. Once the project is in operation, the City of Madera, In-N-Out, and Madera Fairgrounds should monitor circulation for typical daily operations as well as during special events and work cooperatively to implement modifications to the traffic management as necessary.

It has been a pleasure to assist you with this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Sincerely,  
GANDDINI GROUP, INC.



Tom Huang, TE  
Senior Traffic Engineer



Giancarlo Ganddini, TE, PTP  
Principal Traffic Engineer

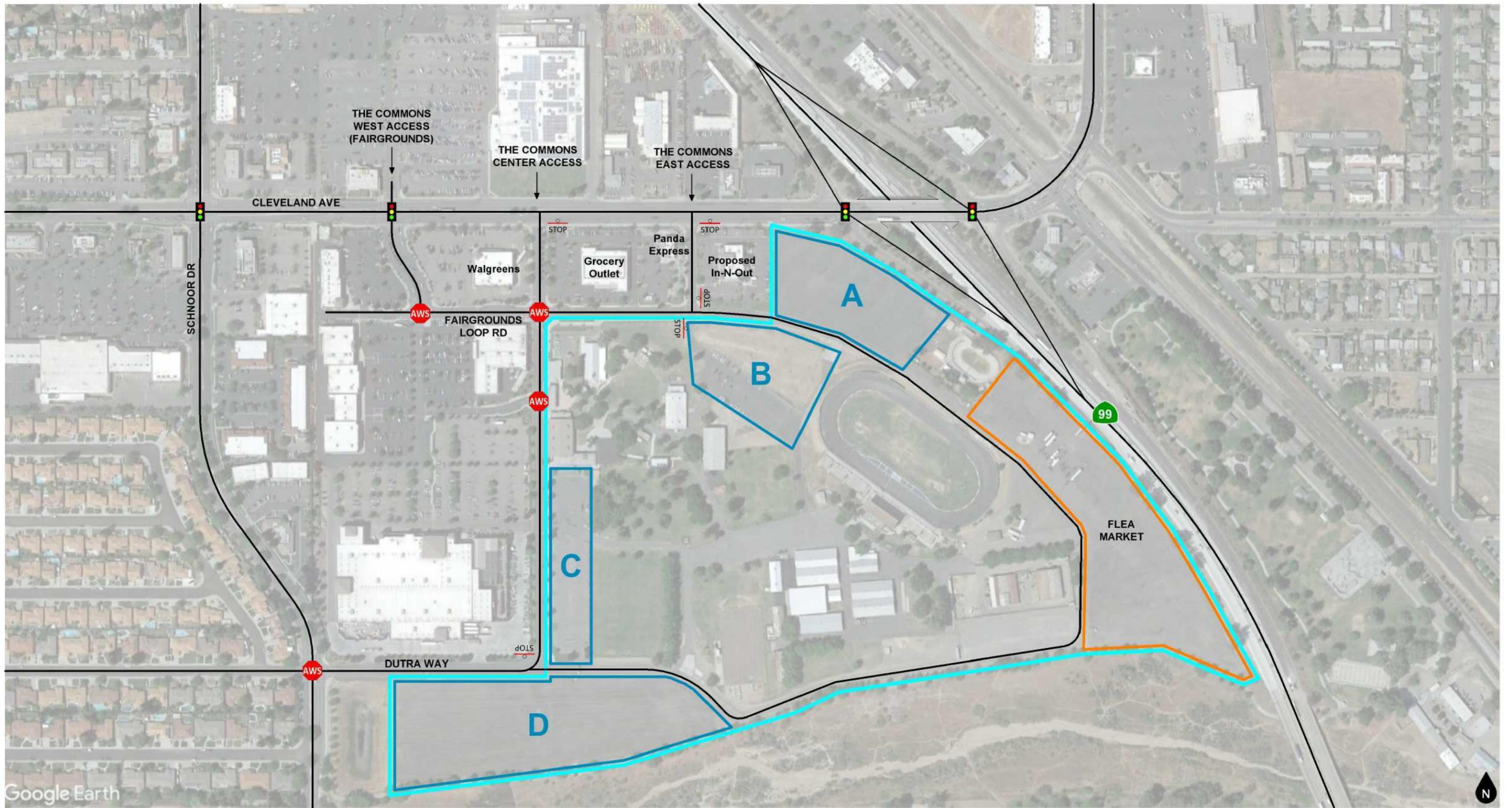
**Table 1  
Project Sunday Trip Generation**

Trip Generation Rates							
No.	Land Use	Rate Code <sup>1</sup>	Units <sup>2</sup>	Sunday Mid-Day Peak Hour			Sunday Daily
				% In	% Out	Total	
1	High-Turnover (Sit-Down) Restaurant	ITE 932	TSF	50%	50%	19.40	142.64
2	In-N-Out Burger w/ Drive-Thru	Survey <sup>3</sup>	TSF	51%	49%	69.04	601.00

Trips Generated							
No.	Land Use	Quantity <sup>2</sup>	Sunday Mid-Day Peak Hour			Sunday Daily	
			In	Out	Total		
1	<u>Previous Entitled Use</u>						
	High-Turnover (Sit-Down) Restaurant	6.671 TSF	65	65	130	952	
	Internal Capture During Flea Market <sup>6</sup>	15% <sup>6</sup>	-10	-10	-20	-143	
	Pass-By Trips <sup>4</sup>	40% <sup>5</sup>	-22	-22	-44	-324	
	Subtotal Net Trips		33	33	66	485	
Total Previous Entitled Use Gross Trips		6.671 TSF	65	65	130	952	
Internal & Pass-By Adjustments			-32	-32	-64	-467	
<b>Total Previous Entitled Use Net Trips with Pass-By Trips</b>			<b>33</b>	<b>33</b>	<b>66</b>	<b>485</b>	
2	<u>Proposed Use</u>						
	In-N-Out Burger w/ Drive-Thru	3.879 TSF	136	132	268	2,331	
	Internal Capture During Flea Market <sup>6</sup>	15% <sup>6</sup>	-20	-20	-40	-350	
	Pass-By Trips <sup>4</sup>	45% <sup>5</sup>	-52	-50	-102	-891	
	Subtotal Net Trips		64	62	126	1,090	
Total Proposed Use Gross Trips		3.879 TSF	136	132	268	2,331	
Internal & Pass-By Adjustments			-72	-70	-142	-1,241	
<b>Total Proposed Use Net Trips with Trip Reduction</b>			<b>64</b>	<b>62</b>	<b>126</b>	<b>1,090</b>	
Project Net Gross Trip Difference without Trip Reduction			+71	+67	+138	+1,379	
<b>Overall Project Net Trip Difference</b>			<b>+31</b>	<b>+29</b>	<b>+60</b>	<b>+605</b>	

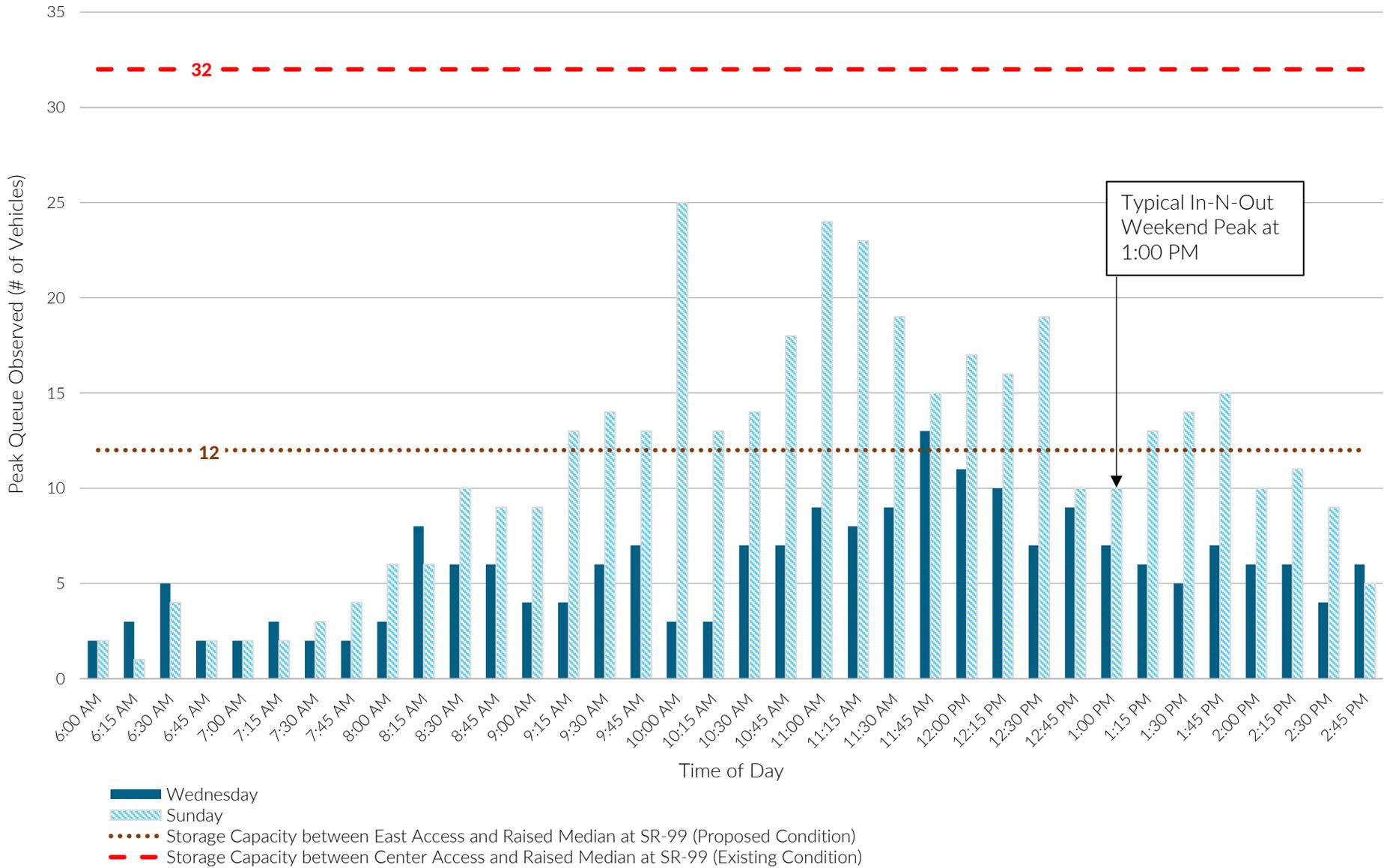
Notes:

- (1) ITE = Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021); ### = Land Use Code. Sunday mid-day peak hour trip generation rate for ITE 932 is based on time-of-day distributions provided in the ITE *Trip Generation Manual* appendices indicating that approximately 13.6 percent of the daily trips occur between 12:00 PM - 1:00 PM.
- (2) TSF = Thousand Square Feet
- (3) Based on trip generation surveys of existing In-N-Out restaurants throughout California (see *In-N-Out at 1830 Cleveland Avenue Project Focused Traffic Analysis*, Ganddini Group Inc., July 2021). Sunday trip rates are assumed to be same as Saturday.
- (4) Pass-By Trips: ITE *Trip Generation Handbook* (3rd Edition, 2017).  
Table E.30, Land Use Code 932 - High-Turnover (Sit-Down) Restaurant, Average Pass-By Trip Percentage = 43%.  
Table E.32, Land Use Code 934 - Fast-Food Restaurant with Drive-Through Window, Average Pass-By Trip Percentage = 50%.
- (5) A more conservative (lower) pass-by trip reduction percentage is utilized in the trip generation calculations.
- (6) A 15% internal capture during Sunday's Flea Market is assumed because some customers will walk over from the Flea Market and shopping center. The vehicles for these walk-in customers will also remain parked at the Flea Market/shopping center parking lots and thus will not generate new vehicle trips.



- Legend**
- Fairgrounds Boundary
  - Fairgrounds Parking Lots
  - Flea Market
  - Traffic Signal
  - All Way Stop
  - Stop Sign

**Figure 1**  
**Existing Circulation Map**

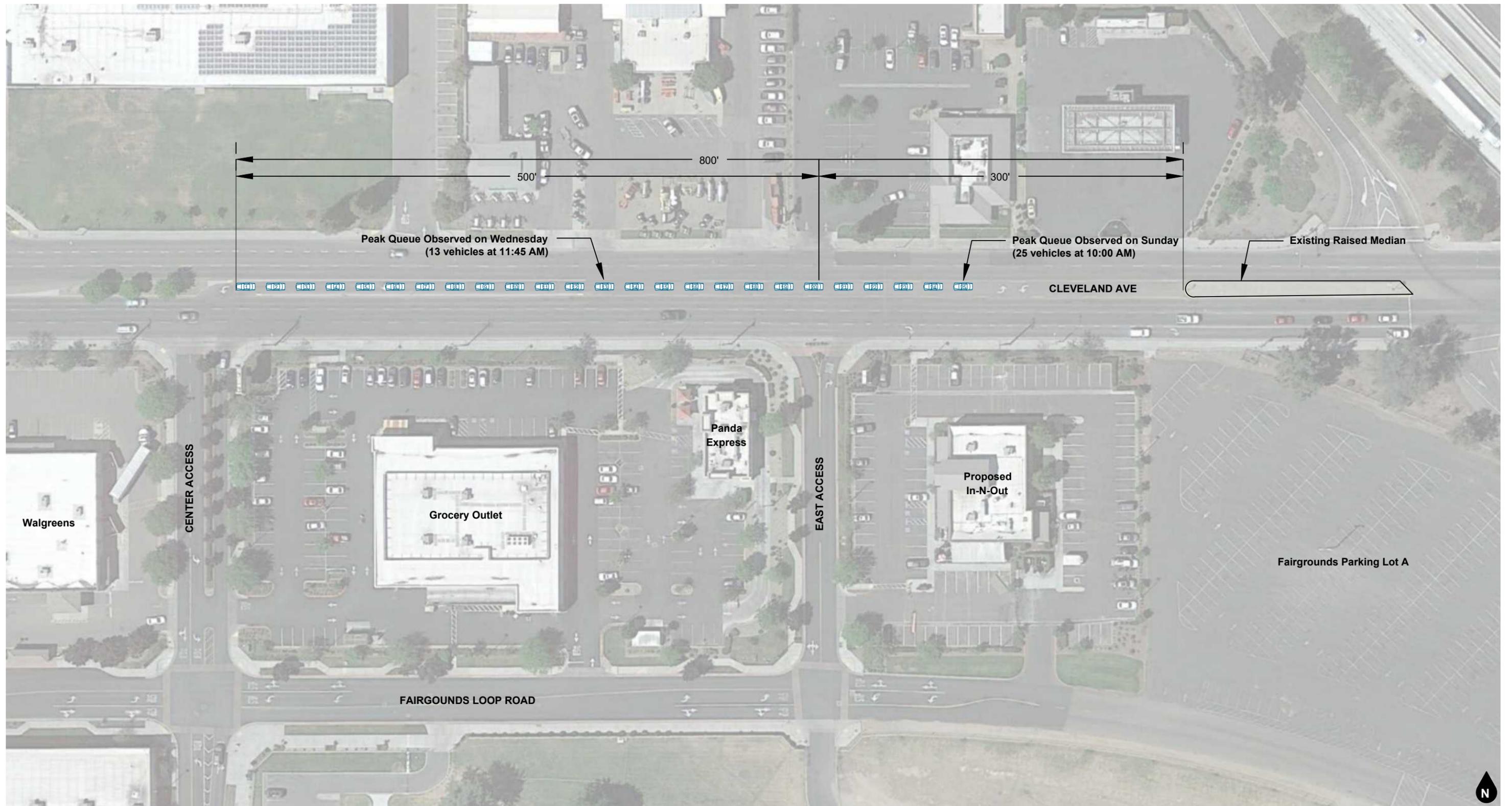


Typical In-N-Out Weekend Peak at 1:00 PM

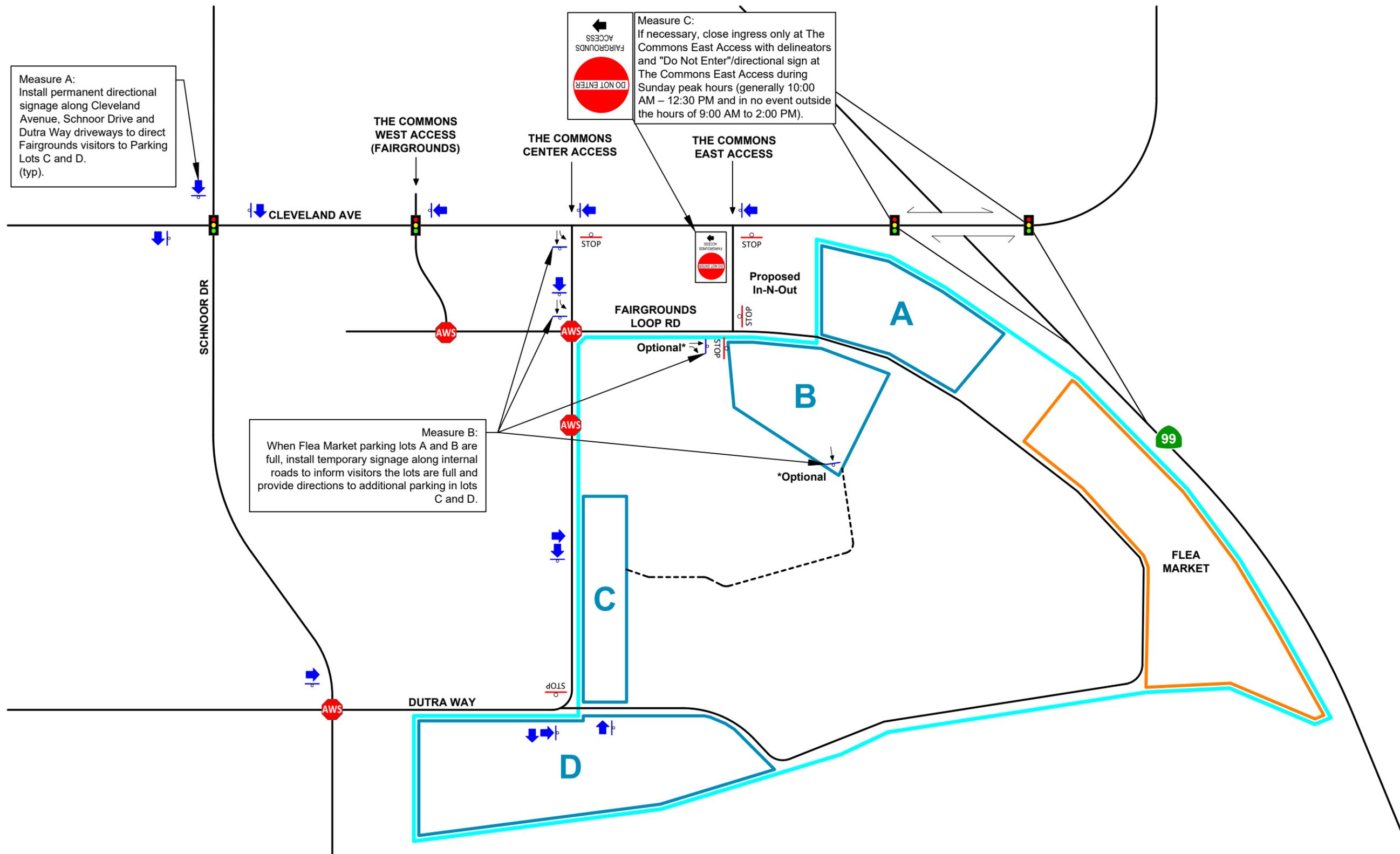
**Figure 2**  
Average Westbound Left Turn Queues on Cleveland Avenue

Madera Flea Market and In-N-Out  
Traffic Management Plan  
19379





**Figure 3**  
Existing Peak Queues Observed During Flea Market Conditions (6 AM - 3 PM)



**Legend**

- Traffic Signal
- All Way Stop (AWS)
- Stop Sign
- Permanent Directional Sign
- Temporary Directional Sign

**Example Permanent Directional Signs:**

- FAIRGROUNDS PARKING (up arrow)
- FAIRGROUNDS PARKING (right arrow)

**Example Temporary Directional Signs:**

- FLEA MARKET LOT FULL (up arrow)
- ADD'L PARKING (up arrow)
- FLEA MARKET LOT FULL (up arrow)
- ADD'L PARKING (up arrow)
- FLEA MARKET (up arrow)
- ADD'L PARKING (up arrow)

**Figure 4**  
**Recommended Traffic Management Plan Measures**



## **APPENDIX A**

### **EXISTING INTERSECTION VOLUME AND QUEUING COUNT WORKSHEETS**

Queue WB left turn  
Madera  
The Commons Center Access and C  
2/16/2022 Wednesday

Time	Peak Queue Length
6:00 AM	2
6:15 AM	3
6:30 AM	5
6:45 AM	2
7:00 AM	2
7:15 AM	3
7:30 AM	2
7:45 AM	2
8:00 AM	3
8:15 AM	8
8:30 AM	6
8:45 AM	6
9:00 AM	4
9:15 AM	4
9:30 AM	6
9:45 AM	7
10:00 AM	3
10:15 AM	3
10:30 AM	7
10:45 AM	7
11:00 AM	9
11:15 AM	8
11:30 AM	9
11:45 AM	13
12:00 PM	11
12:15 PM	10
12:30 PM	7
12:45 PM	9
1:00 PM	7
1:15 PM	6
1:30 PM	5
1:45 PM	7
2:00 PM	6
2:15 PM	6
2:30 PM	4
2:45 PM	6

Prepared by AimTD LLC  
[cs@aimtd.com](mailto:cs@aimtd.com)  
714.253.7888

Queue WB left turn  
Madera  
The Commons Center Access and C  
2/13/2022 Saturday

Time	Peak Queue Length
6:00 AM	2
6:15 AM	1
6:30 AM	4
6:45 AM	2
7:00 AM	2
7:15 AM	2
7:30 AM	3
7:45 AM	4
8:00 AM	6
8:15 AM	6
8:30 AM	10
8:45 AM	9
9:00 AM	9
9:15 AM	13
9:30 AM	14
9:45 AM	13
10:00 AM	25
10:15 AM	13
10:30 AM	14
10:45 AM	18
11:00 AM	24
11:15 AM	23
11:30 AM	19
11:45 AM	15
12:00 PM	17
12:15 PM	16
12:30 PM	19
12:45 PM	10
1:00 PM	10
1:15 PM	13
1:30 PM	14
1:45 PM	15
2:00 PM	10
2:15 PM	11
2:30 PM	9
2:45 PM	5

Prepared by AimTD LLC  
[cs@aimtd.com](mailto:cs@aimtd.com)  
714.253.7888

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

**DATE:**  
Sun, Feb 13, 22

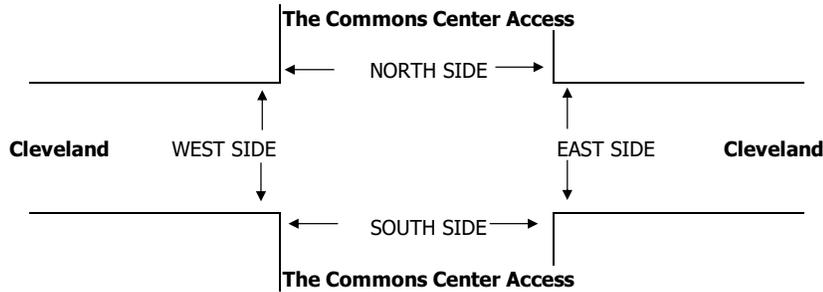
**LOCATION:** Madera  
**NORTH & SOUTH:** The Commons Center Access  
**EAST & WEST:** Cleveland

**PROJECT #:** SC3291  
**LOCATION #:** 1  
**CONTROL:** STOP N

NOTES:	AM		▲	
	PM		N	
	MD	◀ W	S	E ▶
	OTHER		▼	

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	The Commons Center Access			The Commons Center Access			Cleveland			Cleveland			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	X	X	1	X	X	X	X	3	0	1	3	X	

<b>MD</b>	10:00 AM	0	0	40	0	0	0	0	166	10	121	216	0	553
	10:15 AM	0	0	60	0	0	0	0	182	10	117	185	0	554
	10:30 AM	0	0	51	0	0	0	0	199	12	115	195	0	572
	10:45 AM	0	0	53	0	0	0	0	178	20	122	237	0	610
	11:00 AM	0	0	60	0	0	0	0	203	14	91	265	0	633
	11:15 AM	0	0	64	0	0	0	0	195	17	90	279	0	645
	11:30 AM	0	0	84	0	0	0	0	238	9	99	210	0	640
	11:45 AM	0	0	83	0	0	0	0	216	13	111	284	0	707
	12:00 PM	0	0	74	0	0	0	0	239	8	105	223	0	649
	12:15 PM	0	0	85	0	0	0	0	223	8	98	234	0	648
	12:30 PM	0	0	105	0	0	0	0	237	13	89	274	0	718
	12:45 PM	0	0	89	0	0	0	0	231	11	90	230	0	651
	1:00 PM	0	0	97	0	0	0	0	229	16	83	238	0	663
	1:15 PM	0	0	79	0	0	0	0	238	6	83	245	0	651
	1:30 PM	0	0	94	0	0	0	0	233	15	92	256	0	690
	1:45 PM	0	0	81	0	0	0	0	226	15	80	241	0	643
	VOLUMES	0	0	1,199	0	0	0	0	3,433	197	1,586	3,812	0	10,227
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	95%	5%	29%	71%	0%	
	APP/DEPART	1,199	/	0	0	/	1,755	3,630	/	4,660	5,398	/	3,812	0
	BEGIN PEAK HR	11:45 AM												
VOLUMES	0	0	347	0	0	0	0	915	42	403	1,015	0	2,722	
APPROACH %	0%	0%	100%	0%	0%	0%	0%	96%	4%	28%	72%	0%		
PEAK HR FACTOR	0.826			0.000			0.957			0.897			0.948	
APP/DEPART	347	/	0	0	/	432	957	/	1,275	1,418	/	1,015	0	



# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

**DATE:**  
Sun, Feb 13, 22

**LOCATION:**  
NORTH & SOUTH:  
EAST & WEST:

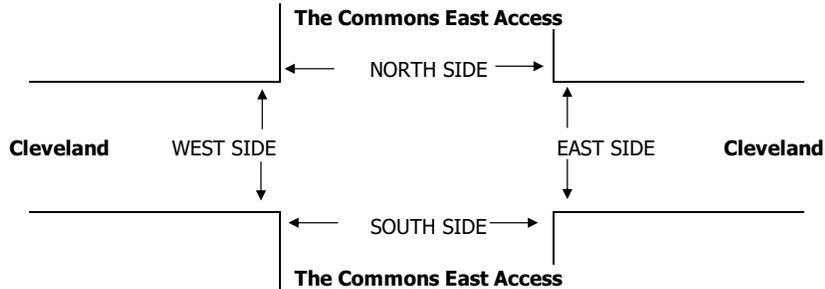
Madera  
The Commons East Access  
Cleveland

**PROJECT #:** SC3291  
**LOCATION #:** 2  
**CONTROL:** STOP N/S

NOTES:  <p style="text-align: center; color: blue;">Queue EB/WB PM</p>	AM		▲	
	PM		N	
	MD	◀ W	S	E ▶
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	The Commons Center Access			The Commons Center Access			Cleveland			Cleveland			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	X	X	1	0	X	0	0	3	0	0	2	0	

MD	10:00 AM	0	0	57	5	0	10	8	191	9	2	339	9	630
	10:15 AM	0	0	57	2	0	12	3	221	13	8	273	6	595
	10:30 AM	0	0	79	5	0	5	4	242	13	16	312	5	681
	10:45 AM	0	0	68	8	0	6	2	225	6	15	348	8	686
	11:00 AM	0	0	65	3	0	7	2	255	6	10	350	12	710
	11:15 AM	0	0	61	6	0	14	6	244	19	15	342	7	714
	11:30 AM	0	0	46	5	0	8	6	292	14	13	292	8	684
	11:45 AM	0	0	51	2	0	9	5	289	15	12	374	6	763
	12:00 PM	0	0	61	4	0	11	9	306	10	3	323	6	733
	12:15 PM	0	0	35	6	0	7	6	292	4	8	329	2	689
	12:30 PM	0	0	29	1	0	9	2	338	9	2	351	6	747
	12:45 PM	0	0	37	1	0	10	6	295	5	6	305	8	673
	1:00 PM	0	0	50	5	0	10	6	336	7	0	308	0	722
	1:15 PM	0	0	45	0	0	7	3	298	13	7	332	3	708
	1:30 PM	0	0	41	4	0	7	2	327	4	2	335	6	728
1:45 PM	0	0	43	4	0	8	2	291	5	6	305	4	668	
VOLUMES	0	0	825	61	0	140	72	4,442	152	125	5,218	96	11,131	
APPROACH %	0%	0%	100%	30%	0%	70%	2%	95%	3%	2%	96%	2%		
APP/DEPART	825	/	167	201	/	271	4,666	/	5,334	5,439	/	5,359	0	
BEGIN PEAK HR	11:45 AM													
VOLUMES	0	0	176	13	0	36	22	1,225	38	25	1,377	20	2,932	
APPROACH %	0%	0%	100%	27%	0%	73%	2%	95%	3%	2%	97%	1%		
PEAK HR FACTOR	0.721			0.817			0.920			0.907			0.961	
APP/DEPART	176	/	40	49	/	63	1,285	/	1,414	1,422	/	1,415	0	





# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

**DATE:**  
Sun, Feb 13, 22

**LOCATION:**  
NORTH & SOUTH:  
EAST & WEST:

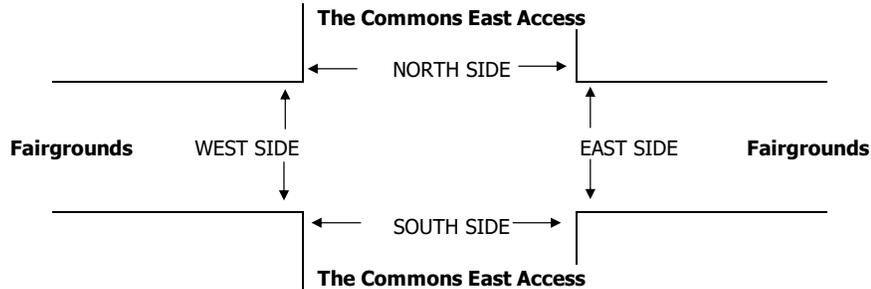
Madera  
The Commons East Access  
Fairgrounds

**PROJECT #:** SC3291  
**LOCATION #:** 5  
**CONTROL:** STOP E/W

NOTES:	AM PM	▲ N	▶ E
	◀ W	S	▼
	OTHER		OTHER

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	The Commons Center Access			The Commons Center Access			Cleveland			Cleveland			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	X	X	1	0	X	0	0	3	0	0	2	0	

<b>MD</b>	10:00 AM	13	28	1	5	3	4	5	67	60	1	18	41	246
	10:15 AM	17	21	0	4	3	3	4	75	45	0	22	38	232
	10:30 AM	19	26	2	14	4	8	3	81	28	4	26	44	259
	10:45 AM	19	27	0	17	4	3	8	74	40	5	32	41	270
	11:00 AM	26	34	0	7	2	6	3	56	52	6	32	35	259
	11:15 AM	30	22	1	15	7	11	9	63	45	1	27	36	267
	11:30 AM	36	15	1	16	3	6	4	47	34	8	45	30	245
	11:45 AM	28	16	2	12	3	8	2	67	36	2	42	29	247
	12:00 PM	25	26	1	9	1	7	13	55	36	3	45	38	259
	12:15 PM	37	13	2	9	2	4	6	53	32	1	47	17	223
	12:30 PM	39	6	1	7	1	5	5	44	27	1	45	25	206
	12:45 PM	44	10	2	6	2	5	9	62	29	1	34	22	226
	1:00 PM	33	9	2	4	1	6	3	38	24	0	65	34	219
	1:15 PM	30	16	2	10	0	12	4	42	17	0	53	31	217
	1:30 PM	34	9	2	3	0	3	7	42	21	1	48	28	198
1:45 PM	19	18	0	7	0	7	3	45	13	0	46	32	190	
VOLUMES	449	296	19	145	36	98	88	911	539	34	627	521	3,763	
APPROACH %	59%	39%	2%	52%	13%	35%	6%	59%	35%	3%	53%	44%		
APP/DEPART	764	/	905	279	/	609	1,538	/	1,075	1,182	/	1,174	0	
BEGIN PEAK HR	10:30 AM													
VOLUMES	94	109	3	53	17	28	23	274	165	16	117	156	1,055	
APPROACH %	46%	53%	1%	54%	17%	29%	5%	59%	36%	6%	40%	54%		
PEAK HR FACTOR	0.858			0.742			0.947			0.926			0.977	
APP/DEPART	206	/	288	98	/	198	462	/	330	289	/	239	0	



**APPENDIX B**  
**QUEUING ANALYSIS WORKSHEETS**

Lanes, Volumes, Timings  
 1: The Commons Center Access & Cleveland Ave

04/07/2022



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑		↵
Traffic Volume (vph)	1018	47	476	1130	0	386
Future Volume (vph)	1018	47	476	1130	0	386
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	800		0	0
Storage Lanes		0	1		0	1
Taper Length (ft)			0		25	
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00	1.00
Frt	0.993					0.865
Flt Protected			0.950			
Satd. Flow (prot)	5050	0	1770	3539	0	1611
Flt Permitted			0.950			
Satd. Flow (perm)	5050	0	1770	3539	0	1611
Link Speed (mph)	30			30	25	
Link Distance (ft)	509			1029	345	
Travel Time (s)	11.6			23.4	9.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1072	49	501	1189	0	406
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1121	0	501	1189	0	406
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.4%
ICU Level of Service	B
Analysis Period (min)	15

Queuing and Blocking Report  
Sunday Midday Existing

04/07/2022

Intersection: 1: The Commons Center Access & Cleveland Ave

Movement	EB	EB	EB	WB	NB
Directions Served	T	T	TR	L	R
Maximum Queue (ft)	7	22	22	417	177
Average Queue (ft)	0	1	2	179	65
95th Queue (ft)	4	8	11	323	114
Link Distance (ft)	395	395	395		252
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				800	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Lanes, Volumes, Timings  
 1: The Commons Center Access & Cleveland Ave

04/07/2022



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑		↵
Traffic Volume (vph)	1043	47	488	1130	0	386
Future Volume (vph)	1043	47	488	1130	0	386
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	800		0	0
Storage Lanes		0	1		0	1
Taper Length (ft)			0		25	
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00	1.00
Frt	0.994					0.865
Flt Protected			0.950			
Satd. Flow (prot)	5055	0	1770	3539	0	1611
Flt Permitted			0.950			
Satd. Flow (perm)	5055	0	1770	3539	0	1611
Link Speed (mph)	30			30	25	
Link Distance (ft)	509			1029	345	
Travel Time (s)	11.6			23.4	9.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1098	49	514	1189	0	406
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1147	0	514	1189	0	406
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	61.6% ICU Level of Service B
Analysis Period (min)	15

Queuing and Blocking Report  
Sunday Midday Existing Plus Project (No Left In at East Access)

04/07/2022

Intersection: 1: The Commons Center Access & Cleveland Ave

Movement	EB	EB	EB	WB	NB
Directions Served	T	T	TR	L	R
Maximum Queue (ft)	22	26	25	360	176
Average Queue (ft)	1	1	2	194	77
95th Queue (ft)	6	6	12	320	141
Link Distance (ft)	395	395	395		252
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				800	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Lanes, Volumes, Timings  
 1: The Commons Center Access & Cleveland Ave

04/07/2022



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑		↵
Traffic Volume (vph)	1043	47	243	1156	0	386
Future Volume (vph)	1043	47	243	1156	0	386
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	800		0	0
Storage Lanes		0	1		0	1
Taper Length (ft)			0		25	
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00	1.00
Frt	0.994					0.865
Flt Protected			0.950			
Satd. Flow (prot)	5055	0	1770	3539	0	1611
Flt Permitted			0.950			
Satd. Flow (perm)	5055	0	1770	3539	0	1611
Link Speed (mph)	30			30	25	
Link Distance (ft)	509			529	345	
Travel Time (s)	11.6			12.0	9.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1098	49	256	1217	0	406
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1147	0	256	1217	0	406
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	58.4%
ICU Level of Service	B
Analysis Period (min)	15

## Lanes, Volumes, Timings 2: The Commons East Access & Cleveland Ave

04/07/2022



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑		↵
Traffic Volume (vph)	1363	67	243	1386	0	230
Future Volume (vph)	1363	67	243	1386	0	230
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	300		0	0
Storage Lanes		0	1		0	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00	1.00
Frt	0.993					0.865
Flt Protected			0.950			
Satd. Flow (prot)	5050	0	1770	3539	0	1611
Flt Permitted			0.950			
Satd. Flow (perm)	5050	0	1770	3539	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	529			500	354	
Travel Time (s)	12.0			11.4	8.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1363	67	243	1386	0	230
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1430	0	243	1386	0	230
Enter Blocked Intersection	Yes	No	No	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

### Intersection Summary

Area Type: Other  
 Control Type: Unsignalized  
 Intersection Capacity Utilization 55.4% ICU Level of Service B  
 Analysis Period (min) 15



Queuing and Blocking Report  
 Sunday Midday Existing Plus Project (East Access Open)

04/07/2022

Intersection: 1: The Commons Center Access & Cleveland Ave

Movement	EB	EB	EB	WB	NB
Directions Served	T	T	TR	L	R
Maximum Queue (ft)	7	17	18	172	191
Average Queue (ft)	0	1	2	76	76
95th Queue (ft)	4	11	12	136	138
Link Distance (ft)	395	395	395		252
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (ft)				800	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: The Commons East Access & Cleveland Ave

Movement	EB	EB	EB	WB	WB	WB	NB
Directions Served	T	T	TR	L	T	T	R
Maximum Queue (ft)	7	15	44	256	295	144	194
Average Queue (ft)	0	1	4	136	34	9	77
95th Queue (ft)	6	8	22	275	214	109	148
Link Distance (ft)	473	473	473		428	428	262
Upstream Blk Time (%)					1	0	
Queuing Penalty (veh)					7	1	
Storage Bay Dist (ft)				300			
Storage Blk Time (%)				3	0		
Queuing Penalty (veh)				24	0		

Zone Summary

Zone wide Queuing Penalty: 31
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