Kimley»Horn

Memorandum

To: Jack Varozza, P.E., QSD/P
Senior Engineer, City of Roseville

From: Pedro Cortes
Stephen Dillon, P.E.

Re: ***Traffic Evaluation***
Douglas-Harding Starbucks
Roseville, California

Date: June 2, 2023

The purpose of this memorandum is to document the transportation analysis completed for the Starbucks proposed to be located near the Douglas Boulevard intersection with Harding Boulevard in Roseville, California (the "proposed project" or "project"). This memorandum evaluates the weekday AM and PM peak-hours under Existing (2023) and Existing (2023) plus Project conditions.

Project Understanding

Kimley-Horn understands that a Starbucks store is proposed to occupy the prior Burger King site located along South Harding Boulevard, just south of Douglas Boulevard (**Exhibit 1**). The project proposes to demolish portions of the existing building and site to accommodate a 3,100-square foot (sf) Starbucks with drive-through[1] (**Exhibit 2**). Access to the project site would be accomplished via three existing access points, all of which are from South Harding Boulevard. The analysis completed was based on the following primary assumptions:

- The existing Starbucks store located at 415 Roseville Square will remain open and fully operational. While this existing store does not have a drive-through facility, it is anticipated to continue to attract a portion of the trips that would have normally been assumed to visit the proposed project site.
- Because the prior Burger King is no longer operational, this analysis does not "credit" the proposed Starbucks use for site trips already on the network.
- This analysis includes completion of a trip generation study in a manner consistent with the *Trip Generation Manual*, *11th Edition*, published by the Institute of Transportation Engineers (ITE) to develop a unique trip rate, and drive-through queuing rate, for local Starbucks application. Accordingly, three Starbucks locations were surveyed to enable completion of a trip generation study in a manner consistent with ITE's methodologies.

Based on this information, a "Short-Term Traffic Impact Study[2]" has been prepared, as supplemented by additional Scope of Services aspects you have specifically noted. The primary purposes of this analysis are to evaluate the proposed project's access points, anticipated on-site operations, and localized traffic conditions to ensure safe and efficient operations.

[1] *Starbucks Design Intent Package,* December 14, 2022.
[2] Section 4 Traffic Impact Studies, *City of Roseville Design Standards,* City of Roseville, January 2016.

Data Collection

We collected the following data from the City to aid in the completion of this evaluation:

- Weekday, AM (7-9) and PM (4-6) peak-period intersection turning movement traffic volumes from the City's Intelligent Transportation System (ITS) for three (3) weekdays (Tuesday, Wednesday, and Thursday) from March 8-10, 2022, at the Douglas Boulevard intersection with Harding Boulevard. These volumes are understood to have been used by the City to establish the current traffic signal timing parameters at the study intersection.
- Existing signal timing parameters for the Douglas Boulevard intersection with Harding Boulevard.

We also completed a field visit to observe study intersection lane configurations, vehicle storage lengths, existing traffic control, speed limits, lane utilization, adjacent land uses, and other readily apparent features for the study facilities that were deemed by Kimley-Horn to be relevant to the Scope of Services.

Using the above data, Kimley-Horn developed a weekday, AM and PM peak-hour intersection analysis (delay and queuing) using Synchro® traffic analysis software. The volumes used for the analysis were the average of the three weekday counts (from March 8-10, 2022) noted above.

Lastly, we manually collected (via traffic count subconsultant) unique local site weekday, AM (6-9) and PM (4-7) peak-period trip generation data for the following three (3) existing Starbucks locations:

- 709 Cirby Way, Roseville, CA
- 943 Pleasant Grove Boulevard, Roseville, CA
- 9450 Fairway Drive, Roseville, CA

These three locations were selected as they provide both indoor seating and drive-through options, similar to the project. Data collected from the three locations was averaged to establish weekday, AM and PM peak-period trip generation rates for use in this analysis. In conjunction with this collection, drive-through counts were included to assist with quantifying the proposed drive-through facility's operations (i.e., maximum vehicle queues).

Assessment of Proposed Project

Trip Generation

The number of trips anticipated to be generated by the proposed project was derived in a manner consistent with the methodology contained in the *Trip Generation Manual, 11th Edition*, published by ITE. According to ITE, five sites are preferred (three minimum) to complete this study. Using the square footage (gross floor area) for the sample local sites noted above, we developed a unique local trip generation rate (trips per thousand square feet) for the proposed project. The anticipated trip generation characteristics for the proposed project are depicted in **Table 1**. Data collected at the three local sites is included in **Attachment A**.

As shown in **Table 1**, the project is anticipated to generate 89 and 27 net new external trips during the AM and PM peak-hours, respectively. It is also anticipated to experience 88 and 32 Pass-by trips during the AM and PM peak-hours, respectively. Pass-by trips are trips going into the project that are already present on the roadway network adjacent to the project site and are, therefore, not included in the number of net new external trips (but are considered driveway trips).

Project Trip Distribution and Assignment

The project trips were distributed and assigned to the adjacent transportation networks based on existing traffic patterns and engineering judgement (see **Exhibit 3**).

Table 1 – Proposed Project Trip Generation

Location	Size (ksf)	AM Peak-Hour					PM Peak-Hour				
		Total Trips[1]	In		Out		Total Trips[1]	In		Out	
			%	Trips	%	Trips		%	Trips	%	Trips
709 Cirby Way, Roseville, CA	2.0	119	48%	57	52%	62	41	51%	21	49%	20
943 Pleasant Grove Blvd, Roseville, CA	1.7	102	50%	51	50%	51	24	46%	11	54%	13
9450 Fairway Dr, Roseville, CA	1.5	76	54%	41	46%	35	35	49%	17	51%	18
Average Trips		**99**	**51%**	**50**	**49%**	**49**	**33**	**49%**	**16**	**51%**	**17**
Calculated Rate (# trips/ksf)		57		29		28	19		9		10
Subtotal (Driveway Trips)	*3.1*	177		89		88	59		29		30
Pass-by Trips (50% AM, 55% PM)[2]		-88		-45		-43	-32		-14		-18
Net New External Trips:		89		44		45	27		15		12

ksf = 1,000 square feet

[1] *Peak-hour operational data collected at existing Starbucks*

[2] *Pass-by data for LU 934 (Fast-Food Restaurant with Drive-Through) per ITE 11 2021 Pass-By Table appendix*

Evaluation Parameters and Study Facilities

A peak-hour intersection operations analysis (delay and queuing) was conducted for the weekday, AM and PM peak-hours for the following scenarios:

A. Existing (2023) Conditions
B. Existing (2023) plus Project Conditions

The peak hour operations analysis was completed for the following intersection:

1. Douglas Boulevard @ Harding Boulevard

Peak-hour operations analyses were determined for the weekday, AM and PM peak-hours for the scenarios listed above. Operations for each scenario were determined using methods defined in the *Highway Capacity Manual* (using Synchro® traffic analysis software). **Exhibit 4** details the study intersection's geometries and the weekday AM and PM peak-hour volumes both without (Existing (2023) Conditions) and with the addition of the project (Existing (2023) plus Project Conditions). Traffic count data sheets are provided in **Attachment B**.

Traffic Evaluation

As previously noted, the purpose of this analysis was to evaluate the proposed project's access points and adjacent primary intersection to quantify the amount of vehicular delay and queuing that is anticipated to result from the addition of the project.

Signalized Intersection Delay and Queuing

Synchro® traffic analysis software was used to enable the quantification of vehicular delay and queuing at the signalized study intersection. **Table 2** summarizes delay and **Table 3** summarizes select movements' queuing both without (Existing (2023) Conditions) and with the addition of the project (Existing (2023) plus Project Conditions). All technical analysis worksheets are provided in **Attachment C**.

Table 2 – Signalized Intersection Delay

ID	Intersection	Control	Peak Hour	Existing (2023)		Existing (2023) plus Project	
				Delay (sec)	LOS	Delay (sec)	LOS
1	Douglas Blvd @ Harding Blvd	Signal	AM	15.6	B	19.1	B
			PM	25.3	C	26.7	C

Notes: **Bold** represents unacceptable operations. Shaded represents a project induced deficiency.

Table 3 – Signalized Intersection Queuing

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#1 Douglas Blvd @ Harding Blvd	**WBL**				
Existing (2023)		135	66	135	104
Existing (2023) plus Project			131		120
	NBL				
Existing (2023)		75	25	75	27
Existing (2023) plus Project			89		47
	NBR				
Existing (2023)		70	0	70	33
Existing (2023) plus Project			19		34

Notes: For approaches with dual lanes, the longest queue length is reported.

As indicated in Table 2, the signalized study intersection experiences an increase in delay resulting from the addition of the project. The intersection sees an overall increase in delay of 3.5 seconds in the AM peak-hour and 1.4 seconds in the PM peak-hour with the addition of the project. The increase in delay is anticipated to be indiscernible. The queueing results presented in Table 3 show moderate increases in queue length on movements to which project trips were assigned. However, all queues are projected to be contained within their respective storage pockets with and without the project.

Internal Circulation Review

The drive-through queuing data collected as part of this project was used to assess the configuration and operations of the project. This evaluation included consideration of the expected maximum number of vehicles in each drive-through lane (assuming typical operations and not a "grand opening" type condition). Using the square footage (gross floor area) for the sample local sites, a unique local maximum queue rate (max queue per thousand square feet) was developed for the project. This queue rate was used to evaluate the project's proposed drive-through capacity. Additional information regarding existing facility locations and collection periods is outlined in the previous Data Collection section of this memorandum. The drive-through is shown to wrap the proposed Starbucks in a counterclockwise manner with approximately 375-feet queue capacity (15 vehicles total assuming 25-feet per vehicle). The proposed site plan presented in Exhibit 2 shows a different number of vehicles due to different assumed car length.

Table 4 presents summary information of the drive-through queueing data, calculation, and evaluation. As shown in Table 4, the calculated maximum drive-through queue exceeds the project's proposed drive-through capacity by four (4) cars. Should drive-through queues extend beyond the available capacity, there is sufficient space on-site such that vehicles will be contained within the project site and should not extend beyond project driveways and into public right-of-way (South Harding Boulevard). Any such occurrence of the drive-through queue extending beyond the opening of the drive-through lane is expected to be an infrequent occurrence and of short duration.

Table 4 – Maximum Observed Drive-Through Vehicle Queues

Location	Size (ksf)	Maximum Observed Vehicle Queue (# of cars)[1]	Proposed Project Drive-Through Capacity
709 Cirby Way, Roseville, CA	2.0	12	-
943 Pleasant Grove Blvd, Roseville, CA	1.7	9	
9450 Fairway Dr, Roseville, CA	1.5	9	
Calculated Rate (Max queue/ksf)		6	
Proposed Project	*3.1*	19	15

ksf = 1,000 square feet

[1] *Operational data collected at existing Starbucks*

Minimum Required Throat Depth (MRTD)

The MRTD was calculated for the two unsignalized site access driveway locations along South Harding Boulevard (see **Exhibit 1**). The project proposes to maintain and use these two existing site access driveways. **Table 5** summarizes the findings of the MRTD evaluation based on the City's guidelines[3].

Table 5 – MRTD for Site Access Driveways

ID	Driveway	Peak Hour	Approach Volume	ConflVol (Left)	LT Out	Minimum Required Throat Depth (MRTD)	Available Storage
2	Full-Access (West) Driveway @ Harding Boulevard	AM	87	87	87	**25**	**20**
		PM	29	179	29	**25**	
3	Egress (East) Driveway @ Harding Boulevard	AM	10	87	10	**25**	**30**
		PM	3	179	3	**25**	

The proposed available throat depth for the western driveway (Intersection #2) is observed to be approximately 20-feet, and the proposed available throat depth for the eastern driveway (Intersection #3) is observed to be approximately 30-feet. As shown in **Table 5**, the MRTD during the AM and PM peak-hours for both intersections is calculated to be 25-feet. As the calculated MRTD does not exceed the available storage by more than one vehicle length (25-feet), the provided throat depth is deemed sufficient to accommodate the anticipated site operations.

Emergency Vehicle and Refuse Service Access

The site plan (**Exhibit 2**) was qualitatively reviewed for emergency vehicle and refuse service access. The project site appears to include adequate access to buildings to accommodate emergency vehicles. Adequate access and circulation are provided for refuse services to access the onsite refuse locations depicted in **Exhibit 2**.

[3] Section 4 Traffic Impact Studies, *City of Roseville Design Standards,* City of Roseville, January 2020.

Conclusions

The following are the primary conclusions based on the analyses discussed herein:

- *The addition of project trips using the Douglas Boulevard intersection with Harding Boulevard (Intersection #1) will not adversely affect the delay or queueing* – the reported increase in delay and queuing at Intersection #1 in the "plus Project" scenario is not expected to result in discernable deteriorations in operations.
- *The maximum calculated vehicle queue exceeds the project drive-through queue capacity but will not adversely affect on- or off-site operations* – the occurrence of a drive-through queue extending beyond the provided drive-through capacity is expected to be an infrequent occurrence and of short duration. Queueing vehicles exceeding the provided drive-through capacity will be contained within the project site and are not anticipated to interfere with operations on the adjacent street (South Harding Boulevard).

Attachments

Exhibit 1 – Project Vicinity Map
Exhibit 2 – Proposed Site Plan
Exhibit 3 – Project Trip Distribution and Assignment
Exhibit 4 – Existing (2023) and Existing (2023) plus Project Peak-Hour Volumes, Traffic Control, and Lane Geometry

Attachment A – Trip Generation Data (Local Sites)
Attachment B – Traffic Count Data Sheets
Attachment C – Analysis Worksheets

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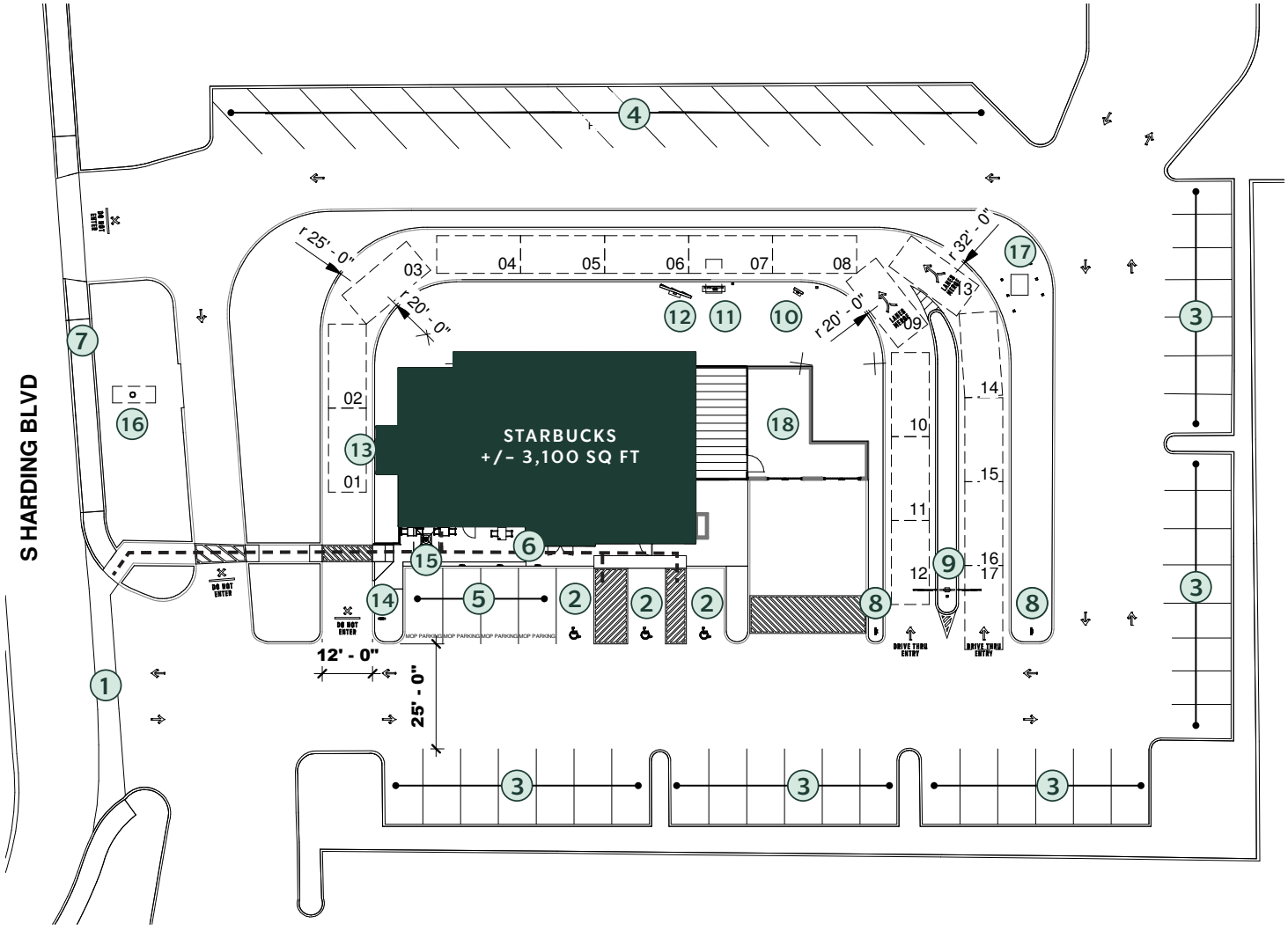
Exhibit 1
Project Vicinity Map

KEY NOTES

1. (E) SITE ENTRANCE
2. (N) ADA PARKING (3)
3. (E) PARKING TO BE RESTRIPED
4. (E) PROPOSED PARTNER'S PARKING
5. (N) MOP PARKING
6. (N) CAFE ENTRANCE
7. (E) PUBLIC SIDEWALK
8. (N) DT ENTRY SIGN
9. (N) DT CLEARANCE BAR
10. (N) PRE-MENU BOARD
11. (N) ORDER POINT W/ CANOPY
12. (N) 5-PANEL MENU BOARD
13. (N) DT WINDOW
14. (N) DT EXIT SIGN
15. (N) PATIO
16. (E) MONUMEN SIGN TO BE REFACED
17. (E) TRANSFORMER TO REMAIN
18. (E) TRASH ENCLOSURE W/ (N) ROOF

ACCESSIBLE ROUTE TO PUBLIC WAY

NOT TO SCALE



Site Plan Date: 04/03/2023

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Exhibit 2
Proposed Site Plan

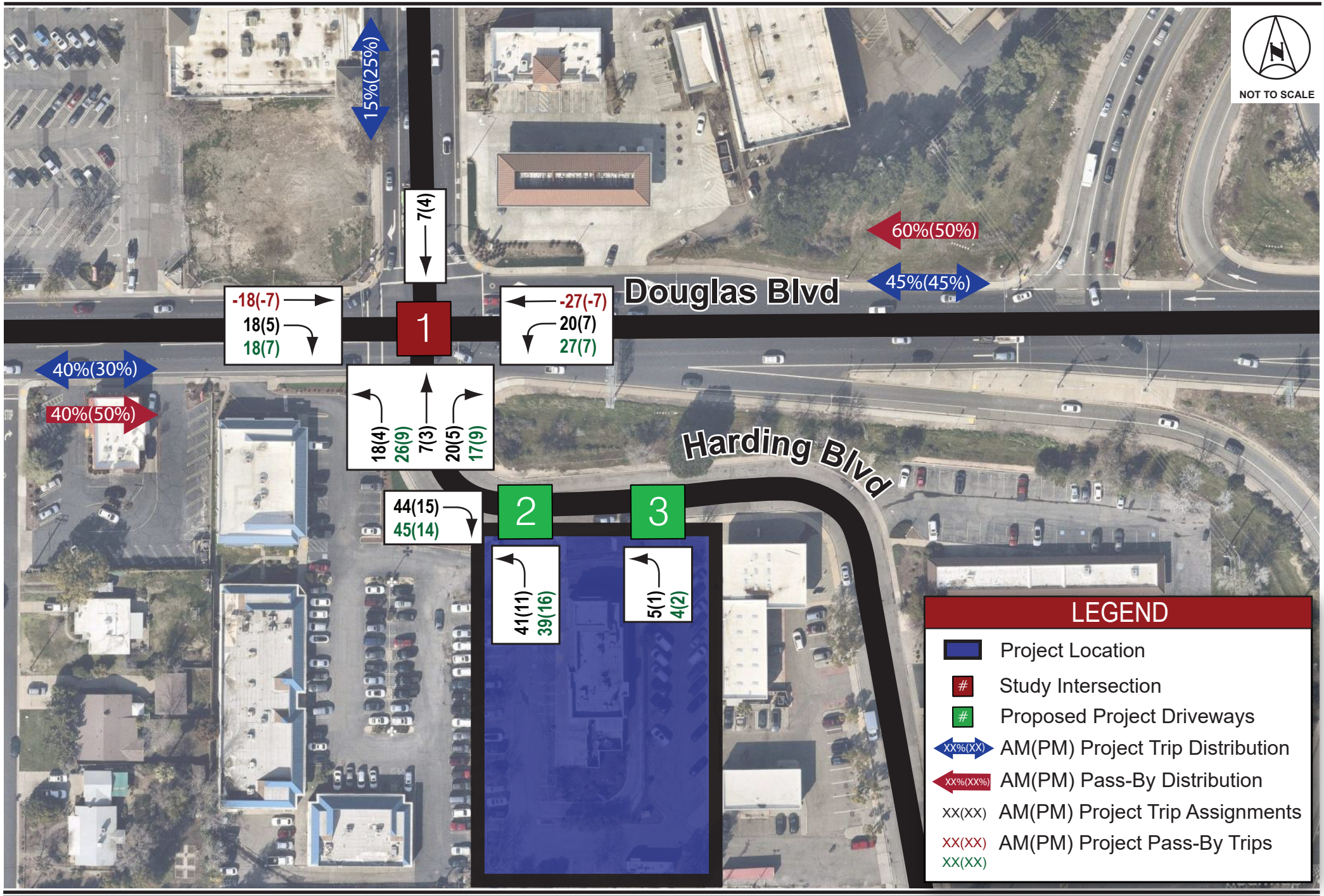

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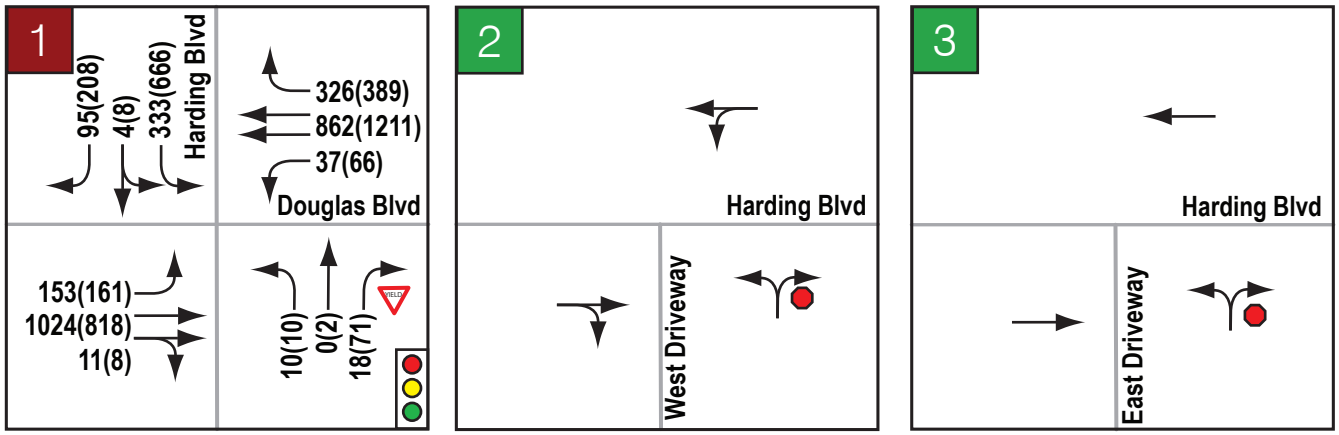
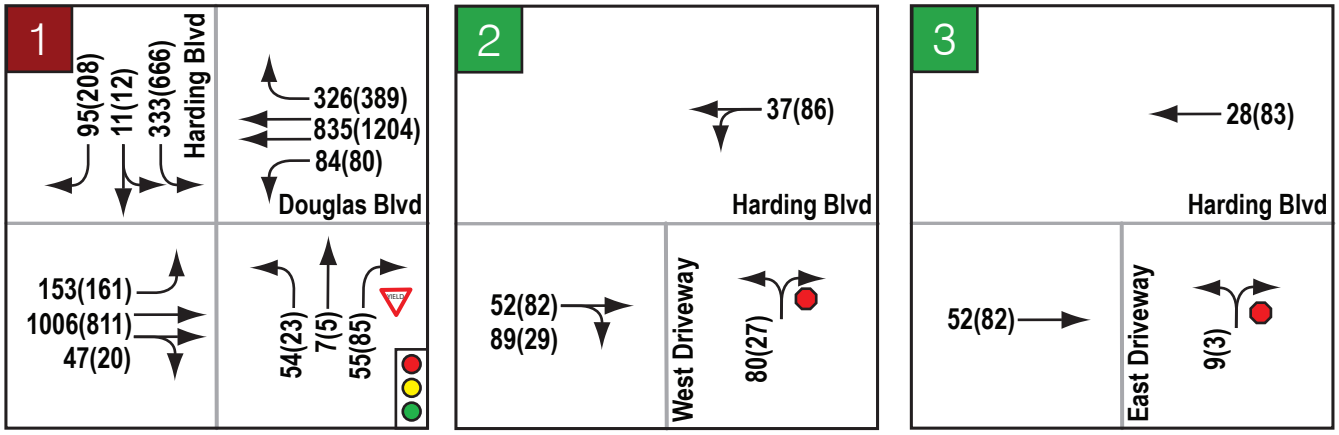
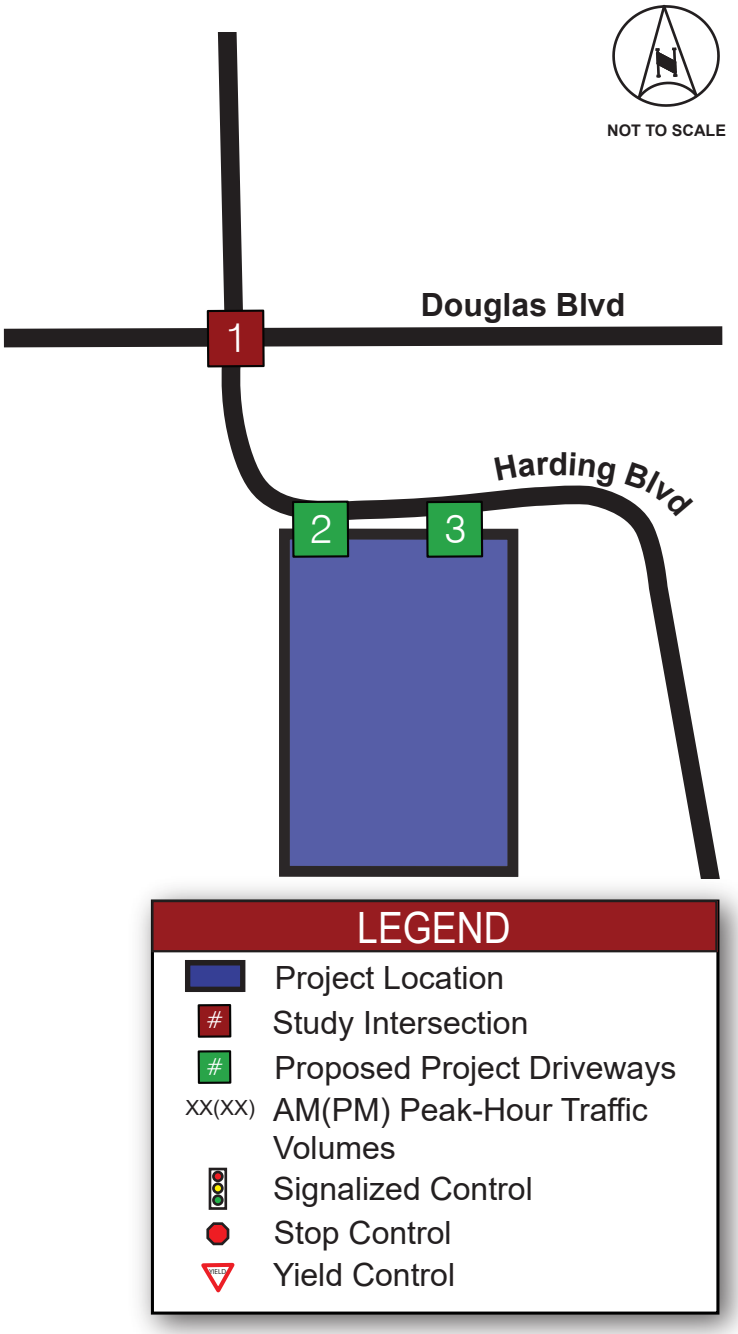
Exhibit 3
Project Trip Distribution and Assignment

Existing (2023) Peak-Hour Traffic Volumes



Existing (2023) plus Project Peak-Hour Traffic Volumes





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Attachment A

Trip Generation Data (Local Sites)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Location: Cirby Village
Date: 5/3/2023
Site Code: 16178723

Start Time	Entering	Exiting
6:00 AM	1	0
6:05 AM	2	2
6:10 AM	0	2
6:15 AM	1	0
6:20 AM	3	3
6:25 AM	1	2
6:30 AM	1	1
6:35 AM	4	1
6:40 AM	2	4
6:45 AM	1	1
6:50 AM	3	3
6:55 AM	2	2
7:00 AM	2	1
7:05 AM	7	5
7:10 AM	4	2
7:15 AM	2	4
7:20 AM	4	3
7:25 AM	2	3
7:30 AM	5	3
7:35 AM	3	4
7:40 AM	4	3
7:45 AM	6	7
7:50 AM	3	3
7:55 AM	5	2
8:00 AM	7	7
8:05 AM	8	7
8:10 AM	6	10
8:15 AM	2	3
8:20 AM	3	3
8:25 AM	5	6
8:30 AM	1	1
8:35 AM	3	2
8:40 AM	6	3
8:45 AM	6	8
8:50 AM	7	6
8:55 AM	3	6
Total	**125**	**123**

Location: Cirby Village
Date: 5/3/2023
Site Code: 16178724

Start Time	Entering	Exiting
4:00 PM	1	1
4:05 PM	0	0
4:10 PM	1	1
4:15 PM	0	1
4:20 PM	0	1
4:25 PM	1	0
4:30 PM	0	1
4:35 PM	2	0
4:40 PM	1	2
4:45 PM	0	1
4:50 PM	3	1
4:55 PM	1	2
5:00 PM	3	0
5:05 PM	1	4
5:10 PM	0	0
5:15 PM	3	1
5:20 PM	6	1
5:25 PM	0	2
5:30 PM	0	2
5:35 PM	2	0
5:40 PM	2	1
5:45 PM	2	0
5:50 PM	1	4
5:55 PM	2	3
6:00 PM	1	1
6:05 PM	1	3
6:10 PM	1	2
6:15 PM	2	1
6:20 PM	1	0
6:25 PM	0	2
6:30 PM	2	2
6:35 PM	2	1
6:40 PM	1	0
6:45 PM	1	0
6:50 PM	1	3
6:55 PM	0	0
Total	**45**	**44**

Quality Counts
DATA THAT DRIVES COMMUNITIES

Location: Pleasant Grove
Date: 5/3/2023
Site Code: 16178725

Start Time	Entering	Exiting
6:00 AM	0	0
6:05 AM	0	0
6:10 AM	1	1
6:15 AM	0	0
6:20 AM	0	0
6:25 AM	2	1
6:30 AM	1	0
6:35 AM	0	1
6:40 AM	2	1
6:45 AM	4	4
6:50 AM	5	3
6:55 AM	3	3
7:00 AM	5	6
7:05 AM	6	3
7:10 AM	1	4
7:15 AM	2	2
7:20 AM	1	2
7:25 AM	5	4
7:30 AM	4	3
7:35 AM	7	6
7:40 AM	2	1
7:45 AM	5	6
7:50 AM	7	8
7:55 AM	6	6
8:00 AM	2	4
8:05 AM	6	5
8:10 AM	2	3
8:15 AM	3	4
8:20 AM	1	1
8:25 AM	2	0
8:30 AM	1	1
8:35 AM	3	3
8:40 AM	3	2
8:45 AM	4	4
8:50 AM	4	4
8:55 AM	4	4
Total	**104**	**100**

Location: Pleasant Grove
Date: 5/3/2023
Site Code: 16178726

Start Time	Entering	Exiting
4:00 PM	1	1
4:05 PM	0	1
4:10 PM	0	1
4:15 PM	1	0
4:20 PM	1	3
4:25 PM	2	2
4:30 PM	1	2
4:35 PM	0	0
4:40 PM	0	0
4:45 PM	0	0
4:50 PM	0	0
4:55 PM	0	0
5:00 PM	4	1
5:05 PM	1	4
5:10 PM	1	1
5:15 PM	0	0
5:20 PM	1	1
5:25 PM	0	0
5:30 PM	1	0
5:35 PM	0	0
5:40 PM	1	0
5:45 PM	0	1
5:50 PM	0	0
5:55 PM	0	0
6:00 PM	1	0
6:05 PM	0	0
6:10 PM	1	0
6:15 PM	1	1
6:20 PM	0	0
6:25 PM	1	1
6:30 PM	1	1
6:35 PM	1	1
6:40 PM	2	1
6:45 PM	0	0
6:50 PM	0	1
6:55 PM	0	0
Total	**23**	**24**

Location: Fairway Creek
Date: 5/3/2023
Site Code: 16178727

Start Time	Entering	Exiting
6:00 AM	0	0
6:05 AM	0	0
6:10 AM	1	0
6:15 AM	1	0
6:20 AM	0	1
6:25 AM	0	0
6:30 AM	1	1
6:35 AM	2	1
6:40 AM	1	1
6:45 AM	1	0
6:50 AM	1	1
6:55 AM	1	0
7:00 AM	0	1
7:05 AM	1	1
7:10 AM	4	4
7:15 AM	2	1
7:20 AM	2	2
7:25 AM	3	4
7:30 AM	6	2
7:35 AM	2	1
7:40 AM	3	4
7:45 AM	5	6
7:50 AM	0	2
7:55 AM	2	1
8:00 AM	2	4
8:05 AM	7	5
8:10 AM	2	4
8:15 AM	4	1
8:20 AM	5	3
8:25 AM	3	2
8:30 AM	0	3
8:35 AM	0	0
8:40 AM	2	1
8:45 AM	5	3
8:50 AM	7	5
8:55 AM	2	2
Total	**78**	**67**

Location: Fairway Creek
Date: 5/3/2023
Site Code: 16178728

Start Time	Entering	Exiting
4:00 PM	1	0
4:05 PM	0	2
4:10 PM	2	1
4:15 PM	1	4
4:20 PM	0	1
4:25 PM	3	1
4:30 PM	2	2
4:35 PM	2	0
4:40 PM	2	3
4:45 PM	1	2
4:50 PM	0	2
4:55 PM	1	1
5:00 PM	2	0
5:05 PM	2	1
5:10 PM	1	1
5:15 PM	1	1
5:20 PM	0	0
5:25 PM	0	0
5:30 PM	1	1
5:35 PM	0	0
5:40 PM	0	0
5:45 PM	0	1
5:50 PM	0	0
5:55 PM	0	0
6:00 PM	0	0
6:05 PM	2	0
6:10 PM	0	3
6:15 PM	1	0
6:20 PM	1	1
6:25 PM	1	0
6:30 PM	2	1
6:35 PM	1	2
6:40 PM	3	2
6:45 PM	0	1
6:50 PM	0	0
6:55 PM	0	0
Total	**33**	**34**

Quality Counts
DATA THAT DRIVES COMMUNITIES

Location: Cirby Village Drive-Thru
Date: 5/3/2023
Site Code: 16178717, 16178718
Time: 6:00 AM - 9:00 AM, 4:00 PM - 7:00 PM

Cirby Village Drive-Thru			
Interval	Longest Queue (# of cars)	Stamp of Max Queue	Longest Queue in full 3 hour count (# of cars)
6:00 AM	2	8:02:45 AM	12
6:05 AM	1		
6:10 AM	3		
6:15 AM	2		
6:20 AM	3		
6:25 AM	3		
6:30 AM	6		
6:35 AM	5		
6:40 AM	5		
6:45 AM	4		
6:50 AM	5		
6:55 AM	9		
7:00 AM	7		
7:05 AM	9		
7:10 AM	10		
7:15 AM	9		
7:20 AM	9		
7:25 AM	8		
7:30 AM	8		
7:35 AM	4		
7:40 AM	4		
7:45 AM	7		
7:50 AM	4		
7:55 AM	10		
8:00 AM	12		
8:05 AM	11		
8:10 AM	10		
8:15 AM	5		
8:20 AM	7		
8:25 AM	5		
8:30 AM	3		
8:35 AM	5		
8:40 AM	6		
8:45 AM	4		
8:50 AM	6		
8:55 AM	2		

Cirby Village Drive-Thru			
Interval	Longest Queue (# of cars)	Stamp of Max Queue	Longest Queue in full 3 hour count (# of cars)
4:00 PM	3	5:53:43 PM	5
4:05 PM	3		
4:10 PM	3		
4:15 PM	4		
4:20 PM	4		
4:25 PM	1		
4:30 PM	4		
4:35 PM	4		
4:40 PM	2		
4:45 PM	2		
4:50 PM	2		
4:55 PM	2		
5:00 PM	0		
5:05 PM	3		
5:10 PM	3		
5:15 PM	2		
5:20 PM	2		
5:25 PM	2		
5:30 PM	1		
5:35 PM	1		
5:40 PM	2		
5:45 PM	1		
5:50 PM	5		
5:55 PM	5		
6:00 PM	1		
6:05 PM	2		
6:10 PM	3		
6:15 PM	2		
6:20 PM	3		
6:25 PM	2		
6:30 PM	1		
6:35 PM	3		
6:40 PM	1		
6:45 PM	2		
6:50 PM	2		
6:55 PM	1		

Quality Counts
DATA THAT DRIVES COMMUNITIES

Location: Pleasant Grove Drive-Thru
Date: 5/3/2023
Site Code: 16178719, 16178720
Time: 6:00 AM - 9:00 AM, 4:00 PM - 7:00 PM

Pleasant Grove Drive-Thru			
Interval	Longest Queue (# of cars)	Stamp of Max Queue	Longest Queue in full 3 hour count (# of cars)
6:00 AM	1	8:56:38 AM	9
6:05 AM	2		
6:10 AM	4		
6:15 AM	2		
6:20 AM	2		
6:25 AM	2		
6:30 AM	3		
6:35 AM	3		
6:40 AM	4		
6:45 AM	5		
6:50 AM	6		
6:55 AM	6		
7:00 AM	6		
7:05 AM	7		
7:10 AM	6		
7:15 AM	4		
7:20 AM	2		
7:25 AM	5		
7:30 AM	7		
7:35 AM	7		
7:40 AM	5		
7:45 AM	6		
7:50 AM	6		
7:55 AM	4		
8:00 AM	4		
8:05 AM	3		
8:10 AM	6		
8:15 AM	8		
8:20 AM	7		
8:25 AM	6		
8:30 AM	4		
8:35 AM	8		
8:40 AM	8		
8:45 AM	8		
8:50 AM	5		
8:55 AM	9		

Pleasant Grove Drive-Thru			
Interval	Longest Queue (# of cars)	Stamp of Max Queue	Longest Queue in full 3 hour count (# of cars)
4:00 PM	6	4:01:55 PM	6
4:05 PM	2		
4:10 PM	2		
4:15 PM	3		
4:20 PM	2		
4:25 PM	2		
4:30 PM	1		
4:35 PM	1		
4:40 PM	3		
4:45 PM	0		
4:50 PM	1		
4:55 PM	0		
5:00 PM	1		
5:05 PM	2		
5:10 PM	1		
5:15 PM	0		
5:20 PM	0		
5:25 PM	0		
5:30 PM	1		
5:35 PM	2		
5:40 PM	2		
5:45 PM	3		
5:50 PM	3		
5:55 PM	1		
6:00 PM	1		
6:05 PM	1		
6:10 PM	1		
6:15 PM	1		
6:20 PM	1		
6:25 PM	1		
6:30 PM	2		
6:35 PM	1		
6:40 PM	1		
6:45 PM	2		
6:50 PM	1		
6:55 PM	0		

Quality Counts
DATA THAT DRIVES COMMUNITIES

Location: Fairway Creek Drive-Thru
Date: 5/3/2023
Site Code: 16178721, 16178722
Time: 6:00 AM - 9:00 AM, 4:00 PM - 7:00 PM

Fairway Creek Drive-Thru			
Interval	Longest Queue (# of cars)	Stamp of Max Queue	Longest Queue in full 3 hour count (# of cars)
6:00 AM	1	7:34:09 AM	9
6:05 AM	1		
6:10 AM	1		
6:15 AM	1		
6:20 AM	0		
6:25 AM	0		
6:30 AM	1		
6:35 AM	2		
6:40 AM	3		
6:45 AM	3		
6:50 AM	4		
6:55 AM	7		
7:00 AM	6		
7:05 AM	3		
7:10 AM	3		
7:15 AM	2		
7:20 AM	3		
7:25 AM	5		
7:30 AM	9		
7:35 AM	9		
7:40 AM	6		
7:45 AM	3		
7:50 AM	6		
7:55 AM	5		
8:00 AM	4		
8:05 AM	5		
8:10 AM	5		
8:15 AM	4		
8:20 AM	5		
8:25 AM	2		
8:30 AM	5		
8:35 AM	3		
8:40 AM	1		
8:45 AM	7		
8:50 AM	8		
8:55 AM	2		

Fairway Creek Drive-Thru			
Interval	Longest Queue (# of cars)	Stamp of Max Queue	Longest Queue in full 3 hour count (# of cars)
4:00 PM	2	6:25:26 PM	6
4:05 PM	3		
4:10 PM	1		
4:15 PM	4		
4:20 PM	5		
4:25 PM	2		
4:30 PM	2		
4:35 PM	1		
4:40 PM	1		
4:45 PM	2		
4:50 PM	3		
4:55 PM	1		
5:00 PM	0		
5:05 PM	2		
5:10 PM	2		
5:15 PM	2		
5:20 PM	2		
5:25 PM	0		
5:30 PM	1		
5:35 PM	2		
5:40 PM	2		
5:45 PM	0		
5:50 PM	2		
5:55 PM	2		
6:00 PM	2		
6:05 PM	2		
6:10 PM	0		
6:15 PM	0		
6:20 PM	3		
6:25 PM	6		
6:30 PM	3		
6:35 PM	1		
6:40 PM	0		
6:45 PM	1		
6:50 PM	1		
6:55 PM	0		

Kimley»Horn

Attachment B

Traffic Count Data Sheets

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
08/03/22 00:00-00:15	0	0	0	0	13	0	5	18	1	13	0	14	0	16	6	22	54
08/03/22 00:15-00:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08/03/22 00:30-00:45	0	0	0	0	22	0	3	25	6	16	0	22	0	22	2	24	71
08/03/22 00:45-01:00	0	0	2	2	17	0	5	22	1	15	0	16	1	18	4	23	63
08/03/22 01:00-01:15	0	0	0	0	9	0	2	11	0	9	0	9	0	9	8	17	37
08/03/22 01:15-01:30	0	0	1	1	6	0	4	10	3	6	0	9	1	14	3	18	38
08/03/22 01:30-01:45	0	0	0	0	6	0	2	8	1	11	0	12	0	16	4	20	40
08/03/22 01:45-02:00	0	0	1	1	10	0	1	11	2	7	0	9	0	15	2	17	38
08/03/22 02:00-02:15	0	0	0	0	8	0	1	9	1	4	0	5	0	10	2	12	26
08/03/22 02:15-02:30	0	0	0	0	4	0	0	4	2	10	0	12	0	15	2	17	33
08/03/22 02:30-02:45	0	0	0	0	7	0	1	8	0	6	0	6	0	15	1	16	30
08/03/22 02:45-03:00	0	0	0	0	7	0	3	10	0	8	0	8	1	10	1	12	30
08/03/22 03:00-03:15	0	0	0	0	6	0	0	6	2	9	0	11	0	8	2	10	27
08/03/22 03:15-03:30	0	0	0	0	2	0	2	4	1	9	0	10	0	11	4	15	29
08/03/22 03:30-03:45	0	0	0	0	7	0	1	8	1	9	0	10	0	12	6	18	36
08/03/22 03:45-04:00	0	0	0	0	6	0	1	7	1	10	0	11	0	16	3	19	37
08/03/22 04:00-04:15	0	0	0	0	7	0	1	8	3	17	0	20	1	22	6	29	57

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
08/03/22 04:15-04:30	0	0	0	0	4	0	1	5	1	8	0	9	1	15	5	21	35
08/03/22 04:30-04:45	0	0	0	0	11	0	1	12	2	16	0	18	0	17	15	32	62
08/03/22 04:45-05:00	0	0	1	1	6	0	2	8	3	29	0	32	1	19	7	27	68
08/03/22 05:00-05:15	0	0	1	1	11	0	1	12	5	36	0	41	2	31	12	45	99
08/03/22 05:15-05:30	0	0	0	0	18	0	0	18	2	31	0	33	0	41	17	58	109
08/03/22 05:30-05:45	0	0	2	2	28	0	2	30	3	47	0	50	3	38	14	55	137
08/03/22 05:45-06:00	0	0	1	1	27	0	3	30	5	62	1	68	3	46	15	64	163
08/03/22 06:00-06:15	0	0	1	1	29	0	2	31	7	62	1	70	15	60	20	95	197
08/03/22 06:15-06:30	0	0	0	0	42	1	6	49	4	77	1	82	7	60	20	87	218
08/03/22 06:30-06:45	0	0	3	3	62	1	6	69	10	82	1	93	3	69	29	101	266
08/03/22 06:45-07:00	0	0	2	2	47	1	5	53	13	110	1	124	5	76	26	107	286
08/03/22 07:00-07:15	0	0	2	2	51	1	12	64	13	151	2	166	6	140	44	190	422
08/03/22 07:15-07:30	0	0	4	4	65	1	17	83	28	169	2	199	9	110	37	156	442
08/03/22 07:30-07:45	0	0	0	0	94	1	16	111	29	234	2	265	7	176	97	280	656
08/03/22 07:45-08:00	0	0	2	2	59	1	30	90	36	260	2	298	8	216	107	331	721
08/03/22 08:00-08:15	0	0	6	6	89	1	30	120	39	263	3	305	9	285	81	375	806
08/03/22 08:15-08:30	0	0	8	8	89	1	16	106	35	274	3	312	11	191	66	268	694

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
08/03/22 08:30-08:45	0	0	7	7	87	1	13	101	32	236	3	271	13	197	73	283	662
08/03/22 08:45-09:00	0	0	7	7	101	1	24	126	22	211	2	235	9	224	76	309	677
08/03/22 09:00-09:15	0	0	2	2	76	1	24	101	32	270	3	305	9	232	101	342	750
08/03/22 09:15-09:30	0	0	8	8	100	1	33	134	33	182	2	217	13	221	63	297	656
08/03/22 09:30-09:45	0	0	12	12	79	1	37	117	27	158	2	187	11	209	91	311	627
08/03/22 09:45-10:00	0	3	9	12	88	1	23	112	45	188	2	235	13	169	93	275	634
08/03/22 10:00-10:15	0	6	6	12	109	1	36	146	30	174	2	206	9	216	81	306	670
08/03/22 10:15-10:30	0	0	11	11	113	1	24	138	34	175	2	211	7	187	98	292	652
08/03/22 10:30-10:45	0	0	8	8	108	1	41	150	38	166	2	206	11	222	86	319	683
08/03/22 10:45-11:00	0	0	11	11	115	1	37	153	39	178	2	219	20	202	85	307	690
08/03/22 11:00-11:15	0	0	17	17	114	2	40	156	35	192	2	229	13	267	87	367	769
08/03/22 11:15-11:30	0	0	17	17	118	1	44	163	37	160	2	199	15	233	90	338	717
08/03/22 11:30-11:45	0	0	10	10	110	1	42	153	32	185	2	219	14	236	114	364	746
08/03/22 11:45-12:00	0	0	14	14	130	1	44	175	47	189	2	238	9	243	118	370	797
08/03/22 12:00-12:15	0	0	12	12	137	2	45	184	37	183	2	222	11	248	100	359	777
08/03/22 12:15-12:30	0	0	20	20	135	2	50	187	45	183	2	230	14	256	104	374	811
08/03/22 12:30-	0	0	14	14	175	2	46	223	39	154	2	195	19	268	120	407	839

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
12:45																	
08/03/22 12:45-13:00	0	0	14	14	133	2	45	180	27	161	2	190	9	267	95	371	755
08/03/22 13:00-13:15	0	0	9	9	140	2	59	201	43	202	2	247	14	251	91	356	813
08/03/22 13:15-13:30	0	0	12	12	124	2	56	182	26	192	2	220	12	233	68	313	727
08/03/22 13:30-13:45	0	0	19	19	150	2	43	195	41	167	2	210	16	247	90	353	777
08/03/22 13:45-14:00	0	0	12	12	132	2	27	161	45	198	2	245	11	199	97	307	725
08/03/22 14:00-14:15	1	1	19	21	214	3	49	266	29	192	2	223	14	250	103	367	877
08/03/22 14:15-14:30	0	0	13	13	140	2	53	195	30	200	2	232	12	231	79	322	762
08/03/22 14:30-14:45	0	0	12	12	116	2	42	160	39	197	2	238	10	284	95	389	799
08/03/22 14:45-15:00	0	0	16	16	137	2	47	186	38	267	3	308	14	269	115	398	908
08/03/22 15:00-15:15	0	0	11	11	137	2	56	195	42	209	2	253	12	280	145	437	896
08/03/22 15:15-15:30	0	0	8	8	153	2	51	206	50	266	3	319	6	278	107	391	924
08/03/22 15:30-15:45	1	1	9	11	162	2	45	209	33	262	3	298	9	278	111	398	916
08/03/22 15:45-16:00	0	0	14	14	171	2	61	234	36	232	2	270	10	294	103	407	925
08/03/22 16:00-16:15	0	0	13	13	163	2	40	205	44	197	2	243	14	298	121	433	894
08/03/22 16:15-16:30	0	0	10	10	158	2	57	217	43	213	2	258	10	294	99	403	888
08/03/22 16:30-16:45	0	0	15	15	119	1	53	173	41	205	2	248	17	282	96	395	831

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
08/03/22 16:45-17:00	0	0	12	12	155	2	38	195	49	185	2	236	14	274	82	370	813
08/03/22 17:00-17:15	0	0	10	10	161	2	64	227	40	199	2	241	24	287	86	397	875
08/03/22 17:15-17:30	0	0	25	25	171	2	55	228	43	191	2	236	9	295	90	394	883
08/03/22 17:30-17:45	0	0	18	18	156	2	53	211	39	187	2	228	18	322	97	437	894
08/03/22 17:45-18:00	0	0	11	11	165	2	53	220	38	172	2	212	18	296	88	402	845
08/03/22 18:00-18:15	0	0	14	14	156	2	45	203	41	166	2	209	17	253	91	361	787
08/03/22 18:15-18:30	0	0	13	13	138	2	67	207	26	138	1	165	17	247	56	320	705
08/03/22 18:30-18:45	1	1	8	10	135	2	46	183	33	177	2	212	12	235	58	305	710
08/03/22 18:45-19:00	0	0	15	15	97	1	32	130	35	169	2	206	8	203	60	271	622
08/03/22 19:00-19:15	0	0	12	12	97	1	36	134	30	164	2	196	13	195	58	266	608
08/03/22 19:15-19:30	0	0	13	13	98	1	36	135	33	122	1	156	13	167	48	228	532
08/03/22 19:30-19:45	0	0	11	11	107	1	22	130	24	97	1	122	6	156	42	204	467
08/03/22 19:45-20:00	0	0	12	12	63	1	25	89	16	92	1	109	5	157	33	195	405
08/03/22 20:00-20:15	0	0	11	11	79	1	22	102	17	92	1	110	3	157	39	199	422
08/03/22 20:15-20:30	0	0	6	6	92	1	28	121	18	109	1	128	4	136	41	181	436
08/03/22 20:30-20:45	0	0	6	6	82	1	16	99	10	80	1	91	4	126	29	159	355
08/03/22 20:45-21:00	0	0	7	7	71	1	29	101	14	90	1	105	2	92	29	123	336

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
08/03/22 21:00-21:15	0	0	2	2	64	1	21	86	12	64	1	77	3	99	21	123	288
08/03/22 21:15-21:30	0	0	8	8	59	1	23	83	9	73	1	83	4	99	28	131	305
08/03/22 21:30-21:45	0	0	10	10	45	1	18	64	12	63	1	76	4	69	18	91	241
08/03/22 21:45-22:00	0	0	11	11	48	1	18	67	8	58	1	67	4	82	17	103	248
08/03/22 22:00-22:15	0	0	9	9	37	0	13	50	3	54	1	58	0	64	17	81	198
08/03/22 22:15-22:30	0	0	7	7	47	1	18	66	14	48	1	63	2	67	11	80	216
08/03/22 22:30-22:45	0	0	3	3	41	1	12	54	8	37	0	45	2	60	14	76	178
08/03/22 22:45-23:00	0	0	1	1	20	0	9	29	5	28	0	33	3	51	15	69	132
08/03/22 23:00-23:15	0	0	3	3	33	0	12	45	2	25	0	27	1	39	11	51	126
08/03/22 23:15-23:30	0	0	1	1	17	0	6	23	3	29	0	32	1	23	6	30	86
08/03/22 23:30-23:45	0	0	0	0	19	0	6	25	2	28	0	30	0	29	6	35	90
08/03/22 23:45-00:00	0	0	2	2	24	0	4	28	6	29	0	35	3	37	9	49	114
09/03/22 00:00-00:15	0	0	0	0	15	0	2	17	0	9	0	9	0	16	5	21	47
09/03/22 00:15-00:30	0	0	0	0	20	0	4	24	1	7	0	8	0	21	3	24	56
09/03/22 00:30-00:45	0	0	0	0	12	0	2	14	1	11	0	12	0	17	8	25	51
09/03/22 00:45-01:00	0	0	1	1	14	0	3	17	0	12	0	12	0	23	4	27	57
09/03/22 01:00-01:15	0	0	0	0	9	0	2	11	1	3	0	4	0	21	7	28	43

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
09/03/22 01:15-01:30	0	0	2	2	8	0	4	12	1	5	0	6	2	21	8	31	51
09/03/22 01:30-01:45	1	1	0	2	15	0	2	17	2	14	0	16	0	9	1	10	45
09/03/22 01:45-02:00	0	0	0	0	13	0	1	14	1	15	0	16	0	15	4	19	49
09/03/22 02:00-02:15	0	0	0	0	8	0	1	9	1	10	0	11	0	8	1	9	29
09/03/22 02:15-02:30	0	0	0	0	6	0	1	7	1	10	0	11	0	13	4	17	35
09/03/22 02:30-02:45	0	0	0	0	8	0	3	11	1	5	0	6	0	10	2	12	29
09/03/22 02:45-03:00	0	0	0	0	6	0	2	8	0	10	0	10	0	10	3	13	31
09/03/22 03:00-03:15	0	0	0	0	7	0	2	9	2	11	0	13	0	16	4	20	42
09/03/22 03:15-03:30	0	0	1	1	8	0	2	10	1	8	0	9	0	12	3	15	35
09/03/22 03:30-03:45	0	0	0	0	7	0	0	7	1	8	0	9	0	10	4	14	30
09/03/22 03:45-04:00	0	0	0	0	3	0	1	4	0	5	0	5	0	10	2	12	21
09/03/22 04:00-04:15	0	0	1	1	8	0	0	8	3	16	0	19	1	17	8	26	54
09/03/22 04:15-04:30	0	0	0	0	8	0	1	9	1	11	0	12	0	19	8	27	48
09/03/22 04:30-04:45	0	0	0	0	12	0	0	12	2	17	0	19	1	20	7	28	59
09/03/22 04:45-05:00	0	0	0	0	6	0	2	8	6	35	0	41	1	20	7	28	77
09/03/22 05:00-05:15	0	0	0	0	10	0	4	14	1	30	0	31	0	38	15	53	98
09/03/22 05:15-	0	0	1	1	26	0	0	26	3	31	0	34	2	27	16	45	106

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
05:30																	
09/03/22 05:30-05:45	0	0	2	2	20	0	1	21	3	53	0	56	4	34	14	52	131
09/03/22 05:45-06:00	0	0	1	1	25	0	2	27	6	58	1	65	3	41	18	62	155
09/03/22 06:00-06:15	0	0	0	0	23	0	6	29	6	72	1	79	2	75	27	104	212
09/03/22 06:15-06:30	0	0	2	2	35	0	4	39	3	73	1	77	7	58	17	82	200
09/03/22 06:30-06:45	0	0	0	0	66	1	5	72	9	97	1	107	4	80	32	116	295
09/03/22 06:45-07:00	0	0	1	1	37	1	4	42	14	120	1	135	9	79	32	120	298
09/03/22 07:00-07:15	0	0	2	2	63	1	11	75	18	146	2	166	10	131	40	181	424
09/03/22 07:15-07:30	1	1	2	4	57	1	13	71	14	153	1	168	7	112	55	174	417
09/03/22 07:30-07:45	0	0	1	1	82	1	18	101	33	244	2	279	2	159	103	264	645
09/03/22 07:45-08:00	0	0	2	2	72	1	27	100	38	247	3	288	9	229	102	340	730
09/03/22 08:00-08:15	0	0	2	2	77	1	23	101	38	269	3	310	8	242	83	333	746
09/03/22 08:15-08:30	0	0	10	10	126	2	24	152	41	258	3	302	16	198	48	262	726
09/03/22 08:30-08:45	0	0	6	6	72	1	13	86	46	236	3	285	9	181	62	252	629
09/03/22 08:45-09:00	0	0	5	5	95	1	28	124	28	234	3	265	13	208	79	300	694
09/03/22 09:00-09:15	0	0	7	7	103	1	32	136	37	249	3	289	21	261	85	367	799
09/03/22 09:15-09:30	0	0	9	9	90	1	28	119	31	211	2	244	8	229	79	316	688

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
09/03/22 09:30-09:45	0	0	14	14	91	1	24	116	34	177	2	213	16	212	66	294	637
09/03/22 09:45-10:00	0	0	8	8	102	1	33	136	24	156	2	182	10	181	68	259	585
09/03/22 10:00-10:15	0	0	5	5	98	1	21	120	27	157	2	186	8	221	77	306	617
09/03/22 10:15-10:30	0	0	14	14	96	1	33	130	27	152	2	181	15	212	80	307	632
09/03/22 10:30-10:45	0	0	15	15	93	1	36	130	36	174	2	212	13	232	98	343	700
09/03/22 10:45-11:00	0	0	7	7	101	1	30	132	50	171	2	223	12	212	84	308	670
09/03/22 11:00-11:15	0	0	7	7	116	2	32	150	27	184	2	213	14	252	105	371	741
09/03/22 11:15-11:30	0	0	15	15	125	1	45	171	34	163	2	199	18	243	84	345	730
09/03/22 11:30-11:45	0	0	17	17	148	2	34	184	36	178	2	216	13	243	91	347	764
09/03/22 11:45-12:00	0	0	10	10	128	2	45	175	37	172	2	211	10	237	77	324	720
09/03/22 12:00-12:15	0	0	8	8	122	1	35	158	41	194	2	237	14	247	116	377	780
09/03/22 12:15-12:30	0	0	13	13	140	2	51	193	47	189	2	238	14	265	110	389	833
09/03/22 12:30-12:45	0	0	11	11	140	2	41	183	48	193	2	243	14	234	125	373	810
09/03/22 12:45-13:00	0	0	19	19	146	2	50	198	51	183	2	236	18	231	126	375	828
09/03/22 13:00-13:15	1	1	12	14	136	2	35	173	42	220	2	264	9	237	91	337	788
09/03/22 13:15-13:30	0	0	20	20	146	2	52	200	28	194	2	224	13	264	92	369	813
09/03/22 13:30-13:45	0	0	13	13	127	2	46	175	49	188	2	239	14	238	100	352	779

Turning Movement Volume Report

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From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
09/03/22 13:45-14:00	0	0	20	20	140	2	39	181	35	182	2	219	10	221	79	310	730
09/03/22 14:00-14:15	0	0	13	13	145	2	42	189	40	214	2	256	16	275	108	399	857
09/03/22 14:15-14:30	0	0	14	14	150	2	51	203	34	188	2	224	13	258	95	366	807
09/03/22 14:30-14:45	0	63	6	69	142	2	51	195	45	194	2	241	8	250	83	341	846
09/03/22 14:45-15:00	0	52	12	64	148	2	51	201	39	255	2	296	14	245	93	352	913
09/03/22 15:00-15:15	0	9	13	22	154	2	49	205	36	211	2	249	18	289	82	389	865
09/03/22 15:15-15:30	0	0	15	15	153	2	40	195	45	258	3	306	14	271	109	394	910
09/03/22 15:30-15:45	0	0	10	10	152	2	40	194	36	243	2	281	19	286	104	409	894
09/03/22 15:45-16:00	0	0	17	17	151	2	58	211	41	210	2	253	6	282	77	365	846
09/03/22 16:00-16:15	0	0	17	17	145	2	59	206	38	194	2	234	15	305	105	425	882
09/03/22 16:15-16:30	0	0	16	16	172	2	44	218	44	234	2	280	13	300	83	396	910
09/03/22 16:30-16:45	0	6	16	22	176	2	58	236	38	232	3	273	18	306	106	430	961
09/03/22 16:45-17:00	0	1	14	15	168	2	61	231	35	202	2	239	11	294	99	404	889
09/03/22 17:00-17:15	0	0	26	26	176	2	28	206	36	185	2	223	23	312	101	436	891
09/03/22 17:15-17:30	0	0	15	15	213	3	51	267	40	239	2	281	13	304	88	405	968
09/03/22 17:30-17:45	0	0	24	24	169	2	74	245	46	160	2	208	22	295	80	397	874
09/03/22 17:45-18:00	0	0	17	17	190	2	45	237	35	205	2	242	15	291	94	400	896

Turning Movement Volume Report

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From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
09/03/22 18:00-18:15	0	0	16	16	149	2	54	205	42	182	2	226	19	279	74	372	819
09/03/22 18:15-18:30	0	0	16	16	126	2	44	172	41	185	2	228	10	253	67	330	746
09/03/22 18:30-18:45	0	0	9	9	127	2	51	180	39	152	2	193	12	274	76	362	744
09/03/22 18:45-19:00	0	0	15	15	138	2	44	184	34	157	2	193	13	207	60	280	672
09/03/22 19:00-19:15	0	0	16	16	100	1	33	134	32	164	2	198	15	233	66	314	662
09/03/22 19:15-19:30	0	0	4	4	107	1	43	151	29	139	2	170	10	190	56	256	581
09/03/22 19:30-19:45	0	0	13	13	94	1	30	125	26	136	1	163	10	184	51	245	546
09/03/22 19:45-20:00	0	0	10	10	100	1	27	128	24	105	1	130	8	175	50	233	501
09/03/22 20:00-20:15	0	0	4	4	89	1	23	113	19	101	1	121	4	119	29	152	390
09/03/22 20:15-20:30	0	0	9	9	74	1	15	90	13	115	1	129	9	158	46	213	441
09/03/22 20:30-20:45	0	0	10	10	72	1	33	106	20	95	1	116	3	126	40	169	401
09/03/22 20:45-21:00	1	1	13	15	81	1	16	98	16	97	1	114	2	125	42	169	396
09/03/22 21:00-21:15	0	0	3	3	70	1	12	83	14	85	1	100	5	104	18	127	313
09/03/22 21:15-21:30	0	0	7	7	60	1	23	84	13	78	1	92	4	79	17	100	283
09/03/22 21:30-21:45	0	0	7	7	67	1	20	88	9	75	1	85	6	103	30	139	319
09/03/22 21:45-22:00	0	0	16	16	44	1	21	66	2	62	0	64	2	85	17	104	250
09/03/22 22:00-	0	0	5	5	46	1	11	58	1	60	0	61	3	78	23	104	228

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Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
22:15																	
09/03/22 22:15-22:30	0	0	5	5	68	1	9	78	7	53	1	61	2	75	17	94	238
09/03/22 22:30-22:45	0	0	2	2	38	0	7	45	12	59	1	72	1	52	8	61	180
09/03/22 22:45-23:00	0	0	0	0	40	0	13	53	3	40	0	43	0	43	10	53	149
09/03/22 23:00-23:15	0	0	2	2	28	0	11	39	2	58	1	61	0	55	11	66	168
09/03/22 23:15-23:30	0	0	2	2	23	0	4	27	0	41	0	41	1	46	14	61	131
09/03/22 23:30-23:45	0	0	0	0	21	0	2	23	4	27	0	31	0	45	11	56	110
09/03/22 23:45-00:00	0	0	3	3	18	0	7	25	4	24	0	28	4	36	8	48	104
10/03/22 00:00-00:15	0	0	1	1	12	0	4	16	3	16	0	19	0	23	7	30	66
10/03/22 00:15-00:30	0	0	1	1	24	0	7	31	3	12	0	15	0	16	1	17	64
10/03/22 00:30-00:45	0	0	4	4	17	0	3	20	3	14	0	17	1	12	2	15	56
10/03/22 00:45-01:00	0	0	0	0	18	0	1	19	0	10	0	10	0	12	5	17	46
10/03/22 01:00-01:15	0	0	0	0	8	0	5	13	1	11	0	12	0	20	5	25	50
10/03/22 01:15-01:30	0	0	2	2	12	0	4	16	3	14	0	17	1	15	4	20	55
10/03/22 01:30-01:45	0	0	0	0	8	0	2	10	0	6	0	6	1	11	2	14	30
10/03/22 01:45-02:00	0	0	0	0	5	0	2	7	2	12	0	14	1	13	2	16	37
10/03/22 02:00-02:15	0	0	1	1	10	0	5	15	3	11	0	14	1	8	4	13	43

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Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
10/03/22 02:15-02:30	0	0	1	1	5	0	2	7	2	8	0	10	0	8	1	9	27
10/03/22 02:30-02:45	0	0	1	1	6	0	3	9	0	12	0	12	1	5	1	7	29
10/03/22 02:45-03:00	0	0	1	1	4	0	2	6	0	3	0	3	0	7	3	10	20
10/03/22 03:00-03:15	0	0	0	0	3	0	0	3	0	5	0	5	0	13	6	19	27
10/03/22 03:15-03:30	0	0	0	0	4	0	0	4	1	6	0	7	0	10	3	13	24
10/03/22 03:30-03:45	0	0	0	0	4	0	0	4	0	6	0	6	0	12	1	13	23
10/03/22 03:45-04:00	0	0	0	0	6	0	1	7	1	10	0	11	0	11	2	13	31
10/03/22 04:00-04:15	0	0	2	2	8	0	0	8	6	19	0	25	3	20	7	30	65
10/03/22 04:15-04:30	1	1	0	2	11	0	3	14	2	16	0	18	0	23	12	35	69
10/03/22 04:30-04:45	0	0	0	0	11	0	1	12	2	24	0	26	0	21	13	34	72
10/03/22 04:45-05:00	1	1	0	2	19	0	1	20	3	23	0	26	0	19	10	29	77
10/03/22 05:00-05:15	0	0	0	0	13	0	3	16	2	26	0	28	0	27	9	36	80
10/03/22 05:15-05:30	1	1	1	3	10	0	2	12	7	32	0	39	1	28	8	37	91
10/03/22 05:30-05:45	0	0	3	3	55	1	6	62	13	102	1	116	7	68	23	98	279
10/03/22 05:45-06:00	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2
10/03/22 06:00-06:15	0	0	0	0	27	0	3	30	9	75	1	85	5	67	25	97	212
10/03/22 06:15-06:30	0	0	1	1	41	1	5	47	6	69	1	76	4	55	22	81	205

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Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
10/03/22 06:30-06:45	0	0	0	0	56	1	7	64	7	99	1	107	2	73	31	106	277
10/03/22 06:45-07:00	0	0	0	0	30	1	10	41	17	102	1	120	6	96	39	141	302
10/03/22 07:00-07:15	0	0	5	5	59	1	12	72	27	145	2	174	13	130	41	184	435
10/03/22 07:15-07:30	0	0	3	3	74	1	14	89	17	163	2	182	10	112	40	162	436
10/03/22 07:30-07:45	0	0	2	2	69	1	19	89	35	234	2	271	4	191	99	294	656
10/03/22 07:45-08:00	0	0	4	4	79	1	31	111	50	267	3	320	9	215	97	321	756
10/03/22 08:00-08:15	0	0	1	1	81	1	25	107	40	277	3	320	7	260	88	355	783
10/03/22 08:15-08:30	0	0	6	6	80	1	31	112	40	239	3	282	9	198	56	263	663
10/03/22 08:30-08:45	0	0	4	4	79	1	17	97	38	239	2	279	11	195	75	281	661
10/03/22 08:45-09:00	0	0	7	7	89	1	32	122	37	210	2	249	11	200	86	297	675
10/03/22 09:00-09:15	0	0	10	10	101	1	29	131	37	231	2	270	14	272	88	374	785
10/03/22 09:15-09:30	0	0	4	4	86	1	30	117	32	191	2	225	6	223	81	310	656
10/03/22 09:30-09:45	0	0	10	10	93	1	29	123	32	192	2	226	8	203	80	291	650
10/03/22 09:45-10:00	0	0	9	9	109	1	41	151	27	169	2	198	14	197	57	268	626
10/03/22 10:00-10:15	0	0	2	2	105	1	33	139	35	182	2	219	8	214	75	297	657
10/03/22 10:15-10:30	0	0	14	14	108	1	30	139	43	167	2	212	8	197	78	283	648
10/03/22 10:30-10:45	0	0	13	13	119	2	36	157	29	158	2	189	11	211	79	301	660

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Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
10/03/22 10:45-11:00	0	0	5	5	106	1	27	134	34	182	2	218	12	225	80	317	674
10/03/22 11:00-11:15	0	0	12	12	104	1	39	144	35	179	2	216	11	239	72	322	694
10/03/22 11:15-11:30	0	0	10	10	124	2	40	166	38	205	2	245	18	226	94	338	759
10/03/22 11:30-11:45	0	0	6	6	140	2	29	171	34	199	2	235	10	242	83	335	747
10/03/22 11:45-12:00	0	0	13	13	114	1	42	157	50	176	2	228	15	230	92	337	735
10/03/22 12:00-12:15	0	0	14	14	126	1	43	170	43	209	2	254	18	239	88	345	783
10/03/22 12:15-12:30	0	0	22	22	134	2	52	188	37	200	2	239	16	227	94	337	786
10/03/22 12:30-12:45	0	0	18	18	132	2	50	184	46	198	2	246	18	250	108	376	824
10/03/22 12:45-13:00	0	0	15	15	126	2	46	174	34	172	2	208	19	231	87	337	734
10/03/22 13:00-13:15	0	0	21	21	125	1	58	184	39	206	2	247	15	282	89	386	838
10/03/22 13:15-13:30	1	1	8	10	122	2	40	164	37	194	2	233	9	232	77	318	725
10/03/22 13:30-13:45	0	0	19	19	129	2	43	174	31	171	2	204	19	251	102	372	769
10/03/22 13:45-14:00	0	0	14	14	137	2	43	182	29	208	2	239	26	249	88	363	798
10/03/22 14:00-14:15	0	0	10	10	170	2	41	213	45	189	2	236	9	255	105	369	828
10/03/22 14:15-14:30	0	0	15	15	152	2	43	197	31	180	2	213	16	244	82	342	767
10/03/22 14:30-14:45	0	0	17	17	140	2	57	199	33	199	2	234	19	265	110	394	844
10/03/22 14:45-	0	0	8	8	170	2	45	217	48	226	2	276	9	264	115	388	889

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Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
15:00																	
10/03/22 15:00-15:15	0	0	15	15	124	2	25	151	37	217	2	256	14	307	118	439	861
10/03/22 15:15-15:30	0	0	9	9	153	2	44	199	48	279	3	330	9	274	97	380	918
10/03/22 15:30-15:45	0	0	14	14	166	2	51	219	44	259	3	306	17	282	89	388	927
10/03/22 15:45-16:00	0	0	16	16	161	2	43	206	34	229	2	265	20	292	78	390	877
10/03/22 16:00-16:15	0	0	20	20	142	2	44	188	52	226	2	280	22	296	122	440	928
10/03/22 16:15-16:30	0	0	23	23	160	2	53	215	25	209	2	236	16	315	104	435	909
10/03/22 16:30-16:45	0	0	15	15	157	2	53	212	51	207	2	260	15	307	89	411	898
10/03/22 16:45-17:00	0	0	19	19	152	2	50	204	47	204	2	253	11	300	97	408	884
10/03/22 17:00-17:15	0	0	16	16	160	2	57	219	53	219	2	274	17	273	87	377	886
10/03/22 17:15-17:30	0	0	15	15	182	2	48	232	37	222	2	261	15	270	74	359	867
10/03/22 17:30-17:45	0	0	22	22	205	2	50	257	39	241	2	282	23	296	77	396	957
10/03/22 17:45-18:00	0	0	18	18	202	2	28	232	37	210	2	249	16	307	81	404	903
10/03/22 18:00-18:15	0	0	21	21	171	2	50	223	34	175	2	211	14	273	74	361	816
10/03/22 18:15-18:30	0	0	18	18	149	2	57	208	34	197	2	233	19	296	67	382	841
10/03/22 18:30-18:45	0	0	14	14	146	2	51	199	39	156	2	197	16	285	72	373	783
10/03/22 18:45-19:00	0	0	11	11	119	2	38	159	34	164	2	200	12	223	66	301	671

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
10/03/22 19:00-19:15	0	0	7	7	123	2	36	161	24	156	2	182	15	211	69	295	645
10/03/22 19:15-19:30	0	0	3	3	100	1	40	141	29	147	2	178	10	206	58	274	596
10/03/22 19:30-19:45	0	0	6	6	102	1	38	141	30	118	1	149	11	168	41	220	516
10/03/22 19:45-20:00	0	0	8	8	93	1	35	129	19	110	1	130	3	159	38	200	467
10/03/22 20:00-20:15	0	0	9	9	76	1	31	108	16	103	1	120	4	139	34	177	414
10/03/22 20:15-20:30	0	0	6	6	83	1	30	114	15	92	1	108	3	130	36	169	397
10/03/22 20:30-20:45	0	0	14	14	91	1	29	121	21	97	1	119	3	133	37	173	427
10/03/22 20:45-21:00	0	0	6	6	69	1	21	91	19	84	1	104	0	114	36	150	351
10/03/22 21:00-21:15	0	0	3	3	59	1	21	81	13	67	1	81	2	101	23	126	291
10/03/22 21:15-21:30	0	0	7	7	69	1	23	93	10	66	1	77	3	90	27	120	297
10/03/22 21:30-21:45	0	0	16	16	46	1	14	61	10	78	1	89	5	81	21	107	273
10/03/22 21:45-22:00	0	0	9	9	47	1	21	69	15	58	1	74	1	99	22	122	274
10/03/22 22:00-22:15	0	0	8	8	39	1	11	51	14	57	1	72	2	67	12	81	212
10/03/22 22:15-22:30	0	0	1	1	45	1	25	71	4	45	1	50	2	54	15	71	193
10/03/22 22:30-22:45	0	0	3	3	41	1	6	48	9	53	1	63	1	63	11	75	189
10/03/22 22:45-23:00	0	0	3	3	29	0	6	35	1	26	0	27	1	57	13	71	136
10/03/22 23:00-23:15	0	0	3	3	26	0	4	30	5	36	0	41	2	47	11	60	134

Turning Movement Volume Report

Report Date: 5/17/2023 8:33:17 AM

From 3/8/2022 to 3/10/2022

Douglas & Harding (332)

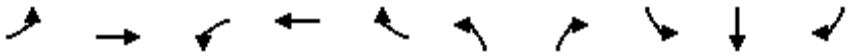
Intersection: 62

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
10/03/22 23:15-23:30	0	0	2	2	31	0	10	41	5	39	0	44	1	37	7	45	132
10/03/22 23:30-23:45	0	0	6	6	17	0	3	20	4	38	0	42	0	36	15	51	119
10/03/22 23:45-00:00	0	0	3	3	24	0	2	26	3	15	0	18	1	28	8	37	84
Summary	11	151	2136	2298	23210	286	7088	30584	6333	35523	369	42225	2225	43239	14940	60404	135511

Kimley»Horn

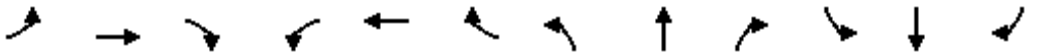
Attachment C

Analysis Worksheets



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	161	1090	43	1002	379	14	25	197	195	110
v/c Ratio	0.59	0.57	0.29	0.70	0.32	0.12	0.07	0.56	0.56	0.26
Control Delay	48.9	18.3	51.3	26.4	1.5	51.8	0.4	41.4	41.1	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	18.3	51.3	26.4	1.5	51.8	0.4	41.4	41.1	8.9
Queue Length 50th (ft)	90	245	24	254	1	8	0	111	110	0
Queue Length 95th (ft)	188	409	66	390	26	25	0	204	202	40
Internal Link Dist (ft)		284		380					274	
Turn Bay Length (ft)	160		135		145	75	70			255
Base Capacity (vph)	415	2334	427	2337	1424	359	519	749	752	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.47	0.10	0.43	0.27	0.04	0.05	0.26	0.26	0.14

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	1024	11	37	862	326	10	0	18	333	4	95
Future Volume (veh/h)	153	1024	11	37	862	326	10	0	18	333	4	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	1078	12	43	1002	379	14	0	0	391	0	110
Peak Hour Factor	0.95	0.95	0.95	0.86	0.86	0.86	0.71	0.71	0.71	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	1904	21	53	1578	947	24	26		546	0	243
Arrive On Green	0.11	0.53	0.53	0.03	0.44	0.44	0.01	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	1781	3600	40	1781	3554	1585	1781	1870	1585	3563	0	1585
Grp Volume(v), veh/h	161	532	558	43	1002	379	14	0	0	391	0	110
Grp Sat Flow(s),veh/h/ln	1781	1777	1863	1781	1777	1585	1781	1870	1585	1781	0	1585
Q Serve(g_s), s	5.7	13.1	13.1	1.6	14.2	8.2	0.5	0.0	0.0	6.8	0.0	4.1
Cycle Q Clear(g_c), s	5.7	13.1	13.1	1.6	14.2	8.2	0.5	0.0	0.0	6.8	0.0	4.1
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	204	940	985	53	1578	947	24	26		546	0	243
V/C Ratio(X)	0.79	0.57	0.57	0.81	0.63	0.40	0.57	0.00		0.72	0.00	0.45
Avail Cap(c_a), veh/h	508	1427	1496	522	2525	1369	439	461		1927	0	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.0	10.3	10.3	31.3	14.0	6.9	31.8	0.0	0.0	26.1	0.0	25.0
Incr Delay (d2), s/veh	2.6	0.6	0.6	10.3	0.5	0.3	7.6	0.0	0.0	1.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.4	4.6	0.8	5.1	3.6	0.3	0.0	0.0	2.8	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	10.9	10.9	41.6	14.5	7.2	39.4	0.0	0.0	27.2	0.0	25.8
LnGrp LOS	C	B	B	D	B	A	D	A		C	A	C
Approach Vol, veh/h		1251			1424			14			501	
Approach Delay, s/veh		13.4			13.4			39.4			26.9	
Approach LOS		B			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	39.2		14.8	11.4	33.7		4.9				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.0				
Max Green Setting (Gmax), s	19.0	52.1		35.1	18.5	46.1		16.0				
Max Q Clear Time (g_c+I1), s	3.6	15.1		8.8	7.7	16.2		2.5				
Green Ext Time (p_c), s	0.0	10.3		1.2	0.2	12.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		15.6	
HCM 6th LOS		B	

Notes

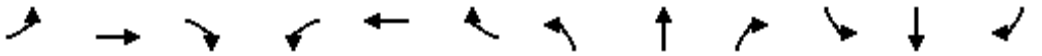
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	175	898	69	1275	409	13	3	93	365	360	224
v/c Ratio	0.75	0.55	0.51	0.92	0.34	0.14	0.03	0.55	0.80	0.79	0.38
Control Delay	69.9	25.9	66.7	46.7	2.5	58.9	55.5	23.6	55.0	53.9	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.9	25.9	66.7	46.7	2.5	58.9	55.5	23.6	55.0	53.9	6.4
Queue Length 50th (ft)	133	270	53	503	20	10	2	0	272	267	0
Queue Length 95th (ft)	#229	378	104	#710	60	27	11	33	#446	#423	61
Internal Link Dist (ft)		284		380			314			274	
Turn Bay Length (ft)	160		135		145	75		70			255
Base Capacity (vph)	282	1649	290	1607	1249	244	257	299	509	511	635
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.54	0.24	0.79	0.33	0.05	0.01	0.31	0.72	0.70	0.35

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	818	8	66	1211	389	10	2	71	666	8	208
Future Volume (veh/h)	161	818	8	66	1211	389	10	2	71	666	8	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	175	889	9	69	1275	409	13	3	0	722	0	224
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.76	0.76	0.76	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	1834	19	89	1569	1077	26	27		848	0	377
Arrive On Green	0.12	0.51	0.51	0.05	0.44	0.44	0.01	0.01	0.00	0.24	0.00	0.24
Sat Flow, veh/h	1781	3604	36	1781	3554	1585	1781	1870	1585	3563	0	1585
Grp Volume(v), veh/h	175	438	460	69	1275	409	13	3	0	722	0	224
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1585	1781	1870	1585	1781	0	1585
Q Serve(g_s), s	9.1	15.2	15.2	3.6	29.5	10.5	0.7	0.1	0.0	18.3	0.0	11.9
Cycle Q Clear(g_c), s	9.1	15.2	15.2	3.6	29.5	10.5	0.7	0.1	0.0	18.3	0.0	11.9
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	904	948	89	1569	1077	26	27		848	0	377
V/C Ratio(X)	0.84	0.48	0.48	0.77	0.81	0.38	0.50	0.11		0.85	0.00	0.59
Avail Cap(c_a), veh/h	349	979	1027	358	1733	1150	301	317		1323	0	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.8	15.1	15.1	44.4	23.0	6.5	46.3	46.0	0.0	34.4	0.0	32.0
Incr Delay (d2), s/veh	3.5	0.5	0.4	5.2	2.9	0.3	5.5	0.7	0.0	2.5	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	5.9	6.2	1.7	12.4	6.6	0.3	0.1	0.0	8.0	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.3	15.6	15.6	49.6	25.9	6.8	51.8	46.6	0.0	36.9	0.0	32.9
LnGrp LOS	D	B	B	D	C	A	D	D		D	A	C
Approach Vol, veh/h		1073			1753			16			946	
Approach Delay, s/veh		20.3			22.4			50.8			35.9	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	53.0		27.4	15.1	46.6		5.4				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.0				
Max Green Setting (Gmax), s	19.0	52.1		35.1	18.5	46.1		16.0				
Max Q Clear Time (g_c+I1), s	5.6	17.2		20.3	11.1	31.5		2.7				
Green Ext Time (p_c), s	0.1	7.7		2.2	0.1	10.2		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		25.3
HCM 6th LOS		C

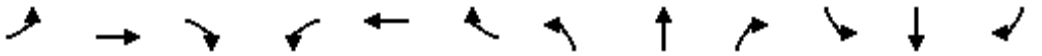
Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	161	1108	98	971	379	76	10	77	201	199	110
v/c Ratio	0.64	0.77	0.52	0.73	0.33	0.46	0.06	0.34	0.61	0.60	0.28
Control Delay	57.7	30.6	58.0	31.5	1.7	58.4	50.6	14.4	47.3	46.9	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.7	30.6	58.0	31.5	1.7	58.4	50.6	14.4	47.3	46.9	9.4
Queue Length 50th (ft)	97	300	59	268	0	46	6	0	123	121	0
Queue Length 95th (ft)	211	528	131	425	27	89	21	19	230	227	42
Internal Link Dist (ft)		284		380			314			274	
Turn Bay Length (ft)	160		135		145	75		70			255
Base Capacity (vph)	352	1974	362	2005	1351	305	321	342	635	639	667
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.56	0.27	0.48	0.28	0.25	0.03	0.23	0.32	0.31	0.16

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	1006	47	84	835	326	54	7	55	333	11	95
Future Volume (veh/h)	153	1006	47	84	835	326	54	7	55	333	11	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	1059	49	98	971	379	76	10	0	396	0	110
Peak Hour Factor	0.95	0.95	0.95	0.86	0.86	0.86	0.71	0.71	0.71	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	1600	74	127	1494	907	104	109		541	0	241
Arrive On Green	0.11	0.46	0.46	0.07	0.42	0.42	0.06	0.06	0.00	0.15	0.00	0.15
Sat Flow, veh/h	1781	3458	160	1781	3554	1585	1781	1870	1585	3563	0	1585
Grp Volume(v), veh/h	161	544	564	98	971	379	76	10	0	396	0	110
Grp Sat Flow(s),veh/h/ln	1781	1777	1842	1781	1777	1585	1781	1870	1585	1781	0	1585
Q Serve(g_s), s	6.1	16.5	16.5	3.8	15.2	9.3	2.9	0.4	0.0	7.4	0.0	4.4
Cycle Q Clear(g_c), s	6.1	16.5	16.5	3.8	15.2	9.3	2.9	0.4	0.0	7.4	0.0	4.4
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	822	852	127	1494	907	104	109		541	0	241
V/C Ratio(X)	0.80	0.66	0.66	0.77	0.65	0.42	0.73	0.09		0.73	0.00	0.46
Avail Cap(c_a), veh/h	474	1332	1380	487	2357	1292	410	430		1799	0	800
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	14.5	14.5	31.7	16.1	8.4	32.2	31.0	0.0	28.1	0.0	26.9
Incr Delay (d2), s/veh	2.7	1.0	1.0	3.7	0.6	0.4	3.7	0.1	0.0	1.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	6.1	6.3	1.7	5.7	4.2	1.3	0.2	0.0	3.1	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	15.5	15.5	35.4	16.7	8.7	35.9	31.1	0.0	29.3	0.0	27.7
LnGrp LOS	C	B	B	D	B	A	D	C		C	A	C
Approach Vol, veh/h		1269			1448			86			506	
Approach Delay, s/veh		17.7			15.8			35.4			29.0	
Approach LOS		B			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	37.1		15.5	11.9	34.1		8.0				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.0				
Max Green Setting (Gmax), s	19.0	52.1		35.1	18.5	46.1		16.0				
Max Q Clear Time (g_c+I1), s	5.8	18.5		9.4	8.1	17.2		4.9				
Green Ext Time (p_c), s	0.1	10.3		1.2	0.1	12.1		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		19.1	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	175	904	84	1267	409	30	7	112	365	364	224
v/c Ratio	0.75	0.56	0.56	0.92	0.34	0.29	0.07	0.57	0.80	0.80	0.38
Control Delay	70.9	27.5	67.5	47.8	2.6	63.0	56.2	21.9	55.4	54.9	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.9	27.5	67.5	47.8	2.6	63.0	56.2	21.9	55.4	54.9	6.5
Queue Length 50th (ft)	134	282	65	507	21	23	5	0	277	275	0
Queue Length 95th (ft)	#229	394	120	#710	61	47	18	34	#450	#445	62
Internal Link Dist (ft)		284		380			314			274	
Turn Bay Length (ft)	160		135		145	75		70			255
Base Capacity (vph)	281	1614	288	1598	1242	243	255	314	506	508	633
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.56	0.29	0.79	0.33	0.12	0.03	0.36	0.72	0.72	0.35

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	811	20	80	1204	389	23	5	85	666	12	208
Future Volume (veh/h)	161	811	20	80	1204	389	23	5	85	666	12	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	175	882	22	84	1267	409	30	7	0	725	0	224
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.76	0.76	0.76	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	1740	43	108	1545	1066	46	49		848	0	377
Arrive On Green	0.12	0.49	0.49	0.06	0.43	0.43	0.03	0.03	0.00	0.24	0.00	0.24
Sat Flow, veh/h	1781	3543	88	1781	3554	1585	1781	1870	1585	3563	0	1585
Grp Volume(v), veh/h	175	442	462	84	1267	409	30	7	0	725	0	224
Grp Sat Flow(s),veh/h/ln	1781	1777	1854	1781	1777	1585	1781	1870	1585	1781	0	1585
Q Serve(g_s), s	9.3	16.3	16.3	4.5	30.3	11.0	1.6	0.4	0.0	18.8	0.0	12.1
Cycle Q Clear(g_c), s	9.3	16.3	16.3	4.5	30.3	11.0	1.6	0.4	0.0	18.8	0.0	12.1
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	873	911	108	1545	1066	46	49		848	0	377
V/C Ratio(X)	0.84	0.51	0.51	0.78	0.82	0.38	0.65	0.14		0.85	0.00	0.59
Avail Cap(c_a), veh/h	341	957	999	350	1694	1133	295	309		1293	0	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.8	16.7	16.7	44.8	24.0	7.0	46.7	46.1	0.0	35.3	0.0	32.7
Incr Delay (d2), s/veh	4.4	0.5	0.5	4.4	3.2	0.3	5.5	0.5	0.0	2.8	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	6.5	6.8	2.1	12.8	6.9	0.8	0.2	0.0	8.3	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	17.2	17.2	49.2	27.2	7.3	52.2	46.5	0.0	38.1	0.0	33.6
LnGrp LOS	D	B	B	D	C	A	D	D		D	A	C
Approach Vol, veh/h		1079			1760			37			949	
Approach Delay, s/veh		21.9			23.6			51.1			37.0	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	52.4		27.9	15.3	46.9		6.5				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.0				
Max Green Setting (Gmax), s	19.0	52.1		35.1	18.5	46.1		16.0				
Max Q Clear Time (g_c+I1), s	6.5	18.3		20.8	11.3	32.3		3.6				
Green Ext Time (p_c), s	0.1	7.7		2.2	0.1	9.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		26.7
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.