Traffic Impact Study
Proposed Operational/Transportation Modifications
California Transfer Station
Chicago, Illinois

Prepared For:

Lakeshore Recycling Systems

LRS

KLOA
Kenig, Lindgren, O'Hara, Aboona, Inc.

September 1, 2022

1. Introduction

This report summarizes the methodologies, results, and findings of a traffic study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) concerning the proposed operational and transportation modifications at the existing Lakeshore Recycling Systems (LRS) California Avenue transfer station located in Chicago, Illinois. The existing transfer station, which has been in operation since 2005, is located on the west side of California Avenue on the north bank of the Chicago Sanitary and Ship Canal. According to LRS officials, the transfer station processes an average of 2,700 tons of municipal solid waste (MSW) and construction and demolition (C & D) debris per day. Currently, all inbound waste/debris is transported to the facility via collection trucks and dump trucks and transported from the facility via transfer trailers and dump trucks. The transfer station currently operates two 10-hour shifts per day.

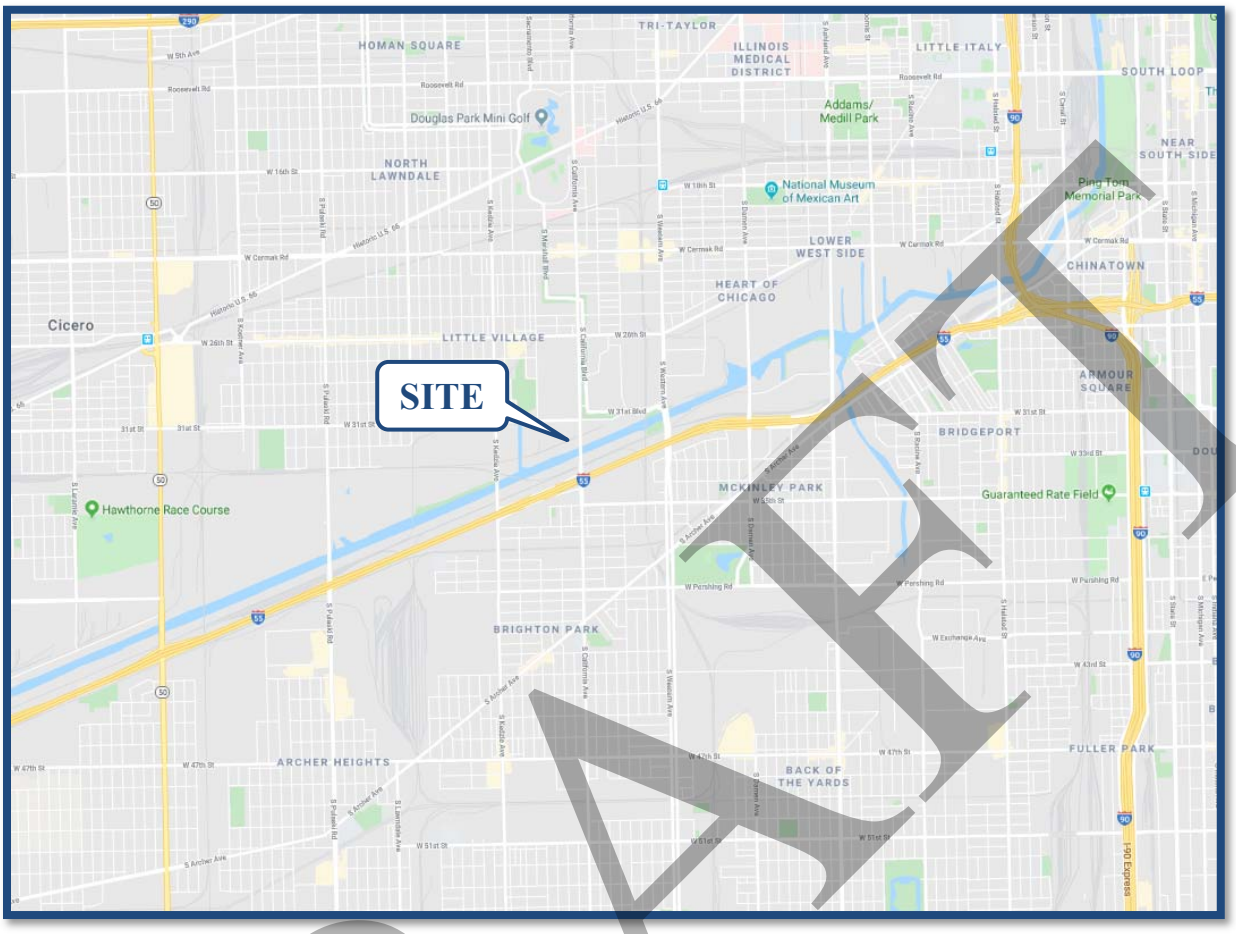
LRS is proposing to modify the operation of the transfer station in order to transport a portion of the MSW from the facility via river barge as opposed to transfer trailer. As proposed, a portion of the MSW is to be baled and wrapped for transport to another permitted MSW transfer station and/or municipal solid waste landfill. The wrapped bales, which are effectively water and airtight, will be temporarily placed on a concrete pad and either (1) loaded onto barges located adjacent to the transfer station for transportation to a permitted transfer station for off-loading or a permitted municipal solid waste landfill or (2) loaded directly on a flatbed trailer for transportation to a permitted municipal solid waste landfill.

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed operational and transportation modifications will have on traffic conditions in the area, and determine if any street or access improvements are necessary to accommodate the proposed operational and transportation modifications.

Figure 1 shows the location of the site in relation to the area street system. **Figure 2** shows an aerial view of the site.

The sections of this report present the following:

- Existing street conditions
- A description of the existing transfer station and proposed operational and transportation modifications
- Vehicle trip generation for the existing transfer station and the proposed operational and transportation modifications
- Future traffic conditions including access to the transfer station
- Traffic analyses for the weekday morning and evening peak hours
- Recommendations with respect to adequacy of the site access and adjacent street system



Site Location **Figure 1**

Aerial View of Site **Figure 2**

Traffic capacity analyses were conducted for the weekday morning and evening peak hours for the following conditions:

1. Existing Condition - Analyzes the capacity of the existing street system using existing peak hour traffic volumes in the surrounding area.

2. Future Condition - Analyzes the capacity of the existing street system based on future projected traffic volumes that include the existing traffic volumes increased by an ambient area growth factor (growth not attributable to any particular development) and the additional traffic, if any, estimated to be generated by the proposed operational and transportation modifications.

2. Existing Conditions

Existing street and traffic conditions within the study area were documented based on field visits and traffic counts. The following provides a summary of the physical characteristics of the streets including geometry and traffic control, public transportation available in the area, and the peak hour vehicle, pedestrian, and bicycle flows along area streets.

Site Location

The existing transfer station, which has been in operation since 2005, is located just west of California Avenue on the north bank of the Chicago Sanitary and Ship Canal. According to LRS officials, the transfer station processes an average of 2,700 tons of MSW and C & D debris per day. The Connelly GPM materials yard is located directly east of the transfer station and shares access to California Avenue with the transfer station. Land uses in the area include industrial, warehouse, distribution, construction, and trucking facilities.

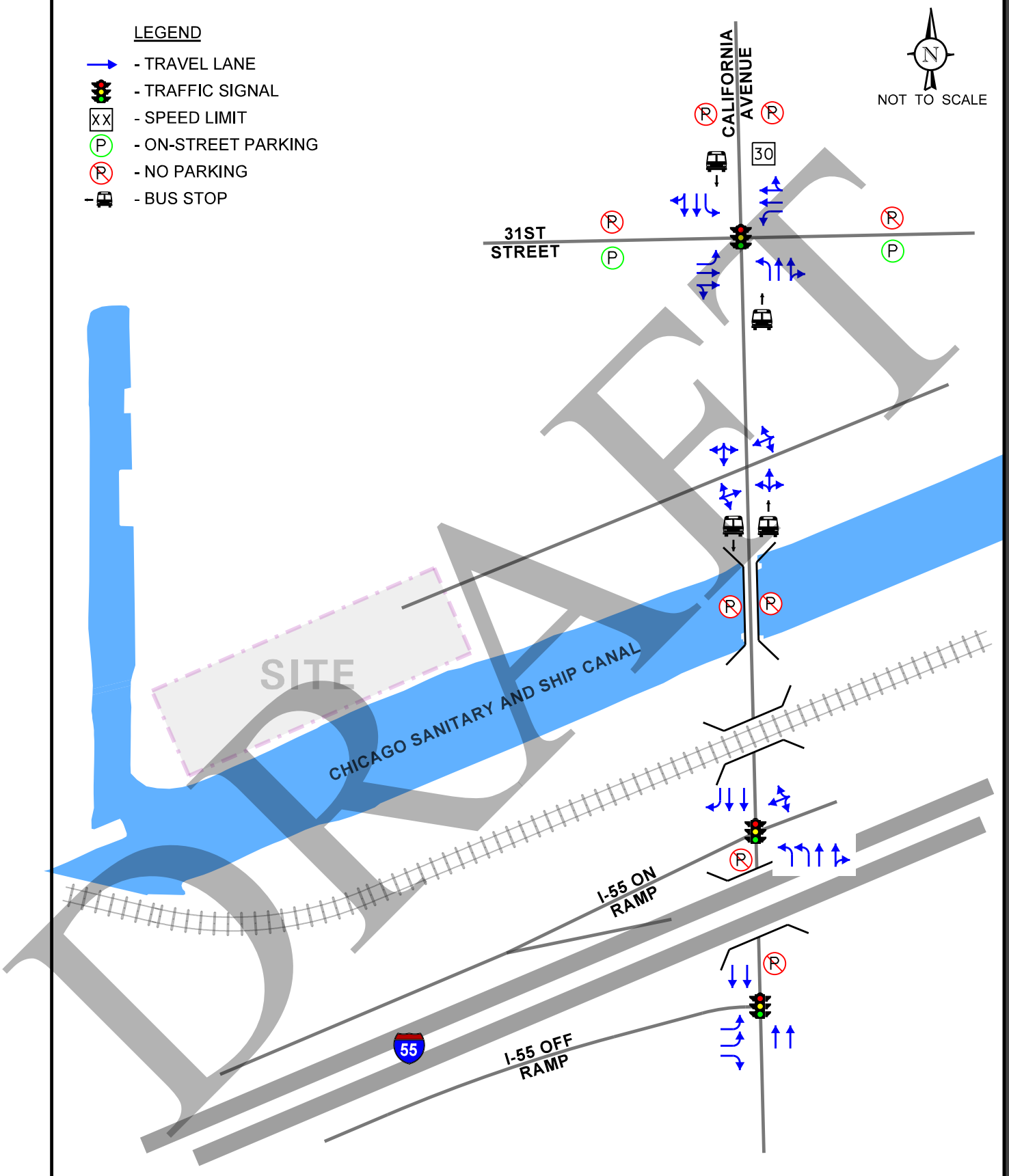
Existing Street System Characteristics

The characteristics of the existing streets within the study area are illustrated in **Figure 3** and described below.

California Avenue is a north-south, major collector street that has a partial interchange with I-55 (to and from the southwest). It generally has one lane in each direction, except within proximity to the I-55 interchange where two lanes in each direction are provided. Parking is generally prohibited on both sides of the street within the vicinity of the site. Separate left-turn lanes are provided on California Avenue at its intersections with the I-55 on-ramp (dual left-turn lanes on the northbound approach) and 31st Street (single left-turn lanes on both approaches). A southbound separate right-turn lane is provided on California Avenue at its intersection with the I-55 on-ramp. California Avenue is under the jurisdiction of the Cook County Department of Transportation and Highways (CCDOTH) between I-55 and 31st Street and the Illinois Department of Transportation (IDOT) south of I-55, has a posted speed limit of 30 mph, and has an Annual Average Daily Traffic (AADT) volume of 18,900 vehicles (IDOT 2018).

31st Street is an east-west, minor arterial street that generally has one lane in each direction with parking permitted on the south side of the street. At its signalized intersection with California Avenue, 31st Street has a separate left-turn lane, a through lane, and a shared through/right-turn lane on both approaches. 31st Street is under the jurisdiction of CDOT and has an AADT volume of 9,850 vehicles (IDOT 2018).

The *I-55 Off-Ramp* has dual left-turn lanes and a separate right-turn lane at its signalized intersection with California Avenue.



California Transfer Station
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Existing Roadway Characteristics

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Public Transportation

The area is served via the following bus routes:

- Route 94 (South California) which has a stop at the site
- Route 60 (Blue Island/26th) which has a local stop at the California Avenue/26th Street intersection
- Route 35 (31st/35th) which has a local stop at the California Avenue/35th Street intersection

In addition, the CTA Rapid Transit Pink Line has a local stop on California Avenue at 21st Street.

Existing Traffic Volumes

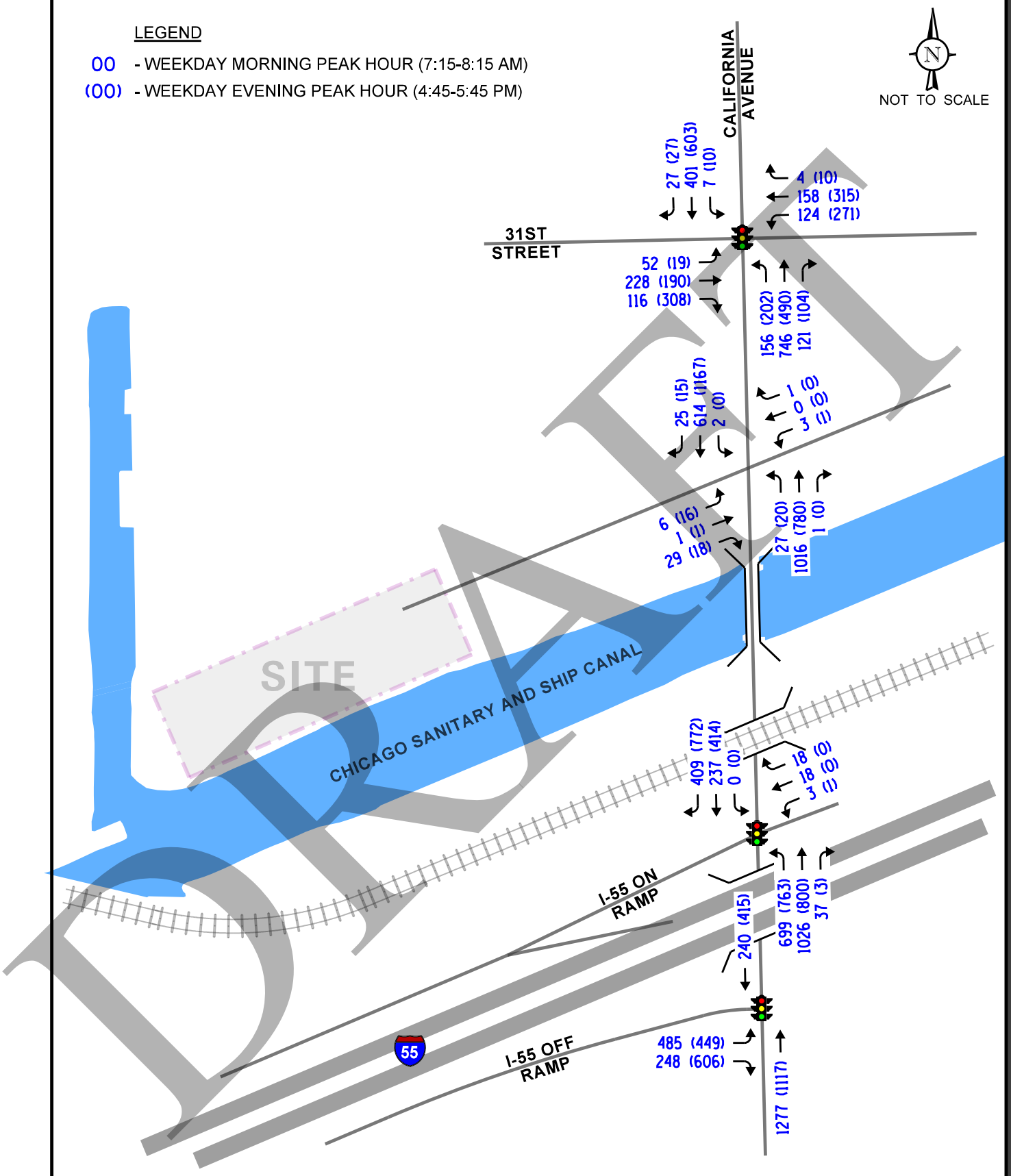
In order to determine the existing transportation conditions in the area, vehicle, pedestrian, and bicycle traffic counts were performed at the following intersections:

- California Avenue with the I-55 ramps
- California Avenue with 31st Street
- California Avenue with the existing site access drive

The traffic counts were performed on Thursday, October 24, 2019 during the weekday morning (6:00 to 9:00 A.M.) and evening (3:00 to 6:00 P.M.) peak periods. The results of the traffic counts show that the weekday morning peak hour occurred from 7:15 A.M. to 8:15 A.M. and the weekday evening peak hour occurred from 4:45 P.M. to 5:45 P.M. It should be noted that the transfer station processed approximately 2,370 tons of MSW and C & D debris the day the traffic counts were performed. **Figure 4** illustrates the existing peak hour traffic volumes. It should be noted that the pedestrian and bicycle activity in the area is very limited. Copies of the traffic count summary sheets are included in the Appendix.

Crash Analysis

KLOA, Inc. obtained accident data for the most recent available past five years (2017 to 2021) for the intersections of California Avenue with the I-55 ramps, California Avenue with the site access drive, and California Avenue with 31st Street. A review of the crash data indicated that there was only one crash at the intersection of California Avenue with the site access drive during the five-year period. The crash data for the remaining intersections are summarized in **Tables 1** through **3.** It should be noted that no fatalities were reported at the studied intersections during the review period.



California Transfer Station
Chicago, Illinois

Existing Traffic Volumes

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Table 1
CALIFORNIA AVENUE WITH I-55 OFF-RAMP - CRASH SUMMARY

Year	Type of Accident Frequency						
	Angle	Object	Rear End	Sideswipe	Turning	Other	Total
2017	0	1	2	0	5	0	8
2018	0	1	0	0	7	0	8
2019	0	1	4	0	5	0	10
2020	0	2	3	0	4	0	9
2021	0	1	0	0	5	0	6
Total	**0**	**6**	**9**	**0**	**26**	**0**	**41**
Average/Year	**0**	**1.2**	**1.8**	**0**	**5.2**	**0**	**8.2**

Table 2
CALIFORNIA AVENUE WITH I-55 ON-RAMP - CRASH SUMMARY

Year	Type of Accident Frequency						
	Angle	Object	Rear End	Sideswipe	Turning	Other	Total
2017	0	0	1	0	3	0	4
2018	0	0	1	0	3	0	4
2019	0	0	3	1	2	0	6
2020	0	0	0	0	2	0	2
2021	1	0	0	1	4	1	7
Total	**1**	**0**	**5**	**2**	**14**	**1**	**23**
Average/Year	**<1.0**	**0**	**1.0**	**<1.0**	**2.8**	**<1.0**	**4.6**

Table 3
CALIFORNIA AVENUE WITH 31ST STREET - CRASH SUMMARY

Year	Type of Accident Frequency						
	Angle	Object	Rear End	Sideswipe	Turning	Other	Total
2017	1	0	3	2	2	0	8
2018	3	2	1	0	3	0	9
2019	1	0	1	4	1	1	8
2020	0	0	0	2	3	1	6
2021	2	0	3	2	4	1	12
Total	**7**	**2**	**8**	**10**	**13**	**3**	**43**
Average/Year	**1.4**	**<1.0**	**1.6**	**2.0**	**2.6**	**<1.0**	**8.6**

3. Traffic Characteristics of the Proposed Modifications

In order to properly evaluate future traffic conditions in the surrounding area, it was necessary to determine the traffic characteristics of the proposed operational and transportation modifications, including the volumes of traffic that it will generate, if any.

Existing Transfer Station

The existing transfer station, which has been in operation since 2005, is located on the west side of California Avenue on the north bank of the Chicago Sanitary and Ship Canal. According to LRS officials, the transfer station processes an average of 2,700 tons of MSW and C & D debris per day. Currently, all inbound waste/debris is transported to the facility via collection trucks and dump trucks and transported from the facility via transfer trailers and dump trucks. The transfer station currently operates two 10-hour shifts per day.

Proposed Operational and Transportation Modifications

LRS is proposing to modify the operation of the transfer station in order to transport a portion of the MSW from the facility via river barge as opposed to transfer trailer. As proposed, a portion of the MSW is to be baled and wrapped for transport to another permitted MSW transfer station and/or municipal solid waste landfill. The wrapped bales, which are effectively water- and airtight, will be temporarily placed on a concrete pad and either (1) loaded onto barges located adjacent to the transfer station for transportation to a permitted transfer station for off-loading or a permitted municipal solid waste landfill or (2) loaded directly on a flatbed trailer for transportation to a permitted municipal solid waste landfill.

Access to the existing transfer station and the Connelly GPM materials yard is provided via one access drive located on the west side of California Avenue at the north end of the site. The access drive is aligned opposite the access drive to an LRS container yard located on the east side of California Avenue. Both access drives provide one inbound lane and one outbound lane.

Existing Traffic Generation by the Transfer Station

The volume of traffic currently generated by the existing operation of the transfer station was provided by the operator and is based on its historical operations. **Table 4** illustrates the average traffic generated by the current transfer station assuming it processes approximately 2,700 tons of waste per day. The table breaks down the traffic by hour of the day and vehicle classification (passenger vehicles, collection [single-unit] trucks, and transfer-trailer trucks). It is important to note that the traffic shown in Table 4 is currently generated by the transfer station and is generally reflected in the existing peak hour traffic volumes.

Anticipated Reduction in Transfer Trailers

According to LRS, a transfer trailer can transport an average of approximately 22 tons of MSW while a barge can transport an average of 1,500 tons of MSW. As such, a single barge can transport the same amount of MSW as approximately 68 transfer trailers. LRS has indicated that the anticipated production rate of baling, wrapping, and loading the MSW will produce one fully loaded barge approximately every 30 hours or 1.5 days. Therefore, the proposed operational and transportation modifications to the transfer station will reduce the number of transfer trailer trips generated by the transfer station by approximately 90 total trips per day (45 inbound trips and 45 outbound trips).

Table 4
EXISTING TRANSFER STATION TRIP GENERATION

Hour	Passenger Vehicles		Single-Unit Trucks		Semi-Trailers		Total	
	In	Out	In	Out	In	Out	In	Out
12:00 AM	0	9	12	12	1	1	13	22
1:00 AM	0	13	9	9	1	1	10	23
2:00 AM	0	8	2	2	5	5	7	15
3:00 AM	0	10	15	15	4	4	19	29
4:00 AM	0	13	9	9	4	4	13	26
5:00 AM	0	5	16	16	9	9	25	30
6:00 AM	5	6	33	33	6	6	44	45
7:00 AM	8	6	43	43	5	5	56	54
8:00 AM	4	2	36	36	17	17	57	55
9:00 AM	4	0	29	29	7	7	40	36
10:00 AM	13	0	41	41	8	8	62	49
11:00 AM	9	0	30	30	8	8	47	38
12:00 PM	4	0	33	33	4	4	41	37
1:00 PM	11	0	44	44	6	6	61	50
2:00 PM	9	0	30	30	11	11	50	41
3:00 PM	13	0	20	20	3	3	36	23
4:00 PM	8	5	21	21	3	3	32	29
5:00 PM	10	8	14	14	2	2	26	24
6:00 PM	13	4	9	9	0	0	22	13
7:00 PM	5	4	10	10	0	0	15	14
8:00 PM	6	13	10	10	1	1	17	24
9:00 PM	6	9	15	15	2	2	23	26
10:00 PM	2	4	11	11	1	1	14	16
11:00 PM	0	11	6	6	1	1	7	18
Total	**130**	**130**	**498**	**498**	**109**	**109**	**737**	**737**

4. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, the traffic estimated to be generated by the proposed operational and transportation modifications, if any, and the traffic estimated to be generated by other planned developments in the nearby area.

Transfer Station Traffic Assignment

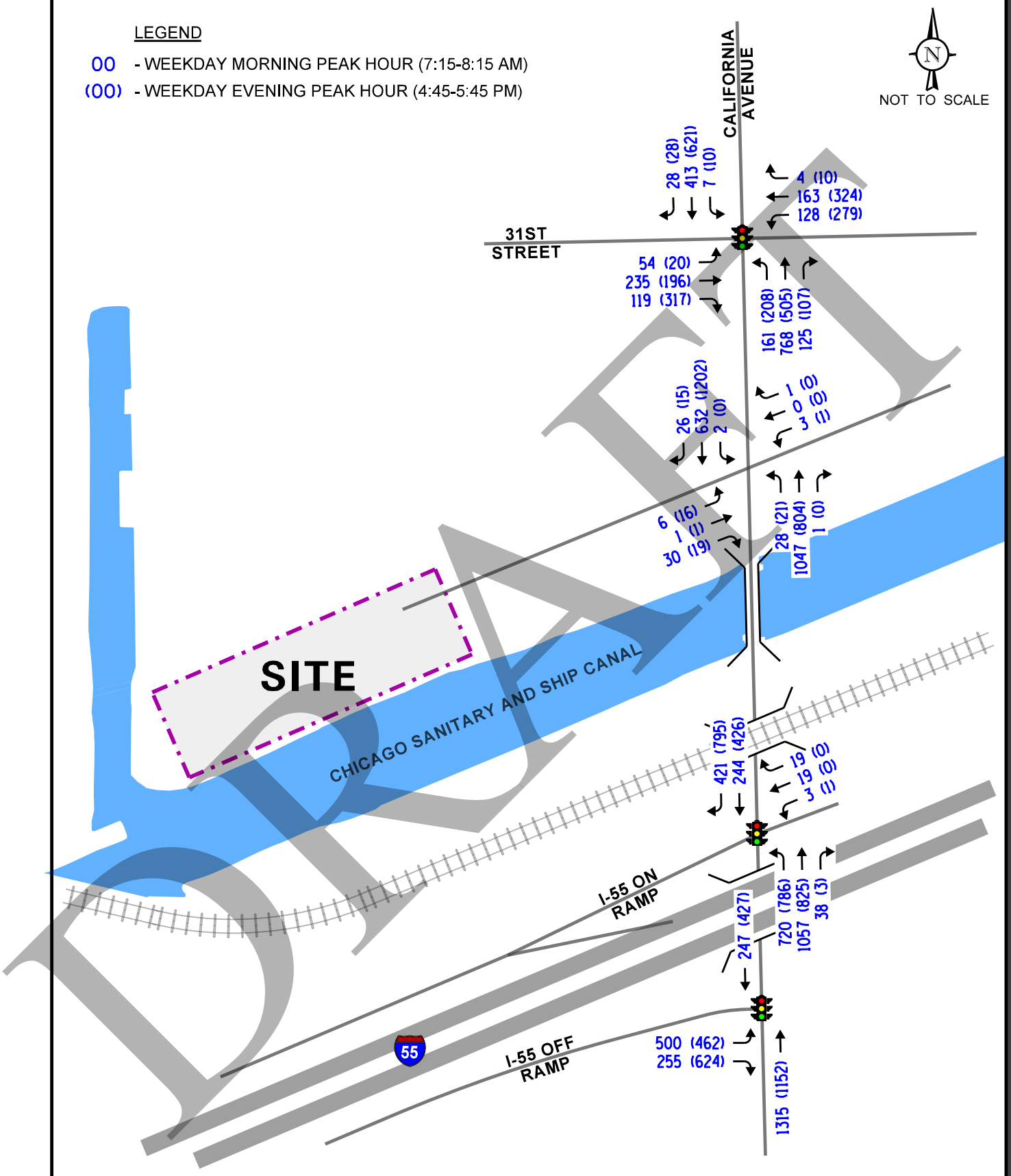
As indicated previously, the proposed operational and transportation modifications to the transfer station will result in the reduction of the number of transfer trailers that will be generated by the transfer station. As such, the traffic currently generated by the transfer station and generally reflected in the existing traffic volumes will be reduced by approximately 90 transfer trailer trips per day. The transfer station processed 2,370 tons of MSW and C & D debris the day the traffic counts were completed. As such, to provide a conservative (worst-case) analysis, the existing peak hour traffic volumes were not reduced to account for the reduction in traffic to be generated by the transfer station with the proposed operational and transportation modifications.

Background Growth

To account for any additional increase in traffic from other developments in the area, an ambient growth factor of 0.5 percent per year was also applied to the study area over a six-year period to represent Year 2025 conditions.

Total Projected Traffic Volumes

Figure 5 illustrates the Year 2025 total projected traffic volumes. It should be noted that the total Year 2025 traffic volumes provide for a worst-case scenario, as they do not include the reduction of traffic anticipated with the proposed operational and transportation modifications.



California Transfer Station
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Year 2025 Total Projected Traffic Volumes

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5. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning and evening peak hours. The analysis includes conducting capacity analyses to determine how well the street system and access drive are projected to operate and whether any street improvements or modifications are required.

Traffic Analyses

Street and adjacent or nearby intersection analyses were performed for the weekday morning and evening peak hours for the existing (Year 2019) and Year 2025 projected traffic volumes.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual* (HCM), 6th Edition and analyzed using Synchro/SimTraffic 11 software. The analysis for the traffic-signal controlled intersections were accomplished using field measured cycle lengths and phasings to determine the average overall vehicle delay and levels of service.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the existing and total projected conditions are presented in **Tables 5** through **8**. A discussion of each intersection follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 5
CAPACITY ANALYSIS RESULTS – CALIFORNIA AVENUE WITH I-55 OFF-RAMP - SIGNALIZED

	Peak Hour	Eastbound		Northbound	Southbound	Overall
		L	R	T	T	
Year 2019 Existing Traffic Volumes	Weekday Morning Peak Hour	C 26.6	A 1.8	C 26.2	A 1.4	C 21.0
		B – 18.2				
	Weekday Evening Peak Hour	D 35.7	B 12.7	B 15.4	D 43.9	C 22.8
		C – 22.5				
Year 2025 Projected Traffic Volumes	Weekday Morning Peak Hour	C 27.6	A 1.9	C 27.9	A 1.4	C 22.1
		B – 18.9				
	Weekday Evening Peak Hour	D 37.3	B 14.6	B 15.8	D 43.9	C 23.7
		C – 24.2				

Letter denotes Level of Service
Delay is measured in seconds.
L – Left Turns
T – Through
R – Right Turns

Table 6
CAPACITY ANALYSIS RESULTS – CALIFORNIA AVENUE WITH I-55 ON-RAMP – SIGNALIZED

	Peak Hour	Westbound	Northbound		Southbound		Overall
		L/T/R	L	T	T	R	
Year 2019 Existing Traffic Volumes	**Weekday Morning Peak Hour**	D 40.2	A 7.6	A 1.1	C 26.1	C 22.3	A 9.6
			A – 3.7		C – 23.7		
	Weekday Evening Peak Hour	D 37.0	C 20.7	A 1.1	B 18.5	F 84.0	C 32.4
			B – 10.7		E – 61.2		
Year 2025 Projected Traffic Volumes	**Weekday Morning Peak Hour**	D 41.2	A 7.8	A 1.1	C 26.2	C 25.8	B 10.2
			A – 3.7		C – 25.9		
	Weekday Evening Peak Hour	D 37.0	C 21.1	A 1.1	B 18.6	F 98.1	D 36.5
			B – 10.9		E – 70.4		

Letter denotes Level of Service
Delay is measured in seconds.
L – Left Turns
T – Through
R – Right Turns

Table 7
CAPACITY ANALYSIS RESULTS – CALIFORNIA AVENUE WITH 31ST STREET - SIGNALIZED

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Year 2019 Existing Traffic Volumes	Weekday Morning Peak Hour	C 29.1	C 33.3	A 3.4	C 24.8	C 23.5	A <1.0	B 13.8	C 27.1	A 5.4	C 22.9	C 33.8	A <1.0	C 24.8
		C – 24.0			C – 23.7			C - 22.5			C - 31.5			
	Weekday Evening Peak Hour	C 25.4	C 28.9	B 11.9	C 32.0	C 24.8	A <1.0	D 42.4	C 20.6	A 5.1	C 22.2	E 55.1	A <1.0	C 30.9
		B – 18.7			C - 27.6			C - 24.1			D - 52.3			
Year 2025 Projected Traffic Volumes	Weekday Morning Peak Hour	C 29.2	C 33.6	A 3.4	C 25.2	C 23.6	A <1.0	B 14.0	C 28.6	A 5.5	C 23.0	C 34.5	A <1.0	C 25.5
		C – 24.2			C - 24.0			C - 23.6			C - 32.1			
	Weekday Evening Peak Hour	C 25.4	C 29.1	B 12.8	C 33.6	C 25.0	A <1.0	D 45.1	C 21.0	A 5.2	C 22.2	E 60.1	A <1.0	C 32.7
		B – 19.3			C – 28.6			C – 25.1			E – 57.0			

Letter denotes Level of Service L – Left Turns R – Right Turns
Delay is measured in seconds. T – Through

Table 8
CAPACITY ANALYSIS RESULTS – CALIFORNIA AVENUE WITH ACCESS DRIVES
UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Existing Conditions				
• Westbound Approach	F	99+	F	99+
• Eastbound Approach	E	44.8	F	99+
• Northbound Left Turn	B	10.8	B	12.6
• Southbound Left Turn	B	14.2	A	--
Year 2025 Projected Traffic Volumes				
• Westbound Approach	F	99+	F	99+
• Eastbound Approach	E	48.6	F	99+
• Northbound Left Turn	B	10.9	B	12.9
• Southbound Left Turn	B	14.5	A	--

LOS = Level of Service
Delay is measured in seconds.

Discussion and Recommendations

The following summarizes how the intersections are projected to operate and identifies any street and traffic control improvements necessary to accommodate the development-generated traffic.

California Avenue with I-55 Off-Ramp

The results of the capacity analyses show that this signalized intersection currently operates at Level of Service (LOS) C during the weekday morning peak hour and LOS B during the evening peak hour. Further, all of the intersection movements operate at a good level of service during both peak hours. It should be noted that the northbound left-turn queue at the California Avenue with I-55 on-ramp intersection often extends past the subject intersection. However, it is important to note that the queue typically does not block the intersection as most motorists will stop and wait south of the subject intersection until the northbound left-turn queue clears. However, this results in additional delay and queueing along the California Avenue northbound inside through lane at the subject intersection.

Assuming the Year 2025 projected traffic volumes, the intersection is projected to continue to operate at LOS C during the weekday morning peak hour and LOS B during the weekday evening peak hour. Further, all of the intersection movements are projected to continue to operate at a good level of service. The proposed operational and transportation modifications are anticipated to have a positive impact on the intersection's operation as the volume of transfer station traffic currently traversing this intersection is anticipated to be reduced. As such, the intersection has sufficient reserve capacity to accommodate the traffic generated by the transfer station and no street improvements and/or traffic control modifications are required.

California Avenue with I-55 On-Ramp

The results of the capacity analyses show that this signalized intersection currently operates at LOS B during the weekday morning peak hour and LOS C during the weekday evening peak hour. Further, all of the intersection movements operate at a good level of service during both peak hours, except the southbound right-turn movement. During the evening peak hour, the southbound right-turn movement is operating at LOS F. Further, as discussed above, the northbound left-turn queue often extends through the downstream intersection.

Assuming the Year 2025 projected traffic volumes, the intersection is projected to operate at LOS B during the weekday morning peak hour and on the threshold between LOS C/D during the weekday evening peak hour. Further, all of the intersection movements are projected to continue to operate at a good level of service, except the southbound right-turn movement which is projected to continue to operate at LOS F during the evening peak hour. The proposed operational and transportation modifications are anticipated to have a positive impact on the intersection's operation as the volume of transfer station traffic currently traversing this intersection is anticipated to be reduced. As such, the intersection has sufficient reserve capacity to accommodate the traffic generated by the transfer station and no street improvements and/or traffic control modifications are required.

California Avenue with 31st Street

The results of the capacity analyses show that this signalized intersection currently operates at LOS C during the weekday morning and evening peak hours. Further, all of the intersection movements operate at a good level of service during both peak hours, except the southbound through movement. During the evening peak hour, the southbound through movement is currently operating at LOS E.

Assuming the Year 2025 projected traffic volumes, the intersection is projected to continue to operate at LOS C during the weekday morning and evening peak hours. Further, all of the intersection movements are projected to continue to operate at a good level of service, except the southbound through movement which is projected to continue to operate at LOS E during the evening peak hour. The proposed operational and transportation modifications are anticipated to have no impact on the intersection's operation as the volume of transfer station traffic traversing this intersection is anticipated to be similar to existing conditions. As such, the intersection has sufficient reserve capacity to accommodate the traffic generated by the transfer station and no street improvements and/or traffic control modifications are required.

California Avenue with Site Access Drive

Access to the existing transfer station and the Connelly GPM materials yard is provided via one access drive located on the west side of California Avenue at the north end of the site. The access drive is aligned opposite the access drive to an LRS container yard located on the east side of California Avenue. Both access drives provide one inbound lane and one outbound lane.

The results of the capacity analyses show that the two access drives operate at LOS E or F during the weekday morning and evening peak hours. This is due to the higher traffic volumes along California Avenue and the reduced number of gaps in the traffic stream. This traffic is able to exit onto California Avenue, but experiences additional delay during the morning and evening peak periods. Assuming the Year 2025 projected traffic volumes, the access drives are projected to continue to operate at LOS E or F. It should be noted that the inbound left-turn movements to the access drives are currently operating and projected to operate at a good level of service. The proposed operational and transportation modifications are anticipated to have a positive impact on the intersection's operation, as the volume of transfer station traffic currently traversing this intersection is anticipated to be reduced.

6. Conclusion

Based on the preceding analyses and recommendations, the following conclusions have been made:

- LRS is proposing to modify the operations of the transfer station in order to transport a portion of the MSW from the facility via river barge as opposed to transfer trailer. As proposed, a portion of the MSW is to be baled and wrapped and will either be (1) loaded onto barges located adjacent to the transfer station for transportation to a permitted transfer station for off-loading or a permitted municipal solid waste landfill or (2) loaded directly on a flatbed trailer for transportation to a permitted municipal solid waste landfill.

- A transfer trailer can transport an average of approximately 22 tons of MSW while a barge can transport an average of 1,500 tons of MSW. As such, a single barge can transport the same amount of MSW as approximately 68 transfer trailers. Based on the anticipated production rate of baling, wrapping, and loading, the proposed operational and transportation modifications will reduce the number of transfer trailer trips generated by the transfer station by approximately 90 total trips per day (45 inbound trips and 45 outbound trips).

- Access to the existing transfer station and the Connelly GPM materials yard is provided via one access drive located on the west side of California Avenue at the north end of the site. The access drive is aligned opposite the access drive to an LRS container yard located on the east side of California Avenue. Both access drives provide one inbound lane and one outbound lane.

- The results of the capacity analyses have shown that the street system generally has sufficient reserve capacity to accommodate the existing traffic generated by the proposed transfer station. The proposed operational and transportation modifications are anticipated to have a similar impact or positive impact on the operation of the area intersections as the volume of transfer station traffic traversing the area intersections is anticipated to be similar to or less than existing conditions.

Appendix

Traffic Count Summary Sheets
Level of Service Criteria
Capacity Analysis Summary Sheets

Traffic Count Summary Sheets

Kenig Lindgren O'Hara Aboona, Inc.
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Rosemont, Illinois, United States 60018
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Count Name: California Avenue with I-55 On Ramp
Site Code:
Start Date: 10/24/2019

Turning Movement Data

Start Time	I-55 On Ramp Eastbound						Access Drive Westbound						California Avenue Northbound						California Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	0	0	0	0	0	0	1	4	2	0	7	0	225	157	7	0	389	0	0	31	97	0	128	524
6:15 AM	0	0	0	0	0	0	0	2	5	4	0	11	0	186	211	5	0	402	0	0	36	69	0	105	518
6:30 AM	0	0	0	0	0	0	0	0	4	0	0	4	0	162	229	8	0	399	0	0	46	60	0	106	509
6:45 AM	0	0	0	0	0	0	0	1	3	2	0	6	0	150	231	8	0	389	0	0	39	61	0	100	495
Hourly Total	0	0	0	0	0	0	0	4	16	8	0	28	0	723	828	28	0	1579	0	0	152	287	0	439	2046
7:00 AM	0	1	0	0	0	1	0	1	3	7	0	11	0	174	216	7	0	397	0	0	39	136	0	175	584
7:15 AM	0	0	0	0	0	0	0	0	6	3	0	9	0	179	246	10	0	435	0	0	48	111	0	159	603
7:30 AM	0	0	0	0	0	0	0	0	5	5	1	10	0	174	270	9	0	453	0	0	56	117	0	173	636
7:45 AM	0	0	0	0	0	0	0	2	3	3	0	8	0	177	239	9	0	425	0	0	58	80	0	138	571
Hourly Total	0	1	0	0	0	1	0	3	17	18	1	38	0	704	971	35	0	1710	0	0	201	444	0	645	2394
8:00 AM	0	0	0	1	0	1	0	1	4	7	0	12	0	169	271	9	0	449	0	0	66	101	0	167	629
8:15 AM	0	0	0	0	0	0	0	1	0	7	0	8	0	152	235	11	0	398	0	0	38	76	0	114	520
8:30 AM	0	0	0	0	0	0	0	0	0	3	0	3	0	158	234	11	0	403	0	0	46	77	0	123	529
8:45 AM	0	0	0	0	0	0	0	0	5	0	4	5	0	113	206	7	0	326	0	0	59	63	0	122	453
Hourly Total	0	0	0	1	0	1	0	2	9	17	4	28	0	592	946	38	0	1576	0	0	209	317	0	526	2131
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	0	0	0	0	0	0	2	2	0	0	4	0	167	158	1	0	326	0	1	93	212	0	306	636
3:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	152	166	2	0	320	1	0	106	179	0	286	608
3:30 PM	0	0	0	0	0	0	0	1	3	2	1	6	0	194	183	2	0	379	0	0	95	200	0	295	680
3:45 PM	0	0	0	0	0	0	0	0	0	2	1	2	0	204	159	1	0	364	0	0	97	175	0	272	638
Hourly Total	0	0	0	0	0	0	0	3	5	6	2	14	0	717	666	6	0	1389	1	1	391	766	0	1159	2562
4:00 PM	0	0	0	0	0	0	0	0	1	2	2	3	0	224	147	2	0	373	0	0	104	183	0	287	663
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	177	156	0	0	333	0	0	106	179	0	285	619
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	172	176	0	0	348	0	0	106	182	0	288	636
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	174	197	2	0	373	0	0	95	212	0	307	680
Hourly Total	0	0	0	0	0	0	0	0	1	3	2	4	0	747	676	4	0	1427	0	0	411	756	0	1167	2598
5:00 PM	0	0	0	0	1	0	0	1	0	0	0	1	0	201	155	1	0	357	0	0	76	187	0	263	621
5:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	216	220	0	0	436	0	0	113	202	0	315	751
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	172	211	0	0	383	0	0	108	171	0	279	662
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	153	182	0	0	335	0	0	108	111	0	219	554
Hourly Total	0	0	0	0	3	0	0	1	0	0	2	1	0	742	768	1	0	1511	0	0	405	671	0	1076	2588
Grand Total	0	1	0	1	3	2	0	13	48	52	11	113	0	4225	4855	112	0	9192	1	1	1769	3241	0	5012	14319
Approach %	0.0	50.0	0.0	50.0	-	-	0.0	11.5	42.5	46.0	-	-	0.0	46.0	52.8	1.2	-	-	0.0	0.0	35.3	64.7	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	0.3	0.4	-	0.8	0.0	29.5	33.9	0.8	-	64.2	0.0	0.0	12.4	22.6	-	35.0	-
Lights	0	1	0	1	-	2	0	9	15	20	-	44	0	3678	4474	36	-	8188	1	1	1641	2966	-	4609	12843

% Lights	-	100.0	-	100.0	-	100.0	-	69.2	31.3	38.5	-	38.9	-	87.1	92.2	32.1	-	89.1	100.0	100.0	92.8	91.5	-	92.0	89.7
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	5	40	0	-	45	0	0	35	3	-	38	83
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.1	0.8	0.0	-	0.5	0.0	0.0	2.0	0.1	-	0.8	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	2	5	14	-	21	0	227	208	37	-	472	0	0	69	141	-	210	703
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	15.4	10.4	26.9	-	18.6	-	5.4	4.3	33.0	-	5.1	0.0	0.0	3.9	4.4	-	4.2	4.9
Articulated Trucks	0	0	0	0	-	0	0	2	28	18	-	48	0	315	123	38	-	476	0	0	20	131	-	151	675
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	15.4	58.3	34.6	-	42.5	-	7.5	2.5	33.9	-	5.2	0.0	0.0	1.1	4.0	-	3.0	4.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	10	1	-	11	0	0	4	0	-	4	15
% Bicycles on Road	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.2	0.9	-	0.1	0.0	0.0	0.2	0.0	-	0.1	0.1
Pedestrians	-	-	-	-	3	-	-	-	-	-	11	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: California Avenue with I-55 On Ramp
Site Code:
Start Date: 10/24/2019

Turning Movement Peak Hour Data (7:15 AM)

Start Time	I-55 On Ramp Eastbound						Access Drive Westbound						California Avenue Northbound						California Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	0	0	0	0	0	0	0	6	3	0	9	0	179	246	10	0	435	0	0	48	111	0	159	603
7:30 AM	0	0	0	0	0	0	0	0	5	5	1	10	0	174	270	9	0	453	0	0	56	117	0	173	636
7:45 AM	0	0	0	0	0	0	0	2	3	3	0	8	0	177	239	9	0	425	0	0	58	80	0	138	571
8:00 AM	0	0	0	1	0	1	0	1	4	7	0	12	0	169	271	9	0	449	0	0	66	101	0	167	629
Total	0	0	0	1	0	1	0	3	18	18	1	39	0	699	1026	37	0	1762	0	0	228	409	0	637	2439
Approach %	0.0	0.0	0.0	100.0	-	-	0.0	7.7	46.2	46.2	-	-	0.0	39.7	58.2	2.1	-	-	0.0	0.0	35.8	64.2	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	0.7	0.7	-	1.6	0.0	28.7	42.1	1.5	-	72.2	0.0	0.0	9.3	16.8	-	26.1	-
PHF	0.000	0.000	0.000	0.250	-	0.250	0.000	0.375	0.750	0.643	-	0.813	0.000	0.976	0.946	0.925	-	0.972	0.000	0.000	0.864	0.874	-	0.921	0.959
Lights	0	0	0	1	-	1	0	2	7	4	-	13	0	587	949	15	-	1551	0	0	201	327	-	528	2093
% Lights	-	-	-	100.0	-	100.0	-	66.7	38.9	22.2	-	33.3	-	84.0	92.5	40.5	-	88.0	-	-	88.2	80.0	-	82.9	85.8
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	9	0	-	9	0	0	6	3	-	9	18
% Buses	-	-	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.9	0.0	-	0.5	-	-	2.6	0.7	-	1.4	0.7
Single-Unit Trucks	0	0	0	0	-	0	0	1	1	4	-	6	0	46	40	5	-	91	0	0	18	38	-	56	153
% Single-Unit Trucks	-	-	-	0.0	-	0.0	-	33.3	5.6	22.2	-	15.4	-	6.6	3.9	13.5	-	5.2	-	-	7.9	9.3	-	8.8	6.3
Articulated Trucks	0	0	0	0	-	0	0	0	10	10	-	20	0	66	28	17	-	111	0	0	2	41	-	43	174
% Articulated Trucks	-	-	-	0.0	-	0.0	-	0.0	55.6	55.6	-	51.3	-	9.4	2.7	45.9	-	6.3	-	-	0.9	10.0	-	6.8	7.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	1
% Bicycles on Road	-	-	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	-	0.4	0.0	-	0.2	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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(847)518-9990

Count Name: California Avenue with I-55 On Ramp
Site Code:
Start Date: 10/24/2019

Turning Movement Peak Hour Data (4:45 PM)

Start Time	I-55 On Ramp Eastbound						Access Drive Westbound						California Avenue Northbound						California Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	174	197	2	0	373	0	0	95	212	0	307	680
5:00 PM	0	0	0	0	1	0	0	1	0	0	0	1	0	201	155	1	0	357	0	0	76	187	0	263	621
5:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	216	220	0	0	436	0	0	113	202	0	315	751
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	172	211	0	0	383	0	0	108	171	0	279	662
Total	0	0	0	0	3	0	0	1	0	0	0	1	0	763	783	3	0	1549	0	0	392	772	0	1164	2714
Approach %	0.0	0.0	0.0	0.0	-	-	0.0	100.0	0.0	0.0	-	-	0.0	49.3	50.5	0.2	-	-	0.0	0.0	33.7	66.3	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	28.1	28.9	0.1	-	57.1	0.0	0.0	14.4	28.4	-	42.9	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.000	0.250	0.000	0.000	-	0.250	0.000	0.883	0.890	0.375	-	0.888	0.000	0.000	0.867	0.910	-	0.924	0.903
Lights	0	0	0	0	-	0	0	1	0	0	-	1	0	706	744	1	-	1451	0	0	377	751	-	1128	2580
% Lights	-	-	-	-	-	-	-	100.0	-	-	-	100.0	-	92.5	95.0	33.3	-	93.7	-	-	96.2	97.3	-	96.9	95.1
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	7	0	-	7	0	0	7	0	-	7	14
% Buses	-	-	-	-	-	-	-	0.0	-	-	-	0.0	-	0.0	0.9	0.0	-	0.5	-	-	1.8	0.0	-	0.6	0.5
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	32	21	2	-	55	0	0	6	14	-	20	75
% Single-Unit Trucks	-	-	-	-	-	-	-	0.0	-	-	-	0.0	-	4.2	2.7	66.7	-	3.6	-	-	1.5	1.8	-	1.7	2.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	25	7	0	-	32	0	0	0	7	-	7	39
% Articulated Trucks	-	-	-	-	-	-	-	0.0	-	-	-	0.0	-	3.3	0.9	0.0	-	2.1	-	-	0.0	0.9	-	0.6	1.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	4	0	-	4	0	0	2	0	-	2	6
% Bicycles on Road	-	-	-	-	-	-	-	0.0	-	-	-	0.0	-	0.0	0.5	0.0	-	0.3	-	-	0.5	0.0	-	0.2	0.2
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: California Avenue with I-55 Off Ramp
Site Code:
Start Date: 10/24/2019

Turning Movement Data

Start Time	I-55 Off Ramp Eastbound					California Avenue Northbound					California Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
6:00 AM	0	127	62	0	189	0	0	268	0	268	0	34	0	0	34	491
6:15 AM	0	122	55	0	177	0	0	271	0	271	0	37	0	0	37	485
6:30 AM	0	119	48	0	167	0	0	306	0	306	0	44	0	0	44	517
6:45 AM	0	123	59	0	182	0	0	240	0	240	0	42	0	0	42	464
Hourly Total	0	491	224	0	715	0	0	1085	0	1085	0	157	0	0	157	1957
7:00 AM	0	88	54	0	142	0	0	305	0	305	0	37	0	0	37	484
7:15 AM	0	105	62	0	167	0	0	305	0	305	0	56	0	0	56	528
7:30 AM	0	114	55	0	169	0	0	304	0	304	0	53	0	0	53	526
7:45 AM	0	124	64	0	188	0	0	313	0	313	0	64	0	0	64	565
Hourly Total	0	431	235	0	666	0	0	1227	0	1227	0	210	0	0	210	2103
8:00 AM	0	142	67	0	209	0	0	276	0	276	0	67	0	0	67	552
8:15 AM	0	105	64	1	169	0	0	276	0	276	0	40	0	0	40	485
8:30 AM	0	124	65	0	189	0	0	226	0	226	0	49	0	0	49	464
8:45 AM	0	110	86	0	196	0	0	204	0	204	0	61	0	0	61	461
Hourly Total	0	481	282	1	763	0	0	982	0	982	0	217	0	0	217	1962
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	93	122	1	215	0	0	232	0	232	0	98	0	0	98	545
3:15 PM	0	101	139	0	240	0	0	218	0	218	0	100	0	0	100	558
3:30 PM	0	103	179	0	282	0	0	261	0	261	0	100	0	0	100	643
3:45 PM	0	100	153	0	253	0	0	257	0	257	0	103	0	0	103	613
Hourly Total	0	397	593	1	990	0	0	968	0	968	0	401	0	0	401	2359
4:00 PM	0	89	137	0	226	0	0	267	0	267	0	93	0	0	93	586
4:15 PM	0	77	164	0	241	0	0	260	0	260	0	114	0	0	114	615
4:30 PM	0	104	157	1	261	0	0	235	0	235	0	103	0	0	103	599
4:45 PM	0	115	164	1	279	0	0	276	0	276	0	98	0	0	98	653
Hourly Total	0	385	622	2	1007	0	0	1038	0	1038	0	408	0	0	408	2453
5:00 PM	0	91	152	1	243	0	0	249	0	249	0	90	0	0	90	582
5:15 PM	0	129	138	0	267	0	0	288	0	288	0	111	0	0	111	666
5:30 PM	0	114	152	0	266	0	0	257	0	257	0	116	0	0	116	639
5:45 PM	0	106	147	0	253	0	0	217	0	217	0	106	0	0	106	576
Hourly Total	0	440	589	1	1029	0	0	1011	0	1011	0	423	0	0	423	2463
Grand Total	0	2625	2545	5	5170	0	0	6311	0	6311	0	1816	0	0	1816	13297
Approach %	0.0	50.8	49.2	-	-	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	19.7	19.1	-	38.9	0.0	0.0	47.5	-	47.5	0.0	13.7	0.0	-	13.7	-
Lights	0	2115	2273	-	4388	0	0	5860	-	5860	0	1673	0	-	1673	11921
% Lights	-	80.6	89.3	-	84.9	-	-	92.9	-	92.9	-	92.1	-	-	92.1	89.7

Buses	0	3	5	-	8	0	0	34	-	34	0	34	0	-	34	76
% Buses	-	0.1	0.2	-	0.2	-	-	0.5	-	0.5	-	1.9	-	-	1.9	0.6
Single-Unit Trucks	0	192	145	-	337	0	0	219	-	219	0	80	0	-	80	636
% Single-Unit Trucks	-	7.3	5.7	-	6.5	-	-	3.5	-	3.5	-	4.4	-	-	4.4	4.8
Articulated Trucks	0	315	122	-	437	0	0	195	-	195	0	24	0	-	24	656
% Articulated Trucks	-	12.0	4.8	-	8.5	-	-	3.1	-	3.1	-	1.3	-	-	1.3	4.9
Bicycles on Road	0	0	0	-	0	0	0	3	-	3	0	5	0	-	5	8
% Bicycles on Road	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	0.3	-	-	0.3	0.1
Pedestrians	-	-	-	5	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: California Avenue with I-55 Off Ramp
Site Code:
Start Date: 10/24/2019

Turning Movement Peak Hour Data (7:15 AM)

Start Time	I-55 Off Ramp Eastbound					California Avenue Northbound					California Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	105	62	0	167	0	0	305	0	305	0	56	0	0	56	528
7:30 AM	0	114	55	0	169	0	0	304	0	304	0	53	0	0	53	526
7:45 AM	0	124	64	0	188	0	0	313	0	313	0	64	0	0	64	565
8:00 AM	0	142	67	0	209	0	0	276	0	276	0	67	0	0	67	552
Total	0	485	248	0	733	0	0	1198	0	1198	0	240	0	0	240	2171
Approach %	0.0	66.2	33.8	-	-	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	22.3	11.4	-	33.8	0.0	0.0	55.2	-	55.2	0.0	11.1	0.0	-	11.1	-
PHF	0.000	0.854	0.925	-	0.877	0.000	0.000	0.957	-	0.957	0.000	0.896	0.000	-	0.896	0.961
Lights	0	376	205	-	581	0	0	1107	-	1107	0	209	0	-	209	1897
% Lights	-	77.5	82.7	-	79.3	-	-	92.4	-	92.4	-	87.1	-	-	87.1	87.4
Buses	0	0	3	-	3	0	0	8	-	8	0	6	0	-	6	17
% Buses	-	0.0	1.2	-	0.4	-	-	0.7	-	0.7	-	2.5	-	-	2.5	0.8
Single-Unit Trucks	0	40	20	-	60	0	0	45	-	45	0	20	0	-	20	125
% Single-Unit Trucks	-	8.2	8.1	-	8.2	-	-	3.8	-	3.8	-	8.3	-	-	8.3	5.8
Articulated Trucks	0	69	20	-	89	0	0	38	-	38	0	3	0	-	3	130
% Articulated Trucks	-	14.2	8.1	-	12.1	-	-	3.2	-	3.2	-	1.3	-	-	1.3	6.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	2	0	-	2	2
% Bicycles on Road	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	0.8	-	-	0.8	0.1
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: California Avenue with I-55 Off Ramp
Site Code:
Start Date: 10/24/2019

Turning Movement Peak Hour Data (4:45 PM)

Start Time	I-55 Off Ramp Eastbound					California Avenue Northbound					California Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	0	115	164	1	279	0	0	276	0	276	0	98	0	0	98	653
5:00 PM	0	91	152	1	243	0	0	249	0	249	0	90	0	0	90	582
5:15 PM	0	129	138	0	267	0	0	288	0	288	0	111	0	0	111	666
5:30 PM	0	114	152	0	266	0	0	257	0	257	0	116	0	0	116	639
Total	0	449	606	2	1055	0	0	1070	0	1070	0	415	0	0	415	2540
Approach %	0.0	42.6	57.4	-	-	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	17.7	23.9	-	41.5	0.0	0.0	42.1	-	42.1	0.0	16.3	0.0	-	16.3	-
PHF	0.000	0.870	0.924	-	0.945	0.000	0.000	0.929	-	0.929	0.000	0.894	0.000	-	0.894	0.953
Lights	0	403	577	-	980	0	0	1026	-	1026	0	401	0	-	401	2407
% Lights	-	89.8	95.2	-	92.9	-	-	95.9	-	95.9	-	96.6	-	-	96.6	94.8
Buses	0	2	0	-	2	0	0	5	-	5	0	5	0	-	5	12
% Buses	-	0.4	0.0	-	0.2	-	-	0.5	-	0.5	-	1.2	-	-	1.2	0.5
Single-Unit Trucks	0	26	18	-	44	0	0	25	-	25	0	7	0	-	7	76
% Single-Unit Trucks	-	5.8	3.0	-	4.2	-	-	2.3	-	2.3	-	1.7	-	-	1.7	3.0
Articulated Trucks	0	18	11	-	29	0	0	13	-	13	0	1	0	-	1	43
% Articulated Trucks	-	4.0	1.8	-	2.7	-	-	1.2	-	1.2	-	0.2	-	-	0.2	1.7
Bicycles on Road	0	0	0	-	0	0	0	1	-	1	0	1	0	-	1	2
% Bicycles on Road	-	0.0	0.0	-	0.0	-	-	0.1	-	0.1	-	0.2	-	-	0.2	0.1
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
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Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: California Avenue with Access Drives
Site Code:
Start Date: 10/24/2019

Turning Movement Data

Start Time	West Access Eastbound						East Access Westbound						California Avenue Northbound						California Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
6:00 AM	0	2	1	1	0	4	0	1	0	0	2	1	0	6	154	0	0	160	0	0	129	4	0	133	298
6:15 AM	0	3	1	3	0	7	0	1	0	1	1	2	0	3	197	1	0	201	1	0	106	2	0	109	319
6:30 AM	0	1	0	6	0	7	0	0	0	1	0	1	0	2	236	1	0	239	0	0	107	3	0	110	357
6:45 AM	0	3	0	4	0	7	0	1	0	0	0	1	0	8	211	0	0	219	0	0	98	6	0	104	331
Hourly Total	0	9	2	14	0	25	0	3	0	2	3	5	0	19	798	2	0	819	1	0	440	15	0	456	1305
7:00 AM	0	4	0	9	0	13	0	1	0	0	0	1	0	5	220	0	0	225	0	0	170	4	0	174	413
7:15 AM	0	2	0	3	0	5	0	0	0	0	0	0	0	7	238	1	0	246	0	0	156	6	0	162	413
7:30 AM	0	2	1	8	0	11	0	2	0	0	0	2	0	3	267	0	0	270	0	0	154	2	0	156	439
7:45 AM	0	0	0	8	0	8	0	1	0	1	1	2	0	5	238	0	0	243	0	2	136	10	0	148	401
Hourly Total	0	8	1	28	0	37	0	4	0	1	1	5	0	20	963	1	0	984	0	2	616	22	0	640	1666
8:00 AM	0	2	0	10	0	12	0	0	0	0	0	0	0	12	260	0	0	272	0	0	151	7	0	158	442
8:15 AM	0	7	1	6	0	14	0	0	0	0	0	0	0	6	237	0	0	243	0	0	106	5	0	111	368
8:30 AM	1	5	0	8	0	14	0	0	1	0	0	1	0	8	225	1	0	234	0	0	110	4	0	114	363
8:45 AM	0	3	0	9	0	12	0	0	0	1	3	1	0	7	194	1	0	202	0	0	113	6	0	119	334
Hourly Total	1	17	1	33	0	52	0	0	1	1	3	2	0	33	916	2	0	951	0	0	480	22	0	502	1507
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	14	1	12	0	27	0	0	1	0	0	1	0	4	148	0	0	152	0	0	286	7	0	293	473
3:15 PM	0	4	0	9	0	13	0	1	1	0	0	2	0	3	160	0	0	163	0	0	275	8	0	283	461
3:30 PM	0	6	0	4	1	10	0	0	0	1	1	1	0	11	166	0	0	177	0	0	280	10	0	290	478
3:45 PM	0	3	1	11	0	15	0	0	0	0	0	0	0	8	157	0	0	165	0	0	269	4	0	273	453
Hourly Total	0	27	2	36	1	65	0	1	2	1	1	4	0	26	631	0	0	657	0	0	1110	29	0	1139	1865
4:00 PM	0	14	0	8	0	22	0	0	0	0	2	0	0	4	141	0	0	145	0	0	292	5	0	297	464
4:15 PM	0	2	0	5	0	7	0	0	0	0	0	0	0	1	157	0	0	158	0	0	270	4	0	274	439
4:30 PM	0	2	0	7	0	9	0	0	0	0	0	0	0	2	170	0	0	172	0	0	287	4	0	291	472
4:45 PM	0	7	0	0	1	7	0	0	0	0	2	0	0	8	187	0	0	195	0	0	295	6	1	301	503
Hourly Total	0	25	0	20	1	45	0	0	0	0	4	0	0	15	655	0	0	670	0	0	1144	19	1	1163	1878
5:00 PM	0	2	1	7	1	10	0	0	0	0	0	0	0	5	155	0	0	160	0	0	278	3	0	281	451
5:15 PM	0	4	0	5	0	9	0	1	0	0	0	1	0	3	208	0	0	211	0	0	303	4	0	307	528
5:30 PM	0	3	0	6	0	9	0	0	0	0	3	0	0	4	209	0	0	213	0	0	275	2	0	277	499
5:45 PM	0	3	0	3	0	6	0	0	0	0	0	0	0	6	178	0	0	184	0	0	220	3	0	223	413
Hourly Total	0	12	1	21	1	34	0	1	0	0	3	1	0	18	750	0	0	768	0	0	1076	12	0	1088	1891
Grand Total	1	98	7	152	3	258	0	9	3	5	15	17	0	131	4713	5	0	4849	1	2	4866	119	1	4988	10112
Approach %	0.4	38.0	2.7	58.9	-	-	0.0	52.9	17.6	29.4	-	-	0.0	2.7	97.2	0.1	-	-	0.0	0.0	97.6	2.4	-	-	-
Total %	0.0	1.0	0.1	1.5	-	2.6	0.0	0.1	0.0	0.0	-	0.2	0.0	1.3	46.6	0.0	-	48.0	0.0	0.0	48.1	1.2	-	49.3	-
Lights	0	48	2	59	-	109	0	0	3	3	-	6	0	52	4423	0	-	4475	1	0	4605	43	-	4649	9239

% Lights	0.0	49.0	28.6	38.8	-	42.2	-	0.0	100.0	60.0	-	35.3	-	39.7	93.8	0.0	-	92.3	100.0	0.0	94.6	36.1	-	93.2	91.4
Buses	0	1	0	0	-	1	0	0	0	0	-	0	0	0	38	0	-	38	0	0	37	0	-	37	76
% Buses	0.0	1.0	0.0	0.0	-	0.4	-	0.0	0.0	0.0	-	0.0	-	0.0	0.8	0.0	-	0.8	0.0	0.0	0.8	0.0	-	0.7	0.8
Single-Unit Trucks	1	37	5	60	-	103	0	8	0	1	-	9	0	54	157	5	-	216	0	1	133	56	-	190	518
% Single-Unit Trucks	100.0	37.8	71.4	39.5	-	39.9	-	88.9	0.0	20.0	-	52.9	-	41.2	3.3	100.0	-	4.5	0.0	50.0	2.7	47.1	-	3.8	5.1
Articulated Trucks	0	12	0	33	-	45	0	1	0	1	-	2	0	25	90	0	-	115	0	1	90	20	-	111	273
% Articulated Trucks	0.0	12.2	0.0	21.7	-	17.4	-	11.1	0.0	20.0	-	11.8	-	19.1	1.9	0.0	-	2.4	0.0	50.0	1.8	16.8	-	2.2	2.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	5	0	-	5	0	0	1	0	-	1	6
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.1	0.0	-	0.1	0.0	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	3	-	-	-	-	-	15	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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Count Name: California Avenue with Access Drives
Site Code:
Start Date: 10/24/2019

Turning Movement Peak Hour Data (7:15 AM)

Start Time	West Access Eastbound						East Access Westbound						California Avenue Northbound						California Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:15 AM	0	2	0	3	0	5	0	0	0	0	0	0	0	7	238	1	0	246	0	0	156	6	0	162	413
7:30 AM	0	2	1	8	0	11	0	2	0	0	0	2	0	3	267	0	0	270	0	0	154	2	0	156	439
7:45 AM	0	0	0	8	0	8	0	1	0	1	1	2	0	5	238	0	0	243	0	2	136	10	0	148	401
8:00 AM	0	2	0	10	0	12	0	0	0	0	0	0	0	12	260	0	0	272	0	0	151	7	0	158	442
Total	0	6	1	29	0	36	0	3	0	1	1	4	0	27	1003	1	0	1031	0	2	597	25	0	624	1695
Approach %	0.0	16.7	2.8	80.6	-	-	0.0	75.0	0.0	25.0	-	-	0.0	2.6	97.3	0.1	-	-	0.0	0.3	95.7	4.0	-	-	-
Total %	0.0	0.4	0.1	1.7	-	2.1	0.0	0.2	0.0	0.1	-	0.2	0.0	1.6	59.2	0.1	-	60.8	0.0	0.1	35.2	1.5	-	36.8	-
PHF	0.000	0.750	0.250	0.725	-	0.750	0.000	0.375	0.000	0.250	-	0.500	0.000	0.563	0.939	0.250	-	0.948	0.000	0.250	0.957	0.625	-	0.963	0.959
Lights	0	0	0	3	-	3	0	0	0	0	-	0	0	6	938	0	-	944	0	0	533	3	-	536	1483
% Lights	-	0.0	0.0	10.3	-	8.3	-	0.0	-	0.0	-	0.0	-	22.2	93.5	0.0	-	91.6	-	0.0	89.3	12.0	-	85.9	87.5
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	9	0	-	9	0	0	9	0	-	9	18
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.9	0.0	-	0.9	-	0.0	1.5	0.0	-	1.4	1.1
Single-Unit Trucks	0	2	1	17	-	20	0	2	0	0	-	2	0	14	40	1	-	55	0	1	39	13	-	53	130
% Single-Unit Trucks	-	33.3	100.0	58.6	-	55.6	-	66.7	-	0.0	-	50.0	-	51.9	4.0	100.0	-	5.3	-	50.0	6.5	52.0	-	8.5	7.7
Articulated Trucks	0	4	0	9	-	13	0	1	0	1	-	2	0	7	16	0	-	23	0	1	16	9	-	26	64
% Articulated Trucks	-	66.7	0.0	31.0	-	36.1	-	33.3	-	100.0	-	50.0	-	25.9	1.6	0.0	-	2.2	-	50.0	2.7	36.0	-	4.2	3.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Start Date: 10/24/2019

Turning Movement Peak Hour Data (4:45 PM)

Start Time	West Access Eastbound						East Access Westbound						California Avenue Northbound						California Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	0	7	0	0	1	7	0	0	0	0	2	0	0	8	187	0	0	195	0	0	295	6	1	301	503
5:00 PM	0	2	1	7	1	10	0	0	0	0	0	0	0	5	155	0	0	160	0	0	278	3	0	281	451
5:15 PM	0	4	0	5	0	9	0	1	0	0	0	1	0	3	208	0	0	211	0	0	303	4	0	307	528
5:30 PM	0	3	0	6	0	9	0	0	0	0	3	0	0	4	209	0	0	213	0	0	275	2	0	277	499
Total	0	16	1	18	2	35	0	1	0	0	5	1	0	20	759	0	0	779	0	0	1151	15	1	1166	1981
Approach %	0.0	45.7	2.9	51.4	-	-	0.0	100.0	0.0	0.0	-	-	0.0	2.6	97.4	0.0	-	-	0.0	0.0	98.7	1.3	-	-	-
Total %	0.0	0.8	0.1	0.9	-	1.8	0.0	0.1	0.0	0.0	-	0.1	0.0	1.0	38.3	0.0	-	39.3	0.0	0.0	58.1	0.8	-	58.9	-
PHF	0.000	0.571	0.250	0.643	-	0.875	0.000	0.250	0.000	0.000	-	0.250	0.000	0.625	0.908	0.000	-	0.914	0.000	0.000	0.950	0.625	-	0.950	0.938
Lights	0	7	0	14	-	21	0	0	0	0	-	0	0	16	729	0	-	745	0	0	1122	7	-	1129	1895
% Lights	-	43.8	0.0	77.8	-	60.0	-	0.0	-	-	-	0.0	-	80.0	96.0	-	-	95.6	-	-	97.5	46.7	-	96.8	95.7
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	7	0	-	7	0	0	6	0	-	6	13
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.9	-	-	0.9	-	-	0.5	0.0	-	0.5	0.7
Single-Unit Trucks	0	8	1	4	-	13	0	1	0	0	-	1	0	4	15	0	-	19	0	0	14	8	-	22	55
% Single-Unit Trucks	-	50.0	100.0	22.2	-	37.1	-	100.0	-	-	-	100.0	-	20.0	2.0	-	-	2.4	-	-	1.2	53.3	-	1.9	2.8
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	0	7	0	-	7	0	0	9	0	-	9	17
% Articulated Trucks	-	6.3	0.0	0.0	-	2.9	-	0.0	-	-	-	0.0	-	0.0	0.9	-	-	0.9	-	-	0.8	0.0	-	0.8	0.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.1	-	-	0.1	-	-	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: California Avenue with 31st Street
Site Code:
Start Date: 10/24/2019

Turning Movement Data

Start Time	31st Street Eastbound						31st Street Westbound						California Avenue Northbound						California Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	10	26	32	0	68	0	19	24	0	1	43	0	29	116	15	1	160	0	0	79	6	1	85	356
6:15 AM	0	15	33	30	0	78	0	13	24	1	0	38	0	31	156	20	2	207	0	5	61	5	0	71	394
6:30 AM	0	19	44	31	1	94	0	16	46	5	0	67	0	46	166	15	0	227	0	4	64	5	0	73	461
6:45 AM	0	17	40	25	0	82	0	21	45	2	1	68	0	34	154	24	0	212	0	0	62	13	2	75	437
Hourly Total	0	61	143	118	1	322	0	69	139	8	2	216	0	140	592	74	3	806	0	9	266	29	3	304	1648
7:00 AM	0	13	61	37	0	111	0	30	37	1	0	68	0	40	151	30	1	221	0	1	103	4	0	108	508
7:15 AM	0	8	51	39	0	98	0	28	38	0	0	66	0	27	187	37	0	251	0	1	98	10	0	109	524
7:30 AM	0	14	64	24	0	102	0	30	32	1	2	63	0	42	190	24	0	256	0	1	98	2	1	101	522
7:45 AM	0	15	50	28	0	93	0	38	47	2	1	87	0	37	173	29	0	239	0	5	95	8	0	108	527
Hourly Total	0	50	226	128	0	404	0	126	154	4	3	284	0	146	701	120	1	967	0	8	394	24	1	426	2081
8:00 AM	0	15	63	25	0	103	0	28	41	1	0	70	0	50	181	31	0	262	0	0	95	7	0	102	537
8:15 AM	0	15	54	29	0	98	0	21	45	4	0	70	0	32	153	41	0	226	0	3	58	3	0	64	458
8:30 AM	0	17	66	31	0	114	0	22	51	6	0	79	0	42	153	33	0	228	0	5	67	7	0	79	500
8:45 AM	0	18	62	30	1	110	0	20	41	3	1	64	0	30	130	29	0	189	0	6	62	11	0	79	442
Hourly Total	0	65	245	115	1	425	0	91	178	14	1	283	0	154	617	134	0	905	0	14	282	28	0	324	1937
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	4	63	93	0	160	0	51	89	1	0	141	0	38	95	25	1	158	0	4	154	6	0	164	623
3:15 PM	0	10	47	74	0	131	0	58	83	3	1	144	0	52	89	28	1	169	0	1	142	11	1	154	598
3:30 PM	0	6	58	82	1	146	0	64	70	0	0	134	0	39	112	21	0	172	0	4	139	10	1	153	605
3:45 PM	0	6	37	46	0	89	0	76	71	1	2	148	0	30	115	20	0	165	0	0	149	8	2	157	559
Hourly Total	0	26	205	295	1	526	0	249	313	5	3	567	0	159	411	94	2	664	0	9	584	35	4	628	2385
4:00 PM	0	5	40	91	0	136	0	61	98	0	0	159	0	46	86	17	2	149	0	0	140	8	0	148	592
4:15 PM	0	9	44	66	0	119	0	66	97	0	0	163	0	56	86	21	0	163	0	3	149	13	0	165	610
4:30 PM	0	8	64	72	0	144	0	59	83	0	0	142	0	52	96	18	0	166	0	4	154	5	0	163	615
4:45 PM	0	6	50	88	1	144	0	74	82	2	2	158	0	51	121	29	0	201	0	0	146	7	0	153	656
Hourly Total	0	28	198	317	1	543	0	260	360	2	2	622	0	205	389	85	2	679	0	7	589	33	0	629	2473
5:00 PM	0	5	45	72	0	122	0	64	78	3	1	145	0	51	100	18	1	169	0	3	147	4	0	154	590
5:15 PM	0	4	51	84	0	139	0	68	75	2	0	145	0	50	130	34	0	214	0	3	144	9	0	156	654
5:30 PM	0	4	44	64	2	112	0	65	80	3	1	148	0	50	139	23	2	212	0	4	150	7	0	161	633
5:45 PM	0	12	58	51	0	121	0	54	83	0	0	137	0	42	114	31	0	187	0	3	110	13	0	126	571
Hourly Total	0	25	198	271	2	494	0	251	316	8	2	575	0	193	483	106	3	782	0	13	551	33	0	597	2448
Grand Total	0	255	1215	1244	6	2714	0	1046	1460	41	13	2547	0	997	3193	613	11	4803	0	60	2666	182	8	2908	12972
Approach %	0.0	9.4	44.8	45.8	-	-	0.0	41.1	57.3	1.6	-	-	0.0	20.8	66.5	12.8	-	-	0.0	2.1	91.7	6.3	-	-	-
Total %	0.0	2.0	9.4	9.6	-	20.9	0.0	8.1	11.3	0.3	-	19.6	0.0	7.7	24.6	4.7	-	37.0	0.0	0.5	20.6	1.4	-	22.4	-
Lights	0	242	1126	1173	-	2541	0	900	1366	35	-	2301	0	939	3048	481	-	4468	0	58	2523	175	-	2756	12066

% Lights	-	94.9	92.7	94.3	-	93.6	-	86.0	93.6	85.4	-	90.3	-	94.2	95.5	78.5	-	93.0	-	96.7	94.6	96.2	-	94.8	93.0
Buses	0	0	3	3	-	6	0	1	10	0	-	11	0	1	37	2	-	40	0	1	34	0	-	35	92
% Buses	-	0.0	0.2	0.2	-	0.2	-	0.1	0.7	0.0	-	0.4	-	0.1	1.2	0.3	-	0.8	-	1.7	1.3	0.0	-	1.2	0.7
Single-Unit Trucks	0	9	51	45	-	105	0	85	43	2	-	130	0	42	69	70	-	181	0	0	66	5	-	71	487
% Single-Unit Trucks	-	3.5	4.2	3.6	-	3.9	-	8.1	2.9	4.9	-	5.1	-	4.2	2.2	11.4	-	3.8	-	0.0	2.5	2.7	-	2.4	3.8
Articulated Trucks	0	4	34	22	-	60	0	60	38	3	-	101	0	15	35	60	-	110	0	1	38	0	-	39	310
% Articulated Trucks	-	1.6	2.8	1.8	-	2.2	-	5.7	2.6	7.3	-	4.0	-	1.5	1.1	9.8	-	2.3	-	1.7	1.4	0.0	-	1.3	2.4
Bicycles on Road	0	0	1	1	-	2	0	0	3	1	-	4	0	0	4	0	-	4	0	0	5	2	-	7	17
% Bicycles on Road	-	0.0	0.1	0.1	-	0.1	-	0.0	0.2	2.4	-	0.2	-	0.0	0.1	0.0	-	0.1	-	0.0	0.2	1.1	-	0.2	0.1
Pedestrians	-	-	-	-	6	-	-	-	-	-	13	-	-	-	-	-	11	-	-	-	-	-	8	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
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(847)518-9990

Count Name: California Avenue with 31st Street
Site Code:
Start Date: 10/24/2019

Turning Movement Peak Hour Data (7:15 AM)

Start Time	31st Street Eastbound						31st Street Westbound						California Avenue Northbound						California Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:15 AM	0	8	51	39	0	98	0	28	38	0	0	66	0	27	187	37	0	251	0	1	98	10	0	109	524
7:30 AM	0	14	64	24	0	102	0	30	32	1	2	63	0	42	190	24	0	256	0	1	98	2	1	101	522
7:45 AM	0	15	50	28	0	93	0	38	47	2	1	87	0	37	173	29	0	239	0	5	95	8	0	108	527
8:00 AM	0	15	63	25	0	103	0	28	41	1	0	70	0	50	181	31	0	262	0	0	95	7	0	102	537
Total	0	52	228	116	0	396	0	124	158	4	3	286	0	156	731	121	0	1008	0	7	386	27	1	420	2110
Approach %	0.0	13.1	57.6	29.3	-	-	0.0	43.4	55.2	1.4	-	-	0.0	15.5	72.5	12.0	-	-	0.0	1.7	91.9	6.4	-	-	-
Total %	0.0	2.5	10.8	5.5	-	18.8	0.0	5.9	7.5	0.2	-	13.6	0.0	7.4	34.6	5.7	-	47.8	0.0	0.3	18.3	1.3	-	19.9	-
PHF	0.000	0.867	0.891	0.744	-	0.961	0.000	0.816	0.840	0.500	-	0.822	0.000	0.780	0.962	0.818	-	0.962	0.000	0.350	0.985	0.675	-	0.963	0.982
Lights	0	47	213	97	-	357	0	87	142	3	-	232	0	148	692	96	-	936	0	7	351	25	-	383	1908
% Lights	-	90.4	93.4	83.6	-	90.2	-	70.2	89.9	75.0	-	81.1	-	94.9	94.7	79.3	-	92.9	-	100.0	90.9	92.6	-	91.2	90.4
Buses	0	0	2	3	-	5	0	0	5	0	-	5	0	0	9	0	-	9	0	0	6	0	-	6	25
% Buses	-	0.0	0.9	2.6	-	1.3	-	0.0	3.2	0.0	-	1.7	-	0.0	1.2	0.0	-	0.9	-	0.0	1.6	0.0	-	1.4	1.2
Single-Unit Trucks	0	3	8	9	-	20	0	27	6	1	-	34	0	8	20	13	-	41	0	0	15	1	-	16	111
% Single-Unit Trucks	-	5.8	3.5	7.8	-	5.1	-	21.8	3.8	25.0	-	11.9	-	5.1	2.7	10.7	-	4.1	-	0.0	3.9	3.7	-	3.8	5.3
Articulated Trucks	0	2	5	7	-	14	0	10	5	0	-	15	0	0	10	12	-	22	0	0	14	0	-	14	65
% Articulated Trucks	-	3.8	2.2	6.0	-	3.5	-	8.1	3.2	0.0	-	5.2	-	0.0	1.4	9.9	-	2.2	-	0.0	3.6	0.0	-	3.3	3.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	1	-	1	1
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	3.7	-	0.2	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: California Avenue with 31st Street
Site Code:
Start Date: 10/24/2019

Turning Movement Peak Hour Data (4:45 PM)

Start Time	31st Street Eastbound						31st Street Westbound						California Avenue Northbound						California Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:45 PM	0	6	50	88	1	144	0	74	82	2	2	158	0	51	121	29	0	201	0	0	146	7	0	153	656
5:00 PM	0	5	45	72	0	122	0	64	78	3	1	145	0	51	100	18	1	169	0	3	147	4	0	154	590
5:15 PM	0	4	51	84	0	139	0	68	75	2	0	145	0	50	130	34	0	214	0	3	144	9	0	156	654
5:30 PM	0	4	44	64	2	112	0	65	80	3	1	148	0	50	139	23	2	212	0	4	150	7	0	161	633
Total	0	19	190	308	3	517	0	271	315	10	4	596	0	202	490	104	3	796	0	10	587	27	0	624	2533
Approach %	0.0	3.7	36.8	59.6	-	-	0.0	45.5	52.9	1.7	-	-	0.0	25.4	61.6	13.1	-	-	0.0	1.6	94.1	4.3	-	-	-
Total %	0.0	0.8	7.5	12.2	-	20.4	0.0	10.7	12.4	0.4	-	23.5	0.0	8.0	19.3	4.1	-	31.4	0.0	0.4	23.2	1.1	-	24.6	-
PHF	0.000	0.792	0.931	0.875	-	0.898	0.000	0.916	0.960	0.833	-	0.943	0.000	0.990	0.881	0.765	-	0.930	0.000	0.625	0.978	0.750	-	0.969	0.965
Lights	0	18	180	304	-	502	0	251	297	8	-	556	0	190	472	91	-	753	0	10	568	26	-	604	2415
% Lights	-	94.7	94.7	98.7	-	97.1	-	92.6	94.3	80.0	-	93.3	-	94.1	96.3	87.5	-	94.6	-	100.0	96.8	96.3	-	96.8	95.3
Buses	0	0	0	0	-	0	0	0	1	0	-	1	0	1	5	1	-	7	0	0	6	0	-	6	14
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	0.3	0.0	-	0.2	-	0.5	1.0	1.0	-	0.9	-	0.0	1.0	0.0	-	1.0	0.6
Single-Unit Trucks	0	1	4	3	-	8	0	12	9	1	-	22	0	8	9	8	-	25	0	0	10	1	-	11	66
% Single-Unit Trucks	-	5.3	2.1	1.0	-	1.5	-	4.4	2.9	10.0	-	3.7	-	4.0	1.8	7.7	-	3.1	-	0.0	1.7	3.7	-	1.8	2.6
Articulated Trucks	0	0	6	1	-	7	0	8	7	1	-	16	0	3	1	4	-	8	0	0	1	0	-	1	32
% Articulated Trucks	-	0.0	3.2	0.3	-	1.4	-	3.0	2.2	10.0	-	2.7	-	1.5	0.2	3.8	-	1.0	-	0.0	0.2	0.0	-	0.2	1.3
Bicycles on Road	0	0	0	0	-	0	0	0	1	0	-	1	0	0	3	0	-	3	0	0	2	0	-	2	6
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.3	0.0	-	0.2	-	0.0	0.6	0.0	-	0.4	-	0.0	0.3	0.0	-	0.3	0.2
Pedestrians	-	-	-	-	3	-	-	-	-	-	4	-	-	-	-	-	3	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Level of Service Criteria

LEVEL OF SERVICE CRITERIA

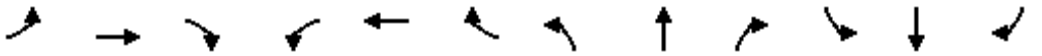
Signalized Intersections		
Level of Service	**Interpretation**	**Average Control Delay (seconds per vehicle)**
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	> 10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	> 20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	> 35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	> 55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	> 80

Unsignalized Intersections	
Level of Service	**Average Total Delay (sec/veh)**
A	0 - 10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

Source: *Highway Capacity Manual*, 2010.

Capacity Analysis Summary Sheets

Weekday Morning Peak Hour – Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	228	116	124	158	4	156	746	121	7	401	27
Future Volume (vph)	52	228	116	124	158	4	156	746	121	7	401	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		110	60		80	65		50	60		70
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	110			125			75			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98			0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1641	1776	1392	1641	1727	1292	1719	1810	1335	1805	1743	1509
Flt Permitted	0.655			0.433			0.297			0.249		
Satd. Flow (perm)	1130	1776	1392	748	1727	1264	537	1810	1304	473	1743	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118			52			43			73
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1247			1007			553			454	
Travel Time (s)		28.3			22.9			12.6			10.3	
Confl. Peds. (#/hr)	1					1			3	3		
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	10%	7%	16%	10%	10%	25%	5%	5%	21%	0%	9%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	233	118	127	161	4	159	761	123	7	409	28
Turn Type	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	Perm	NA	Perm
Protected Phases		4	5	3	8		5	2	3		6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	35.0	35.0	18.0	9.0	44.0	44.0	18.0	61.0	9.0	43.0	43.0	43.0
Total Split (s)	35.0	35.0	18.0	9.0	44.0	44.0	18.0	61.0	9.0	43.0	43.0	43.0
Total Split (%)	33.3%	33.3%	17.1%	8.6%	41.9%	41.9%	17.1%	58.1%	8.6%	41.0%	41.0%	41.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	0.0	0.0	1.0	1.0	0.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	3.0	5.0	3.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead			Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		Yes	Yes	Yes	Yes
Act Effct Green (s)	31.0	31.0	50.0	41.0	40.0	40.0	58.0	56.0	64.0	38.0	38.0	38.0
Actuated g/C Ratio	0.30	0.30	0.48	0.39	0.38	0.38	0.55	0.53	0.61	0.36	0.36	0.36
v/c Ratio	0.16	0.44	0.16	0.37	0.25	0.01	0.34	0.79	0.15	0.04	0.65	0.05
Control Delay	29.1	33.3	3.4	24.8	23.5	0.0	13.8	27.1	5.4	22.9	33.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	33.3	3.4	24.8	23.5	0.0	13.8	27.1	5.4	22.9	33.8	0.1
LOS	C	C	A	C	C	A	B	C	A	C	C	A
Approach Delay		24.0			23.7			22.5			31.5	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	26	127	0	55	73	0	50	392	19	3	227	0
Queue Length 95th (ft)	58	200	30	98	123	0	84	564	42	13	335	0
Internal Link Dist (ft)		1167			927			473			374	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	50		110	60		80	65		50	60		70
Base Capacity (vph)	333	524	724	343	657	513	465	965	813	171	630	581
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.44	0.16	0.37	0.25	0.01	0.34	0.79	0.15	0.04	0.65	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 105			
Control Type: Pretimed			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 24.8		Intersection LOS: C	
Intersection Capacity Utilization 152.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: California Avenue & 31st Street

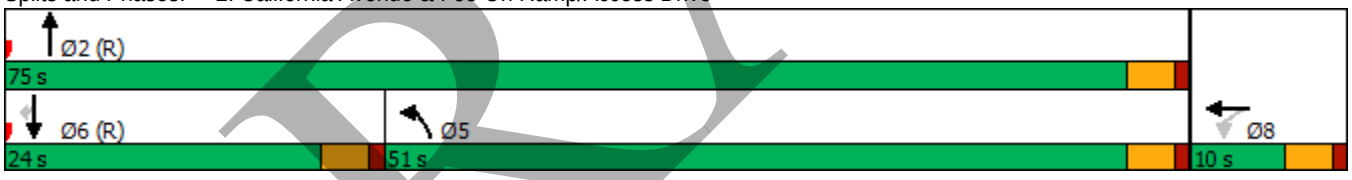
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	3	18	18	699	1026	37	0	237	409
Future Volume (vph)	0	0	0	3	18	18	699	1026	37	0	237	409
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	325		0	0		150
Storage Lanes	0		0	0		0	2		0	0		2
Taper Length (ft)	25			25			25			140		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor								1.00				0.99
Frt					0.937			0.995				0.850
Flt Protected					0.996		0.950					
Satd. Flow (prot)	0	0	0	0	1063	0	3019	3298	0	0	3223	1346
Flt Permitted					0.996		0.950					
Satd. Flow (perm)	0	0	0	0	1063	0	3019	3298	0	0	3223	1328
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					19			18				260
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1161			411			481			371	
Travel Time (s)		26.4			9.3			10.9			8.4	
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	33%	61%	78%	16%	7%	59%	0%	12%	20%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	41	0	728	1108	0	0	247	426
Turn Type				Perm	NA		Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8								6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				6.0	6.0		47.0	71.0			20.0	20.0
Minimum Split (s)				10.0	10.0		51.0	75.0			24.0	24.0
Total Split (s)				10.0	10.0		51.0	75.0			24.0	24.0
Total Split (%)				11.8%	11.8%		60.0%	88.2%			28.2%	28.2%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	1.0
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)					4.0		4.0	4.0			4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		Max	C-Max			C-Max	C-Max
Act Effct Green (s)					6.0		47.0	76.6			24.0	24.0
Actuated g/C Ratio					0.07		0.55	0.90			0.28	0.28
v/c Ratio					0.45		0.44	0.37			0.27	0.76
Control Delay					40.2		7.6	0.9			26.1	22.3
Queue Delay					0.0		0.0	0.1			0.0	0.0
Total Delay					40.2		7.6	1.1			26.1	22.3
LOS					D		A	A			C	C
Approach Delay					40.2			3.7			23.7	

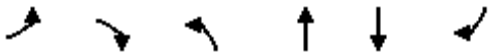
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					D			A			C	
Queue Length 50th (ft)					11		81	37			57	84
Queue Length 95th (ft)					#49		m110	m32			91	#252
Internal Link Dist (ft)		1081			331			401			291	
Turn Bay Length (ft)							325					150
Base Capacity (vph)					92		1669	2973			910	561
Starvation Cap Reductn					0		0	774			0	0
Spillback Cap Reductn					0		0	0			0	0
Storage Cap Reductn					0		0	0			0	0
Reduced v/c Ratio					0.45		0.44	0.50			0.27	0.76

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 79.5%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: California Avenue & I-55 On Ramp/Access Drive



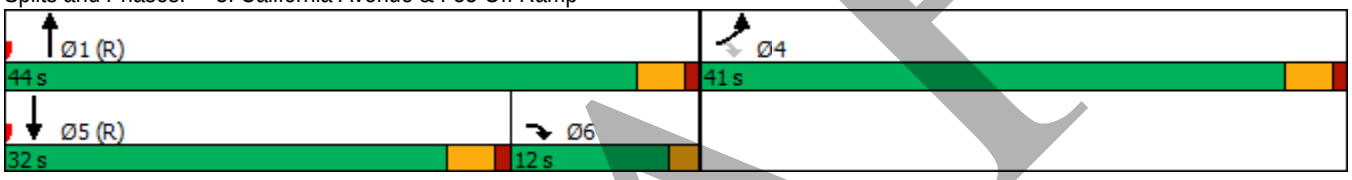


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	485	248	0	1277	240	0
Future Volume (vph)	485	248	0	1277	240	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1626	1380	0	3343	3195	0
Flt Permitted	0.950					
Satd. Flow (perm)	1626	1380	0	3343	3195	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		258				
Link Speed (mph)	30			30	30	
Link Distance (ft)	554			333	481	
Travel Time (s)	12.6			7.6	10.9	
Confl. Bikes (#/hr)						2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	11%	17%	0%	8%	13%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	505	258	0	1330	250	0
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	6		1	5	
Permitted Phases		4				
Minimum Split (s)	41.0	12.0		44.0	32.0	
Total Split (s)	41.0	12.0		44.0	32.0	
Total Split (%)	48.2%	14.1%		51.8%	37.6%	
Yellow Time (s)	3.0	2.0		3.0	3.0	
All-Red Time (s)	1.0	0.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	2.0		4.0	4.0	
Lead/Lag		Lag			Lead	
Lead-Lag Optimize?		Yes			Yes	
Act Effct Green (s)	37.0	51.0		40.0	28.0	
Actuated g/C Ratio	0.44	0.60		0.47	0.33	
v/c Ratio	0.71	0.28		0.85	0.24	
Control Delay	26.6	1.8		26.2	1.4	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	26.6	1.8		26.2	1.4	
LOS	C	A		C	A	
Approach Delay	18.2			26.2	1.4	
Approach LOS	B			C	A	
Queue Length 50th (ft)	214	0		315	0	
Queue Length 95th (ft)	333	28		411	1	
Internal Link Dist (ft)	474			253	401	
Turn Bay Length (ft)						
Base Capacity (vph)	707	931		1573	1052	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.71	0.28		0.85	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 5 (6%), Referenced to phase 1:NBT and 5:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Pretimed			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 21.0		Intersection LOS: C	
Intersection Capacity Utilization 72.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: California Avenue & I-55 Off Ramp



Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	29	3	0	1	27	1016	1	2	614	25
Future Vol, veh/h	6	1	29	3	0	1	27	1016	1	2	614	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	100	100	90	100	0	100	78	6	100	100	11	88
Mvmt Flow	6	1	30	3	0	1	28	1058	1	2	640	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1772	1773	653	1789	1786	1060	666	0	0	1060	0	0
Stage 1	657	657	-	1116	1116	-	-	-	-	-	-	-
Stage 2	1115	1116	-	673	670	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	7.1	8.1	6.5	7.2	4.88	-	-	5.1	-	-
Critical Hdwy Stg 1	7.1	6.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4.9	4.11	4.4	4	4.2	2.902	-	-	3.1	-	-
Pot Cap-1 Maneuver	37	48	343	36	82	179	650	-	-	394	-	-
Stage 1	326	339	-	166	285	-	-	-	-	-	-	-
Stage 2	166	190	-	318	459	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	34	43	343	29	73	179	650	-	-	394	-	-
Mov Cap-2 Maneuver	34	43	-	29	73	-	-	-	-	-	-	-
Stage 1	292	336	-	148	255	-	-	-	-	-	-	-
Stage 2	148	170	-	287	455	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	44.8	114.3	0.3	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	650	-	-	127	37	394	-	-
HCM Lane V/C Ratio	0.043	-	-	0.295	0.113	0.005	-	-
HCM Control Delay (s)	10.8	0	-	44.8	114.3	14.2	0	-
HCM Lane LOS	B	A	-	E	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.4	0	-	-

Capacity Analysis Summary Sheets

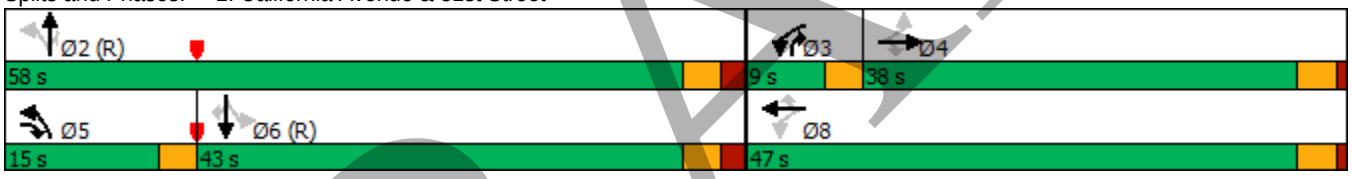
Weekday Evening Peak Hour – Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	190	308	271	315	10	202	490	104	10	603	27
Future Volume (vph)	19	190	308	271	315	10	202	490	104	10	603	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		110	60		80	65		50	60		70
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	110			125			75			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1810	1599	1687	1792	1346	1703	1827	1442	1805	1845	1553
Flt Permitted	0.553			0.503			0.098			0.474		
Satd. Flow (perm)	1001	1810	1560	890	1792	1318	175	1827	1405	899	1845	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			52			52			73
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1247			1007			553			454	
Travel Time (s)		28.3			22.9			12.6			10.3	
Confl. Peds. (#/hr)			3	3			3		4	4		3
Confl. Bikes (#/hr)						1			3			2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	5%	1%	7%	6%	20%	6%	4%	12%	0%	3%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	196	318	279	325	10	208	505	107	10	622	28
Turn Type	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	Perm	NA	Perm
Protected Phases		4	5	3	8		5	2	3		6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	38.0	38.0	15.0	9.0	47.0	47.0	15.0	58.0	9.0	43.0	43.0	43.0
Total Split (s)	38.0	38.0	15.0	9.0	47.0	47.0	15.0	58.0	9.0	43.0	43.0	43.0
Total Split (%)	36.2%	36.2%	14.3%	8.6%	44.8%	44.8%	14.3%	55.2%	8.6%	41.0%	41.0%	41.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	0.0	0.0	1.0	1.0	0.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	3.0	5.0	3.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead			Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		Yes	Yes	Yes	Yes
Act Effct Green (s)	34.0	34.0	47.0	44.0	43.0	43.0	55.0	53.0	61.0	38.0	38.0	38.0
Actuated g/C Ratio	0.32	0.32	0.45	0.42	0.41	0.41	0.52	0.50	0.58	0.36	0.36	0.36
v/c Ratio	0.06	0.33	0.41	0.67	0.44	0.02	0.78	0.55	0.13	0.03	0.93	0.05
Control Delay	25.4	28.9	11.9	32.0	24.8	0.1	42.4	20.6	5.1	22.2	55.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	28.9	11.9	32.0	24.8	0.1	42.4	20.6	5.1	22.2	55.1	0.1
LOS	C	C	B	C	C	A	D	C	A	C	E	A
Approach Delay		18.7			27.6			24.1			52.3	
Approach LOS		B			C			C			D	
Queue Length 50th (ft)	9	99	74	128	155	0	84	223	14	4	398	0
Queue Length 95th (ft)	27	161	140	198	233	0	#200	322	36	16	#621	0
Internal Link Dist (ft)		1167			927			473			374	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	50		110	60		80	65		50	60		70
Base Capacity (vph)	324	586	774	418	733	570	266	922	840	325	667	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.33	0.41	0.67	0.44	0.02	0.78	0.55	0.13	0.03	0.93	0.05

Intersection Summary		
Area Type:	Other	
Cycle Length: 105		
Actuated Cycle Length: 105		
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 105		
Control Type: Pretimed		
Maximum v/c Ratio: 0.93		
Intersection Signal Delay: 30.9		Intersection LOS: C
Intersection Capacity Utilization 155.0%		ICU Level of Service H
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: California Avenue & 31st Street



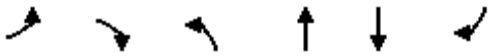
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1	0	0	763	800	3	0	414	772
Future Volume (vph)	0	0	0	1	0	0	763	800	3	0	414	772
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	325		0	0		150
Storage Lanes	0		0	0		0	2		0	0		1
Taper Length (ft)	25			25			25			140		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.98
Frt								0.999				0.850
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	0	3273	3428	0	0	3471	1568
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1805	0	3265	3428	0	0	3471	1543
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								2				229
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1161			411			481			371	
Travel Time (s)		26.4			9.3			10.9			8.4	
Confl. Peds. (#/hr)							3					3
Confl. Bikes (#/hr)									4			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	7%	5%	67%	0%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1	0	848	892	0	0	460	858
Turn Type				Perm	NA		Prot	NA			NA	custom
Protected Phases					8		5	2			6	6
Permitted Phases				8								6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				6.0	6.0		40.0	71.0			27.0	27.0
Minimum Split (s)				10.0	10.0		44.0	75.0			31.0	31.0
Total Split (s)				10.0	10.0		44.0	75.0			31.0	31.0
Total Split (%)				11.8%	11.8%		51.8%	88.2%			36.5%	36.5%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	1.0
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)					4.0		4.0	4.0			4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		Max	C-Max			C-Max	C-Max
Act Effct Green (s)					6.0		40.0	82.2			35.0	35.0
Actuated g/C Ratio					0.07		0.47	0.97			0.41	0.41
v/c Ratio					0.01		0.55	0.27			0.32	1.10
Control Delay					37.0		20.7	1.1			18.5	84.0
Queue Delay					0.0		0.0	0.0			0.0	0.0
Total Delay					37.0		20.7	1.1			18.5	84.0
LOS					D		C	A			B	F
Approach Delay					37.0			10.7			61.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					D			B			E	
Queue Length 50th (ft)					1		161	0			81	~434
Queue Length 95th (ft)					6		218	112			143	#738
Internal Link Dist (ft)		1081			331			401			291	
Turn Bay Length (ft)							325					150
Base Capacity (vph)					127		1540	3315			1428	780
Starvation Cap Reductn					0		0	0			0	0
Spillback Cap Reductn					0		0	0			0	0
Storage Cap Reductn					0		0	0			0	0
Reduced v/c Ratio					0.01		0.55	0.27			0.32	1.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 32.4		Intersection LOS: C	
Intersection Capacity Utilization 96.5%		ICU Level of Service F	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: California Avenue & I-55 On Ramp/Access Drive

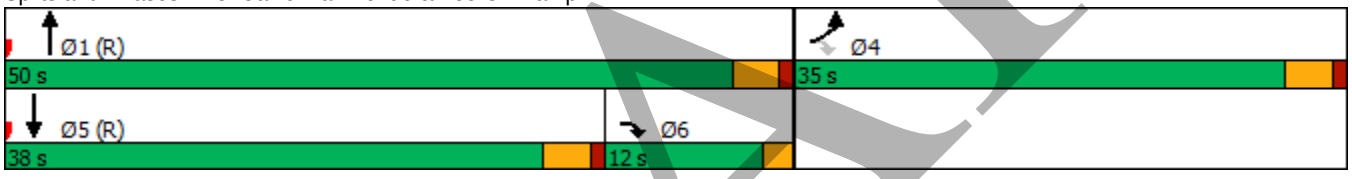


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	449	606	0	1117	415	0
Future Volume (vph)	449	606	0	1117	415	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1641	1538	0	3471	3505	0
Flt Permitted	0.950					
Satd. Flow (perm)	1641	1538	0	3471	3505	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		259				
Link Speed (mph)	30			30	30	
Link Distance (ft)	554			333	481	
Travel Time (s)	12.6			7.6	10.9	
Confl. Peds. (#/hr)			2			2
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	5%	0%	4%	3%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	473	638	0	1176	437	0
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	6		1	5	
Permitted Phases		4				
Minimum Split (s)	35.0	12.0		50.0	38.0	
Total Split (s)	35.0	12.0		50.0	38.0	
Total Split (%)	41.2%	14.1%		58.8%	44.7%	
Yellow Time (s)	3.0	2.0		3.0	3.0	
All-Red Time (s)	1.0	0.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	2.0		4.0	4.0	
Lead/Lag		Lag			Lead	
Lead-Lag Optimize?		Yes			Yes	
Act Effct Green (s)	31.0	45.0		46.0	34.0	
Actuated g/C Ratio	0.36	0.53		0.54	0.40	
v/c Ratio	0.79	0.68		0.63	0.31	
Control Delay	35.7	12.7		15.4	43.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	35.7	12.7		15.4	43.9	
LOS	D	B		B	D	
Approach Delay	22.5			15.4	43.9	
Approach LOS	C			B	D	
Queue Length 50th (ft)	222	135		214	0	
Queue Length 95th (ft)	#378	258		279	184	
Internal Link Dist (ft)	474			253	401	
Turn Bay Length (ft)						
Base Capacity (vph)	598	936		1878	1402	
Starvation Cap Reductn	0	0		0	0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.79	0.68		0.63	0.31	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 51 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Pretimed			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 72.5%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: California Avenue & I-55 Off Ramp



Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	1	18	1	0	0	20	780	0	0	1167	15
Future Vol, veh/h	16	1	18	1	0	0	20	780	0	0	1167	15
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	5	5	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	56	0	22	100	0	0	20	4	0	0	2	53
Mvmt Flow	17	1	19	1	0	0	21	830	0	0	1241	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2124	2128	1251	2136	2136	836	1259	0	0	835	0	0
Stage 1	1251	1251	-	877	877	-	-	-	-	-	-	-
Stage 2	873	877	-	1259	1259	-	-	-	-	-	-	-
Critical Hdwy	7.66	6.5	6.42	8.1	6.5	6.2	4.3	-	-	4.1	-	-
Critical Hdwy Stg 1	6.66	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.66	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.004	4	3.498	4.4	4	3.3	2.38	-	-	2.2	-	-
Pot Cap-1 Maneuver	26	50	191	19	50	370	495	-	-	807	-	-
Stage 1	165	246	-	237	369	-	-	-	-	-	-	-
Stage 2	279	369	-	134	244	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	24	46	191	16	46	368	494	-	-	803	-	-
Mov Cap-2 Maneuver	24	46	-	16	46	-	-	-	-	-	-	-
Stage 1	152	246	-	217	338	-	-	-	-	-	-	-
Stage 2	257	338	-	120	244	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	223.1	245.5	0.3	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	494	-	-	45	16	803	-	-
HCM Lane V/C Ratio	0.043	-	-	0.827	0.066	-	-	-
HCM Control Delay (s)	12.6	0	-	223.1	245.5	0	-	-
HCM Lane LOS	B	A	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.3	0.2	0	-	-

Capacity Analysis Summary Sheets

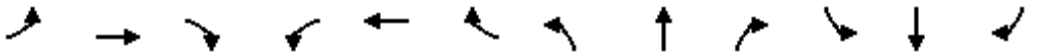
Weekday Morning Peak Hour – Projected Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	235	119	128	163	4	161	768	125	7	413	28
Future Volume (vph)	54	235	119	128	163	4	161	768	125	7	413	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		110	60		80	65		50	60		70
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	110			125			75			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98			0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1641	1776	1392	1641	1727	1292	1719	1810	1335	1805	1743	1509
Flt Permitted	0.652			0.423			0.284			0.225		
Satd. Flow (perm)	1125	1776	1392	731	1727	1264	514	1810	1304	427	1743	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121			52			43			73
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1247			1007			553			454	
Travel Time (s)		28.3			22.9			12.6			10.3	
Confl. Peds. (#/hr)	1					1			3	3		
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	10%	7%	16%	10%	10%	25%	5%	5%	21%	0%	9%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	240	121	131	166	4	164	784	128	7	421	29
Turn Type	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	Perm	NA	Perm
Protected Phases		4	5	3	8		5	2	3		6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	35.0	35.0	18.0	9.0	44.0	44.0	18.0	61.0	9.0	43.0	43.0	43.0
Total Split (s)	35.0	35.0	18.0	9.0	44.0	44.0	18.0	61.0	9.0	43.0	43.0	43.0
Total Split (%)	33.3%	33.3%	17.1%	8.6%	41.9%	41.9%	17.1%	58.1%	8.6%	41.0%	41.0%	41.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	0.0	0.0	1.0	1.0	0.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	3.0	5.0	3.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead			Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		Yes	Yes	Yes	Yes
Act Effct Green (s)	31.0	31.0	50.0	41.0	40.0	40.0	58.0	56.0	64.0	38.0	38.0	38.0
Actuated g/C Ratio	0.30	0.30	0.48	0.39	0.38	0.38	0.55	0.53	0.61	0.36	0.36	0.36
v/c Ratio	0.17	0.46	0.17	0.39	0.25	0.01	0.36	0.81	0.16	0.05	0.67	0.05
Control Delay	29.2	33.6	3.4	25.2	23.6	0.0	14.0	28.6	5.5	23.0	34.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	33.6	3.4	25.2	23.6	0.0	14.0	28.6	5.5	23.0	34.5	0.2
LOS	C	C	A	C	C	A	B	C	A	C	C	A
Approach Delay		24.2			24.0			23.6			32.1	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	27	131	0	57	75	0	52	414	20	3	235	0
Queue Length 95th (ft)	59	206	30	101	126	0	86	597	43	13	347	0
Internal Link Dist (ft)		1167			927			473			374	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	50		110	60		80	65		50	60		70
Base Capacity (vph)	332	524	726	337	657	513	456	965	813	154	630	581
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.46	0.17	0.39	0.25	0.01	0.36	0.81	0.16	0.05	0.67	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 105			
Control Type: Pretimed			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 25.5		Intersection LOS: C	
Intersection Capacity Utilization 152.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: California Avenue & 31st Street



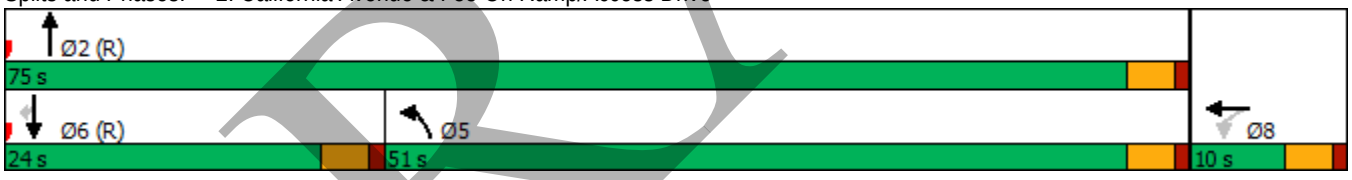
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	3	19	19	720	1057	38	0	244	421
Future Volume (vph)	0	0	0	3	19	19	720	1057	38	0	244	421
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	325		0	0		150
Storage Lanes	0		0	0		0	2		0	0		2
Taper Length (ft)	25			25			25			140		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor								1.00				0.99
Frt					0.937			0.995				0.850
Flt Protected					0.997		0.950					
Satd. Flow (prot)	0	0	0	0	1063	0	3019	3298	0	0	3223	1346
Flt Permitted					0.997		0.950					
Satd. Flow (perm)	0	0	0	0	1063	0	3019	3298	0	0	3223	1328
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					20			18				249
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1161			411			481			371	
Travel Time (s)		26.4			9.3			10.9			8.4	
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	33%	61%	78%	16%	7%	59%	0%	12%	20%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	43	0	750	1141	0	0	254	439
Turn Type				Perm	NA		Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8								6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				6.0	6.0		47.0	71.0			20.0	20.0
Minimum Split (s)				10.0	10.0		51.0	75.0			24.0	24.0
Total Split (s)				10.0	10.0		51.0	75.0			24.0	24.0
Total Split (%)				11.8%	11.8%		60.0%	88.2%			28.2%	28.2%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	1.0
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)					4.0		4.0	4.0			4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		Max	C-Max			C-Max	C-Max
Act Effct Green (s)					6.0		47.0	76.6			24.0	24.0
Actuated g/C Ratio					0.07		0.55	0.90			0.28	0.28
v/c Ratio					0.46		0.45	0.38			0.28	0.79
Control Delay					41.2		7.8	0.9			26.2	25.8
Queue Delay					0.0		0.0	0.2			0.0	0.0
Total Delay					41.2		7.8	1.1			26.2	25.8
LOS					D		A	A			C	C
Approach Delay					41.2			3.7			25.9	

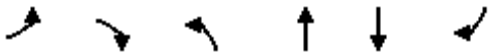
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					D			A			C	
Queue Length 50th (ft)					12		84	39			59	101
Queue Length 95th (ft)					#51		m113	m32			93	#279
Internal Link Dist (ft)		1081			331			401			291	
Turn Bay Length (ft)							325					150
Base Capacity (vph)					93		1669	2973			910	553
Starvation Cap Reductn					0		0	774			0	0
Spillback Cap Reductn					0		0	0			0	0
Storage Cap Reductn					0		0	0			0	0
Reduced v/c Ratio					0.46		0.45	0.52			0.28	0.79

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 80.2%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: California Avenue & I-55 On Ramp/Access Drive



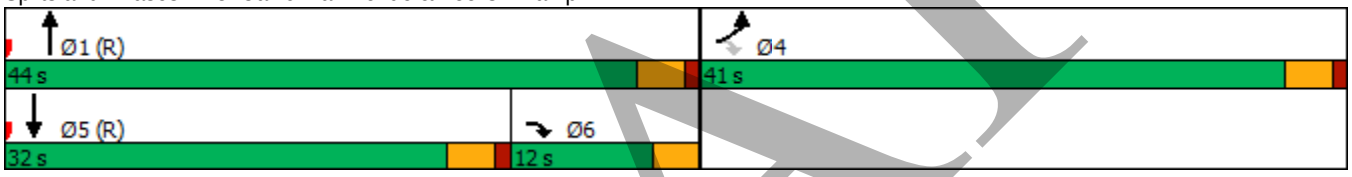


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	500	255	0	1315	247	0
Future Volume (vph)	500	255	0	1315	247	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1626	1380	0	3343	3195	0
Flt Permitted	0.950					
Satd. Flow (perm)	1626	1380	0	3343	3195	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		266				
Link Speed (mph)	30			30	30	
Link Distance (ft)	554			333	481	
Travel Time (s)	12.6			7.6	10.9	
Confl. Bikes (#/hr)						2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	11%	17%	0%	8%	13%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	521	266	0	1370	257	0
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	6		1	5	
Permitted Phases		4				
Minimum Split (s)	41.0	12.0		44.0	32.0	
Total Split (s)	41.0	12.0		44.0	32.0	
Total Split (%)	48.2%	14.1%		51.8%	37.6%	
Yellow Time (s)	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	0.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	3.0		4.0	4.0	
Lead/Lag		Lag			Lead	
Lead-Lag Optimize?		Yes			Yes	
Act Effct Green (s)	37.0	50.0		40.0	28.0	
Actuated g/C Ratio	0.44	0.59		0.47	0.33	
v/c Ratio	0.74	0.29		0.87	0.24	
Control Delay	27.6	1.9		27.9	1.4	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	27.6	1.9		27.9	1.4	
LOS	C	A		C	A	
Approach Delay	18.9			27.9	1.4	
Approach LOS	B			C	A	
Queue Length 50th (ft)	224	0		331	0	
Queue Length 95th (ft)	349	29		#441	1	
Internal Link Dist (ft)	474			253	401	
Turn Bay Length (ft)						
Base Capacity (vph)	707	921		1573	1052	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.74	0.29		0.87	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 5 (6%), Referenced to phase 1:NBT and 5:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Pretimed			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 22.1		Intersection LOS: C	
Intersection Capacity Utilization 73.9%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: California Avenue & I-55 Off Ramp



Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	30	3	0	1	28	1047	1	2	632	26
Future Vol, veh/h	6	1	30	3	0	1	28	1047	1	2	632	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	100	100	90	100	0	100	78	6	100	100	11	88
Mvmt Flow	6	1	31	3	0	1	29	1091	1	2	658	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1826	1827	672	1843	1840	1093	685	0	0	1093	0	0
Stage 1	676	676	-	1151	1151	-	-	-	-	-	-	-
Stage 2	1150	1151	-	692	689	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	7.1	8.1	6.5	7.2	4.88	-	-	5.1	-	-
Critical Hdwy Stg 1	7.1	6.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4.9	4.11	4.4	4	4.2	2.902	-	-	3.1	-	-
Pot Cap-1 Maneuver	34	44	333	33	76	170	638	-	-	381	-	-
Stage 1	317	332	-	157	275	-	-	-	-	-	-	-
Stage 2	158	182	-	310	450	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	31	39	333	26	67	170	638	-	-	381	-	-
Mov Cap-2 Maneuver	31	39	-	26	67	-	-	-	-	-	-	-
Stage 1	280	329	-	139	243	-	-	-	-	-	-	-
Stage 2	139	161	-	277	446	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	48.6	129.3	0.3	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	638	-	-	120	33	381	-	-
HCM Lane V/C Ratio	0.046	-	-	0.321	0.126	0.005	-	-
HCM Control Delay (s)	10.9	0	-	48.6	129.3	14.5	0	-
HCM Lane LOS	B	A	-	E	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	0.4	0	-	-

Capacity Analysis Summary Sheets

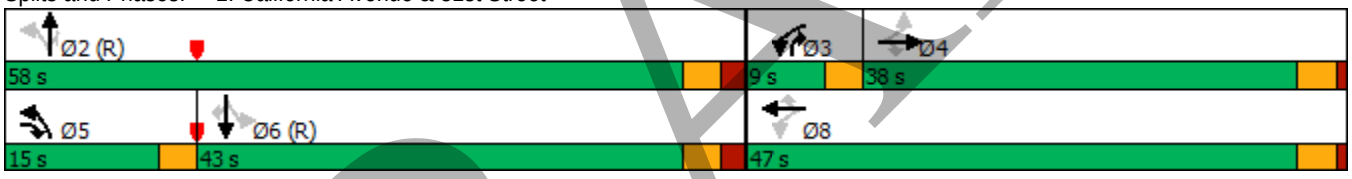
Weekday Evening Peak Hour – Projected Conditions

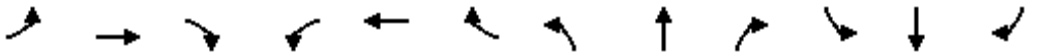
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	196	317	279	324	10	208	505	107	10	621	28
Future Volume (vph)	20	196	317	279	324	10	208	505	107	10	621	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		110	60		80	65		50	60		70
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	110			125			75			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1810	1599	1687	1792	1346	1703	1827	1442	1805	1845	1553
Flt Permitted	0.541			0.495			0.098			0.456		
Satd. Flow (perm)	979	1810	1560	876	1792	1318	175	1827	1405	865	1845	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			52			52			73
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1247			1007			553			454	
Travel Time (s)		28.3			22.9			12.6			10.3	
Confl. Peds. (#/hr)			3	3			3		4	4		3
Confl. Bikes (#/hr)						1			3			2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	5%	1%	7%	6%	20%	6%	4%	12%	0%	3%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	202	327	288	334	10	214	521	110	10	640	29
Turn Type	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	Perm	NA	Perm
Protected Phases		4	5	3	8		5	2	3		6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	38.0	38.0	15.0	9.0	47.0	47.0	15.0	58.0	9.0	43.0	43.0	43.0
Total Split (s)	38.0	38.0	15.0	9.0	47.0	47.0	15.0	58.0	9.0	43.0	43.0	43.0
Total Split (%)	36.2%	36.2%	14.3%	8.6%	44.8%	44.8%	14.3%	55.2%	8.6%	41.0%	41.0%	41.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	0.0	0.0	1.0	1.0	0.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	3.0	5.0	3.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead			Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		Yes	Yes	Yes	Yes
Act Effct Green (s)	34.0	34.0	47.0	44.0	43.0	43.0	55.0	53.0	61.0	38.0	38.0	38.0
Actuated g/C Ratio	0.32	0.32	0.45	0.42	0.41	0.41	0.52	0.50	0.58	0.36	0.36	0.36
v/c Ratio	0.07	0.34	0.43	0.70	0.46	0.02	0.80	0.57	0.13	0.03	0.96	0.05
Control Delay	25.4	29.1	12.8	33.6	25.0	0.1	45.1	21.0	5.2	22.2	60.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	29.1	12.8	33.6	25.0	0.1	45.1	21.0	5.2	22.2	60.1	0.1
LOS	C	C	B	C	C	A	D	C	A	C	E	A
Approach Delay		19.3			28.6			25.1			57.0	
Approach LOS		B			C			C			E	
Queue Length 50th (ft)	10	103	82	133	160	0	88	233	15	4	415	0
Queue Length 95th (ft)	28	166	150	204	240	0	#211	336	37	16	#649	0
Internal Link Dist (ft)		1167			927			473			374	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	50		110	60		80	65		50	60		70
Base Capacity (vph)	317	586	769	413	733	570	266	922	840	313	667	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.34	0.43	0.70	0.46	0.02	0.80	0.57	0.13	0.03	0.96	0.05

Intersection Summary		
Area Type:	Other	
Cycle Length: 105		
Actuated Cycle Length: 105		
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 105		
Control Type: Pretimed		
Maximum v/c Ratio: 0.96		
Intersection Signal Delay: 32.7	Intersection LOS: C	
Intersection Capacity Utilization 155.0%	ICU Level of Service H	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: California Avenue & 31st Street





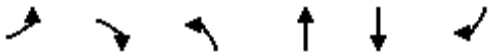
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1	0	0	786	825	3	0	426	795
Future Volume (vph)	0	0	0	1	0	0	786	825	3	0	426	795
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	325		0	0		150
Storage Lanes	0		0	0		0	2		0	0		1
Taper Length (ft)	25			25			25			140		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.98
Frt												0.850
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	0	3273	3431	0	0	3471	1568
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1805	0	3261	3431	0	0	3471	1541
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								2				223
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1161			411			481			371	
Travel Time (s)		26.4			9.3			10.9			8.4	
Confl. Peds. (#/hr)							3					3
Confl. Bikes (#/hr)									4			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	7%	5%	67%	0%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1	0	873	920	0	0	473	883
Turn Type				Perm	NA		Prot	NA			NA	custom
Protected Phases					8		5	2			6	6
Permitted Phases				8								6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				6.0	6.0		40.0	71.0			27.0	27.0
Minimum Split (s)				10.0	10.0		44.0	75.0			31.0	31.0
Total Split (s)				10.0	10.0		44.0	75.0			31.0	31.0
Total Split (%)				11.8%	11.8%		51.8%	88.2%			36.5%	36.5%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	1.0
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)					4.0		4.0	4.0			4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		Max	C-Max			C-Max	C-Max
Act Effct Green (s)					6.0		40.0	82.2			35.0	35.0
Actuated g/C Ratio					0.07		0.47	0.97			0.41	0.41
v/c Ratio					0.01		0.57	0.28			0.33	1.14
Control Delay					37.0		21.1	1.1			18.6	98.1
Queue Delay					0.0		0.0	0.0			0.0	0.0
Total Delay					37.0		21.1	1.1			18.6	98.1
LOS					D		C	A			B	F
Approach Delay					37.0			10.9			70.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					D			B			E	
Queue Length 50th (ft)					1		169	0			84	~467
Queue Length 95th (ft)					6		227	112			147	#773
Internal Link Dist (ft)		1081			331			401			291	
Turn Bay Length (ft)							325					150
Base Capacity (vph)					127		1540	3318			1428	776
Starvation Cap Reductn					0		0	0			0	0
Spillback Cap Reductn					0		0	0			0	0
Storage Cap Reductn					0		0	0			0	0
Reduced v/c Ratio					0.01		0.57	0.28			0.33	1.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.14			
Intersection Signal Delay: 36.5		Intersection LOS: D	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: California Avenue & I-55 On Ramp/Access Drive



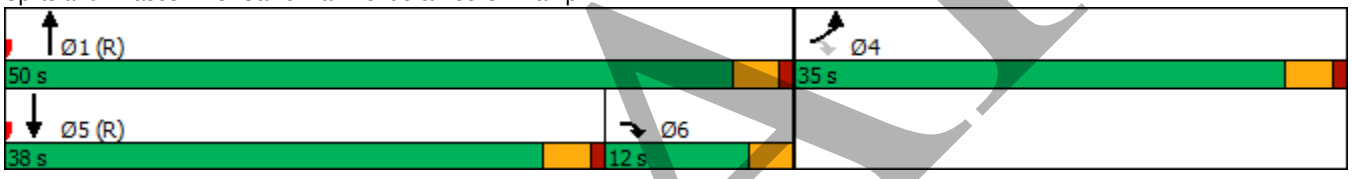
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	462	624	0	1152	426	0
Future Volume (vph)	462	624	0	1152	426	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1641	1538	0	3471	3505	0
Flt Permitted	0.950					
Satd. Flow (perm)	1641	1538	0	3471	3505	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		250				
Link Speed (mph)	30			30	30	
Link Distance (ft)	554			333	481	
Travel Time (s)	12.6			7.6	10.9	
Confl. Peds. (#/hr)			2			2
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	5%	0%	4%	3%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	486	657	0	1213	448	0
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	6		1	5	
Permitted Phases		4				
Minimum Split (s)	35.0	12.0		50.0	38.0	
Total Split (s)	35.0	12.0		50.0	38.0	
Total Split (%)	41.2%	14.1%		58.8%	44.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	0.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	3.0		4.0	4.0	
Lead/Lag		Lag			Lead	
Lead-Lag Optimize?		Yes			Yes	
Act Effct Green (s)	31.0	44.0		46.0	34.0	
Actuated g/C Ratio	0.36	0.52		0.54	0.40	
v/c Ratio	0.81	0.72		0.65	0.32	
Control Delay	37.3	14.6		15.8	43.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	37.3	14.6		15.8	43.9	
LOS	D	B		B	D	
Approach Delay	24.2			15.8	43.9	
Approach LOS	C			B	D	
Queue Length 50th (ft)	230	155		225	0	
Queue Length 95th (ft)	#395	292		292	188	
Internal Link Dist (ft)	474			253	401	
Turn Bay Length (ft)						
Base Capacity (vph)	598	916		1878	1402	
Starvation Cap Reductn	0	0		0	0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.81	0.72		0.65	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 51 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Pretimed			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 23.7		Intersection LOS: C	
Intersection Capacity Utilization 73.6%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: California Avenue & I-55 Off Ramp



Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	1	18	1	0	0	21	804	0	0	1202	15
Future Vol, veh/h	16	1	18	1	0	0	21	804	0	0	1202	15
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	5	5	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	56	0	22	100	0	100	20	4	100	100	2	53
Mvmt Flow	17	1	19	1	0	0	22	855	0	0	1279	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2189	2193	1289	2201	2201	861	1297	0	0	860	0	0
Stage 1	1289	1289	-	904	904	-	-	-	-	-	-	-
Stage 2	900	904	-	1297	1297	-	-	-	-	-	-	-
Critical Hdwy	7.66	6.5	6.42	8.1	6.5	7.2	4.3	-	-	5.1	-	-
Critical Hdwy Stg 1	6.66	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.66	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.004	4	3.498	4.4	4	4.2	2.38	-	-	3.1	-	-
Pot Cap-1 Maneuver	23	46	181	17	45	243	479	-	-	486	-	-
Stage 1	156	236	-	227	358	-	-	-	-	-	-	-
Stage 2	269	358	-	126	234	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	21	42	181	14	41	242	478	-	-	484	-	-
Mov Cap-2 Maneuver	21	42	-	14	41	-	-	-	-	-	-	-
Stage 1	142	236	-	206	325	-	-	-	-	-	-	-
Stage 2	245	325	-	112	234	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	274.2	282.3	0.3	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	478	-	-	40	14	484	-	-
HCM Lane V/C Ratio	0.047	-	-	0.931	0.076	-	-	-
HCM Control Delay (s)	12.9	0	-	274.2	282.3	0	-	-
HCM Lane LOS	B	A	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.6	0.2	0	-	-