Kimley»Horn

Memorandum

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

From: Stephen Dillon, EIT
Matt Weir, P.E., T.E., PTOE, RSP_1

Re: ***Traffic Evaluation***
Blue Oaks Shopping Center
Roseville, California

Date: October 10, 2022

Per your request and authorization, we have prepared this traffic evaluation for the above referenced project. Please note that the parameters of this study were discussed during our recent project coordination meeting[1] after which we prepared a revised scoping memorandum[2] that you subsequently approved[3].

Project Understanding

Kimley-Horn understands that a mixed-use shopping center is proposed on the vacant parcel generally located in the northeast quadrant of the Blue Oaks Boulevard intersection with Woodcreek Oaks Boulevard (see **Exhibit 1**). According to the project site plan[4] (**Exhibit 2**), the proposed project consists of four (4) retail buildings totaling approximately 33,000-square foot (sf), as well as a Chick-fil-A restaurant with drive-through and a Dutch Bros Coffee restaurant with drive-through. Access to the project site is proposed to be accomplished from one new access point on Blue Oaks Boulevard, and via three existing driveways currently used by the existing Walgreens. This traffic evaluation is understood to be required due to the following project site and area characteristics:

- The proposed Chick-fil-A and Dutch Bros Coffee establishments are each known to be high traffic generators that have the propensity to experience extensive drive-through queuing
- The existing Blue Oaks Boulevard intersections in the vicinity of the project site currently experience peak-hour delays and queuing
- The existing continuous westbound Blue Oaks Boulevard auxiliary lane along the project's frontage (between Roseville Parkway and Woodcreek Oaks Boulevard) itself creates a variety of conflicts that would be exacerbated by the proposed project. You have noted motorists who access the lane "early" to turn right at the downstream Woodcreek Oaks Boulevard intersection, bicyclists who legally ride in the Class II bike lane positioned between the outside through lane and this auxiliary lane, and motorists illegally continuing straight into this lane from the westbound right-turn lane at Roseville Parkway.

Based on this information, a "Short-Term Traffic Impact Study[5]" 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, on-site operations, and localized traffic operations to ensure safe and efficient operations.

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1 Teleconference with City of Roseville, August 24, 2022.
2 *Trip Generation/Distribution and Study Parameters Memorandum - Blue Oaks Shopping Center*, Kimley-Horn, August 26, 2022.
3 Email from Jack Varozza, City of Roseville, August 31, 2022.
4 Blue Oaks Shopping Center (Roseville) Site Plan, Kimley-Horn, May 2022.
5 Section 4 Traffic Impact Studies, *City of Roseville Design Standards,* City of Roseville, January 2020.

Data Collection

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

- Weekday, 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 July 26-28, 2022, at the seven (7) Blue Oaks Boulevard signalized intersections between and inclusive of Diamond Creek Boulevard and the SR-65 Southbound Ramp/Washington Boulevard
- Recent speed survey data for Blue Oaks Boulevard in the vicinity of the project site
- Synchro network files for the general project area, including existing signal timing parameters

Kimley-Horn supplemented the City's ITS traffic count data with concurrently and manually collected (via traffic count subconsultant) counts consisting of the following:

- Three weekdays' (Tuesday, Wednesday, and Thursday) data was collected and averaged to establish weekday, PM (4-6) peak-period intersection turning movement traffic volumes (maximum observed vehicle queuing for one), at the following locations:
    - Blue Oaks Boulevard unsignalized (right-in/right-out) driveway intersection with the existing Walgreens
    - Woodcreek Oaks Boulevard unsignalized (right-in/right-out) intersection with the existing Walgreens
    - Blue Oaks Boulevard signalized intersection with Woodcreek Oaks Boulevard (maximum observed vehicle queues, by lane, along the Blue Oaks Boulevard approaches only)
- Three weekdays' (Tuesday, Wednesday, and Thursday) data was collected and averaged to establish weekday, PM (4-6) peak-period bicycle and pedestrian turning movement counts at the Blue Oaks Boulevard intersections with Woodcreek Oaks Boulevard and Roseville Parkway
- Three weekday's (Tuesday, Wednesday, and Thursday) data was observed and noted to establish weekday, PM (4-6) peak-period vehicle travel characteristics of westbound Blue Oaks Boulevard vehicles who turn right, downstream onto northbound Woodcreek Oaks Boulevard identified as one of the following:
    a) Entered right-turn lane in dashed bike lane area near Walgreens' driveway
    b) Entered continuous auxiliary lane after Roseville Parkway intersection, but before dashed bike lane; or
    c) Continued straight into continuous auxiliary lane from the right-turn lane at Roseville Parkway signal (proceeded illegally through intersection rather than turning right)

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. In conjunction with this field visit, Kimley-Horn also collected/conducted the following:

- Conducted a "floating car" travel time study along Blue Oaks Boulevard, in both directions, between and including, Diamond Creek Boulevard and SR-65 SB Ramp/Washington Boulevard (seven signalized and coordinated intersections) to establish baseline conditions. Travel time runs were collected during the weekday, PM (4-6) peak-period. A minimum of four (4) runs in each direction were conducted during the peak period.

Using the above data obtained and collected, Kimley-Horn developed a weekday, PM peak-hour SimTraffic micro-simulation model of the Blue Oaks Boulevard corridor consisting of the seven (7) Blue Oaks Boulevard signalized intersections between and inclusive of Diamond Creek Boulevard and the SR-65 Southbound Ramp/Washington Boulevard. The volumes used to create this model were the average of

the 3 weekday counts (from July 26-28, 2022) noted above. Furthermore, this model was validated to existing conditions.

Lastly, we manually collected (via traffic count subconsultant) unique local site weekday, PM (4-6) peak-period trip generation data for the existing Chick-fil-A restaurant located at 912 Pleasant Grove Boulevard. Three weekdays' (Tuesday, Wednesday, and Thursday) data was collected and averaged to establish a weekday, PM peak-period trip generation rate for use in this analysis. In conjunction with this Chick-fil-A data collection and additionally at the Dutch Bros Coffee located at 715 Sunrise Avenue, observations were included to assist with quantifying the drive-through facilities' operations (i.e., maximum and average vehicle queues). These observations were conducted as follows:

- Two Saturdays from 11 AM to 1 PM
- One weekday from 11 AM to 1 PM, and 4 to 6 PM

During these observation periods, we recorded the average space occupied per vehicle within the queues, as well as the "average service flow rate" at the Chick-fil-A and Dutch Bros Coffee restaurants.

Assessment of Proposed Project

Trip Generation

The number of trips anticipated to be generated by the proposed project was derived using data included in *Trip Generation Manual, 11th Edition*, published by the Institute of Transportation Engineers (ITE), and locally collected data for similar uses. The anticipated trip generation characteristics for the proposed project are depicted in **Table 1**. Data collected at the local sites are included in **Attachment A**. As shown in **Table 1**, the proposed project is anticipated to generate 515 new weekday, PM peak-hour trips.

Table 1 – Proposed Project Trip Generation

Land Use (ITE Code)	Size (KSF)	PM Peak-Hour				
		Total Trips	In		Out	
			%	Trips	%	Trips
Strip Retail Plaza (<40k) (822)[1]	33.3	219	50%	110	50%	109
Chick-fil-A[2]	5.23	334	53%	177	47%	157
Dutch Bros Coffee[3]	0.95	316	50%	158	50%	158
Internal Capture Between Uses (7%)		-61		-31		-30
Subtotal (Driveway) Trips:		**808**		**414**		**394**
Strip Retail Plaza (<40k) Pass-by (10%)		*-22*		*-11*		*-11*
Chick-fil-A Pass-by (50%)		*-167*		*-88*		*-79*
Dutch Bros Coffee Pass-by (33%)		*-104*		*-52*		*-52*
Net New (External) Trips:		**515**		**263**		**252**

KSF = 1,000-square feet

Sources: [1]Trip Generation Manual, 11th Edition

[2]Trip Generation based on data collected at 912 Pleasant Grove Boulevard location between 4-6 PM from July 26-28, 2022

[3]Trip Generation based on data collected for Douglas Boulevard Coffee Kiosk Traffic Evaluation, July 19, 2018

Project Trip Distribution and Assignment

The project trips were distributed to the adjacent transportation networks based on existing traffic patterns and engineering judgement (see **Exhibit 3**). Special attention was given to the anticipated project trips' use of the site access driveways based on the site plan's indicated drive-through entrances and exits, and the various turn restrictions at the access driveway intersections. The project trip assignment at the study intersections and driveways is depicted in **Exhibit 4**.

Evaluation Parameters and Study Facilities

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

A. Existing (2022) Conditions
B. Existing (2022) plus Proposed Project Conditions

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

1. Blue Oaks Boulevard @ Woodcreek Oaks Boulevard
2. Blue Oaks Boulevard @ Walgreens Driveway* (right-in/right-out)
3. *Blue Oaks Boulevard @ Site Driveway* (right-in/right-out) - proposed*
4. Blue Oaks Boulevard @ Roseville Parkway
5. Woodcreek Oaks Boulevard @ Walgreens Driveway* (right-in/right-out)

** Right-in/Right-out driveways are included in the technical analyses primarily for the purpose of assessing the offsite roadways' queuing potential to adversely affect ingress and/or egress at these locations. As such, delay is not reported for these intersections, rather their anticipated operations resulting from the signalized intersections' delay and queuing is included in this evaluation.*

Peak-hour operations analyses were determined for the weekday, PM peak-hour for the scenarios listed above. Operations for each scenario were determined using methods defined in the *Highway Capacity Manual* using micro-simulation (SimTraffic® traffic analysis software). Exhibit 5 details the study intersections' geometries. Exhibit 6 and Exhibit 7 detail the weekday PM peak-hour volumes both without (Existing (2022) Conditions) and with the addition of the project (Existing (2022) plus Project Proposed Project Conditions), respectively. 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 surrounding intersections to quantify the amount of vehicular delay and queuing that is anticipated to result from the addition of the project. An additional purpose was to assess the amount of (additional) storage and/or treatments necessary to ensure efficient operations in the vicinity of and within the project site.

Signalized Intersection Delay and Queuing

Microsimulation (SimTraffic®) was used to enable the quantification of vehicular delay and queuing at the signalized study intersections. Table 2 summarizes delay and Table 3 summarizes select movements' queuing at the signalized study intersections both without (Existing (2022) Conditions) and with the addition of the project (Existing (2022) plus Project Proposed Project Conditions). All technical analysis worksheets are provided in Attachment C.

Table 2 – Signalized Intersection Delay

ID	Intersection	Control	Peak Hour	Existing (2022)	Existing (2022) plus Project
				Delay [sec]	Delay [sec]
1	Blue Oaks Boulevard and Woodcreek Oaks Boulevard	Signal	PM	32.2	37.4
4	Blue Oaks Boulevard and Roseville Parkway	Signal	PM	10.5	23.2

Table 3 – Intersection Queuing

Intersection / Analysis Scenario	Movement	Available Storage (ft)	PM Peak-Hour		
			95th % Queue (ft)	Max Queue (ft)	Average Queue (ft)
#1, Blue Oaks Boulevard and Woodcreek Oaks Boulevard	EBL				
Existing (2022)		255	115	150	60
Existing (2022) plus Proposed Project			185	210	120
	WBR				
Existing (2022)		-	110	145	60
Existing (2022) plus Proposed Project			140	210	70
	WBT				
Existing (2022)		-	395	395	280
Existing (2022) plus Proposed Project			405	405	385
	WBL				
Existing (2022)		240	285	285	180
Existing (2022) plus Proposed Project			315	315	220
	NBT				
Existing (2022)		-	85	115	40
Existing (2022) plus Proposed Project			110	135	60
	SBL				
Existing (2022)		270	110	130	70
Existing (2022) plus Proposed Project			120	140	75
#4, Blue Oaks Boulevard and Roseville Parkway	EBL				
Existing (2022)		225	15	25	5
Existing (2022) plus Proposed Project			100	125	50
	EBT				
Existing (2022)		-	160	205	80
Existing (2022) plus Proposed Project			215	270	120
	WBR				
Existing (2022)		410	10	15	5
Existing (2022) plus Proposed Project			100	205	25
	WBT				
Existing (2022)		-	255	325	95
Existing (2022) plus Proposed Project			470	525	270

Note: Cell shaded orange where queue exceeds capacity by >1 vehicle length (25 feet)

As indicated in Table 2 and as reasonably anticipated, both signalized study intersections experience an increase in delay resulting from the addition of the Project. Intersection #1 (Blue Oaks Boulevard and Woodcreek Oaks Boulevard) sees an overall increase in intersection delay of 5.2 seconds with the addition of the Project. This additional delay can largely be attributed to in the 7-8 second increase in delay experienced by vehicles on the Blue Oaks Boulevard (eastbound and westbound) through movements, an increase anticipated to be largely indiscernible. Intersection #4 (Blue Oaks Boulevard and Roseville Parkway) sees an increase in intersection delay of 12.7 seconds with the addition of the Project. This additional delay is directly attributable to the introduction of Project trips using the modified southbound approach as a full-access driveway onto Blue Oaks Boulevard, a condition consistent with the intent behind the existing intersection configuration at this location (intersection stub to serve future site development). Similar to Intersection #1, the increased demand on the southbound Intersection #5 approach results in added delay on the Blue Oaks Boulevard (eastbound and westbound) through movements, an increase anticipated to be largely indiscernible.

The queueing results presented in Table 3 show moderate increases in queue length on movements with Project trips assigned. The Intersection #1 (Blue Oaks Blvd @ Woodcreek Oaks Blvd) westbound through movement queue extends beyond Intersection #2 (Blue Oaks Boulevard and Walgreens Driveway) under both Existing (2022) and Existing (2022) plus Proposed Project conditions. Intersection #3 (Blue Oaks Boulevard and Site Driveway) is anticipated to be located approximately 650-feet east of Intersection #1, at a location greater than the maximum observed westbound Intersection #1 queue under "plus Proposed Project" conditions. This queuing dynamic in relation to the site's Blue Oaks Boulevard driveways is depicted in Exhibit 8. The Intersection #1 (Blue Oaks Boulevard and Woodcreek Oaks Boulevard) westbound left-turn movement queue exceeds available capacity under both Existing (2022) and Existing (2022) plus Proposed Project conditions, with the plus Project condition contributing just over one vehicle to the reported queue length. It is recommended that the applicant be responsible for extending the Intersection #1 dual westbound left-turn pockets an additional 250-feet (80-feet of storage, 170-feet of taper) to a point that places the entry beyond the documented 95th-percentile queue for the adjacent westbound through lanes. This improvement is shown in Exhibit 9.

Internal Circulation Review

The drive-through queuing data collected as part of this project was used to assess the configuration and operations of the proposed Chick-fil-A restaurant and Dutch Bros Coffee restaurant at the Blue Oaks Boulevard project site. 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). We calculated approximately how many vehicles would fit in each drive-through lane. We also reviewed internal circulation including drive-aisle widths, placement of refuse dumpsters, pedestrian linkages, dead-end parking aisles, internal movements (e.g., reverse u-turns exiting both drive-throughs), and driveway throat depths.

As previously noted, in an effort to appropriately assess the provided drive-through capacity for both Chick-fil-A and Dutch Bros within this development, drive-through operations and queuing data was collected at existing restaurants already operating within the general project vicinity. Specific details on the facility locations and collection windows are outlined in the above Data Collection section of this memorandum. Table 4 below presents summary information from the aforementioned data collection effort.

Table 4 – Maximum Observed Drive-Through Vehicle Queues

Restaurant (Location)	Maximum Observed Vehicle Queue				Project Restaurant Drive-Through Capacity[1]
	7/23/2022	7/27/2022	7/30/2022	Overall Max	
Chick-fil-A (912 Pleasant Grove Boulevard)	36	31	30	36	43
Dutch Bros (715 Sunrise Avenue)	19	16	18	19	21

[1]Proposed Project Site Plan, Kimley-Horn, May 2022

As shown in Table 4, both the Project Chick-fil-A and Dutch Bros restaurants provide contained drive-through queueing capacity for more vehicles than the observed maximum drive-through queues at operational restaurants within the Roseville area.

As we anticipate the existing restaurants to have similar operational characteristics to the Project restaurants, it is reasonable to conclude there is a high probability both Project facilities are providing appropriate capacity to handle drive-through demand. Exhibit 9 shows potential queue management staging strategies in the event that drive-through capacity at the Project restaurants proves insufficient to handle demand.

Minimum Required Throat Depth (MRTD)

The MRTD was calculated for the three unsignalized site access driveway locations (Intersections #2, #3, and #5) and signalized site access (Intersection #4). **Table 5** summarizes the findings of the MRTD evaluation based on the City's guidelines[5] and plus Project queueing reports available in **Attachment C**.

Table 5 – MRTD for Site Access Driveways

ID	Driveway	Peak Hour	Approach Volume	ConflVol (Right)	RT Out	RT%	Minimum Required Throat Depth (MRTD)	Available Storage
2	Walgreens Driveway @ Blue Oaks Boulevard	PM	66	2434	66	100%	**100**	**45**
3	Site Driveway @ Blue Oaks Boulevard	PM	103	2509	103	100%	**125**	**130**
4*	Site Driveway/Roseville Parkway @ Blue Oaks Boulevard	PM	277	-	-	-	**165**	**125**
5	Walgreens Driveway @ Woodcreek Oaks Boulevard	PM	72	415	72	100%	**75**	**45**

*Intersection 4 results reported from Simtraffic reports

The proposed available throat depth for Intersections #2 and #5 is observed to be approximately 45-feet, the proposed available throat depth for Intersection #3 is observed to be approximately 130-feet, and the proposed available throat depth for Intersection #4 is observed to be approximately 125-feet. As shown in **Table 5**, the MRTD during the PM peak-hour is calculated to be 100-feet for Intersection #2, 125-feet for Intersection #3, 165-feet for Intersection #4, and 75-feet for Intersection #5. Thus, only Intersection #3 satisfies the MRTD during the weekday PM peak-hour. In order to sufficiently preserve on-site traffic operations, it is recommended that "Keep Clear" pavement striping be added at Intersection #2 and Intersection #4 as shown on **Exhibit 9**. Because of the unique site layout and the anticipated predominant movements, not providing the MRTD distance at Intersection #2 and Intersection #5 is not anticipated to significantly affect on-site operations or inhibit access into the Project site from Blue Oaks Boulevard or Woodcreek Oaks Boulevard.

Sight Distance

A site visit was completed on July 27, 2022, during which we evaluated sight distance for the proposed driveway location (Intersection #3) based on observed horizontal and vertical geometric conditions. This evaluation was performed in accordance with the guidelines presented in Section 7 of the *Design Standards* published by the City of Roseville[6]. The posted speed limit on Blue Oaks Boulevard is 45 MPH for which 495-feet of corner sight distance is required. A "floating car" travel time study conducted on July 27, 2022, identified the average free flow speed along Blue Oaks Boulevard as 41.1 MPH during the PM peak-hour. Nevertheless, consistent with the current posted speed limit (45 MPH), the observed sight distance at this proposed driveway location was determined to be sufficient based on the City's standards. As the existing geometry of Blue Oaks Boulevard in the vicinity of the Project site is straight and flat and no obstructive signage or landscaping appears to be proposed on the Project site plan, no sight distance issues are anticipated.

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**.

[6] Section 7 Streets (Table 7-6), *City of Roseville Design Standards,* City of Roseville, January 2020.

Offsite/Frontage Considerations

As previously noted, data was collected to establish vehicle travel characteristics of westbound Blue Oaks Boulevard vehicles moving through the Roseville Parkway intersection who turn right downstream onto northbound Woodcreek Oaks Boulevard. The findings of this evaluation indicate that there are few illegal movements westbound through the Roseville Parkway intersection from the approaching right-turn only lane into the site. Nevertheless, in a manner similar to the commercial center frontage opposite Blue Oaks Boulevard from the Project, it is recommended that the applicant construct a "bulb-out" or other similar physical feature in the northwest corner of Intersection #4 (Blue Oaks Boulevard and Roseville Parkway/Site Driveway) to prevent vehicles from making said illegal movement. This enhancement is shown in Exhibit 9. The addition of this feature would not alter the operations as documented herein.

Conclusions

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

- *Increased signalized study intersection delay (Intersections #1 and #4) will not adversely affect the Blue Oaks Boulevard corridor* – the reported increase in delay at both signalized intersections in the "plus Proposed Project" scenario is consistent with anticipated effects and is not expected to result in discernable deteriorations in operation.
- *The proposed Site Driveway onto Blue Oaks Boulevard (Intersection #3) is located beyond the back of westbound queue at Intersection #1* – the location and spacing of the proposed Site Driveway will allow for efficient ingress and egress operations and will not be impacted by westbound Blue Oaks Boulevard queueing at Intersection #1.
- *Both Project restaurants (Chick-fil-A and Dutch Bros) provide sufficient drive-through queue capacity* – the drive-throughs at both restaurants are anticipated to contain queuing based on operational data collected from existing sites within the general Roseville area.
- *City of Roseville MRTD standards are not achieved at all site access driveways along Blue Oaks Boulevard and Woodcreek Oaks Boulevard (Intersections #2, #3, #4, and #5)* – sufficient MRTD is provided at Intersection #3. While provided MRTD at Intersection #2, Intersection #4, and Intersection #5 does not meet City standards, it is not anticipated to significantly impact on-site operations in conjunction with recommended striping shown in Exhibit 9.
- *Adequate emergency vehicle and refuse service access is provided.*
- *Offsite/frontage improvements are recommended for the Blue Oaks Boulevard intersection with Woodcreek Oaks Boulevard westbound left-turn pocket* – the Project shall be conditioned to extend the westbound left-turn storage capacity of Intersection #1 by 250-feet (80-feet storage, 170-feet taper) to properly accommodate traffic demand while allowing for efficient Project vehicle egress from Intersection #3 around the calculated Intersection #1 westbound queue.
- *Offsite/frontage improvements are recommended at the northwest corner of the Blue Oaks Boulevard intersection with Roseville Parkway* – the Project shall be conditioned to construct a "bulb-out" or other similar physical feature in the northwest corner of Intersection #4 to prevent vehicles from making an illegal movement westbound through this intersection.

Attachments

Exhibit 1 – Project Vicinity Map
Exhibit 2 – Preliminary Site Plan
Exhibit 3 – Project Trip Distribution
Exhibit 4 – Project Trip Assignment
Exhibit 5 – Study Intersections, Traffic Control, and Lane Geometries
Exhibit 6 – Existing (2022) PM Peak-Hour Volumes
Exhibit 7 – Existing (2022) plus Proposed Project PM Peak-Hour Volumes
Exhibit 8 – Intersection #1 Westbound Queue Diagram
Exhibit 9 – Suggested Site Enhancements

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

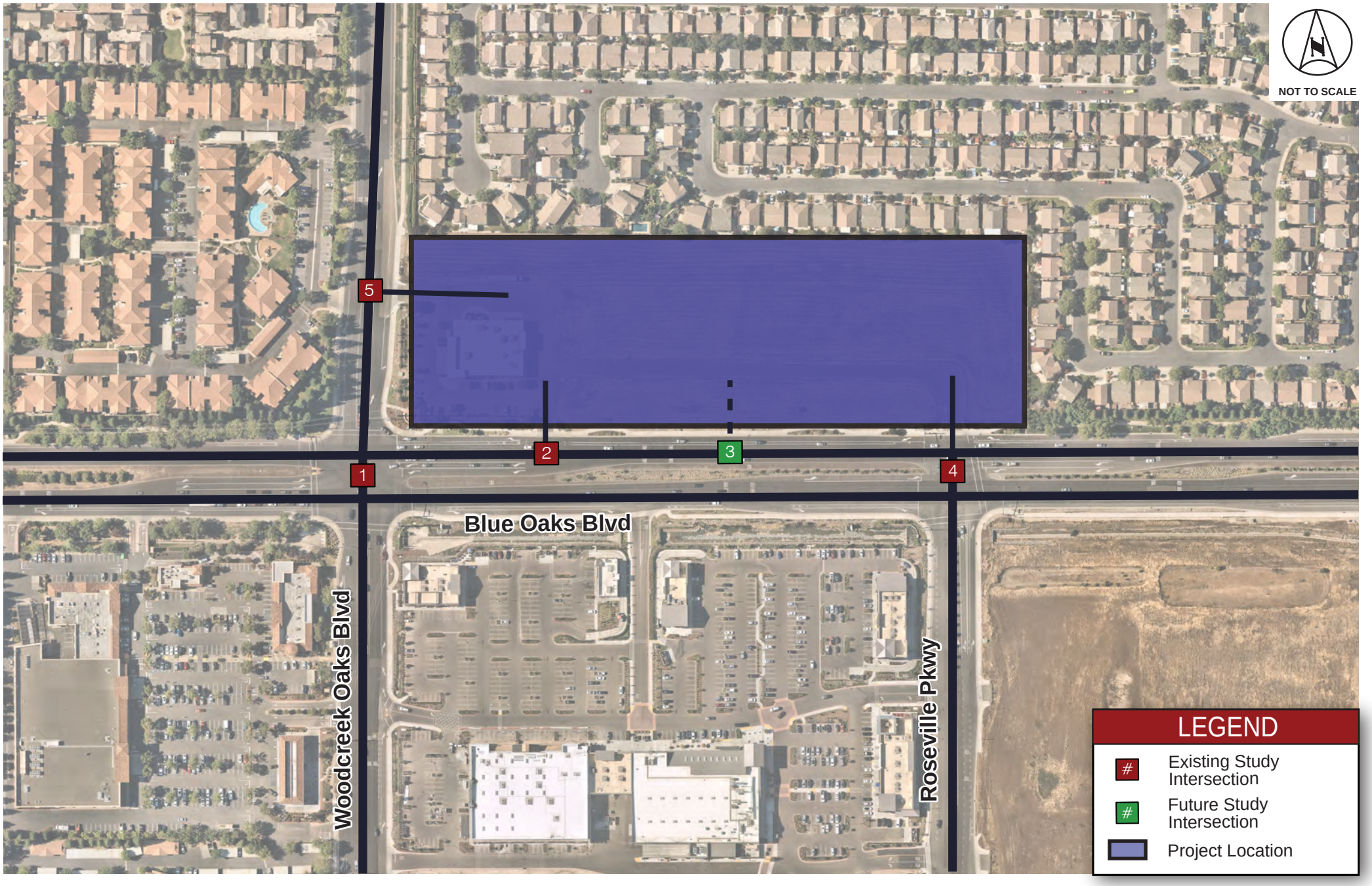

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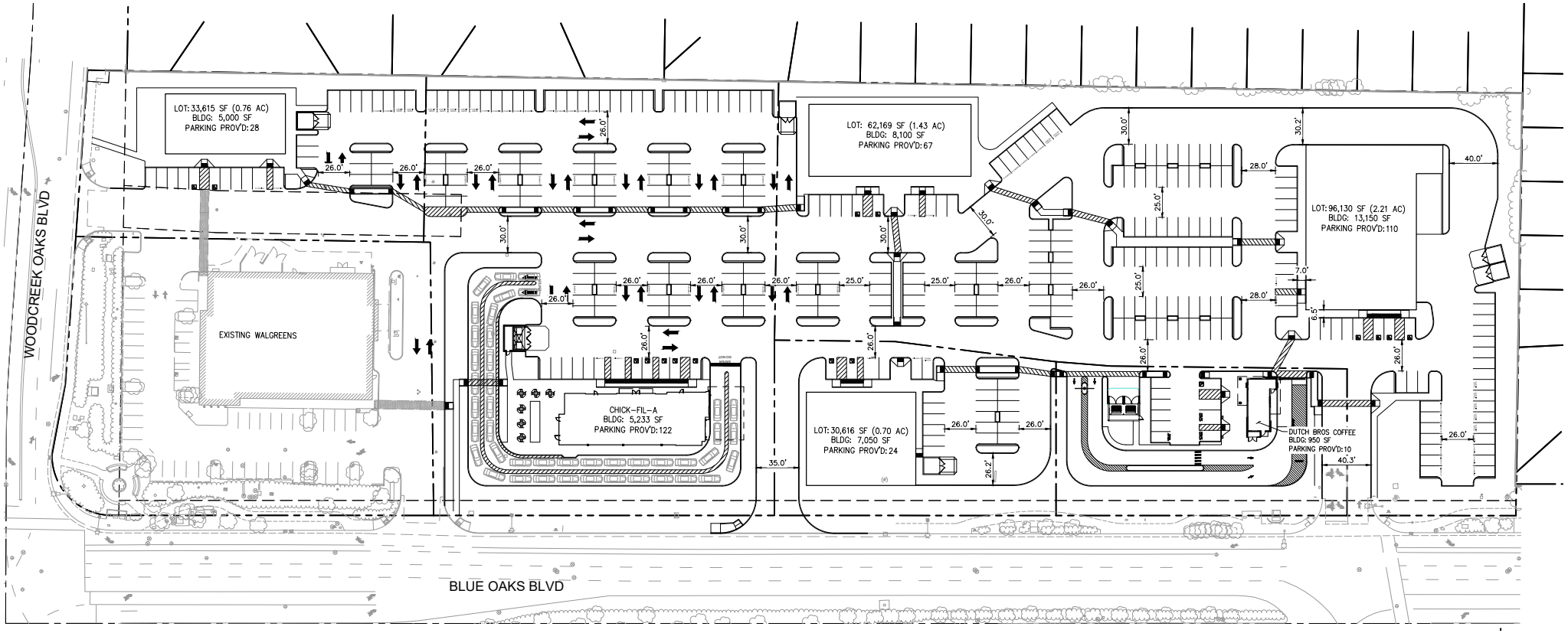
Exhibit 1
Project Vicinity Map

Blue Oaks Shopping Center



NOT TO SCALE

Site Plan Source: Kimley-Horn, May 2022

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Exhibit 2
Preliminary Site Plan

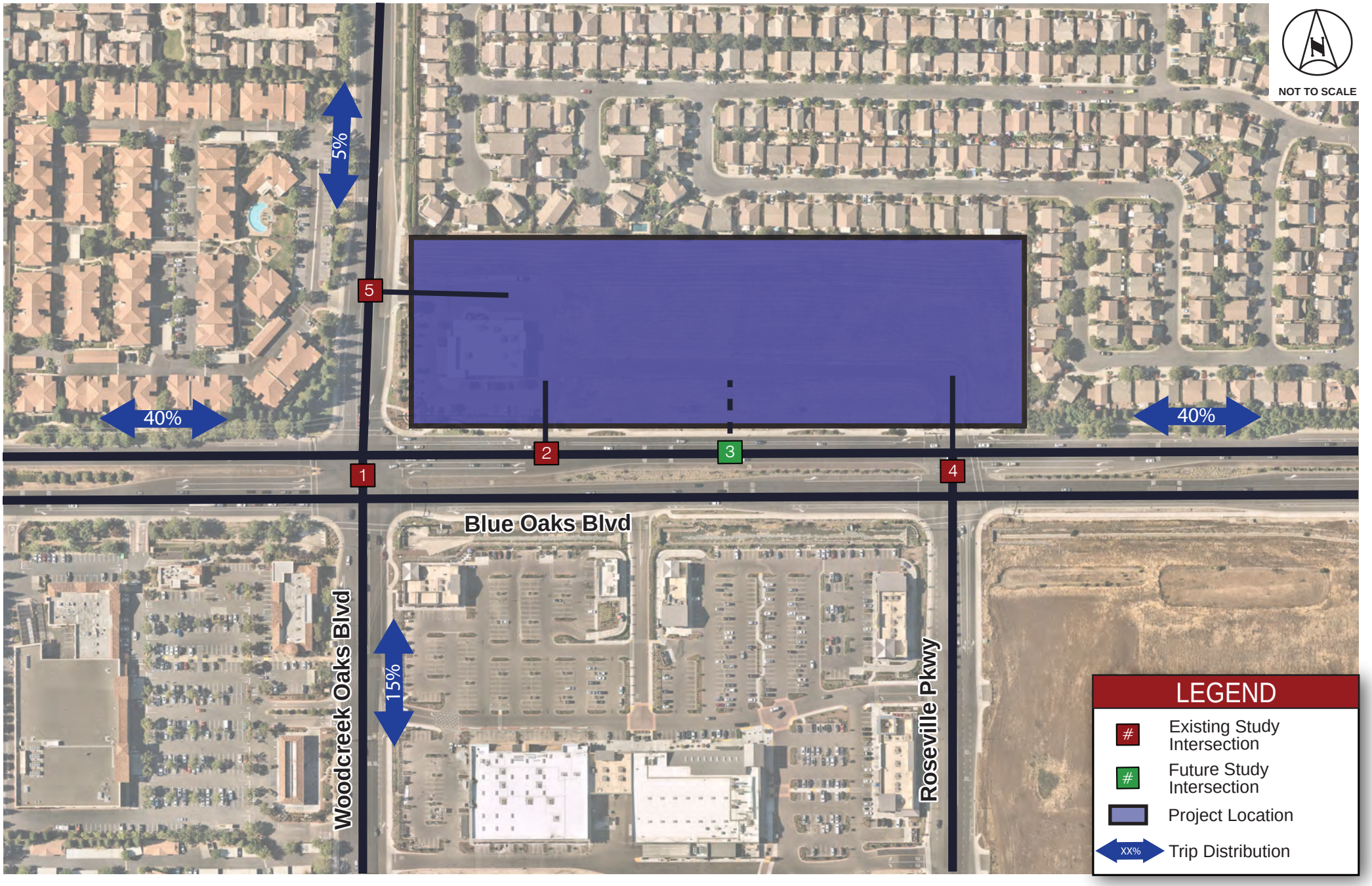

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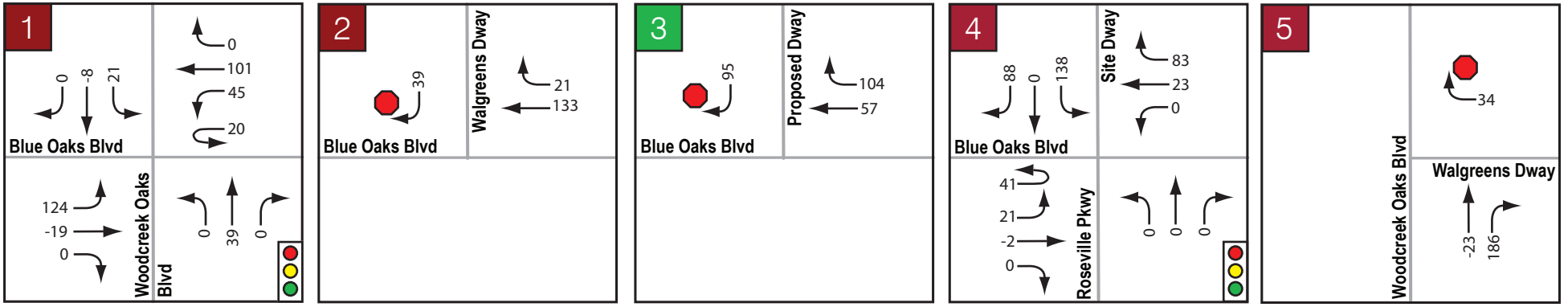
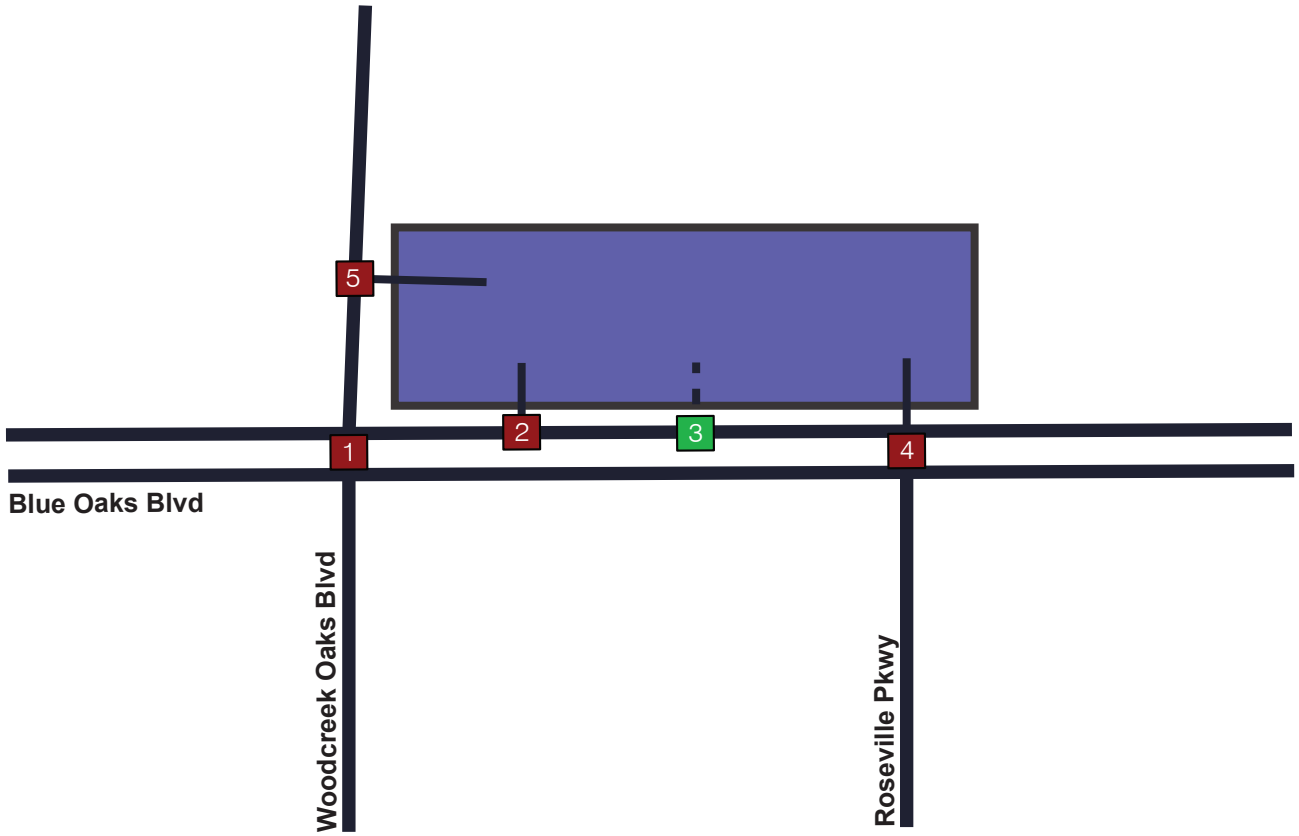
Exhibit 3
Project Trip Distribution

Project Trip Assignment





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*Net project trips after Diverted/Pass-by trips are applied

LEGEND

- # Existing Study Intersection
- # Future Study Intersection
- Project Location
- Signalized Control
- Stop Control
- XX Peak-Hour Project Trips*

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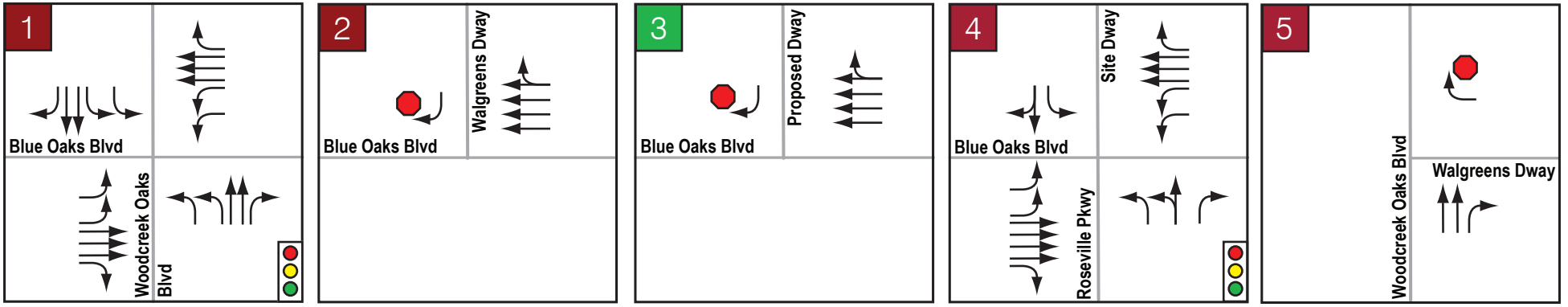
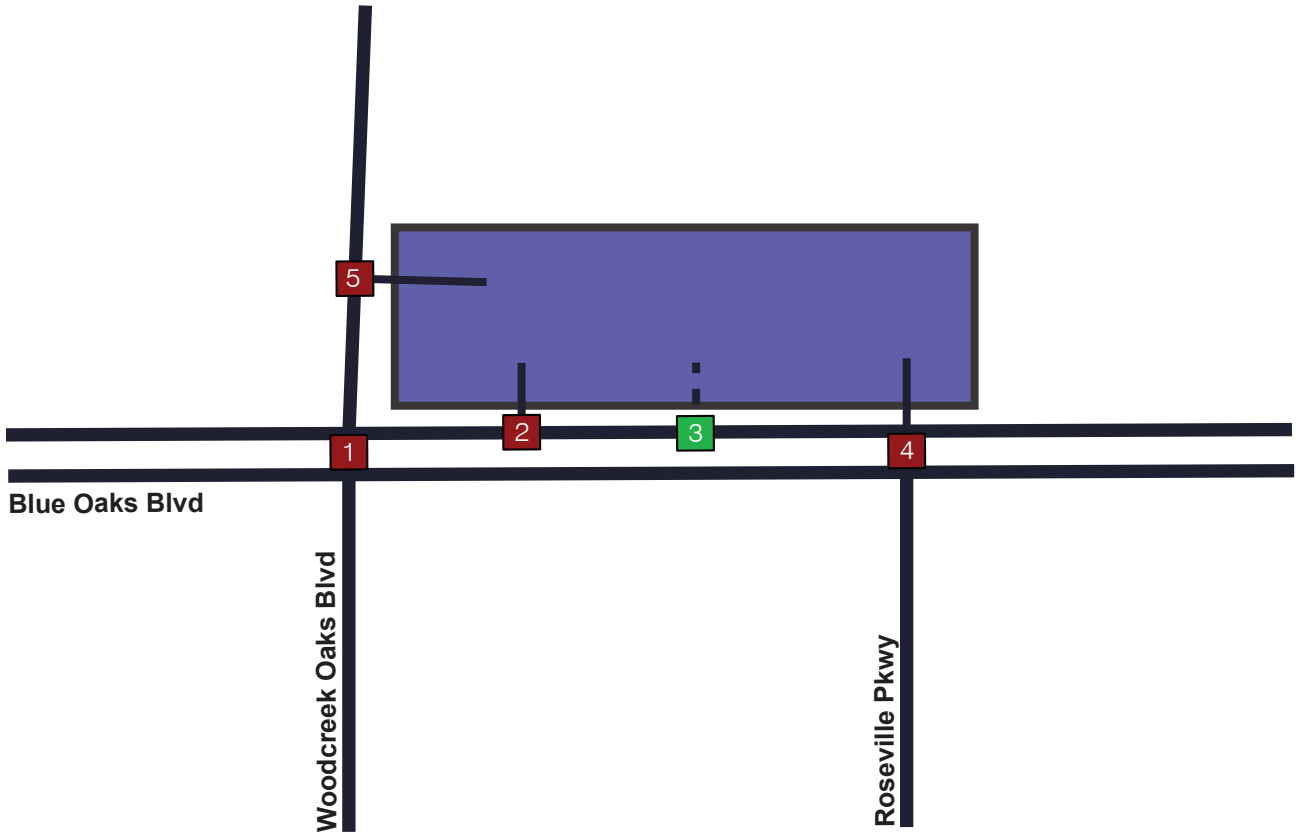
Exhibit 4
Project Trip Assignment

Study Intersections, Traffic Control, and Lane Geometries





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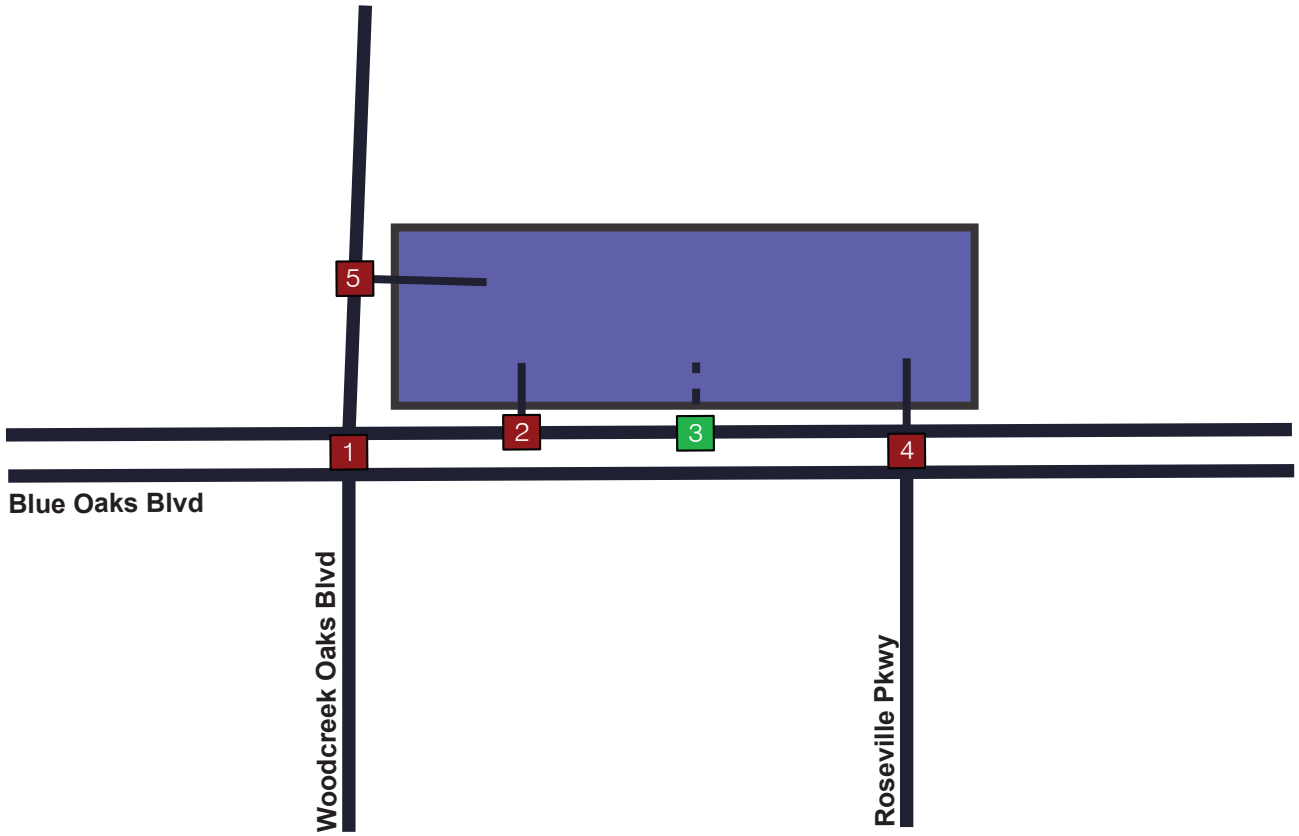
LEGEND

- # Existing Study Intersection
- # Future Study Intersection
- Project Location
- Signalized Control
- Stop Control

Existing (2022) PM Peak Hour Traffic Volumes

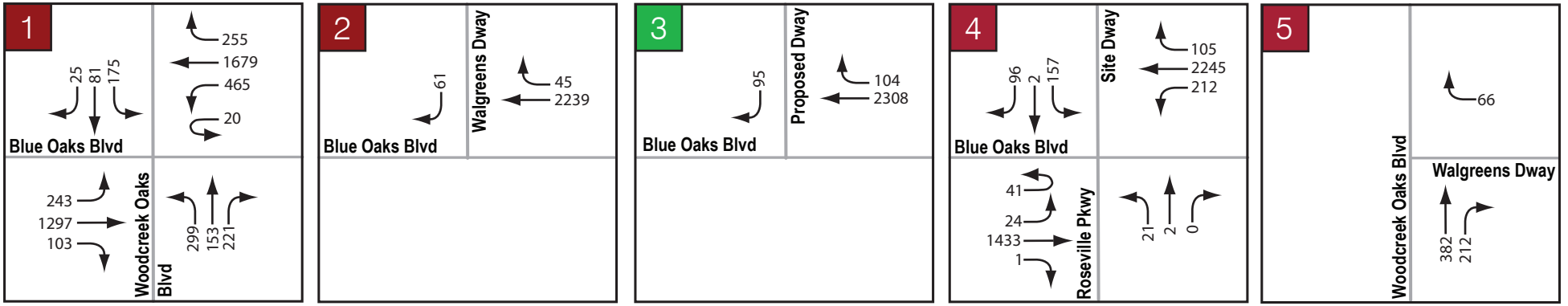


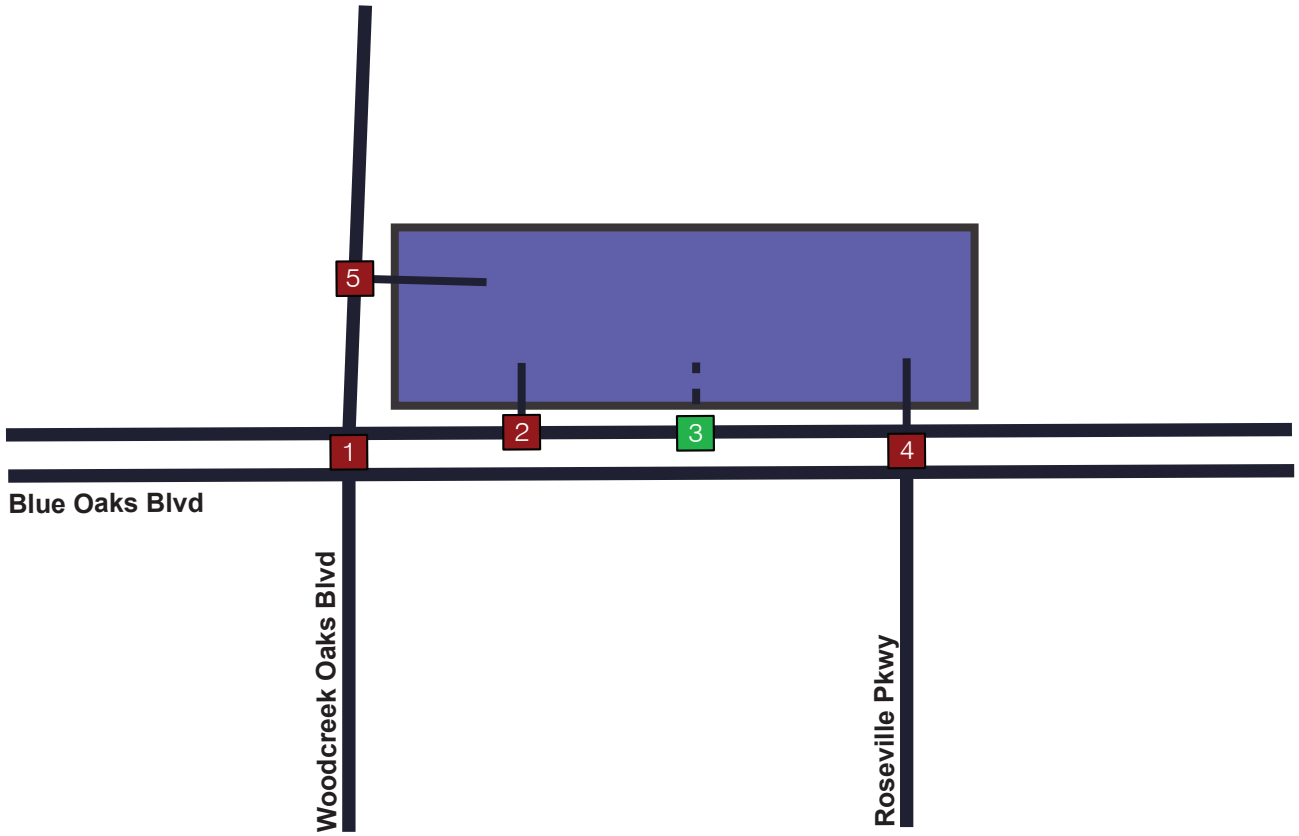
NOT TO SCALE

LEGEND

- # — Existing Study Intersection
- # — Future Study Intersection
- Project Location
- XX — PM Peak-Hour Turning Movement Volumes

Existing (2022) plus Proposed Project PM Peak Hour Traffic Volumes





NOT TO SCALE

LEGEND

- # Existing Study Intersection
- # Future Study Intersection
- Project Location
- XX PM Peak-Hour Turning Movement Volumes

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Exhibit 7

Existing (2022) plus Proposed Project PM Peak Hour Traffic Volumes

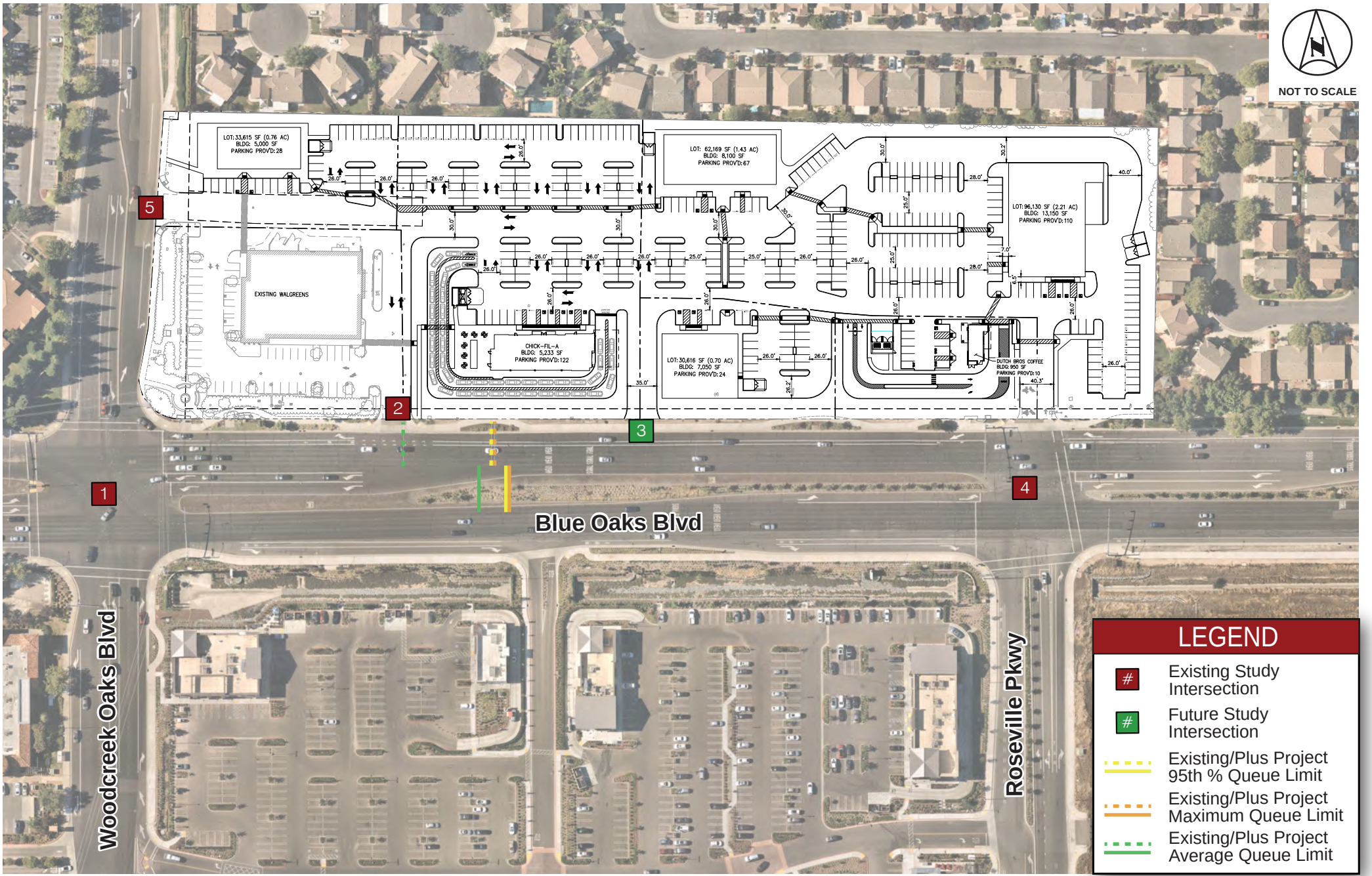

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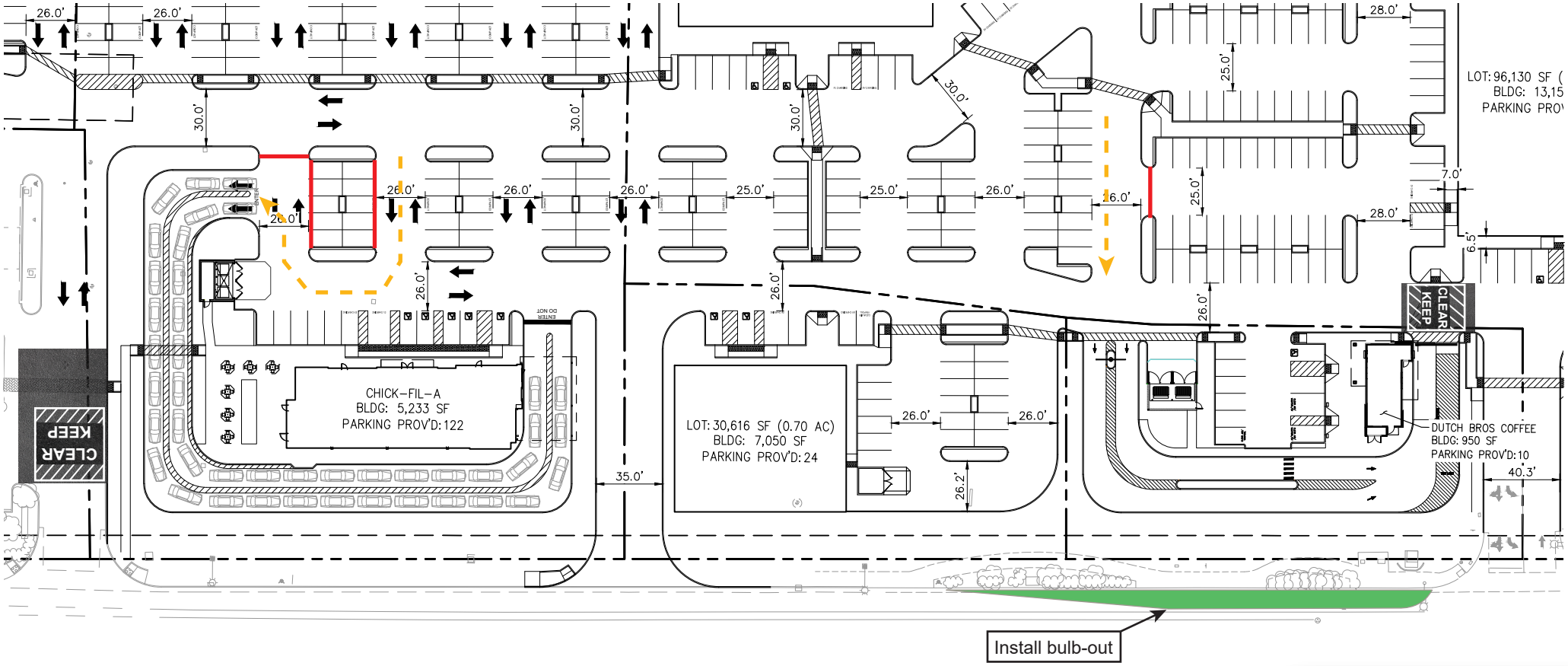
Exhibit 8

Intersection #1 Westbound Queue Diagram

NOT TO SCALE



LEGEND

Queue Management Strategies:

- Overflow Queue
- Parking Block Off

Site Plan Source: Kimley-Horn, May 2022

Attachment A

Trip Generation Data (Local Sites)

Prepared by National Data & Surveying Services

Trip Generation Study

Location: Chick-fil-A, 912 Pleasant Grove Blvd

City: Roseville, CA

TIME	DRIVE THRU LANE Volume								
	Day 1 [7/26]		Day 2 [7/27]		Day 3 [7/28]		Total Drive Thru		
	Join Queue	Exit Queue	Join Queue	Exit Queue	Join Queue	Exit Queue	IN	OUT	OUTCOME
4:00 PM	26	23	29	22	19	19	74	64	10
4:15 PM	16	18	21	17	23	18	60	53	7
4:30 PM	19	17	28	19	29	24	76	60	16
4:45 PM	27	27	26	20	21	25	74	72	2
5:00 PM	26	19	16	22	22	19	64	60	4
5:15 PM	19	19	22	18	19	15	60	52	8
5:30 PM	30	19	19	18	17	18	66	55	11
5:45 PM	24	24	16	15	22	18	62	57	5
Totals	187	166	177	151	172	156	536	473	63

Prepared by National Data & Surveying Services

Trip Generation Study

Location: Chick-fil-A, 912 Pleasant Grove Blvd

City: Roseville, CA

TIME	Pedestrian Group Volume								
	Day 1 [7/26]		Day 2 [7/27]		Day 3 [7/28]		Total Drive Thru		
	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	IN	OUT	OUTCOME
4:00 PM	7	9	7	5	8	12	22	26	-4
4:15 PM	6	9	7	11	8	11	21	31	-10
4:30 PM	6	6	6	10	7	5	19	21	-2
4:45 PM	6	8	10	7	8	10	24	25	-1
5:00 PM	9	7	10	9	10	12	29	28	1
5:15 PM	8	9	6	9	8	11	22	29	-7
5:30 PM	10	9	14	8	12	12	36	29	7
5:45 PM	6	5	13	15	13	10	32	30	2
Totals	58	62	73	74	74	83	205	219	-14

Kimley»Horn

Attachment B

Traffic Count Data Sheets

Turning Movement Volume Report

Report Date: 8/4/2022 9:28:39 AM

From 7/26/2022 to 7/26/2022

Blue Oaks & Woodcreek Oaks

Intersection: 108

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
26/07/22 00:00-01:00	13	8	14	35	16	7	2	25	16	336	11	363	38	344	36	418	841
26/07/22 01:00-02:00	7	4	7	18	7	3	2	12	4	462	1	467	12	273	10	295	792
26/07/22 02:00-03:00	3	6	5	14	7	1	0	8	4	450	0	454	8	405	8	421	897
26/07/22 03:00-04:00	1	1	8	10	6	0	1	7	1	394	1	396	11	293	4	308	721
26/07/22 04:00-05:00	5	2	26	33	27	0	4	31	3	372	0	375	13	451	3	467	906
26/07/22 05:00-06:00	10	7	70	87	62	9	7	78	2	678	11	691	29	403	11	443	1299
26/07/22 06:00-07:00	50	18	130	198	107	21	6	134	11	886	26	923	53	680	20	753	2008
26/07/22 07:00-08:00	86	23	181	290	195	30	13	238	21	1196	46	1263	87	707	49	843	2634
26/07/22 08:00-09:00	115	41	205	361	246	53	20	319	29	1548	75	1652	127	640	57	824	3156
26/07/22 09:00-10:00	142	53	261	456	191	43	23	257	61	1281	95	1437	173	648	87	908	3058
26/07/22 10:00-11:00	201	60	222	483	196	51	25	272	70	1383	81	1534	227	721	116	1064	3353
26/07/22 11:00-12:00	230	76	203	509	172	54	18	244	83	1246	109	1438	236	813	139	1188	3379
26/07/22 12:00-13:00	287	93	261	641	141	51	20	212	87	1276	105	1468	285	1000	146	1431	3752
26/07/22 13:00-14:00	265	93	225	583	154	47	28	229	95	1324	103	1522	294	1016	151	1461	3795
26/07/22 14:00-15:00	221	81	190	492	174	56	24	254	94	1160	77	1331	339	1034	158	1531	3608
26/07/22 15:00-16:00	275	89	219	583	168	74	23	265	69	1127	98	1294	360	1047	174	1581	3723
26/07/22 16:00-	267	93	209	569	162	61	34	257	122	1255	80	1457	345	1190	179	1714	3997

Turning Movement Volume Report

Report Date: 8/4/2022 9:28:39 AM

From 7/26/2022 to 7/26/2022

Blue Oaks & Woodcreek Oaks

Intersection: 108

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
17:00																	
26/07/22 17:00-18:00	299	114	221	634	154	89	25	268	119	1316	103	1538	420	1578	255	2253	4693
26/07/22 18:00-19:00	279	124	218	621	162	63	25	250	108	1155	106	1369	380	1370	233	1983	4223
26/07/22 19:00-20:00	234	104	132	470	121	47	26	194	96	927	74	1097	292	1034	157	1483	3244
26/07/22 20:00-21:00	200	78	139	417	108	54	13	175	89	961	87	1137	231	851	157	1239	2968
26/07/22 21:00-22:00	109	54	81	244	71	31	17	119	55	548	36	639	163	687	142	992	1994
26/07/22 22:00-23:00	71	30	67	168	55	15	8	78	36	531	23	590	112	461	81	654	1490
26/07/22 23:00-00:00	23	25	29	77	21	9	3	33	20	553	12	585	66	395	73	534	1229
Summary	3393	1277	3323	7993	2723	869	367	3959	1295	22365	1360	25020	4301	18041	2446	24788	61760

Turning Movement Volume Report

Report Date: 8/4/2022 9:29:22 AM

From 7/27/2022 to 7/27/2022

Blue Oaks & Woodcreek Oaks

Intersection: 108

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
27/07/22 00:00-01:00	17	9	25	51	11	2	6	19	11	496	4	511	34	392	30	456	1037
27/07/22 01:00-02:00	12	8	6	26	10	3	0	13	3	248	3	254	21	236	14	271	564
27/07/22 02:00-03:00	2	5	8	15	7	2	0	9	4	398	0	402	10	339	10	359	785
27/07/22 03:00-04:00	2	1	12	15	5	0	0	5	2	434	0	436	14	301	7	322	778
27/07/22 04:00-05:00	1	2	20	23	19	0	7	26	0	524	5	529	10	343	5	358	936
27/07/22 05:00-06:00	15	5	71	91	58	5	4	67	2	614	8	624	24	301	8	333	1115
27/07/22 06:00-07:00	41	24	129	194	128	22	9	159	4	872	21	897	55	445	29	529	1779
27/07/22 07:00-08:00	86	35	194	315	210	25	17	252	20	1069	46	1135	87	704	39	830	2532
27/07/22 08:00-09:00	115	35	209	359	221	62	19	302	27	1444	67	1538	137	625	77	839	3038
27/07/22 09:00-10:00	162	66	205	433	197	59	19	275	56	1440	92	1588	212	767	77	1056	3352
27/07/22 10:00-11:00	189	61	202	452	185	63	29	277	74	1188	100	1362	186	722	117	1025	3116
27/07/22 11:00-12:00	240	84	234	558	166	55	24	245	88	1338	102	1528	259	834	138	1231	3562
27/07/22 12:00-13:00	281	101	242	624	154	57	23	234	104	1274	89	1467	293	1026	145	1464	3789
27/07/22 13:00-14:00	242	83	217	542	165	62	20	247	82	1398	88	1568	276	1029	163	1468	3825
27/07/22 14:00-15:00	208	68	197	473	155	66	29	250	87	1180	78	1345	274	980	141	1395	3463
27/07/22 15:00-16:00	236	85	216	537	154	64	31	249	87	1177	96	1360	330	1152	159	1641	3787
27/07/22 16:00-	260	95	218	573	160	48	39	247	96	1202	104	1402	333	1371	187	1891	4113

Turning Movement Volume Report

Report Date: 8/4/2022 9:29:22 AM

From 7/27/2022 to 7/27/2022

Blue Oaks & Woodcreek Oaks

Intersection: 108

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
17:00																	
27/07/22 17:00-18:00	289	110	216	615	165	75	27	267	138	1275	108	1521	375	1578	273	2226	4629
27/07/22 18:00-19:00	282	106	198	586	152	64	35	251	122	1272	106	1500	372	1299	245	1916	4253
27/07/22 19:00-20:00	222	76	149	447	131	48	18	197	91	902	81	1074	259	920	156	1335	3053
27/07/22 20:00-21:00	163	72	112	347	114	32	21	167	73	898	70	1041	222	881	166	1269	2824
27/07/22 21:00-22:00	110	71	98	279	78	38	20	136	53	613	35	701	172	677	125	974	2090
27/07/22 22:00-23:00	69	36	65	170	45	23	10	78	42	607	25	674	131	472	100	703	1625
27/07/22 23:00-00:00	39	25	32	96	18	21	7	46	22	307	13	342	68	291	52	411	895
Summary	3283	1263	3275	7821	2708	896	414	4018	1288	22170	1341	24799	4154	17685	2463	24302	60940

Turning Movement Volume Report

Report Date: 8/4/2022 9:30:28 AM

From 7/28/2022 to 7/28/2022

Blue Oaks & Woodcreek Oaks

Intersection: 108

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
28/07/22 00:00-01:00	12	6	22	40	10	6	2	18	20	526	7	553	46	192	45	283	894
28/07/22 01:00-02:00	7	8	15	30	14	5	2	21	6	486	6	498	20	213	14	247	796
28/07/22 02:00-03:00	1	3	9	13	5	2	1	8	4	363	1	368	14	158	4	176	565
28/07/22 03:00-04:00	1	4	8	13	4	0	1	5	1	301	0	302	14	242	5	261	581
28/07/22 04:00-05:00	1	4	23	28	19	2	2	23	0	468	2	470	14	276	2	292	813
28/07/22 05:00-06:00	11	2	69	82	66	7	3	76	5	631	11	647	30	204	9	243	1048
28/07/22 06:00-07:00	34	16	133	183	104	16	7	127	9	902	21	932	60	440	26	526	1768
28/07/22 07:00-08:00	94	27	186	307	204	43	11	258	21	1172	49	1242	107	605	47	759	2566
28/07/22 08:00-09:00	112	43	210	365	246	43	24	313	43	1414	58	1515	136	659	84	879	3072
28/07/22 09:00-10:00	153	55	233	441	194	42	20	256	44	1321	98	1463	186	646	77	909	3069
28/07/22 10:00-11:00	183	62	209	454	170	60	28	258	61	1308	95	1464	198	733	98	1029	3205
28/07/22 11:00-12:00	258	86	231	575	191	57	18	266	85	1214	114	1413	260	862	115	1237	3491
28/07/22 12:00-13:00	299	92	225	616	151	68	20	239	100	1325	100	1525	266	971	136	1373	3753
28/07/22 13:00-14:00	272	80	235	587	157	63	40	260	91	1226	99	1416	284	971	156	1411	3674
28/07/22 14:00-15:00	220	87	218	525	138	47	22	207	73	1171	95	1339	257	997	140	1394	3465
28/07/22 15:00-16:00	220	85	233	538	147	45	22	214	104	1167	107	1378	330	1186	154	1670	3800
28/07/22 16:00-	250	103	207	560	166	67	35	268	111	1337	105	1553	346	1305	205	1856	4237

Turning Movement Volume Report

Report Date: 8/4/2022 9:30:28 AM

From 7/28/2022 to 7/28/2022

Blue Oaks & Woodcreek Oaks

Intersection: 108

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
17:00																	
28/07/22 17:00-18:00	297	124	215	636	179	60	33	272	114	1308	98	1520	314	1276	211	1801	4229
28/07/22 18:00-19:00	277	119	175	571	181	70	34	285	126	1156	100	1382	313	1368	208	1889	4127
28/07/22 19:00-20:00	238	78	162	478	135	53	26	214	77	967	78	1122	257	1009	176	1442	3256
28/07/22 20:00-21:00	181	76	155	412	96	39	22	157	76	949	91	1116	244	867	164	1275	2960
28/07/22 21:00-22:00	125	51	95	271	55	30	15	100	56	589	36	681	171	719	127	1017	2069
28/07/22 22:00-23:00	66	35	63	164	49	18	10	77	40	654	30	724	153	444	92	689	1654
28/07/22 23:00-00:00	26	15	41	82	33	16	1	50	24	607	14	645	71	323	61	455	1232
Summary	3338	1261	3372	7971	2714	859	399	3972	1291	22562	1415	25268	4091	16666	2356	23113	60324

National Data & Surveying Services Intersection Turning Movement Count

Location: Walgreens Dwy & Blue Oaks Blvd
City: Roseville
Control: 1-Way Stop(SB)

Project ID: 22-070155-001
Date: 7/26/2022

Data - Totals

NS/EW Streets:	Walgreens Dwy				Walgreens Dwy				Blue Oaks Blvd				Blue Oaks Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	1	0	0	4	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	6	0	0	334	0	0	0	437	14	0	791
4:15 PM	0	0	0	0	0	0	8	0	0	368	0	0	0	371	9	0	756
4:30 PM	0	0	0	0	0	0	12	0	0	342	0	0	0	462	6	0	822
4:45 PM	0	0	0	0	0	0	5	0	0	361	0	0	0	500	6	0	872
5:00 PM	0	0	0	0	0	0	8	0	0	346	0	0	0	586	5	0	945
5:15 PM	0	0	0	0	0	0	6	0	0	398	0	0	0	582	5	0	991
5:30 PM	0	0	0	0	0	0	2	0	0	379	0	0	0	536	9	0	926
5:45 PM	0	0	0	0	0	0	4	0	0	421	0	0	0	502	6	0	933
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	51	0	0	2949	0	0	0	3976	60	0	7036
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	98.51%	1.49%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	20	0	0	1544	0	0	0	2206	25	0	3795
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.917	0.000	0.000	0.000	0.941	0.694	0.000	0.957
							0.625				0.917				0.944		

National Data & Surveying Services Intersection Turning Movement Count

Location: Walgreens Dwy & Blue Oaks Blvd
City: Roseville
Control: 1-Way Stop(SB)

Project ID: 22-070155-001
Date: 7/27/2022

Data - Totals

NS/EW Streets:	Walgreens Dwy				Walgreens Dwy				Blue Oaks Blvd				Blue Oaks Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	1	0	0	4	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	10	0	0	362	0	0	0	438	6	0	816
4:15 PM	0	0	0	0	0	0	6	0	0	362	0	0	0	494	5	0	867
4:30 PM	0	0	0	0	0	0	5	0	0	351	0	0	0	450	3	0	809
4:45 PM	0	0	0	0	0	0	6	0	0	342	0	0	0	527	8	0	883
5:00 PM	0	0	0	0	0	0	3	0	0	342	0	0	0	580	3	0	928
5:15 PM	0	0	0	0	0	0	5	0	0	401	0	0	0	526	11	0	943
5:30 PM	0	0	0	0	0	0	7	0	0	388	0	0	0	540	1	0	936
5:45 PM	0	0	0	0	0	0	4	0	0	353	0	0	0	514	5	0	876
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	46	0	0	2901	0	0	0	4069	42	0	7058
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	98.98%	1.02%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	21	0	0	1473	0	0	0	2173	23	0	3690
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.918	0.000	0.000	0.000	0.937	0.523	0.000	0.978
							0.750				0.918				0.942		

National Data & Surveying Services Intersection Turning Movement Count

Location: Walgreens Dwy & Blue Oaks Blvd
City: Roseville
Control: 1-Way Stop(SB)

Project ID: 22-070155-001
Date: 7/28/2022

Data - Totals

NS/EW Streets:	Walgreens Dwy				Walgreens Dwy				Blue Oaks Blvd				Blue Oaks Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	1	0	0	4	0	0	0	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	4	0	0	362	0	0	0	455	9	0	830
4:15 PM	0	0	0	0	0	0	5	0	0	348	0	0	0	464	9	0	826
4:30 PM	0	0	0	0	0	0	8	0	0	374	0	0	0	469	10	0	861
4:45 PM	0	0	0	0	0	0	6	0	0	376	0	0	0	323	7	0	712
5:00 PM	0	0	0	0	0	0	7	0	0	379	0	0	0	296	2	0	684
5:15 PM	0	0	0	0	0	0	3	0	0	374	0	0	0	541	7	0	925
5:30 PM	0	0	0	0	0	0	7	0	0	385	0	0	0	638	8	0	1038
5:45 PM	0	0	0	0	0	0	7	0	0	336	0	0	0	465	8	0	816
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	47	0	0	2934	0	0	0	3651	60	0	6692
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	98.38%	1.62%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	24	0	0	1474	0	0	0	1940	25	0	3463
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.857	0.000	0.000	0.957	0.000	0.000	0.000	0.760	0.781	0.000	0.834
					0.857				0.957				0.760				

Turning Movement Volume Report

Report Date: 8/4/2022 9:35:22 AM

From 7/26/2022 to 7/26/2022

Blue Oaks & Roseville Pkwy_Walgreens

Intersection: 177

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
26/07/22 00:00-01:00	2	0		2	0	0	0	0	2	86	0	88	16	194	6	216	306
26/07/22 01:00-02:00	0	0		0	0	0	0	0	0	41	0	41	12	80	0	92	133
26/07/22 02:00-03:00	1	0		1	0	0	0	0	0	42	0	42	2	51	2	55	98
26/07/22 03:00-04:00	0	0		0	0	0	0	0	0	50	0	50	8	44	1	53	103
26/07/22 04:00-05:00	0	0		0	0	0	0	0	0	148	0	148	17	45	0	62	210
26/07/22 05:00-06:00	1	0		1	0	0	0	0	1	393	1	395	30	123	1	154	550
26/07/22 06:00-07:00	2	0		2	1	0	0	1	0	801	0	801	65	407	3	475	1279
26/07/22 07:00-08:00	4	1		5	1	0	0	1	0	1244	2	1246	91	640	1	732	1984
26/07/22 08:00-09:00	6	1		7	6	0	1	7	1	1693	0	1694	91	804	4	899	2607
26/07/22 09:00-10:00	6	1		7	13	0	1	14	5	1515	6	1526	128	935	7	1070	2617
26/07/22 10:00-11:00	18	1		19	11	1	4	16	4	1455	1	1460	142	1101	19	1262	2757
26/07/22 11:00-12:00	20	3		23	22	1	5	28	5	1380	0	1385	173	1213	18	1404	2840
26/07/22 12:00-13:00	25	3		28	13	1	3	17	6	1468	0	1474	211	1506	13	1730	3249
26/07/22 13:00-14:00	23	2		25	26	2	8	36	6	1386	1	1393	184	1445	17	1646	3100
26/07/22 14:00-15:00	29	2		31	14	0	2	16	7	1347	0	1354	195	1557	20	1772	3173
26/07/22 15:00-16:00	27	2		29	17	1	5	23	5	1349	2	1356	180	1624	9	1813	3221
26/07/22 16:00-	14	1		15	14	1	2	17	4	1370	0	1374	173	1728	21	1922	3328

Turning Movement Volume Report

Report Date: 8/4/2022 9:35:22 AM

From 7/26/2022 to 7/26/2022

Blue Oaks & Roseville Pkwy_Walgreens

Intersection: 177

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
17:00																	
26/07/22 17:00-18:00	21	2		23	19	2	8	29	3	1435	1	1439	212	2222	22	2456	3947
26/07/22 18:00-19:00	27	2		29	11	1	2	14	5	1371	0	1376	186	1993	24	2203	3622
26/07/22 19:00-20:00	24	2		26	13	1	2	16	5	980	0	985	152	1447	18	1617	2644
26/07/22 20:00-21:00	13	0		13	12	0	2	14	7	762	0	769	128	1236	13	1377	2173
26/07/22 21:00-22:00	7	0		7	8	0	1	9	3	456	0	459	86	993	12	1091	1566
26/07/22 22:00-23:00	6	1		7	4	0	1	5	0	339	0	339	53	602	4	659	1010
26/07/22 23:00-00:00	6	1		7	0	0	0	0	0	174	0	174	26	410	3	439	620
Summary	282	25	0	307	205	11	47	263	69	21285	14	21368	2561	22400	238	25199	47137

Turning Movement Volume Report

Report Date: 8/4/2022 9:34:21 AM

From 7/27/2022 to 7/27/2022

Blue Oaks & Roseville Pkwy_Walgreens

Intersection: 177

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
27/07/22 00:00-01:00	0	0		0	0	0	0	0	0	116	0	116	9	219	1	229	345
27/07/22 01:00-02:00	2	0		2	1	0	1	2	0	53	0	53	13	99	0	112	169
27/07/22 02:00-03:00	0	0		0	0	0	0	0	1	36	0	37	5	54	0	59	96
27/07/22 03:00-04:00	1	0		1	0	0	0	0	0	46	2	48	14	51	2	67	116
27/07/22 04:00-05:00	0	0		0	1	0	0	1	0	142	0	142	14	56	2	72	215
27/07/22 05:00-06:00	3	0		3	0	0	0	0	0	396	4	400	24	140	1	165	568
27/07/22 06:00-07:00	1	0		1	0	0	0	0	2	836	2	840	63	396	1	460	1301
27/07/22 07:00-08:00	6	0		6	2	0	0	2	1	1274	0	1275	94	620	1	715	1998
27/07/22 08:00-09:00	11	1		12	5	0	0	5	2	1658	1	1661	97	896	7	1000	2678
27/07/22 09:00-10:00	16	1		17	12	1	5	18	2	1502	0	1504	122	1076	8	1206	2745
27/07/22 10:00-11:00	23	3		26	12	1	3	16	2	1405	5	1412	142	1056	11	1209	2663
27/07/22 11:00-12:00	15	2		17	19	1	5	25	2	1445	2	1449	182	1282	9	1473	2964
27/07/22 12:00-13:00	29	3		32	17	1	2	20	7	1469	0	1476	216	1489	16	1721	3249
27/07/22 13:00-14:00	21	3		24	11	1	4	16	4	1416	1	1421	185	1500	14	1699	3160
27/07/22 14:00-15:00	32	3		35	17	1	5	23	7	1342	1	1350	193	1461	16	1670	3078
27/07/22 15:00-16:00	24	3		27	22	1	5	28	4	1293	3	1300	151	1671	18	1840	3195
27/07/22 16:00-	24	2		26	25	1	6	32	8	1382	1	1391	199	1812	25	2036	3485

Turning Movement Volume Report

Report Date: 8/4/2022 9:34:21 AM

From 7/27/2022 to 7/27/2022

Blue Oaks & Roseville Pkwy_Walgreens

Intersection: 177

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
17:00																	
27/07/22 17:00-18:00	26	2		28	21	1	5	27	5	1411	1	1417	229	2189	18	2436	3908
27/07/22 18:00-19:00	20	2		22	19	1	4	24	11	1343	3	1357	194	1872	21	2087	3490
27/07/22 19:00-20:00	20	1		21	10	1	2	13	3	952	0	955	155	1351	16	1522	2511
27/07/22 20:00-21:00	13	0		13	14	1	6	21	4	810	1	815	146	1277	14	1437	2286
27/07/22 21:00-22:00	10	0		10	4	0	1	5	3	481	0	484	87	989	9	1085	1584
27/07/22 22:00-23:00	2	0		2	4	0	2	6	3	313	0	316	36	680	8	724	1048
27/07/22 23:00-00:00	9	0		9	1	0	0	1	0	157	0	157	28	380	2	410	577
Summary	308	26	0	334	217	12	56	285	71	21278	27	21376	2598	22616	220	25434	47429

Turning Movement Volume Report

Report Date: 8/4/2022 9:33:01 AM

From 7/28/2022 to 7/28/2022

Blue Oaks & Roseville Pkwy_Walgreens

Intersection: 177

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
28/07/22 00:00-01:00	1	0		1	0	0	0	0	1	99	0	100	15	235	5	255	356
28/07/22 01:00-02:00	1	0		1	0	0	0	0	1	80	0	81	6	98	0	104	186
28/07/22 02:00-03:00	0	0		0	0	0	0	0	0	39	0	39	3	53	0	56	95
28/07/22 03:00-04:00	0	0		0	0	0	0	0	0	49	0	49	9	55	0	64	113
28/07/22 04:00-05:00	1	0		1	0	0	0	0	0	137	0	137	12	58	0	70	208
28/07/22 05:00-06:00	3	1		4	0	0	0	0	0	398	0	398	27	112	4	143	545
28/07/22 06:00-07:00	4	0		4	0	0	0	0	3	778	0	781	64	384	3	451	1236
28/07/22 07:00-08:00	7	1		8	2	0	0	2	1	1321	0	1322	89	676	4	769	2101
28/07/22 08:00-09:00	13	1		14	7	1	2	10	2	1631	0	1633	113	883	9	1005	2662
28/07/22 09:00-10:00	14	2		16	11	1	5	17	2	1491	2	1495	135	935	8	1078	2606
28/07/22 10:00-11:00	15	2		17	9	1	5	15	2	1408	1	1411	152	1043	10	1205	2648
28/07/22 11:00-12:00	27	2		29	12	1	5	18	6	1459	1	1466	182	1267	13	1462	2975
28/07/22 12:00-13:00	37	3		40	23	1	6	30	4	1420	1	1425	241	1400	8	1649	3144
28/07/22 13:00-14:00	22	2		24	15	1	4	20	7	1410	2	1419	193	1449	20	1662	3125
28/07/22 14:00-15:00	32	2		34	23	1	3	27	5	1373	0	1378	177	1390	9	1576	3015
28/07/22 15:00-16:00	30	3		33	11	1	2	14	4	1287	2	1293	187	1611	14	1812	3152
28/07/22 16:00-	22	1		23	18	2	7	27	4	1425	1	1430	170	1876	27	2073	3553

Turning Movement Volume Report

Report Date: 8/4/2022 9:33:01 AM

From 7/28/2022 to 7/28/2022

Blue Oaks & Roseville Pkwy_Walgreens

Intersection: 177

	N				S				E				W				
Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int Total
17:00																	
28/07/22 17:00-18:00	27	3		30	25	2	6	33	5	1407	1	1413	195	1768	23	1986	3462
28/07/22 18:00-19:00	25	3		28	12	1	4	17	8	1294	1	1303	202	1912	17	2131	3479
28/07/22 19:00-20:00	28	3		31	23	1	6	30	9	998	0	1007	156	1442	20	1618	2686
28/07/22 20:00-21:00	8	1		9	11	1	2	14	2	799	1	802	129	1343	18	1490	2315
28/07/22 21:00-22:00	17	2		19	6	1	2	9	2	508	1	511	94	1031	8	1133	1672
28/07/22 22:00-23:00	8	1		9	3	0	0	3	2	346	0	348	58	672	8	738	1098
28/07/22 23:00-00:00	4	0		4	2	0	1	3	1	211	0	212	35	416	4	455	674
Summary	346	33	0	379	213	16	60	289	71	21368	14	21453	2644	22109	232	24985	47106

National Data & Surveying Services Intersection Turning Movement Count

Location: Woodcreek Oaks Blvd & Walgreens Dwy/Woodcreek Oaks Blvd
City: Roseville
Control: 1-Way Stop(WB)

Project ID: 22-070155-002
Date: 7/26/2022

Data - Totals

NS/EW Streets:	Woodcreek Oaks Blvd				Woodcreek Oaks Blvd				Walgreens Dwy/Woodcreek Oaks Blvd				Walgreens Dwy/Woodcreek Oaks Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	1	0	0	2	0	0	0	1	0	0	0	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	74	11	0	0	54	1	0	0	0	3	0	0	0	8	0	151
4:15 PM	0	62	9	0	0	57	0	0	0	0	4	0	0	0	9	0	141
4:30 PM	0	75	6	0	0	60	0	0	0	0	4	0	0	0	10	0	155
4:45 PM	0	82	10	0	0	57	0	0	0	0	1	0	0	0	9	0	159
5:00 PM	0	84	6	0	0	62	0	0	0	0	2	0	0	0	7	0	161
5:15 PM	0	115	5	0	0	66	0	0	0	0	1	0	0	0	4	0	191
5:30 PM	0	104	3	0	0	74	0	0	0	0	4	0	0	0	10	0	195
5:45 PM	0	87	4	0	0	72	0	0	0	0	3	0	0	0	7	0	173
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	683	54	0	0	502	1	0	0	0	22	0	0	0	64	0	1326
APPROACH %'s :	0.00%	92.67%	7.33%	0.00%	0.00%	99.80%	0.20%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	390	18	0	0	274	0	0	0	0	10	0	0	0	28	0	720
PEAK HR FACTOR :	0.000	0.848	0.750	0.000	0.000	0.926	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.700	0.000	0.923
	0.850				0.926				0.625				0.700				

National Data & Surveying Services Intersection Turning Movement Count

Location: Woodcreek Oaks Blvd & Walgreens Dwy/Woodcreek Oaks Blvd
City: Roseville
Control: 1-Way Stop(WB)

Project ID: 22-070155-002
Date: 7/27/2022

Data - Totals

NS/EW Streets:	Woodcreek Oaks Blvd				Woodcreek Oaks Blvd				Walgreens Dwy/Woodcreek Oaks Blvd				Walgreens Dwy/Woodcreek Oaks Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	2 NT	1 NR	0 NU	0 SL	2 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	0 WL	0 WT	1 WR	0 WU	TOTAL
4:00 PM	0	70	10	0	0	65	0	0	0	0	4	0	0	0	5	0	154
4:15 PM	0	83	5	0	0	57	0	0	0	0	7	0	0	0	8	0	160
4:30 PM	0	76	7	0	0	51	0	0	0	0	3	0	0	0	8	0	145
4:45 PM	0	89	6	0	0	62	0	0	0	0	2	0	0	0	7	0	166
5:00 PM	0	116	8	0	0	60	0	0	0	0	3	0	0	0	6	0	193
5:15 PM	0	106	10	0	0	66	0	0	0	0	4	0	0	0	7	0	193
5:30 PM	0	102	4	0	0	68	1	0	0	0	3	0	0	0	11	0	189
5:45 PM	0	104	9	0	0	59	0	0	0	0	1	0	0	0	9	0	182
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	746	59	0	0	488	1	0	0	0	27	0	0	0	61	0	1382
APPROACH %'s :	0.00%	92.67%	7.33%	0.00%	0.00%	99.80%	0.20%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	428	31	0	0	253	1	0	0	0	11	0	0	0	33	0	757
PEAK HR FACTOR :	0.000	0.922	0.775	0.000	0.000	0.930	0.250	0.000	0.000	0.000	0.688	0.000	0.000	0.000	0.750	0.000	0.981
	0.925				0.920				0.688				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Woodcreek Oaks Blvd & Walgreens Dwy/Woodcreek Oaks Blvd
City: Roseville
Control: 1-Way Stop(WB)

Project ID: 22-070155-002
Date: 7/28/2022

Data - Totals

NS/EW Streets:	Woodcreek Oaks Blvd				Woodcreek Oaks Blvd				Walgreens Dwy/Woodcreek Oaks Blvd				Walgreens Dwy/Woodcreek Oaks Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	1	0	0	2	0	0	0	1	0	0	0	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	77	8	0	0	57	0	0	0	0	4	0	0	0	7	0	153
4:15 PM	0	94	9	0	0	65	0	0	0	0	4	0	0	0	7	0	179
4:30 PM	0	77	16	0	0	78	0	0	0	0	9	0	0	0	17	0	197
4:45 PM	0	60	6	0	0	66	0	0	0	0	7	0	0	0	14	0	153
5:00 PM	0	65	7	0	0	60	0	0	0	0	3	0	0	0	9	0	144
5:15 PM	0	97	3	0	0	59	0	0	0	0	5	0	0	0	7	0	171
5:30 PM	0	131	9	0	0	66	0	0	0	0	2	0	0	0	8	0	216
5:45 PM	0	103	9	0	0	59	0	0	0	0	5	0	0	0	10	0	186
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	704	67	0	0	510	0	0	0	0	39	0	0	0	79	0	1399
APPROACH %'s :	0.00%	91.31%	8.69%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	396	28	0	0	244	0	0	0	0	15	0	0	0	34	0	717
PEAK HR FACTOR :	0.000	0.756	0.778	0.000	0.000	0.924	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.850	0.000	0.830
	0.757				0.924				0.750				0.850				

Kimley»Horn

Attachment C

Analysis Worksheets

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	8743	8901	8858	9030	8997	9034	9010
Vehs Exited	8754	8865	8797	9010	8977	8967	8973
Starting Vehs	478	451	431	490	472	457	417
Ending Vehs	467	487	492	510	492	524	454
Travel Distance (mi)	9347	9433	9322	9621	9602	9613	9605
Travel Time (hr)	466.0	471.0	481.4	494.2	499.4	497.5	483.1
Total Delay (hr)	231.2	234.0	247.4	252.3	257.9	255.5	241.9
Total Stops	14466	14391	14778	15535	15845	15483	14877
Fuel Used (gal)	416.2	419.7	418.2	432.3	430.3	432.6	430.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	8765	8881	8929	8914
Vehs Exited	8664	8883	8846	8871
Starting Vehs	406	447	423	444
Ending Vehs	507	445	506	486
Travel Distance (mi)	9287	9476	9445	9475
Travel Time (hr)	459.9	478.2	487.2	481.8
Total Delay (hr)	226.1	239.7	249.3	243.5
Total Stops	14144	15215	15040	14975
Fuel Used (gal)	411.5	425.4	424.0	424.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2191	2211	2168	2219	2208	2292	2244
Vehs Exited	2186	2205	2155	2256	2214	2252	2158
Starting Vehs	478	451	431	490	472	457	417
Ending Vehs	483	457	444	453	466	497	503
Travel Distance (mi)	2343	2336	2331	2348	2354	2376	2359
Travel Time (hr)	119.2	113.7	113.1	118.1	123.5	121.9	114.8
Total Delay (hr)	60.3	54.9	55.0	58.8	64.2	61.9	55.7
Total Stops	3698	3373	3399	3705	3961	3784	3491
Fuel Used (gal)	104.6	102.6	103.7	105.6	106.1	106.4	104.5

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2188	2230	2239	2218
Vehs Exited	2145	2159	2163	2186
Starting Vehs	406	447	423	444
Ending Vehs	449	518	499	472
Travel Distance (mi)	2281	2386	2361	2348
Travel Time (hr)	112.6	120.5	116.7	117.4
Total Delay (hr)	55.0	60.6	57.3	58.4
Total Stops	3407	3760	3537	3610
Fuel Used (gal)	100.9	107.3	104.4	104.6

Interval #2 Information

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2126	2230	2225	2257	2301	2215	2298
Vehs Exited	2181	2217	2136	2227	2268	2206	2321
Starting Vehs	483	457	444	453	466	497	503
Ending Vehs	428	470	533	483	499	506	480
Travel Distance (mi)	2319	2385	2267	2397	2439	2392	2419
Travel Time (hr)	113.2	119.8	115.8	117.2	129.7	122.5	124.9
Total Delay (hr)	55.2	59.9	58.8	57.1	68.3	62.5	64.0
Total Stops	3484	3730	3711	3661	4249	3794	3934
Fuel Used (gal)	102.7	106.1	100.4	104.5	109.1	107.8	108.6

Interval #2 Information

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2243	2229	2257	2235
Vehs Exited	2244	2250	2238	2228
Starting Vehs	449	518	499	472
Ending Vehs	448	497	518	479
Travel Distance (mi)	2357	2385	2376	2374
Travel Time (hr)	116.8	122.7	123.3	120.6
Total Delay (hr)	57.6	62.5	63.3	60.9
Total Stops	3588	4045	3962	3807
Fuel Used (gal)	104.7	106.8	107.0	105.8

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2217	2231	2235	2290	2226	2244	2204
Vehs Exited	2161	2250	2292	2268	2252	2267	2206
Starting Vehs	428	470	533	483	499	506	480
Ending Vehs	484	451	476	505	473	483	478
Travel Distance (mi)	2327	2359	2401	2438	2393	2444	2420
Travel Time (hr)	114.1	114.2	125.7	130.5	121.3	128.1	121.1
Total Delay (hr)	55.6	55.2	65.5	69.3	61.1	66.5	60.5
Total Stops	3543	3402	3742	4057	3683	3974	3596
Fuel Used (gal)	102.8	104.4	108.2	111.7	107.0	111.3	108.1

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2153	2187	2179	2215
Vehs Exited	2120	2194	2250	2226
Starting Vehs	448	497	518	479
Ending Vehs	481	490	447	471
Travel Distance (mi)	2291	2334	2358	2377
Travel Time (hr)	112.2	118.1	123.3	120.9
Total Delay (hr)	54.5	59.3	64.0	61.2
Total Stops	3414	3816	3667	3689
Fuel Used (gal)	101.1	105.1	106.9	106.7

Interval #4 Information Recording

Start Time	5:45
End Time	6:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2209	2229	2230	2264	2262	2283	2264
Vehs Exited	2226	2193	2214	2259	2243	2242	2288
Starting Vehs	484	451	476	505	473	483	478
Ending Vehs	467	487	492	510	492	524	454
Travel Distance (mi)	2358	2353	2322	2438	2416	2400	2407
Travel Time (hr)	119.5	123.2	126.8	128.3	124.9	125.0	122.3
Total Delay (hr)	60.1	64.1	68.1	67.1	64.3	64.6	61.6
Total Stops	3741	3886	3926	4112	3952	3931	3856
Fuel Used (gal)	106.1	106.6	105.8	110.5	108.0	107.1	109.0

Interval #4 Information Recording

Start Time	5:45
End Time	6:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2181	2235	2254	2239
Vehs Exited	2155	2280	2195	2228
Starting Vehs	481	490	447	471
Ending Vehs	507	445	506	486
Travel Distance (mi)	2359	2371	2350	2377
Travel Time (hr)	118.3	116.8	124.0	122.9
Total Delay (hr)	59.1	57.3	64.7	63.1
Total Stops	3735	3594	3874	3858
Fuel Used (gal)	104.8	106.1	105.8	107.0

1: Woodcreek Oaks & Blue Oaks Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.0	0.0	3.2	0.4	3.2	0.0	0.0	0.0
Total Delay (hr)	1.9	12.9	0.2	5.2	12.3	0.4	4.0	1.3	0.8	2.1	1.1	0.1
Total Del/Veh (s)	54.6	34.7	7.6	45.5	27.8	5.4	48.4	42.9	12.2	46.7	45.7	13.3
Stop Delay (hr)	1.7	9.1	0.1	4.7	9.3	0.3	3.6	1.1	0.6	2.0	1.0	0.1
Stop Del/Veh (s)	48.5	24.5	3.8	40.9	21.2	4.2	43.3	36.7	10.1	44.6	40.6	13.7

1: Woodcreek Oaks & Blue Oaks Performance by movement

Movement	All
Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.4
Total Delay (hr)	42.2
Total Del/Veh (s)	32.2
Stop Delay (hr)	33.6
Stop Del/Veh (s)	25.6

2: Shopping Center/Walgreens Dway & Blue Oaks Performance by movement

Movement	EBT	EBR	WBT	WBR	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	1.3	0.2	1.4	0.0	0.2	3.1
Total Del/Veh (s)	3.2	2.7	2.3	0.1	27.9	2.8
Stop Delay (hr)	0.1	0.0	0.1	0.0	0.2	0.3
Stop Del/Veh (s)	0.1	0.1	0.1	0.0	27.7	0.3

3: Blue Oaks & Prop Site Dway Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0
Total Delay (hr)	0.3	1.3	1.5
Total Del/Veh (s)	0.6	2.1	1.5
Stop Delay (hr)	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.0	0.0

4: RV Pkwy/Walgreens & Blue Oaks Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.1	0.1	4.1	0.2	0.3
Total Delay (hr)	0.0	2.9	0.0	2.3	5.8	0.0	0.2	0.0	0.1	0.2	0.0	0.0
Total Del/Veh (s)	52.9	7.1	0.5	39.3	9.4	5.3	39.2	36.5	8.8	40.1	39.0	9.9
Stop Delay (hr)	0.0	1.7	0.0	2.0	1.2	0.0	0.2	0.0	0.1	0.2	0.0	0.0
Stop Del/Veh (s)	51.4	4.4	0.3	32.7	1.9	0.4	37.6	32.4	8.9	38.6	37.1	9.5

4: RV Pkwy/Walgreens & Blue Oaks Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	11.7
Total Del/Veh (s)	10.5
Stop Delay (hr)	5.5
Stop Del/Veh (s)	5.0

5: Woodcreek Oaks & Walgreens Dway Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1
Total Delay (hr)	0.0	0.2	0.0	0.1	0.3
Total Del/Veh (s)	3.6	1.5	0.9	1.2	1.5
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	3.6	0.4	0.3	0.0	0.4

Total Zone Performance

Denied Delay (hr)	4.4
Denied Del/Veh (s)	2.0
Total Delay (hr)	196.9
Total Del/Veh (s)	1860.9
Stop Delay (hr)	133.9
Stop Del/Veh (s)	1265.0

Intersection: 1: Woodcreek Oaks & Blue Oaks

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	98	146	314	340	368	64	240	284	354	358	368	141
Average Queue (ft)	40	59	177	191	210	21	145	180	229	251	280	59
95th Queue (ft)	84	113	288	308	335	49	225	281	351	370	395	106
Link Distance (ft)			1422	1422	1422				285	285	285	285
Upstream Blk Time (%)							0	0	2	6	11	
Queuing Penalty (veh)							0	0	12	32	61	
Storage Bay Dist (ft)	255	255				525	240	240				
Storage Blk Time (%)			2				0	0	6			
Queuing Penalty (veh)			3				1	2	27			

Intersection: 1: Woodcreek Oaks & Blue Oaks

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	174	189	102	111	173	120	128	79	63	47
Average Queue (ft)	94	118	41	40	69	51	68	34	19	11
95th Queue (ft)	156	173	82	84	129	101	110	67	48	33
Link Distance (ft)			526	526				260	260	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	240	240			240	270	270			270
Storage Blk Time (%)		0			0					
Queuing Penalty (veh)		0			0					

Intersection: 2: Shopping Center/Walgreens Dway & Blue Oaks

Movement	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	R
Maximum Queue (ft)	4	40	64	98	68
Average Queue (ft)	0	2	4	10	21
95th Queue (ft)	4	20	33	51	53
Link Distance (ft)	285	242	242	242	171
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Blue Oaks & Prop Site Dway

Movement	WB
Directions Served	T
Maximum Queue (ft)	5
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	354
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: RV Pkwy/Walgreens & Blue Oaks

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	T	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	23	187	174	194	201	5	131	149	261	280	323	14
Average Queue (ft)	2	62	61	74	77	0	54	77	70	69	94	1
95th Queue (ft)	12	142	138	148	157	3	108	127	200	204	251	8
Link Distance (ft)		354	354	354	354				838	838	838	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225					225	245	245				410
Storage Blk Time (%)		0			0				0		0	
Queuing Penalty (veh)		0			0				1		0	

Intersection: 4: RV Pkwy/Walgreens & Blue Oaks

Movement	NB	NB	NB	SB	SB
Directions Served	L	LT	R	L	TR
Maximum Queue (ft)	42	31	53	61	38
Average Queue (ft)	10	6	17	18	10
95th Queue (ft)	31	22	40	49	35
Link Distance (ft)	516	516	516		248
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 5: Woodcreek Oaks & Walgreens Dway

Movement	WB
Directions Served	R
Maximum Queue (ft)	38
Average Queue (ft)	14
95th Queue (ft)	33
Link Distance (ft)	196
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 296

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	9744	9822	9831	9814	9883	9869	9813
Vehs Exited	9748	9808	9798	9684	9892	9884	9760
Starting Vehs	568	545	508	499	507	553	517
Ending Vehs	564	559	541	629	498	538	570
Travel Distance (mi)	9967	10176	10022	9998	10093	10091	10087
Travel Time (hr)	540.1	551.7	535.0	566.1	560.6	554.3	566.5
Total Delay (hr)	286.2	294.1	280.5	312.4	304.4	298.0	309.8
Total Stops	17489	17930	17361	18051	18026	17980	18045
Fuel Used (gal)	454.5	468.1	456.7	463.3	464.5	464.0	468.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	9713	9830	9821	9811
Vehs Exited	9640	9832	9741	9780
Starting Vehs	502	531	479	515
Ending Vehs	575	529	559	546
Travel Distance (mi)	9941	10089	9909	10037
Travel Time (hr)	561.9	559.6	567.2	556.3
Total Delay (hr)	309.3	303.2	314.9	301.3
Total Stops	18209	18663	17524	17920
Fuel Used (gal)	458.9	464.9	460.3	462.3

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2487	2490	2405	2382	2523	2482	2468
Vehs Exited	2535	2524	2382	2384	2468	2485	2421
Starting Vehs	568	545	508	499	507	553	517
Ending Vehs	520	511	531	497	562	550	564
Travel Distance (mi)	2605	2529	2439	2471	2548	2582	2468
Travel Time (hr)	137.8	137.5	122.2	131.6	137.8	147.6	135.8
Total Delay (hr)	71.6	73.1	60.1	69.0	73.3	82.1	72.8
Total Stops	4427	4523	3635	4249	4314	4716	4285
Fuel Used (gal)	117.9	117.3	108.5	113.0	115.8	120.0	114.4

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2362	2474	2532	2461
Vehs Exited	2285	2474	2429	2437
Starting Vehs	502	531	479	515
Ending Vehs	579	531	582	543
Travel Distance (mi)	2409	2504	2469	2502
Travel Time (hr)	132.4	138.0	136.2	135.7
Total Delay (hr)	71.5	74.3	73.0	72.1
Total Stops	4412	4626	4437	4361
Fuel Used (gal)	109.9	116.2	113.4	114.6

Interval #2 Information

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2391	2455	2454	2474	2461	2477	2477
Vehs Exited	2398	2416	2452	2395	2453	2473	2468
Starting Vehs	520	511	531	497	562	550	564
Ending Vehs	513	550	533	576	570	554	573
Travel Distance (mi)	2404	2569	2493	2478	2547	2501	2557
Travel Time (hr)	129.3	137.3	130.9	138.8	148.3	138.8	146.2
Total Delay (hr)	67.7	72.5	67.6	76.2	83.7	75.2	81.3
Total Stops	4052	4462	4239	4385	4771	4591	4706
Fuel Used (gal)	109.3	117.9	113.4	113.7	118.8	115.0	118.4

Interval #2 Information

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2447	2527	2434	2456
Vehs Exited	2446	2438	2456	2436
Starting Vehs	579	531	582	543
Ending Vehs	580	620	560	560
Travel Distance (mi)	2514	2584	2521	2517
Travel Time (hr)	143.1	145.7	148.6	140.7
Total Delay (hr)	79.2	80.2	84.4	76.8
Total Stops	4621	4935	4756	4548
Fuel Used (gal)	116.5	118.8	118.2	116.0

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2460	2382	2506	2475	2468	2441	2440
Vehs Exited	2400	2393	2501	2453	2479	2441	2461
Starting Vehs	513	550	533	576	570	554	573
Ending Vehs	573	539	538	598	559	554	552
Travel Distance (mi)	2488	2550	2555	2523	2477	2487	2551
Travel Time (hr)	137.9	138.4	142.8	148.6	133.6	132.6	143.4
Total Delay (hr)	74.7	74.4	77.8	84.5	70.6	69.4	78.5
Total Stops	4603	4505	4751	4720	4238	4270	4473
Fuel Used (gal)	115.0	117.2	118.2	118.4	114.4	113.5	118.7

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2450	2393	2425	2441
Vehs Exited	2446	2493	2487	2455
Starting Vehs	580	620	560	560
Ending Vehs	584	520	498	550
Travel Distance (mi)	2536	2489	2521	2518
Travel Time (hr)	144.2	141.6	141.6	140.5
Total Delay (hr)	79.9	78.1	77.8	76.6
Total Stops	4573	4626	4143	4486
Fuel Used (gal)	117.2	115.9	117.3	116.6

Interval #4 Information Recording

Start Time	5:45
End Time	6:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2406	2495	2466	2483	2431	2469	2428
Vehs Exited	2415	2475	2463	2452	2492	2485	2410
Starting Vehs	573	539	538	598	559	554	552
Ending Vehs	564	559	541	629	498	538	570
Travel Distance (mi)	2470	2528	2534	2525	2521	2522	2512
Travel Time (hr)	135.1	138.4	139.1	147.1	140.9	135.3	141.0
Total Delay (hr)	72.2	74.1	74.9	82.8	76.7	71.3	77.2
Total Stops	4407	4440	4736	4697	4703	4403	4581
Fuel Used (gal)	112.3	115.6	116.6	118.2	115.5	115.4	116.7

Interval #4 Information Recording

Start Time	5:45
End Time	6:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2454	2436	2430	2449
Vehs Exited	2463	2427	2369	2443
Starting Vehs	584	520	498	550
Ending Vehs	575	529	559	546
Travel Distance (mi)	2482	2511	2397	2500
Travel Time (hr)	142.1	134.2	140.8	139.4
Total Delay (hr)	78.8	70.6	79.7	75.8
Total Stops	4603	4476	4188	4519
Fuel Used (gal)	115.4	114.1	111.4	115.1

1: Woodcreek Oaks & Blue Oaks Performance by movement

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.0	0.2	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.3	0.4	0.1	3.2	0.5	3.1	0.0	0.0
Total Delay (hr)	3.9	15.6	0.2	0.3	6.6	16.5	0.5	4.1	1.8	0.8	2.4	1.0
Total Del/Veh (s)	54.2	42.4	8.1	48.5	49.7	33.4	6.8	49.1	41.8	13.0	47.9	44.0
Stop Delay (hr)	3.3	11.3	0.1	0.3	5.9	12.7	0.4	3.7	1.5	0.7	2.3	0.9
Stop Del/Veh (s)	45.9	30.7	4.3	44.7	44.3	25.7	5.5	43.9	35.1	10.5	45.7	39.0

1: Woodcreek Oaks & Blue Oaks Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.7
Denied Del/Veh (s)	0.0	0.5
Total Delay (hr)	0.1	53.7
Total Del/Veh (s)	14.3	37.4
Stop Delay (hr)	0.1	43.0
Stop Del/Veh (s)	14.7	29.9

2: Shopping Center/Walgreens Dway & Blue Oaks Performance by movement

Movement	EBT	EBR	WBT	WBR	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	5.4	0.1
Total Delay (hr)	1.5	0.1	2.7	0.0	1.1	5.5
Total Del/Veh (s)	3.5	2.5	4.1	0.6	68.7	4.7
Stop Delay (hr)	0.1	0.0	0.4	0.0	1.2	1.6
Stop Del/Veh (s)	0.1	0.1	0.6	0.0	69.0	1.4

3: Blue Oaks & Prop Site Dway Performance by movement

Movement	EBT	WBT	WBR	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.0
Total Delay (hr)	0.3	2.9	0.0	0.5	3.7
Total Del/Veh (s)	0.8	4.4	2.0	19.4	3.4
Stop Delay (hr)	0.0	0.0	0.0	0.5	0.5
Stop Del/Veh (s)	0.0	0.1	0.0	19.2	0.5

4: RV Pkwy/Walgreens & Blue Oaks Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.0	0.2	0.1	0.1	3.8	0.6	0.6	0.2
Total Delay (hr)	0.8	6.1	0.0	3.3	15.2	0.3	0.3	0.1	1.9	0.0	0.4	28.4
Total Del/Veh (s)	47.8	15.0	3.0	56.0	23.9	8.5	50.7	60.4	44.8	41.8	15.6	23.2
Stop Delay (hr)	0.8	4.6	0.0	2.8	6.8	0.1	0.3	0.0	1.8	0.0	0.4	17.6
Stop Del/Veh (s)	45.7	11.4	2.4	46.8	10.6	1.9	48.8	56.3	42.2	40.0	14.7	14.3

5: Woodcreek Oaks & Walgreens Dway Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1
Total Delay (hr)	0.1	0.2	0.1	0.1	0.5
Total Del/Veh (s)	3.7	1.5	1.7	1.2	1.6
Stop Delay (hr)	0.1	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	3.7	0.3	0.2	0.0	0.4

Total Zone Performance

Denied Delay (hr)	6.3
Denied Del/Veh (s)	2.6
Total Delay (hr)	244.8
Total Del/Veh (s)	2093.3
Stop Delay (hr)	167.5
Stop Del/Veh (s)	1432.2

Intersection: 1: Woodcreek Oaks & Blue Oaks

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	146	206	365	367	408	58	267	284	367	363	382	207
Average Queue (ft)	79	116	201	209	228	21	178	220	250	266	286	67
95th Queue (ft)	136	181	313	326	351	46	264	313	374	388	403	140
Link Distance (ft)			1422	1422	1422				285	285	285	285
Upstream Blk Time (%)							0	0	6	11	17	0
Queuing Penalty (veh)							0	0	34	67	102	1
Storage Bay Dist (ft)	255	255				525	240	240				
Storage Blk Time (%)			4		0		1	3	11			
Queuing Penalty (veh)			10		0		7	18	53			

Intersection: 1: Woodcreek Oaks & Blue Oaks

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	196	210	100	134	157	137	140	104	57	47
Average Queue (ft)	100	122	44	60	70	57	75	35	18	12
95th Queue (ft)	169	183	83	109	127	109	119	76	45	36
Link Distance (ft)			526	526				260	260	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	240	240			240	270	270			270
Storage Blk Time (%)	0	0								
Queuing Penalty (veh)	0	0								

Intersection: 2: Shopping Center/Walgreens Dway & Blue Oaks

Movement	EB	EB	WB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	TR	R
Maximum Queue (ft)	30	25	175	178	182	12	157
Average Queue (ft)	1	1	15	19	26	0	56
95th Queue (ft)	31	26	87	94	113	8	127
Link Distance (ft)	285	285	242	242	242	242	171
Upstream Blk Time (%)	0		0	0	0		3
Queuing Penalty (veh)	0		1	0	1		0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Blue Oaks & Prop Site Dway

Movement	EB	WB	WB	WB	WB	SB
Directions Served	T	T	T	T	TR	R
Maximum Queue (ft)	5	4	10	10	8	131
Average Queue (ft)	0	0	0	0	0	52
95th Queue (ft)	6	4	7	6	6	97
Link Distance (ft)	242	354	354	354	354	168
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: RV Pkwy/Walgreens & Blue Oaks

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	T	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	124	251	256	259	267	22	156	365	508	508	523	205
Average Queue (ft)	47	101	104	116	120	1	66	103	225	231	266	21
95th Queue (ft)	99	193	200	206	214	9	126	224	418	430	466	97
Link Distance (ft)		354	354	354	354				838	838	838	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225					225	245	245				410
Storage Blk Time (%)		1			1				7		3	
Queuing Penalty (veh)		0			0				14		3	

Intersection: 4: RV Pkwy/Walgreens & Blue Oaks

Movement	NB	NB	SB	SB
Directions Served	L	LT	L	TR
Maximum Queue (ft)	44	37	149	244
Average Queue (ft)	10	8	97	70
95th Queue (ft)	32	26	153	166
Link Distance (ft)	516	516		248
Upstream Blk Time (%)				1
Queuing Penalty (veh)				0
Storage Bay Dist (ft)			100	
Storage Blk Time (%)			17	1
Queuing Penalty (veh)			17	1

Intersection: 5: Woodcreek Oaks & Walgreens Dway

Movement	WB
Directions Served	R
Maximum Queue (ft)	57
Average Queue (ft)	23
95th Queue (ft)	42
Link Distance (ft)	196
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 611