EXHIBIT A

Noble Lark Drive Closure at Dietz Elkhorn Road

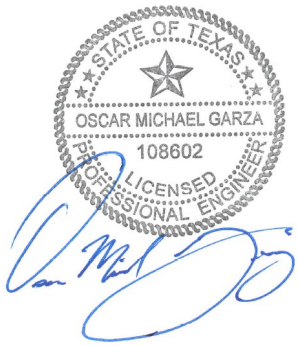
Traffic Engineering Study

PREPARED FOR:

City of Fair Oaks Ranch, Texas

PREPARED BY:

LEGACY ENGINEERING GROUP



06/10/2024

Oscar Michael Garza, PE, PTOE, PTP, RSP1
Legacy Engineering Group, PLLC

City of Fair Oaks Ranch

June 2024

EXHIBIT A

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXHIBIT A

LIST OF APPENDICES

EXHIBIT A

PROJECT DESCRIPTION

INTRODUCTION

Legacy Engineering Group was retained to conduct a Traffic Engineering Study along Dietz Elkhorn Road between Old Fredericksburg Road and Fair Oaks Parkway in Fair Oaks Ranch, TX. The purpose of this study is to analyze the effects of closing access to Noble Lark Drive at Dietz Elkhorn Road. The study location map is shown in Figure 1.

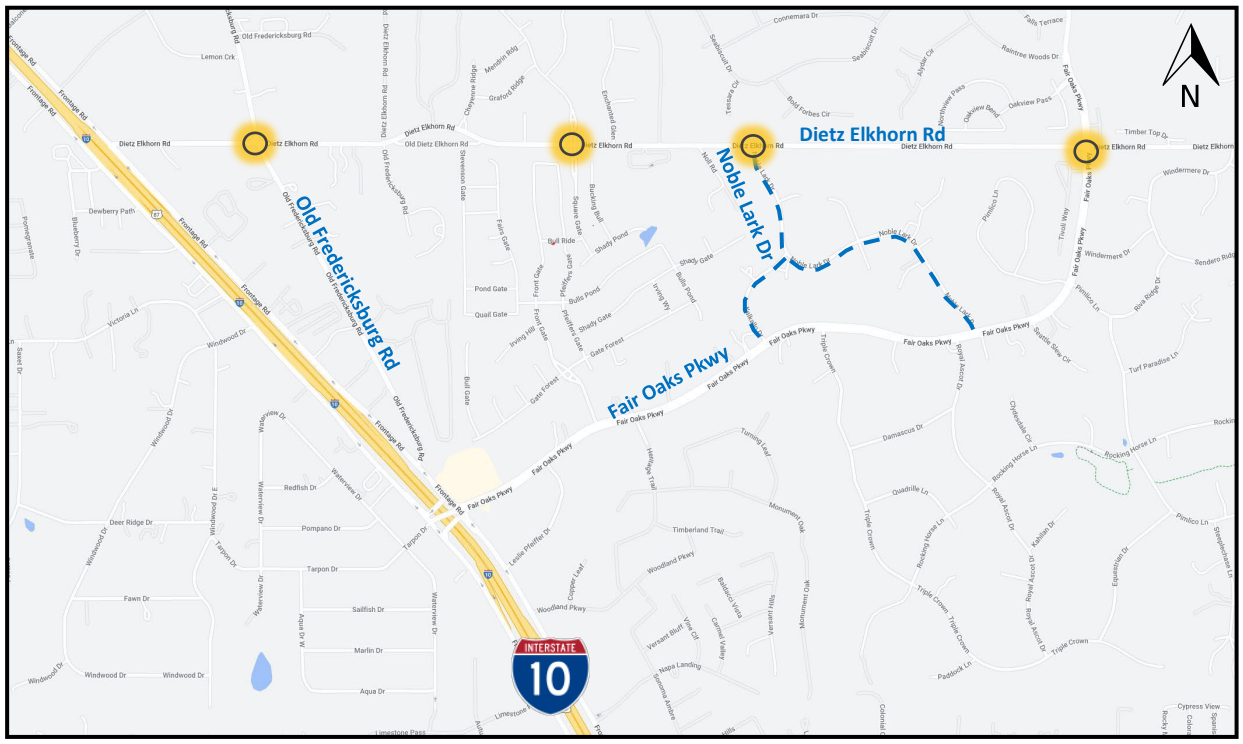


Figure 1 – Study Location Map

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STUDY METHODOLOGY

The following study methodology was utilized to develop the findings within the report:

- A Project Site Visit was conducted to observe and document existing traffic conditions along Dietz Elkhorn Road and Noble Lark Drive, as well as travel times for the appropriate intersections
- Collection and review of Turning Movement Counts (TMCs)
- An analysis of the traffic operations and travel times at four intersections along Dietz Elkhorn Road for the Pre & Post Closure of Noble Lark Drive
- Utilized Sim Traffic to establish queuing along the corridor

Figure 2 shows the locations where TMC data was collected.

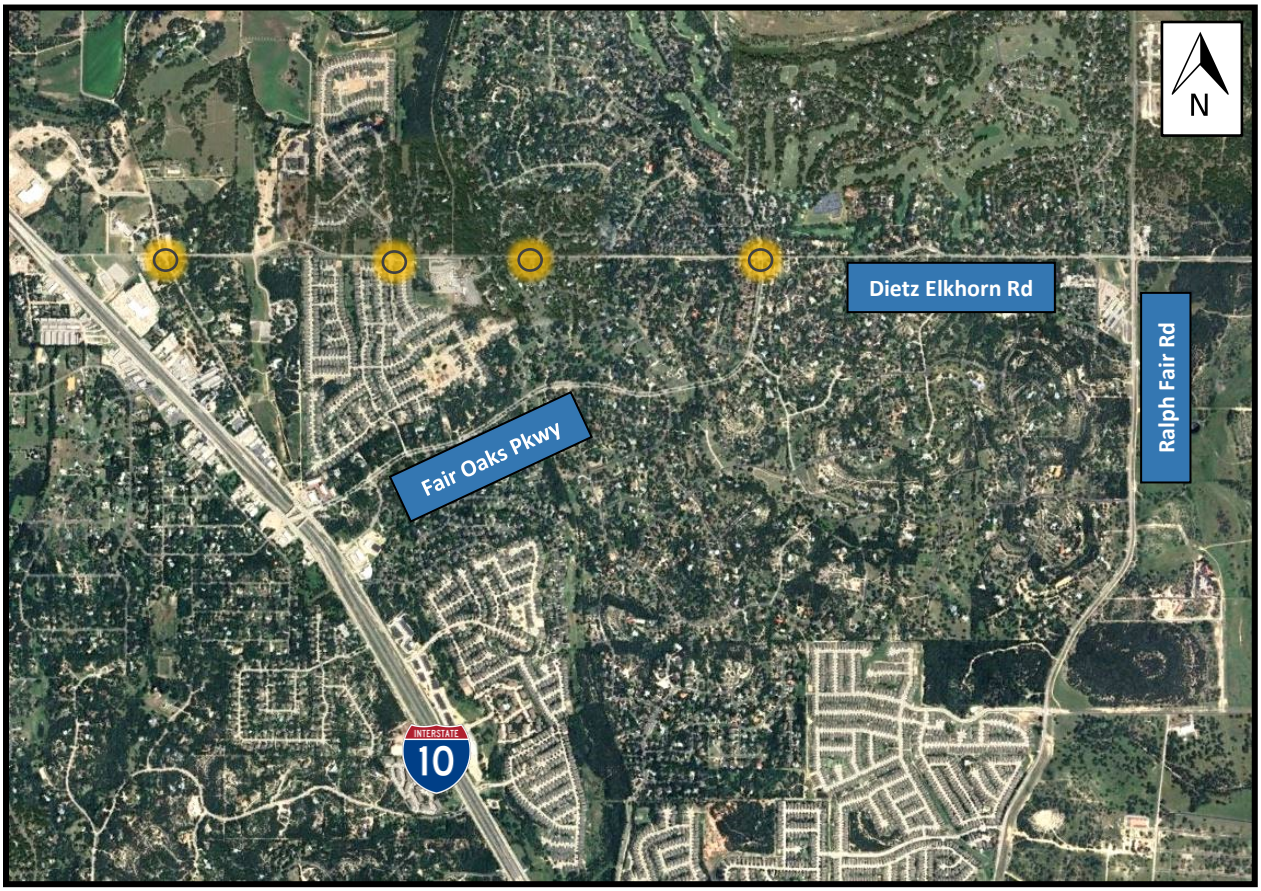

Figure 2 – TMC Data Locations

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EXISTING CONDITIONS

Dietz Elkhorn Road

Dietz Elkhorn Road is a two-lane undivided roadway that extends in a general east-west direction within the study limits and has a posted speed limit of 35 MPH. The studied roadway is identified as a Collector on the City of Fair Oaks Ranch Unified Development Code (UDC) Planning Map with an Annual Average Daily Traffic (AADT) of 2,440 (as of 2020 utilizing TxDOT STARS II Traffic County Database System). An aerial photo of three Dietz Elkhorn Road study intersections can be seen in Figures 3-5.

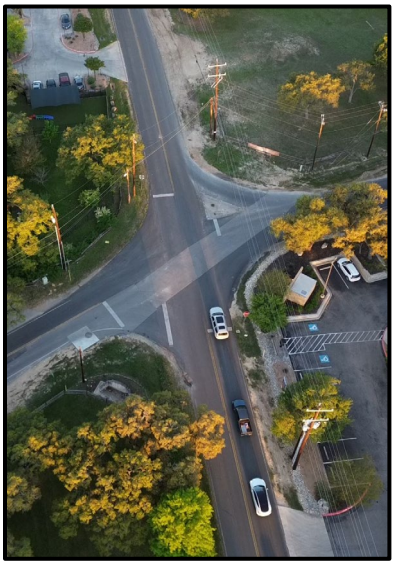


Figure 3 – Old Fredericksburg Rd Intersection

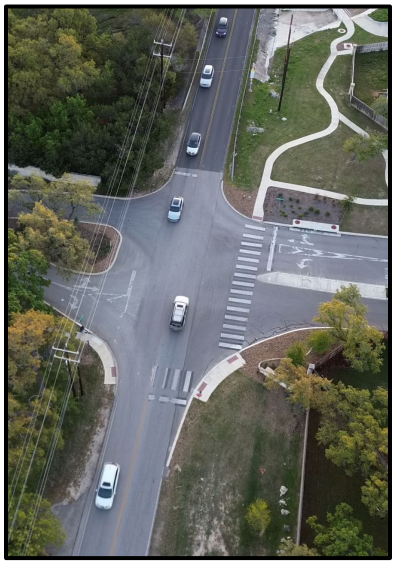


Figure 4 – Square Gate Intersection

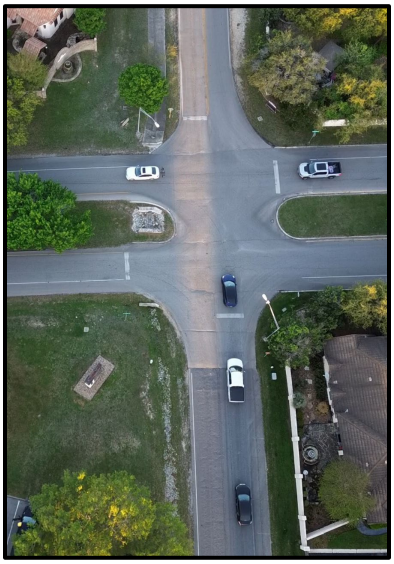


Figure 5 – Fair Oaks Pkwy Intersection

Old Fredericksburg Road

Old Fredericksburg Road is a two-lane undivided roadway that extends in a general north-south direction within the study limits and has a posted speed limit of 35 MPH. The studied roadway is owned and maintained by Bexar County, with an AADT of 1,124 (as of 2020 utilizing TxDOT STARS II Traffic County Database System).

Square Gate

Square Gate is a two-lane undivided roadway that extends in a general north-south direction within the study limits and has a posted speed limit of 25 MPH. Square gate is a private/gated roadway that leads to the Front Gate Subdivision and has a two-lane northbound approach at the intersection with Dietz Elkhorn Road. During site visits, it was observed that this route was utilized as a “cut-through” movement for vehicles traveling to/from Van Raub Elementary School.

Fair Oaks Parkway

Fair Oaks Parkway is a two-lane divided roadway that extends in a general north-south direction within the study limits and has a posted speed limit of 35 MPH. on the City of Fair Oaks Ranch Unified Development Code (UDC) Planning Map with an Annual Average Daily Traffic (AADT) of 8,895 (as of 2020 utilizing TxDOT STARS II Traffic County Database System). As shown within Appendix D, the intersection of Dietz Elkhorn Road & Fair Oaks Pkwy has been studied in the past and the Level of Service (LOS) results have been provided.

EXHIBIT A

Noble Lark Drive

Noble Lark Drive is a two-lane undivided roadway that extends in a general north-south direction within the study limits and has a posted speed limit of 30 MPH. The typical section includes one lane in each direction. A photo of a typical section for Noble Lark Drive can be seen in Figure 6.

During site visits, it was observed that this route was utilized as a “cut-through” movement for vehicles traveling to/from Van Raub Elementary School. Consequently, this residential street experiences elevated traffic levels, particularly during school peak periods, resulting in potential safety concerns and increased loading on the roadway infrastructure. The higher traffic density disrupts the intended local traffic flow, resulting in a significant deviation from the street's design purpose of serving neighborhood residents.

Figure 6 – Noble Lark Dr Northbound

TRAFFIC DATA

Traffic data was collected at the following intersections from 7-9 AM and 2-6 PM on Thursday, March 7, 2024.

- Dietz Elkhorn Road & Old Fredericksburg Road
- Dietz Elkhorn Road & Square Gate
- Dietz Elkhorn Road & Fair Oaks Parkway

Please note that all traffic data can be found in Appendix A of this report.

EXHIBIT A

SITE VISIT NOTES

Site visits were conducted on multiple days from March through May 2024 and notes have been provided as follows:

- March 7th, 2024 — Observation of vehicular queuing activity for both AM and PM peak periods. The observed school peaks for Van Raub Elementary School are as follows:
  - AM Arrival: 7:00 AM to 8:00 AM
  - PM Dismissal: 3:00 PM to 4:00 PM

- March 26th, 2024 — Observation of vehicular queuing activity for both AM and PM peak periods. The observed school peaks for Van Raub Elementary School are as follows:
  - AM Arrival: 7:00 AM to 8:00 AM
  - PM Dismissal: 2:45 PM to 3:45 PM

- March 27th, 2024 — Observation of vehicular queuing activity during both AM and PM peak periods. The observed school peaks for Van Raub Elementary School are as follows:
  - AM Arrival: 7:20 AM to 8:20 AM
  - PM Dismissal: 2:45 PM to 3:45 PM

- May 2nd, 2024 — Conducted travel times runs during school peak periods.
  - AM Arrival: 7:00 AM to 8:30 AM
  - PM Dismissal: 2:45 PM to 3:45 PM

Summary of site visits:

- During the AM observation, queueing along Dietz Elkhorn Road at Old Fredericksburg Road was observed only for the westbound direction, while in the PM queueing was observed at the intersection for the eastbound direction. Please note that the queues decreased significantly within 5 minutes of the maximum queue length.

- During the AM observations, queueing along Dietz Elkhorn Road and Square Gate was observed in both the westbound and eastbound directions, while in the PM only westbound queues were observed with minimal queueing in the eastbound direction. Please note that the queues decreased significantly within 5-10 minutes of the maximum queue length.

- During the AM and PM observations, queueing along Dietz Elkhorn Road and Fair Oaks Parkway was observed in the eastbound direction. Please note that the queues decreased significantly within 10 minutes of the maximum queue length.

EXHIBIT A

DRONE FOOTAGE

The studied segment of Dietz Elkhorn Road is approximately 2 miles long and portions of the corridor can be seen in Figures 7-12. Each image shows an overlay of the queuing. Figure 7 shows the queue extending over 750 LF from the Dietz Elkhorn Road and Square Gate intersection in the AM peak period. Figure 8 shows the queue extending approximately 415 LF on the westbound approach at Dietz Elkhorn Road and Old Fredericksburg Road during the AM peak period. Figure 9 shows the queue extending approximately 775 LF along the eastbound approach of Dietz Elkhorn Road and Fair Oaks Parkway during the PM peak period. Figure 10 shows the queue extending over 750 LF along the westbound approach of Dietz Elkhorn Road and Square Gate during the PM peak period. Figure 11 shows the existing PM queue cleared up within 5-10 minutes of the maximum queue length during the PM peak period. Figure 12 shows the existing Noble Lark Drive closure.

Figure 7 – Approximately 750 LF Queue at Dietz Elkhorn Rd and Square Gate (AM)

EXHIBIT A

Figure 8 – Approximately 415 LF Queue at Dietz Elkhorn Rd and Old Fredericksburg Rd (AM)

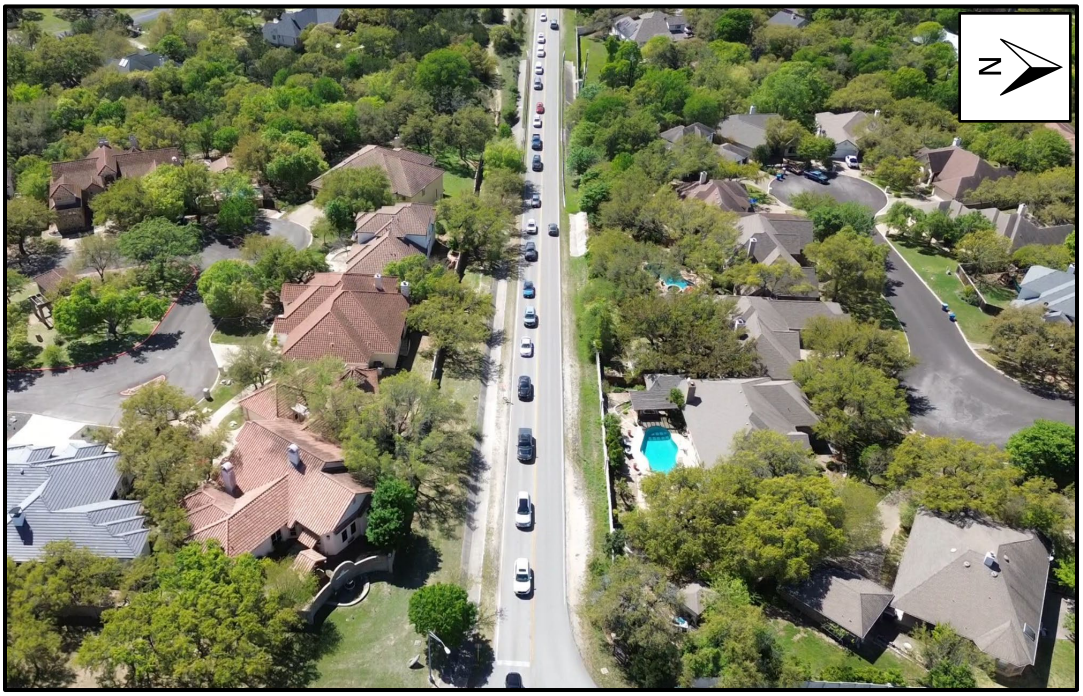


Figure 9 – Approximately 775 LF Queue at Dietz Elkhorn Rd and Fair Oaks Pkwy Eastbound (PM)

EXHIBIT A

Figure 10 – Approximately 750 LF Queue at Dietz Elkhorn Rd and Square Gate Westbound (PM)

Figure 11 – Queue Cleared at Dietz Elkhorn Rd and Square Gate Westbound (PM)

EXHIBIT A

Figure 12 – Noble Lark Dr Closure Eastbound

EXHIBIT A

TRAVEL TIME ANALYSIS

Travel times were calculated utilizing a combination of data collection analysis and predictive modeling. "Pre-Closure" traffic data was estimated based on a previously conducted traffic analysis in 2021 by the City of Fair Oaks Ranch. Estimating travel times in traffic engineering involves traffic flow characteristics, roadway conditions, predictive modeling, data collection, and environmental factors. An origin was established at the intersection of I-10 & Fair Oaks Pkwy with a destination of Van Raub Elementary School (to/from as entering/exiting), and five different potential routes were studied as shown in Table 1 and 2 below.

Table 1 – Noble Lark Drive Pre / Post Closure Analysis Times & Travel (Entering)

Entering		Route #1		Route #2		Route #3		Route #4		Route #5	
Travel Time Run #		Old Fredericksburg Rd		Square Gate		Fair Oaks Pkwy		Noble Lark Dr		Kalkallo Dr	
		Pre-Closure	Post-Closure	Pre-Closure	Post-Closure	Pre-Closure	Post-Closure	Pre-Closure	Post-Closure	Pre-Closure	Post-Closure
AM	1	0:03:41	0:04:06	0:04:05	0:04:23	0:04:32	0:05:13	0:04:22	0:04:53	0:04:15	0:04:37
	2	0:03:50	0:04:16	0:03:47	0:04:10	0:04:58	0:05:33	0:04:38	0:05:11	0:04:30	0:04:52
PM	1	0:03:48	0:04:25	0:03:27	0:03:52	0:04:42	0:05:09	0:05:06	0:05:34	0:04:53	0:05:26
	2	0:03:51	0:04:09	0:03:18	0:03:43	0:04:54	0:05:21	0:04:44	0:05:17	0:04:37	0:05:05
Average	AM	0:03:46	0:04:11	0:03:56	0:04:17	0:04:45	0:05:23	0:04:30	0:05:02	0:04:23	0:04:45
	PM	0:03:49	0:04:17	0:03:23	0:03:48	0:04:48	0:05:15	0:04:55	0:05:25	0:04:45	0:05:15

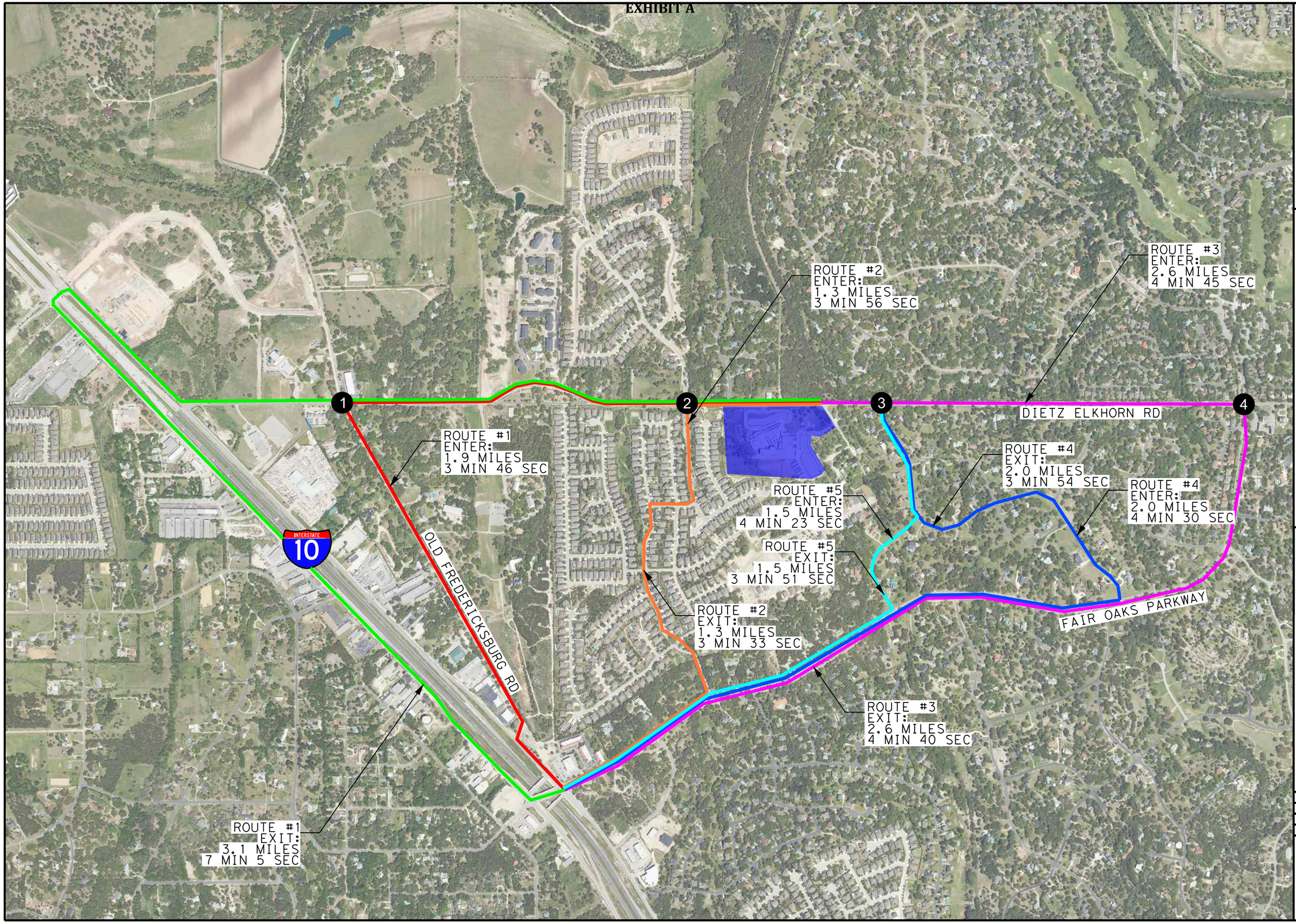
Table 2 – Noble Lark Drive Pre / Post Closure Analysis Times & Travel (Exiting)

Exit		Route #1		Route #2		Route #3		Route #4		Route #5	
Travel Time Run #		Old Fredericksburg Rd		Square Gate		Fair Oaks Pkwy		Noble Lark Drive		Kalkallo Dr	
		Pre-Closure	Post-Closure	Pre-Closure	Post-Closure	Pre-Closure	Post-Closure	Pre-Closure	Post-Closure	Pre-Closure	Post-Closure
AM	1	0:07:24	0:07:36	0:03:44	0:04:04	0:04:53	0:05:01	0:04:03	0:04:31	0:03:52	0:04:11
	2	0:06:47	0:07:09	0:03:22	0:03:48	0:04:26	0:05:08	0:03:44	0:04:11	0:03:49	0:04:22
PM	1	0:08:57	0:11:26	0:07:26	0:07:54	0:04:13	0:04:34	0:04:24	0:04:49	0:04:14	0:04:36
	2	0:06:18	0:06:20	0:05:07	0:06:29	0:04:04	0:04:40	0:03:53	0:04:24	0:03:44	0:04:11
Average	AM	0:07:05	0:07:23	0:03:33	0:03:56	0:04:40	0:05:04	0:03:54	0:04:21	0:03:51	0:04:16
	PM	0:07:38	0:08:53	0:06:16	0:07:11	0:04:09	0:04:37	0:04:09	0:04:36	0:03:59	0:04:24

TRAVEL TIME SUMMARY

The results of this analysis found that opening Noble Lark Drive decreases travel times to Van Raub Elementary School by approximately 30 seconds. An overlay of the routes can be seen in the exhibits on pages 14-17.

EXHIBIT A



LEGACY ENGINEERING GROUP

Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste 830, San Antonio, Texas 78230
210.660.1960 / TBPE Firm Registration No. 20623

Van Raub Elementary School

Along Dietz Elkhorn Road East of Square Gate

Pre-Closure Travel Times (AM)

Legend

XX Intersection No.

DATE:
6/10/2024
SCALE:
1" = 400'

PAGE:
14

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210.660.1960 / TBPE Firm Registration No. 20623

Van Raub Elementary School

Along Dietz Elkhorn Road East of Square Gate

Pre-Closure Travel Times (PM)

Legend

XX Intersection No.

DATE:
6/10/2024
SCALE:
1" = 400'

PAGE:
15

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7800 W Interstate 10, Ste 830, San Antonio, Texas 78230
210.660.1960 / TBPE Firm Registration No. 20623

Van Raub Elementary School

Along Dietz Elkhorn Road East of Square Gate

Post-Closure Travel Times (AM)

Legend

XX Intersection No.

DATE:
6/10/2024

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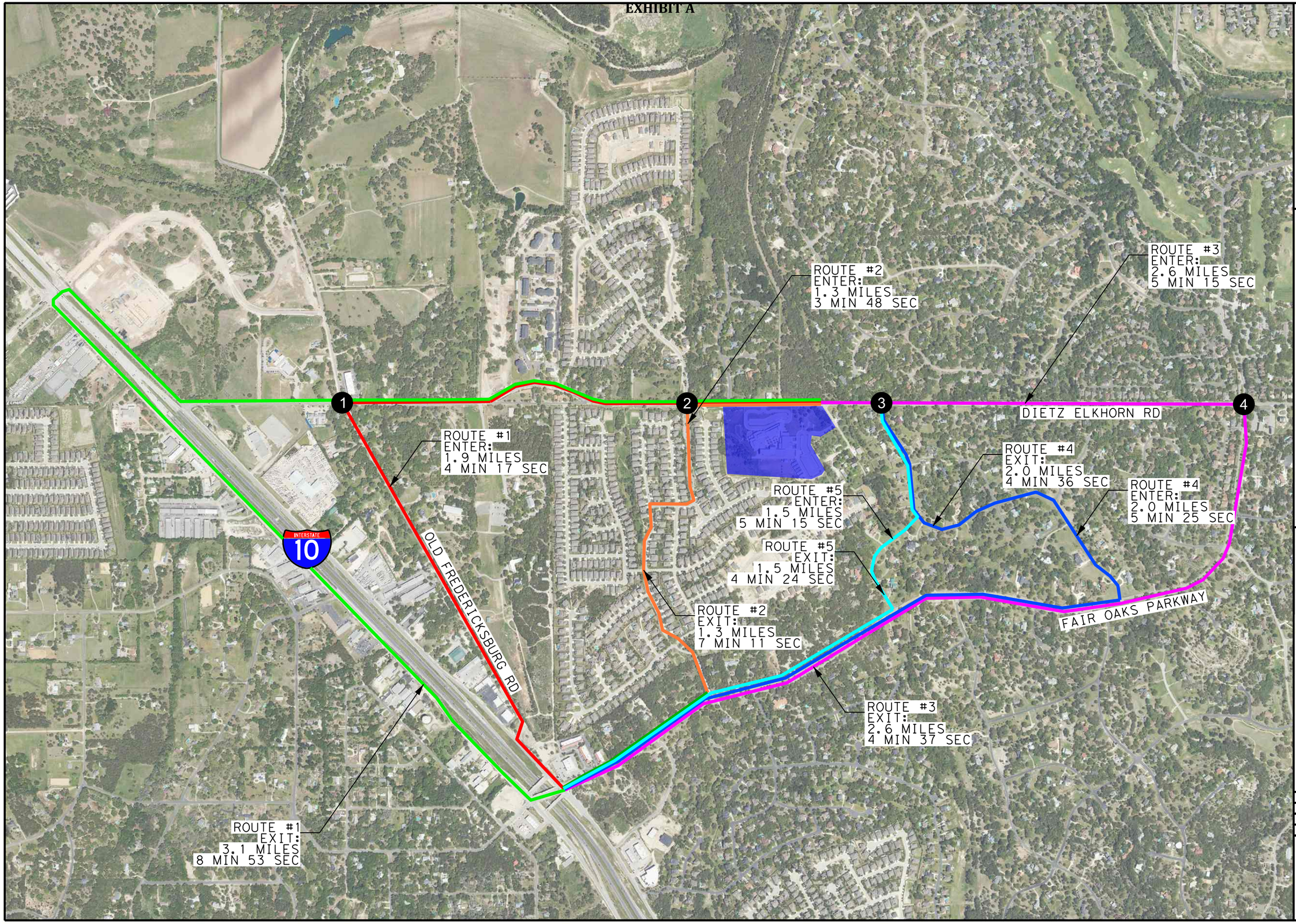
16

EXHIBIT A



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Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste 830, San Antonio, Texas 78230
210.660.1960 / TBPE Firm Registration No. 20623

Van Raub Elementary School

Along Dietz Elkhorn Road East of Square Gate

Post-Closure Travel Times (PM)

Legend

XX Intersection No.

DATE:
6/10/2024

SCALE:
1" = 400'

PAGE:
17

EXHIBIT A

PROPOSED CONDITIONS / SCENARIO SUMMARY

The following section details the Proposed Conditions / Scenario based on the LOS and queueing analysis conducted.

PROPOSED OPTION 1

The closure of Noble Lark Drive will enhance safety and prevent the cut-through traffic movements to/from Van Raub Elementary School during school peak periods. This scenario enhances public safety along the corridor considering that Noble Lark Drive was designed as a local residential street. An image of the proposed movements allowed can be seen below in Figure 13.

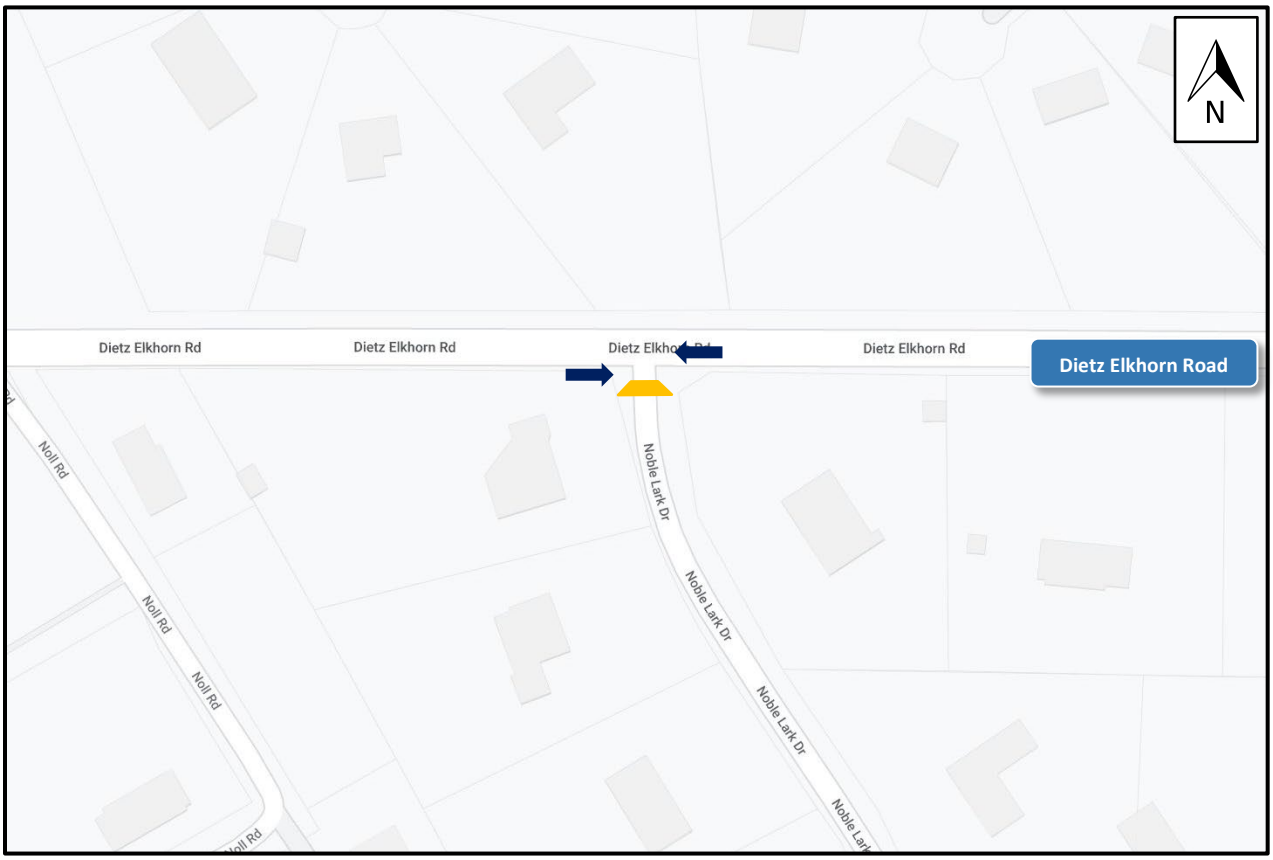

Figure 13 – Dietz Elkhorn Rd & Noble Lark Dr Closed Access

Pros to permanently closing Noble Lark Drive

- Enhances safety
- Prevents cut-through traffic flow on neighborhood street
- Aligns with City Transportation Plan (Moving Traffic to Collectors)

Cons to permanently closing Noble Lark Drive

- Increases travel times / delays on collectors
- Requires permanent structure

EXHIBIT A

PROPOSED OPTION 2

The reopening of Noble Lark Drive after a temporary closure was considered as a potential option. This scenario will alleviate queues at studied intersections (which will be discussed later in this report); however, it will have a negative impact on safety along Noble Lark Drive. An image of the proposed movements allowed can be seen below in Figure 14.

Figure 14 – Dietz Elkhorn Rd & Noble Lark Dr Open

The outlined arrows shown in Figure 14 represent traffic movements generated by Van Raub Elementary School.

Pros to reopening Noble Lark Drive

- Decreases travel times / delays on collectors

Cons to reopening Noble Lark Drive

- Impacts safety along Noble Lark Drive
- Impacts roadways infrastructure
- Traffic calming measures may be required

EXHIBIT A

PROPOSED OPTION 3

Opening Noble Lark Drive to one-way southbound operations was considered as an option to alleviate extensive queueing at Dietz Elkhorn Road and Fair Oaks Parkway in the eastbound direction. By restricting vehicular movements to one direction, one-way streets can streamline traffic operations, minimize conflicts at intersections, and reduce potential queues. An image of the proposed movements allowed can be seen below in Figure 15.

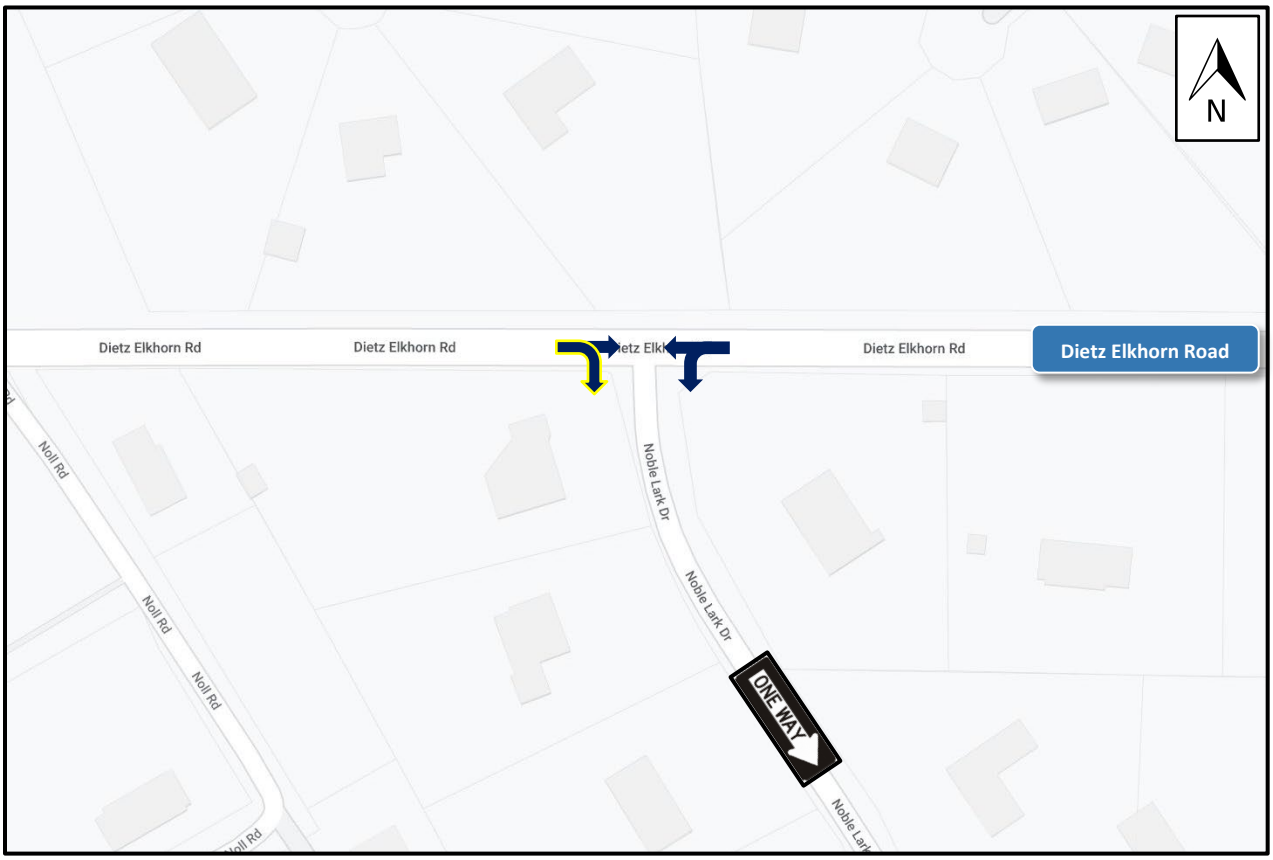

Figure 15 – Dietz Elkhorn Rd & Noble Lark Dr One-Way Southbound

The outlined arrows shown in Figure 15 represent traffic movements generated by Van Raub Elementary School.

Pros to converting Noble Lark Drive to a southbound one-way

- Reduces cut-through traffic flow on neighborhood street

Cons to converting Noble Lark Drive to a southbound one-way

- Impacts safety for Noble Lark Drive
- Increase travel times / delays on collectors
- Creates driver confusion
- Includes risk of wrong-way driving

EXHIBIT A

PROPOSED OPTION 4

Opening Noble Lark Drive to one-way northbound operations was considered as an option to alleviate extensive queueing at Dietz Elkhorn Road and Square Gate in the eastbound direction. By restricting vehicular movements to one direction, one-way streets can streamline traffic operations, minimize conflicts at intersections, and reduce potential queues. An image of the proposed movements allowed can be seen below in Figure 16.

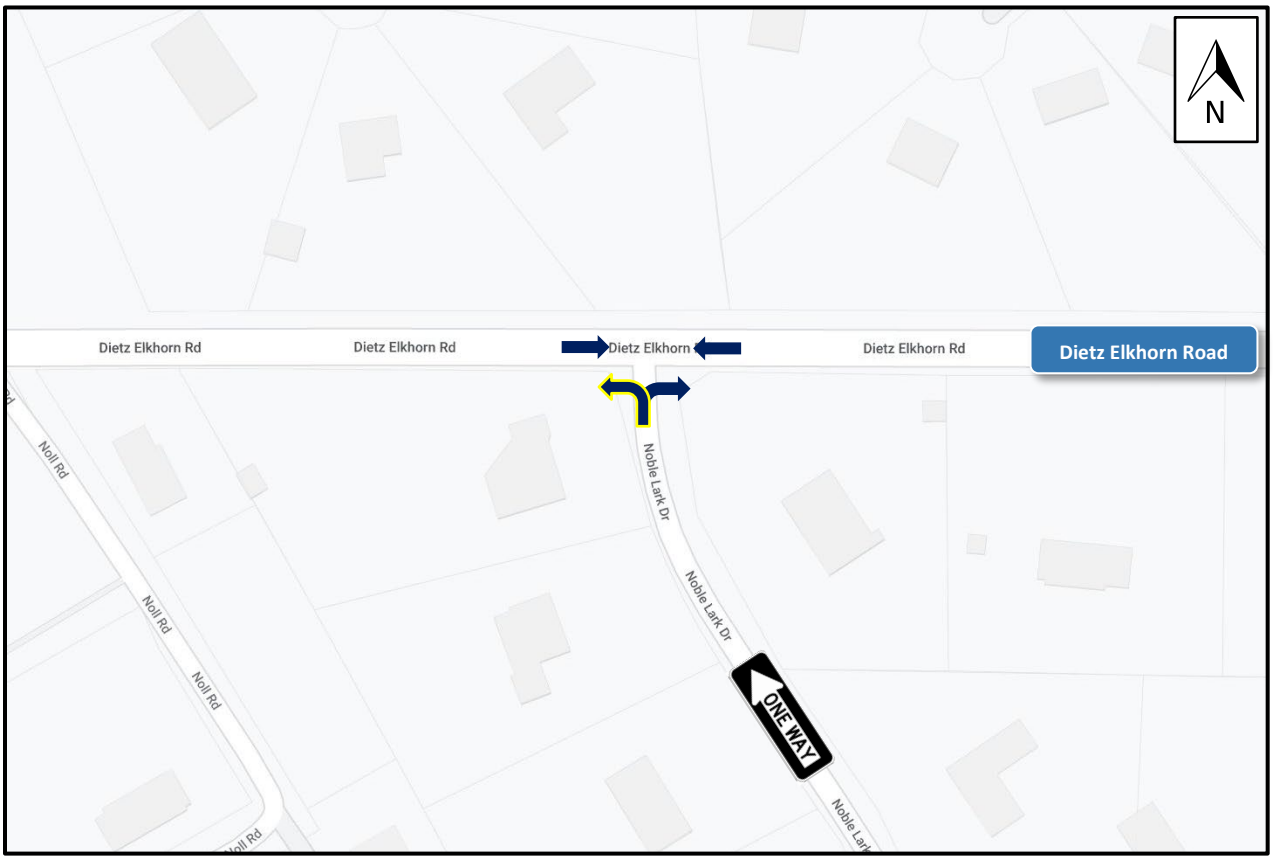

Figure 16 – Dietz Elkhorn Rd & Noble Lark Dr One-Way Northbound

The outlined arrows shown in Figure 16 represent traffic movements generated by Van Raub Elementary School.

Pros to converting Noble Lark Drive to a northbound one-way

- Reduces cut-through traffic flow on neighborhood street
- Decreases travel times / delays on collectors

Cons to converting Noble Lark Drive to a northbound one-way

- Impacts safety along Noble Lark Drive
- Creates driver confusion
- Includes risk of wrong-way driving

EXHIBIT A

PROPOSED OPTION 5

Opening Noble Lark Drive to northbound exiting right-turn only operations was considered as an option to allow residents on Noble Lark Drive access to Dietz Elkhorn Road with minimal conflicts. However, this may encourage U-turn movements on a corridor not designed for such movements. An image of the proposed movements allowed can be seen below in Figure 17.

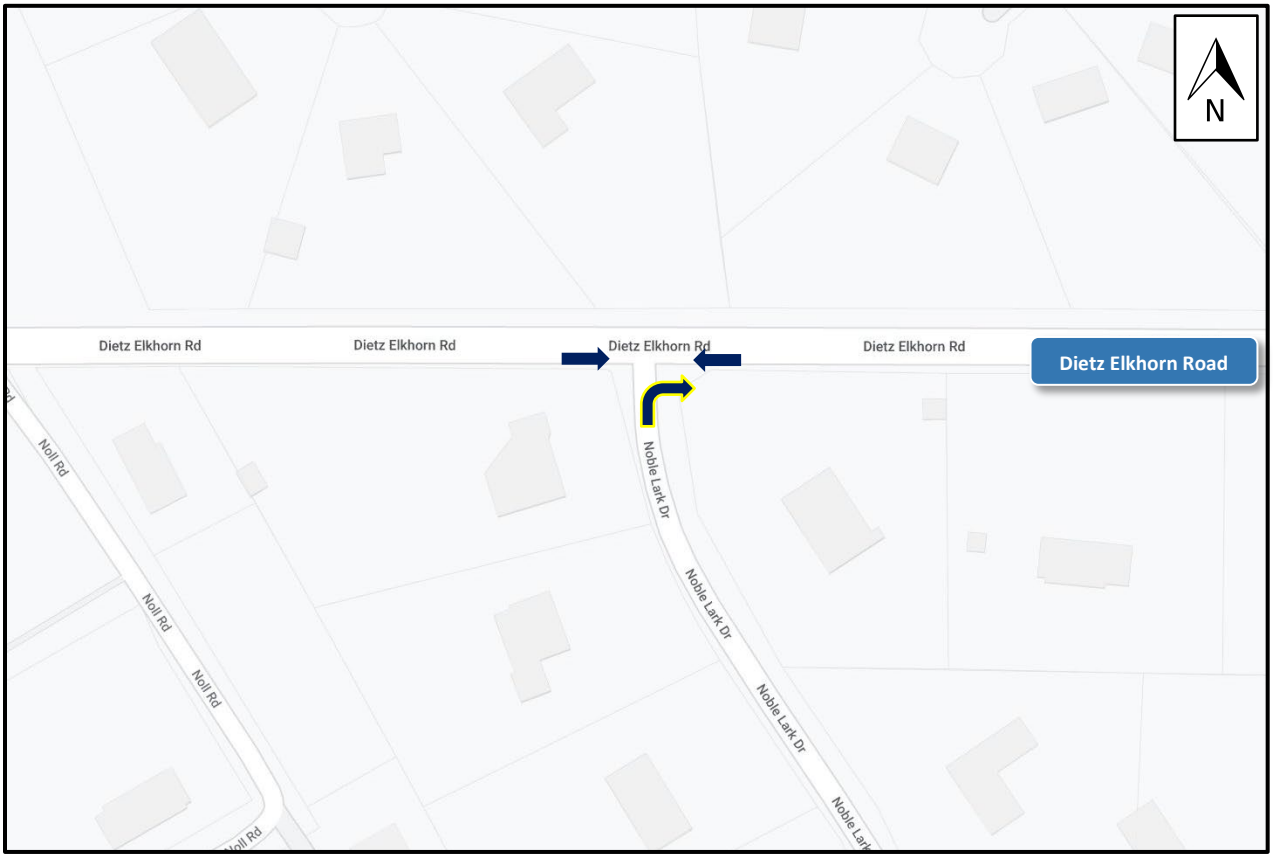

Figure 17 – Dietz Elkhorn Rd & Noble Lark Dr One-Way Northbound

The outlined arrows shown in Figure 17 represent traffic movements generated by Van Raub Elementary School.

Pros to converting Noble Lark Drive to a northbound one-way

- Reduces cut-through traffic flow on neighborhood street
- Decreases travel times / delay on collectors

Cons to converting Noble Lark Drive to a northbound one-way

- Impacts safety along Noble Lark Drive
- Includes risk of U-turn on Diets Elkhorn Road
- Potential impacts to adjacent properties

EXHIBIT A

Please note that an exhibit showing the potential U-turn movements this option may create can be seen in figure 18 and in Appendix E of this report.

Figure 18 – Proposed Option 5 Potential U-Turn Movements

OPERATIONAL ANALYSIS

LEVEL OF SERVICE ANALYSIS

The traffic simulation analysis was conducted using Synchro 12.0 Traffic Simulation Software. The analysis process involved the development of a base model, calibration of the base model, and an alternative comparison to the base model. Development of the base model involves the creation of a system network, also referred to as the link-node diagram. The network development includes link-node assignments, traffic control, roadway geometry, lane designations & assignments, traffic volumes, and turning movements. A screenshot of the Synchro Model created for this study can be seen in Figure 19.

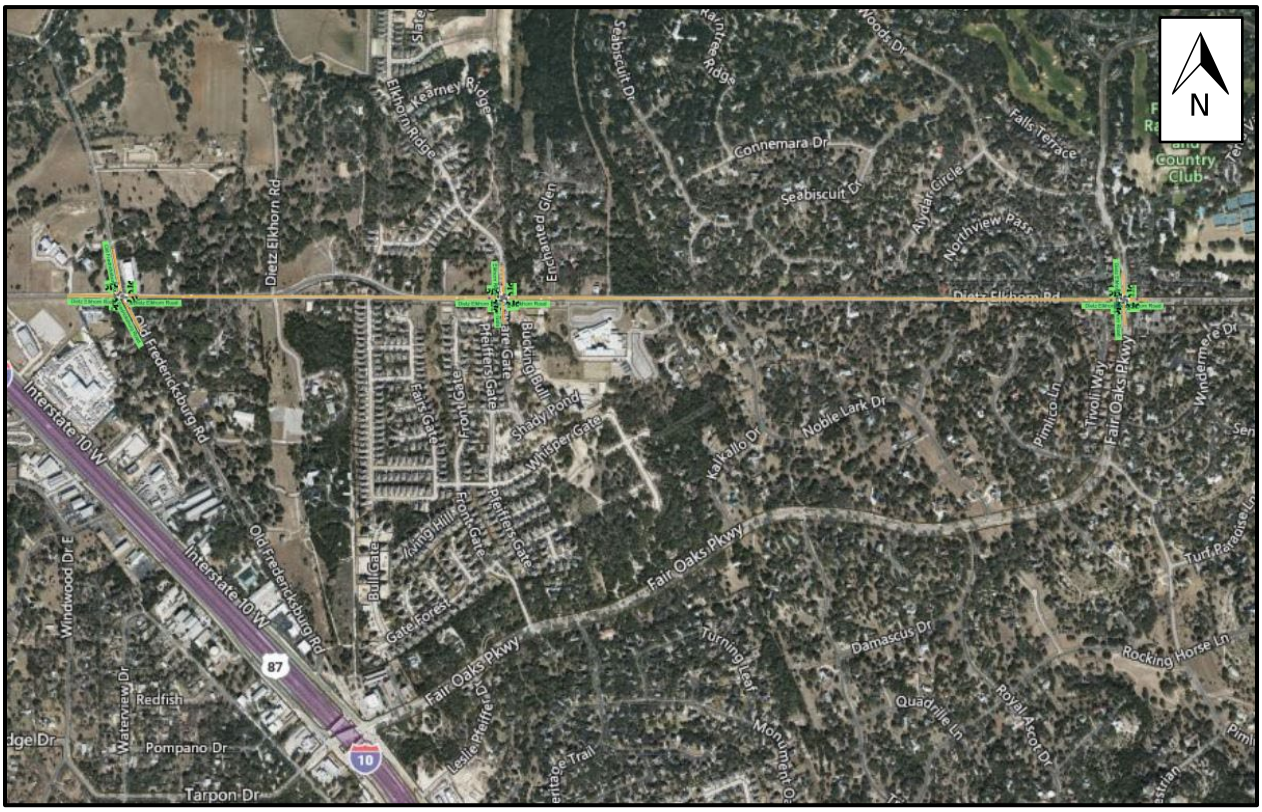

Figure 19 – Synchro Model Screenshot

Based on criteria found in the *Highway Capacity Manual 2010 (HCM)*, the critical minor street approach is used to determine the Levels of Service (LOS) for Two-Way Stop Controlled (TWSC) intersections. For signalized intersections, the LOS is determined based on the measures of effectiveness obtained from the traffic simulation output and the average control delay in seconds per vehicle (sec/veh) from the model.

Table 3 shows the average control delay ranges with the corresponding LOS for TWSC intersections.

EXHIBIT A

Table 3 – Average Control Delay Ranges

Level of Service	Average Control Delay (sec/veh) Per Approach (TWSC)
A	≤10
B	> 10 – ≤15
C	> 15 – ≤25
D	> 25 – ≤35
E	> 35 – ≤50
F	> 50

This traffic analysis evaluated four options as described in the previous section and are summarized below:

- Proposed Option 1 (Noble Lark Drive Access Closed)
- Proposed Option 2 (Noble Lark Drive Access Open)
- Proposed Option 3 (Noble Lark Drive Access One-Way Southbound)
- Proposed Option 4 (Noble Lark Drive Access One-Way Northbound)
- Proposed Option 5 (Noble Lark Drive Access Right-Out Northbound)

Tables 4-7 present a summary of the intersection and approach LOS values obtained from the traffic simulation.

Table 4 – Dietz Elkhorn Rd & Old Fredericksburg Rd LOS Results

Dietz Elkhorn Rd & Old Fredericksburg Rd	Intersection Analysis								Control Type: AWSC	
	Northbound Old Fredericksburg Rd		Southbound Old Fredericksburg Rd		Eastbound Dietz Elkhorn Rd		Westbound Dietz Elkhorn Rd		Intersection Average	
	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS
AM Peak Period										
Proposed Option 1	12.3	B	38.5	E	10.8	B	18.3	C	18.3	C
Proposed Option 2	8.6	A	6.5	A	8.9	A	19.4	C	12.7	B
Proposed Option 3	14.2	B	6.9	A	11.8	B	19.2	B	14.0	B
Proposed Option 4	7.2	A	6.3	A	8.4	A	22.4	C	14.1	B
Proposed Option 5	14.6	B	7.0	A	15.6	B	21.6	C	16.0	C
PM Peak Period										
Proposed Option 1	6.9	A	17.6	C	9.4	A	20.5	C	16.2	C
Proposed Option 2	6.0	A	6.5	A	10.3	B	18.4	B	11.9	B
Proposed Option 3	6.4	A	6.6	A	8.0	A	13.9	B	9.5	A
Proposed Option 4	7.0	A	7.2	A	10.0	A	19.6	B	13.4	B
Proposed Option 5	7.8	A	7.5	A	9.4	A	19.4	B	13.2	B

EXHIBIT A

Table 5 – Dietz Elkhorn Rd & Square Gate LOS Results

Dietz Elkhorn Rd & Square Gate /Elkhorn Ridge	Intersection Analysis								Control Type: AWSC	
	Northbound Square Gate		Southbound Elkhorn Ridge		Eastbound Dietz Elkhorn Rd		Westbound Dietz Elkhorn Rd		Intersection Average	
	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS
AM Peak Period										
Proposed Option 1	7.0	A	6.6	A	14.2	B	19.6	C	14.4	B
Proposed Option 2	4.1	A	5.1	A	8.0	A	9.5	A	8.0	A
Proposed Option 3	6.3	A	6.8	A	12.0	B	10.0	A	10.1	B
Proposed Option 4	4.7	A	5.8	A	9.0	A	8.5	A	8.2	A
Proposed Option 5	7.0	A	8.8	A	15.3	B	15.4	B	13.6	B
PM Peak Period										
Proposed Option 1	5.4	A	5.4	A	11.8	B	14.4	B	11.9	B
Proposed Option 2	5.0	A	5.1	A	9.9	A	10.1	B	8.9	A
Proposed Option 3	5.0	A	4.7	A	9.8	A	8.4	A	8.4	A
Proposed Option 4	4.8	A	5.1	A	9.7	A	10.4	B	9.2	A
Proposed Option 5	4.8	A	4.7	A	9.3	A	10.2	B	9.0	A

Table 6 – Dietz Elkhorn Rd & Noble Lark Dr LOS Results

Dietz Elkhorn Rd & Noble Lark Dr	Intersection Analysis								Control Type: TWSC	
	Northbound Noble Lark Dr		Southbound		Eastbound Dietz Elkhorn Rd		Westbound Dietz Elkhorn Rd		Intersection Average	
	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS
AM Peak Period										
Proposed Option 1										
Proposed Option 2	12.9	B			4.5	A	3.3	A	6.3	A
Proposed Option 3					4.8	A	3.0	A	4.1	A
Proposed Option 4	15.2	B			2.4	A	3.9	A	8.1	A
Proposed Option 5	2.9	A			2.5	A	3.9	A	3.0	A
PM Peak Period										
Proposed Option 1										
Proposed Option 2	4.1	A			2.6	A	1.7	A	2.3	A
Proposed Option 3					3.9	A	2.2	A	3.3	A
Proposed Option 4	6.8	A			2.9	A	3.5	A	3.7	A
Proposed Option 5	2.2	A			2.9	A	3.5	A	3.1	A

EXHIBIT A

Table 7 – Dietz Elkhorn Rd & Fair Oaks Pkwy LOS Results

Dietz Elkhorn Rd & Fair Oaks Pkwy	Intersection Analysis								Control Type: AWSC	
	Northbound Fair Oaks Pkwy		Southbound Fair Oaks Pkwy		Eastbound Dietz Elkhorn Rd		Westbound Dietz Elkhorn Rd		Intersection Average	
	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS
AM Peak Period										
Proposed Option 1	25.2	C	213.2	F	13.8	A	16.8	C	73.1	F
Proposed Option 2	11.5	B	100.8	F	14.5	B	20.8	C	48.9	E
Proposed Option 3	23.8	C	133.4	F	13.0	B	15.9	C	56.6	F
Proposed Option 4	13.8	B	115.7	F	14.0	B	14.7	B	52.9	F
Proposed Option 5	24.6	C	127	F	13.5	B	13.9	B	57.4	F
PM Peak Period										
Proposed Option 1	13.5	B	11.0	B	22.5	C	9.0	A	14.7	B
Proposed Option 2	11.6	B	8.6	A	12.3	B	7.6	A	10.2	B
Proposed Option 3	13.9	B	10.3	B	12.3	B	7.0	A	11.6	B
Proposed Option 4	11.9	B	9.8	A	12.8	B	7.5	A	11.0	B
Proposed Option 5	13	B	10	A	12.8	B	8.4	A	11.4	B

QUEUEING ANALYSIS

A queueing analysis was conducted at each study intersection along the project limits utilizing SimTraffic simulation software to display the results. The corresponding models were calibrated according to the conditions observed during the site visits. The observed queues during the site visits were matched with the queues simulated in SimTraffic. Tables 8 – 11 display the 95th percentile queue lengths in linear feet.

Table 8 – Dietz Elkhorn Rd & Old Fredericksburg Rd Queue Results

Dietz Elkhorn Rd & Old Fredericksburg Rd	Queue Analysis											
	Northbound Old Fredericksburg Rd			Southbound Old Fredericksburg Rd			Eastbound Dietz Elkhorn Rd			Westbound Dietz Elkhorn Rd		
	Queue Length (ft)			Queue Length (ft)			Queue Length (ft)			Queue Length (ft)		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Period												
Proposed Option 1	200			437			284			442		
Proposed Option 2	86			83			90			336		
Proposed Option 3	215			63			221			353		
Proposed Option 4	77			88			107			355		
Proposed Option 5	176			83			190			413		
PM Peak Period												
Proposed Option 1	76			324			75			409		
Proposed Option 2	64			54			105			173		
Proposed Option 3	66			71			119			926		
Proposed Option 4	57			62			86			178		
Proposed Option 5	69			77			80			173		

EXHIBIT A

Table 9 – Dietz Elkhorn Rd & Square Gate Queue Results

Dietz Elkhorn Rd & Square Gate	Queue Analysis											
	Northbound Square Gate			Southbound Elkhorn Ridge			Eastbound Dietz Elkhorn Rd			Westbound Dietz Elkhorn Rd		
	Queue Length (ft)			Queue Length (ft)			Queue Length (ft)			Queue Length (ft)		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Period												
Proposed Option 1	43	87		49		42	1329			746		
Proposed Option 2	42	48		60		48	133			236		
Proposed Option 3	46	54		62		50	210			273		
Proposed Option 4	40	56		55		53	115			827		
Proposed Option 5	38	84		72		44	193			206		
PM Peak Period												
Proposed Option 1	40	47		46		43	136			1271		
Proposed Option 2	42	47		54		51	105			173		
Proposed Option 3	34	48		39		51	126			151		
Proposed Option 4	41	54		45		63	125			214		
Proposed Option 5	44	48		46		47	79			109		

Table 10 – Dietz Elkhorn Rd & Noble Lark Dr Queue Results

Dietz Elkhorn Rd & Noble Lark Dr	Queue Analysis											
	Northbound Noble Lark Dr			Southbound			Eastbound Dietz Elkhorn Rd			Westbound Dietz Elkhorn Rd		
	Queue Length (ft)			Queue Length (ft)			Queue Length (ft)			Queue Length (ft)		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Period												
Proposed Option 1												
Proposed Option 2	166											
Proposed Option 3												
Proposed Option 4	176											
Proposed Option 5	38											
PM Peak Period												
Proposed Option 1												
Proposed Option 2	69											
Proposed Option 3												
Proposed Option 4	52											
Proposed Option 5	38											

EXHIBIT A

Table 11 – Dietz Elkhorn Rd & Fair Oaks Pkwy Queue Results

Dietz Elkhorn Rd & Fair Oaks Pkwy	Queue Analysis											
	Northbound Fair Oaks Pkwy			**Southbound** Fair Oaks Pkwy			**Eastbound** Dietz Elkhorn Rd			**Westbound** Dietz Elkhorn Rd		
	Queue Length (ft)			**Queue Length (ft)**			**Queue Length (ft)**			**Queue Length (ft)**		
	L	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
AM Peak Period												
Proposed Option 1	140			509			140			164		
Proposed Option 2	138			302			125			153		
Proposed Option 3	171			352			144			128		
Proposed Option 4	163			423			249			202		
Proposed Option 5	139			265			191			115		
PM Peak Period												
Proposed Option 1	293			149			425			111		
Proposed Option 2	212			104			165			85		
Proposed Option 3	203			129			183			80		
Proposed Option 4	154			99			248			96		
Proposed Option 5	167			106			109			98		

EXHIBIT A

PERMANENT CLOSURE CONSIDERATIONS

If the City of Fair Oaks Ranch were to permanently close Noble Lark Drive, the following should be considered:

- Cul-de-Sac Conversion: Transforming the end of the street into a cul-de-sac provides a turnaround area for vehicles. This option often includes implementing signage to indicate the change and possibly installing a physical barrier such as a curb or decorative planter to block through traffic.

- Barricades: Installing permanent barricades, such as bollards, fences, or large planters, physically prevents vehicles from accessing the closed section. Appropriate signage is necessary to inform drivers of the closure.

- Emergency-Access Gates: Deploying emergency gates offers a flexible solution, allowing the road to remain accessible to emergency vehicles while preventing cut-through traffic. These gates are typically locked and only accessible by authorized personnel, ensuring security and maintaining the integrity of the closure.

Should Noble Lark Drive be permanently closed, each of these options should be evaluated further utilizing traffic engineering judgment to ensure they meet the specific needs of the area based on factors such as local traffic patterns, emergency access requirements, and community input. Imagery of the proposed permanent closers can be seen in Figures 20-23.

Figure 20 – Boulder Barricade

Figure 21 – Emergency Access Gate

Figure 22 – Partial Hammerhead Turnaround

Figure 23 – Extended Existing Rock Fence

EXHIBIT A

CONCLUSION & RECOMMENDATION

Legacy Engineering Group was retained to conduct a Traffic Engineering Study for the Noble Lark Drive Closure at Dietz Elkhorn Road in Fair Oaks Ranch, TX. The study utilized the following procedures and methodology:

- Multiple Project Site Visits were conducted to observe and document existing traffic conditions.
- Travel time runs were conducted between I-10 & Fair Oaks Pkwy and Van Raub Elementary School.
- Data Collection in the form of TMCs were collected and analyzed.
- An analysis of the traffic operations and travel times at four intersections along Dietz Elkhorn Road for the Pre & Post Closure of Noble Lark Drive.
- Sim Traffic was utilized to establish queuing along the corridor.

This traffic engineering study comprehensively analyzed the existing closure and compared it with three potential alternative scenarios. The results of our analysis showed that the LOS and queues at the study intersections would decrease with the reopening of Noble Lark Drive; however, based on safety and intended roadway design, these improvements in operations would not supersede the safety risks of creating a collector roadway within a residential area. Reopening Noble Lark Drive would increase vehicle-pedestrian conflicts, raising the risk of accidents, particularly in this high pedestrian activity area. Similarly, the closure has provided a safer environment for walking, cycling, and other non-motorized transportation modes, contributing to a more sustainable and health-conscious community. Reopening the street would reduce these benefits, deterring non-motorized transport users due to increased vehicular traffic and associated safety concerns.

In conclusion, although the closure of Noble Lark Drive has created a slight increase in traffic congestion along alternative routes, the closure has provided safety benefits that far outweigh the convenience associated with a cut-through movement. Also, considering that Noble Lark Drive was designed as a local residential street, the cut-through traffic should be redirected to Collector routes that were designed accordingly (e.g., Fair Oaks Parkway, Dietz Elkhorn Road, Old Fredericksburg Road). Based on this analysis, it is our recommendation to permanently close Noble Lark Drive.

06/10/2024

Oscar Michael Garza, PE, PTOE, PTP, RSP_1
Legacy Engineering Group

EXHIBIT A

APPENDIX A – TRAFFIC DATA

EXHIBIT A

Dietz Elkhorn Rd at Fair Oaks Parkway - TMC

Thu Mar 7, 2024
Full Length (7 AM-9 AM, 2 PM-6 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163034, Location: 29.73105, -98.642469

Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Leg	Fair Oaks Parkway						Dietz Elkhorn Rd						Fair Oaks Parkway						Dietz Elkhorn Rd						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2024-03-07 7:00AM	15	61	26	0	**102**	0	6	12	17	0	**35**	0	19	13	10	0	**42**	0	7	8	3	0	**18**	1	**197**
7:15AM	14	68	25	0	**107**	0	14	9	30	0	**53**	0	35	17	42	0	**94**	0	39	9	6	0	**54**	2	**308**
7:30AM	22	86	3	0	**111**	0	7	23	41	0	**71**	0	10	38	6	0	**54**	0	45	19	12	0	**76**	0	**312**
7:45AM	30	80	0	0	**110**	0	0	31	29	0	**60**	0	25	33	3	0	**61**	0	5	12	12	0	**29**	0	**260**
Hourly Total	81	295	54	0	**430**	0	27	75	117	0	**219**	0	89	101	61	0	**251**	0	96	48	33	0	**177**	3	**1077**
8:00AM	13	71	3	0	**87**	0	3	22	17	0	**42**	0	10	42	3	0	**55**	0	4	15	7	0	**26**	1	**210**
8:15AM	8	69	5	0	**82**	0	2	14	21	0	**37**	1	18	33	1	0	**52**	0	2	15	7	0	**24**	0	**195**
8:30AM	14	74	4	0	**92**	0	5	16	23	0	**44**	0	10	47	3	0	**60**	0	2	11	9	0	**22**	0	**218**
8:45AM	20	53	6	0	**79**	0	2	15	16	0	**33**	0	18	45	2	0	**65**	0	4	10	9	0	**23**	0	**200**
Hourly Total	55	267	18	0	**340**	0	12	67	77	0	**156**	1	56	167	9	0	**232**	0	12	51	32	0	**95**	1	**823**
2:00PM	17	50	0	0	**67**	0	3	15	9	0	**27**	0	15	67	0	0	**82**	0	2	5	14	0	**21**	0	**197**
2:15PM	22	65	6	0	**93**	0	6	16	16	0	**38**	0	18	58	1	0	**77**	0	1	13	18	0	**32**	0	**240**
2:30PM	18	36	5	0	**59**	0	4	14	11	0	**29**	0	21	55	7	0	**83**	0	5	13	23	0	**41**	1	**212**
2:45PM	10	49	8	0	**67**	0	4	13	16	0	**33**	0	25	68	10	0	**103**	0	6	14	18	0	**38**	1	**241**
Hourly Total	67	200	19	0	**286**	0	17	58	52	0	**127**	0	79	248	18	0	**345**	0	14	45	73	0	**132**	2	**890**
3:00PM	12	42	7	0	**61**	0	17	13	20	0	**50**	0	21	58	10	0	**89**	0	25	20	9	0	**54**	0	**254**
3:15PM	23	58	4	0	**85**	0	8	15	12	0	**35**	0	24	71	6	0	**101**	0	41	16	26	0	**83**	0	**304**
3:30PM	21	65	6	0	**92**	0	4	21	16	0	**41**	1	8	50	3	0	**61**	0	5	20	21	0	**46**	0	**240**
3:45PM	22	43	5	0	**70**	0	3	9	13	0	**25**	0	22	73	1	0	**96**	0	8	14	31	0	**53**	1	**244**
Hourly Total	78	208	22	0	**308**	0	32	58	61	0	**151**	1	75	252	20	0	**347**	0	79	70	87	0	**236**	1	**1042**
4:00PM	11	45	6	0	**62**	0	6	16	14	0	**36**	1	22	63	5	0	**90**	1	11	14	31	0	**56**	0	**244**
4:15PM	15	53	8	0	**76**	0	7	13	16	0	**36**	0	26	76	2	0	**104**	0	9	20	18	0	**47**	0	**263**
4:30PM	17	66	2	0	**85**	0	3	18	20	0	**41**	0	25	89	3	0	**117**	0	6	16	33	0	**55**	4	**298**
4:45PM	21	55	5	0	**81**	0	4	27	19	0	**50**	0	26	63	1	0	**90**	0	5	12	15	0	**32**	1	**253**
Hourly Total	64	219	21	0	**304**	0	20	74	69	0	**163**	1	99	291	11	0	**401**	1	31	62	97	0	**190**	5	**1058**
5:00PM	23	51	7	0	**81**	0	3	17	22	0	**42**	0	31	70	0	0	**101**	0	8	12	20	0	**40**	1	**264**
5:15PM	20	67	5	0	**92**	0	10	14	17	0	**41**	0	25	77	1	0	**103**	0	2	18	17	0	**37**	0	**273**
5:30PM	12	64	4	0	**80**	0	2	14	14	0	**30**	0	24	97	1	0	**122**	0	5	16	16	0	**37**	0	**269**
5:45PM	13	64	4	0	**81**	0	5	21	16	0	**42**	0	24	57	3	1	**85**	0	5	10	16	0	**31**	0	**239**
Hourly Total	68	246	20	0	**334**	0	20	66	69	0	**155**	0	104	301	5	1	**411**	0	20	56	69	0	**145**	1	**1045**
Total	413	1435	154	0	**2002**	0	128	398	445	0	**971**	3	502	1360	124	1	**1987**	1	252	332	391	0	**975**	13	**5935**
% Approach	20.6%	71.7%	7.7%	0%	**-**	-	13.2%	41.0%	45.8%	0%	**-**	-	25.3%	68.4%	6.2%	0.1%	**-**	-	25.8%	34.1%	40.1%	0%	**-**	-	-
% Total	7.0%	24.2%	2.6%	0%	**33.7%**	-	2.2%	6.7%	7.5%	0%	**16.4%**	-	8.5%	22.9%	2.1%	0%	**33.5%**	-	4.2%	5.6%	6.6%	0%	**16.4%**	-	-
Motorcycles	1	1	0	0	**2**	-	0	1	1	0	**2**	-	1	0	0	0	**1**	-	0	0	0	0	**0**	-	5
% Motorcycles	0.2%	0.1%	0%	0%	**0.1%**	-	0%	0.3%	0.2%	0%	**0.2%**	-	0.2%	0%	0%	0%	**0.1%**	-	0%	0%	0%	0%	**0%**	-	0.1%
Lights	407	1420	152	0	**1979**	-	125	388	435	0	**948**	-	498	1346	119	1	**1964**	-	249	327	384	0	**960**	-	5851
% Lights	98.5%	99.0%	98.7%	0%	**98.9%**	-	97.7%	97.5%	97.8%	0%	**97.6%**	-	99.2%	99.0%	96.0%	100%	**98.8%**	-	98.8%	98.5%	98.2%	0%	**98.5%**	-	98.6%
Single-Unit Trucks	2	9	0	0	**11**	-	2	5	2	0	**9**	-	2	9	2	0	**13**	-	1	1	7	0	**9**	-	42
% Single-Unit Trucks	0.5%	0.6%	0%	0%	**0.5%**	-	1.6%	1.3%	0.4%	0%	**0.9%**	-	0.4%	0.7%	1.6%	0%	**0.7%**	-	0.4%	0.3%	1.8%	0%	**0.9%**	-	0.7%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Buses	3	5	2	0	**10**	-	1	4	7	0	**12**	-	1	5	3	0	**9**	-	2	4	0	0	**6**	-	37
% Buses	0.7%	0.3%	1.3%	0%	**0.5%**	-	0.8%	1.0%	1.6%	0%	**1.2%**	-	0.2%	0.4%	2.4%	0%	**0.5%**	-	0.8%	1.2%	0%	0%	**0.6%**	-	0.6%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	10	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	76.9%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	23.1%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EXHIBIT A

Dietz Elkhorn Rd at Fair Oaks Parkway - TMC

Thu Mar 7, 2024
Full Length (7 AM-9 AM, 2 PM-6 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163034, Location: 29.73105, -98.642469

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

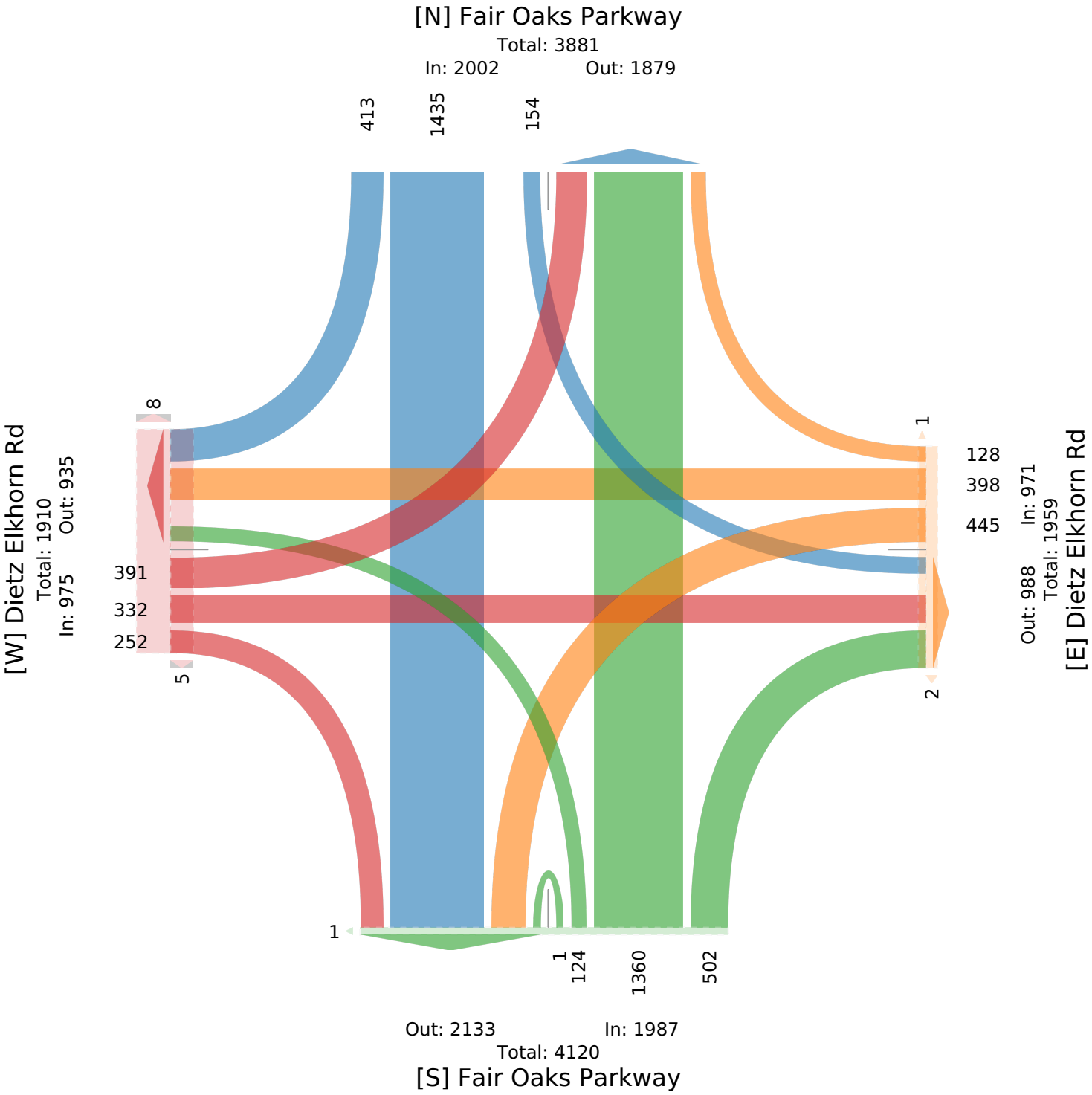

EXHIBIT A

Dietz Elkhorn Rd at Fair Oaks Parkway - TMC

Thu Mar 7, 2024
AM Peak (7:15 AM - 8:15 AM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163034, Location: 29.73105, -98.642469

Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Leg	Fair Oaks Parkway						Dietz Elkhorn Rd						Fair Oaks Parkway						Dietz Elkhorn Rd						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2024-03-07 7:15AM	14	68	25	0	**107**	0	14	9	30	0	**53**	0	35	17	42	0	**94**	0	39	9	6	0	**54**	2	**308**
7:30AM	22	86	3	0	**111**	0	7	23	41	0	**71**	0	10	38	6	0	**54**	0	45	19	12	0	**76**	0	**312**
7:45AM	30	80	0	0	**110**	0	0	31	29	0	**60**	0	25	33	3	0	**61**	0	5	12	12	0	**29**	0	**260**
8:00AM	13	71	3	0	**87**	0	3	22	17	0	**42**	0	10	42	3	0	**55**	0	4	15	7	0	**26**	1	**210**
Total	79	305	31	0	**415**	0	24	85	117	0	**226**	0	80	130	54	0	**264**	0	93	55	37	0	**185**	3	**1090**
% Approach	19.0%	73.5%	7.5%	0%	**-**	-	10.6%	37.6%	51.8%	0%	**-**	-	30.3%	49.2%	20.5%	0%	**-**	-	50.3%	29.7%	20.0%	0%	**-**	-	-
% Total	7.2%	28.0%	2.8%	0%	**38.1%**	-	2.2%	7.8%	10.7%	0%	**20.7%**	-	7.3%	11.9%	5.0%	0%	**24.2%**	-	8.5%	5.0%	3.4%	0%	**17.0%**	-	-
PHF	0.658	0.887	0.310	-	**0.935**	-	0.429	0.685	0.713	-	**0.796**	-	0.571	0.774	0.321	-	**0.702**	-	0.517	0.724	0.771	-	**0.609**	-	0.873
Motorcycles	0	0	0	0	**0**	-	0	0	1	0	**1**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	1
% Motorcycles	0%	0%	0%	0%	**0%**	-	0%	0%	0.9%	0%	**0.4%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.1%
Lights	79	302	30	0	**411**	-	24	84	115	0	**223**	-	80	125	53	0	**258**	-	93	52	37	0	**182**	-	1074
% Lights	100%	99.0%	96.8%	0%	**99.0%**	-	100%	98.8%	98.3%	0%	**98.7%**	-	100%	96.2%	98.1%	0%	**97.7%**	-	100%	94.5%	100%	0%	**98.4%**	-	98.5%
Single-Unit Trucks	0	1	0	0	**1**	-	0	0	0	0	**0**	-	0	3	0	0	**3**	-	0	0	0	0	**0**	-	4
% Single-Unit Trucks	0%	0.3%	0%	0%	**0.2%**	-	0%	0%	0%	0%	**0%**	-	0%	2.3%	0%	0%	**1.1%**	-	0%	0%	0%	0%	**0%**	-	0.4%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Buses	0	2	1	0	**3**	-	0	1	1	0	**2**	-	0	2	1	0	**3**	-	0	3	0	0	**3**	-	11
% Buses	0%	0.7%	3.2%	0%	**0.7%**	-	0%	1.2%	0.9%	0%	**0.9%**	-	0%	1.5%	1.9%	0%	**1.1%**	-	0%	5.5%	0%	0%	**1.6%**	-	1.0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EXHIBIT A

Dietz Elkhorn Rd at Fair Oaks Parkway - TMC

Thu Mar 7, 2024
AM Peak (7:15 AM - 8:15 AM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163034, Location: 29.73105, -98.642469

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

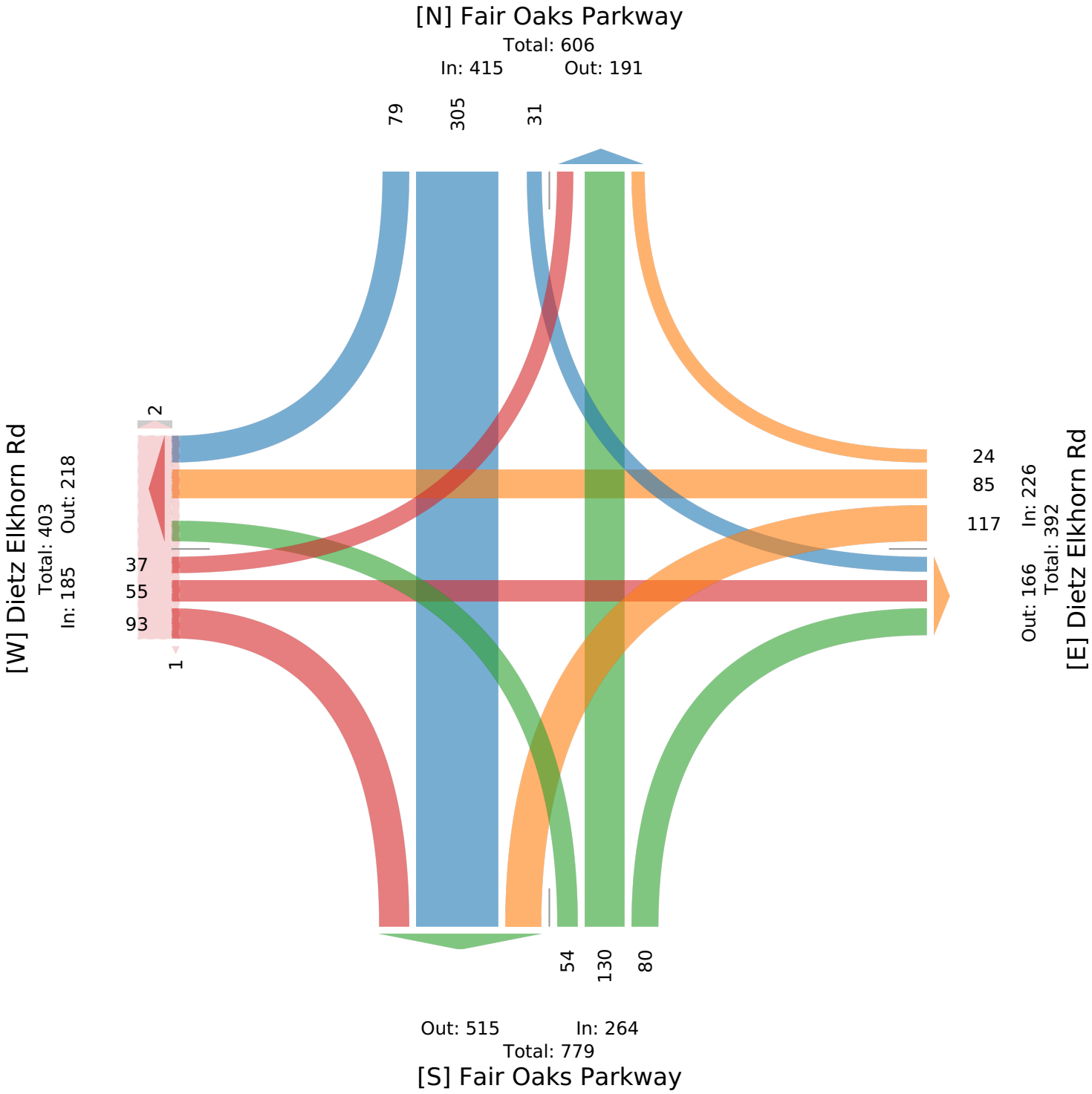

EXHIBIT A

Dietz Elkhorn Rd at Fair Oaks Parkway - TMC

Thu Mar 7, 2024
PM Peak (4:30 PM - 5:30 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163034, Location: 29.73105, -98.642469

Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Leg / Direction	Fair Oaks Parkway Southbound						Dietz Elkhorn Rd Westbound						Fair Oaks Parkway Northbound						Dietz Elkhorn Rd Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2024-03-07 4:30PM	17	66	2	0	**85**	0	3	18	20	0	**41**	0	25	89	3	0	**117**	0	6	16	33	0	**55**	4	**298**
4:45PM	21	55	5	0	**81**	0	4	27	19	0	**50**	0	26	63	1	0	**90**	0	5	12	15	0	**32**	1	**253**
5:00PM	23	51	7	0	**81**	0	3	17	22	0	**42**	0	31	70	0	0	**101**	0	8	12	20	0	**40**	1	**264**
5:15PM	20	67	5	0	**92**	0	10	14	17	0	**41**	0	25	77	1	0	**103**	0	2	18	17	0	**37**	0	**273**
Total	81	239	19	0	**339**	0	20	76	78	0	**174**	0	107	299	5	0	**411**	0	21	58	85	0	**164**	6	**1088**
% Approach	23.9%	70.5%	5.6%	0%	**-**	-	11.5%	43.7%	44.8%	0%	**-**	-	26.0%	72.7%	1.2%	0%	**-**	-	12.8%	35.4%	51.8%	0%	**-**	-	-
% Total	7.4%	22.0%	1.7%	0%	**31.2%**	-	1.8%	7.0%	7.2%	0%	**16.0%**	-	9.8%	27.5%	0.5%	0%	**37.8%**	-	1.9%	5.3%	7.8%	0%	**15.1%**	-	-
PHF	0.880	0.892	0.679	-	**0.921**	-	0.500	0.704	0.886	-	**0.870**	-	0.863	0.840	0.417	-	**0.878**	-	0.656	0.806	0.644	-	**0.745**	-	0.913
Motorcycles	1	0	0	0	**1**	-	0	1	0	0	**1**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	2
% Motorcycles	1.2%	0%	0%	0%	**0.3%**	-	0%	1.3%	0%	0%	**0.6%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.2%
Lights	77	238	19	0	**334**	-	19	75	74	0	**168**	-	107	299	5	0	**411**	-	21	58	82	0	**161**	-	1074
% Lights	95.1%	99.6%	100%	0%	**98.5%**	-	95.0%	98.7%	94.9%	0%	**96.6%**	-	100%	100%	100%	0%	**100%**	-	100%	100%	96.5%	0%	**98.2%**	-	98.7%
Single-Unit Trucks	1	0	0	0	**1**	-	1	0	1	0	**2**	-	0	0	0	0	**0**	-	0	0	3	0	**3**	-	6
% Single-Unit Trucks	1.2%	0%	0%	0%	**0.3%**	-	5.0%	0%	1.3%	0%	**1.1%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	3.5%	0%	**1.8%**	-	0.6%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Buses	2	1	0	0	**3**	-	0	0	3	0	**3**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	6
% Buses	2.5%	0.4%	0%	0%	**0.9%**	-	0%	0%	3.8%	0%	**1.7%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.6%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 66.7%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 33.3%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EXHIBIT A

Dietz Elkhorn Rd at Fair Oaks Parkway - TMC
Thu Mar 7, 2024
PM Peak (4:30 PM - 5:30 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163034, Location: 29.73105, -98.642469

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

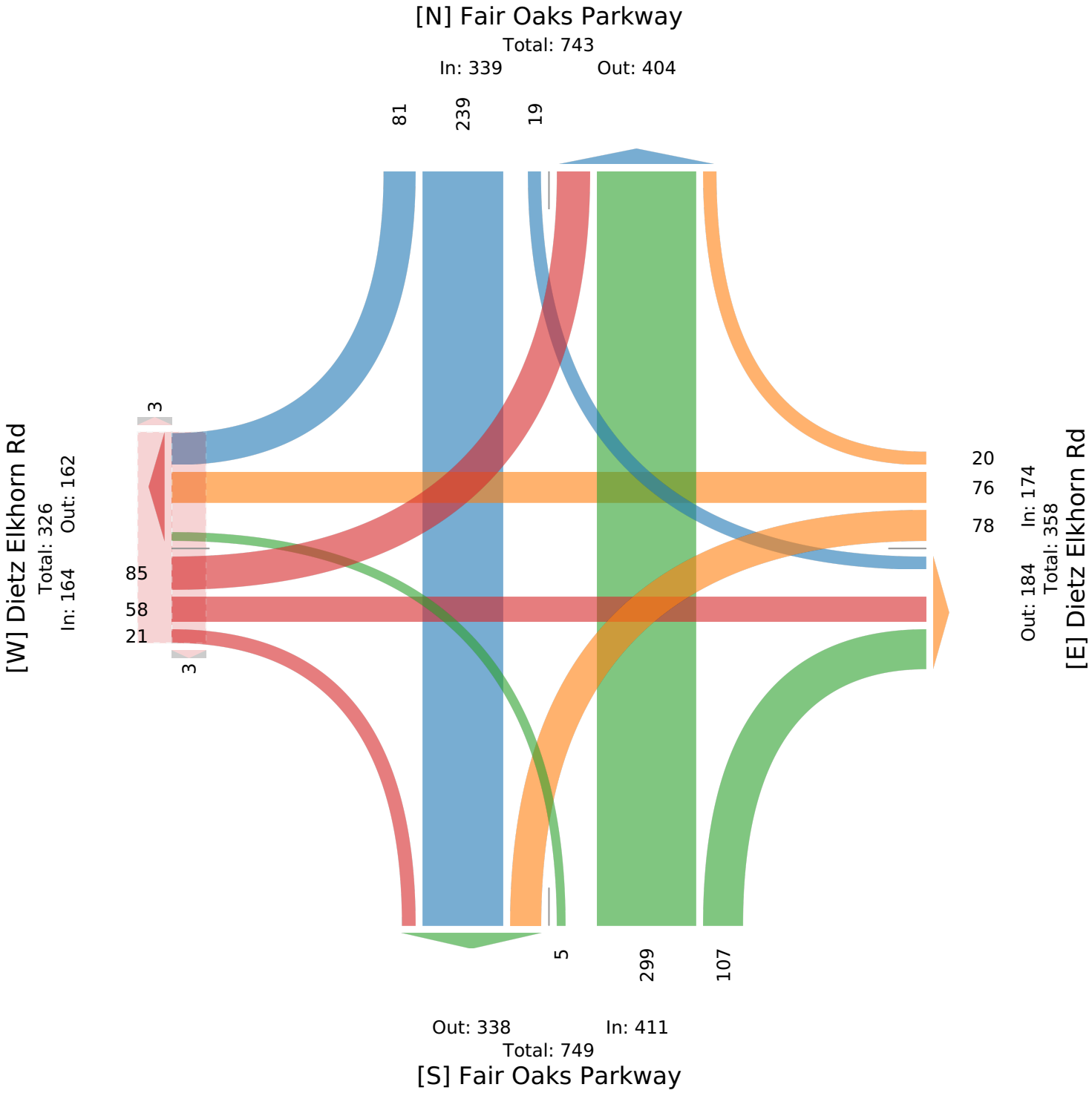

EXHIBIT A

Old Fredericksburg Rd at Dietz Elkhorn Rd - TMC

Thu Mar 7, 2024
Full Length (7 AM-9 AM, 2 PM-6 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163035, Location: 29.731164, -98.672932

Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Leg	Old Fredericksburg Rd						Dietz Elkhorn Rd						Old Fredericksburg Rd						Dietz Elkhorn Rd						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2024-03-07 7:00AM	20	0	9	0	**29**	0	6	70	1	0	**77**	0	40	5	2	0	**47**	0	2	30	4	0	**36**	0	**189**
7:15AM	13	3	9	0	**25**	0	3	83	0	0	**86**	0	58	3	0	0	**61**	0	0	54	13	0	**67**	1	**239**
7:30AM	11	1	10	0	**22**	0	14	103	0	0	**117**	0	19	11	1	0	**31**	0	0	16	11	0	**27**	0	**197**
7:45AM	27	1	16	0	**44**	0	44	80	1	0	**125**	1	10	17	1	0	**28**	0	1	9	27	0	**37**	0	**234**
Hourly Total	71	5	44	0	**120**	0	67	336	2	0	**405**	1	127	36	4	0	**167**	0	3	109	55	0	**167**	1	**859**
8:00AM	65	2	25	0	**92**	0	25	49	2	0	**76**	1	6	8	4	0	**18**	0	1	9	14	0	**24**	0	**210**
8:15AM	29	1	12	0	**42**	0	11	45	0	0	**56**	0	11	9	2	0	**22**	1	0	5	13	0	**18**	0	**138**
8:30AM	14	4	9	0	**27**	0	13	52	0	0	**65**	0	13	8	4	0	**25**	0	0	20	7	0	**27**	0	**144**
8:45AM	9	1	19	0	**29**	0	5	46	2	0	**53**	0	8	2	3	0	**13**	0	0	7	7	0	**14**	1	**109**
Hourly Total	117	8	65	0	**190**	0	54	192	4	0	**250**	1	38	27	13	0	**78**	1	1	41	41	0	**83**	1	**601**
2:00PM	6	0	27	0	**33**	0	18	24	0	0	**42**	0	7	7	1	0	**15**	0	0	10	7	0	**17**	0	**107**
2:15PM	6	0	24	0	**30**	0	27	46	2	0	**75**	0	13	15	1	0	**29**	0	1	29	16	0	**46**	0	**180**
2:30PM	11	0	28	0	**39**	0	10	40	2	0	**52**	0	15	6	1	0	**22**	0	2	40	9	0	**51**	0	**164**
2:45PM	6	1	21	0	**28**	0	11	24	3	0	**38**	0	29	5	1	0	**35**	0	0	37	12	0	**49**	0	**150**
Hourly Total	29	1	100	0	**130**	0	66	134	7	0	**207**	0	64	33	4	0	**101**	0	3	116	44	0	**163**	0	**601**
3:00PM	8	2	31	0	**41**	0	10	50	0	0	**60**	0	16	7	1	0	**24**	0	0	29	12	0	**41**	0	**166**
3:15PM	19	1	36	0	**56**	0	23	91	0	0	**114**	0	11	5	6	0	**22**	0	0	21	12	0	**33**	0	**225**
3:30PM	17	0	26	0	**43**	0	29	52	2	0	**83**	0	13	9	1	0	**23**	0	0	30	20	0	**50**	0	**199**
3:45PM	19	1	40	0	**60**	0	18	54	1	0	**73**	0	11	7	3	0	**21**	0	2	27	12	0	**41**	0	**195**
Hourly Total	63	4	133	0	**200**	0	80	247	3	0	**330**	0	51	28	11	0	**90**	0	2	107	56	0	**165**	0	**785**
4:00PM	13	2	46	0	**61**	0	15	41	1	0	**57**	0	16	4	2	0	**22**	0	0	20	7	0	**27**	0	**167**
4:15PM	18	1	55	0	**74**	0	12	35	1	0	**48**	0	13	6	2	0	**21**	0	1	18	11	0	**30**	0	**173**
4:30PM	15	2	33	0	**50**	0	18	39	0	0	**57**	0	16	4	0	0	**20**	0	0	15	12	0	**27**	0	**154**
4:45PM	21	1	28	0	**50**	0	26	44	0	0	**70**	0	10	6	2	0	**18**	0	0	26	9	0	**35**	0	**173**
Hourly Total	67	6	162	0	**235**	0	71	159	2	0	**232**	0	55	20	6	0	**81**	0	1	79	39	0	**119**	0	**667**
5:00PM	18	5	35	0	**58**	0	18	42	0	0	**60**	0	14	2	5	0	**21**	0	0	30	7	0	**37**	0	**176**
5:15PM	15	1	30	0	**46**	0	16	37	0	0	**53**	0	19	5	0	0	**24**	0	0	19	3	0	**22**	0	**145**
5:30PM	10	0	31	0	**41**	0	12	35	1	0	**48**	0	12	4	0	0	**16**	0	2	22	9	0	**33**	0	**138**
5:45PM	9	1	34	0	**44**	0	20	25	1	0	**46**	0	14	3	1	0	**18**	0	0	22	5	0	**27**	0	**135**
Hourly Total	52	7	130	0	**189**	0	66	139	2	0	**207**	0	59	14	6	0	**79**	0	2	93	24	0	**119**	0	**594**
Total	399	31	634	0	**1064**	0	404	1207	20	0	**1631**	2	394	158	44	0	**596**	1	12	545	259	0	**816**	2	**4107**
% Approach	37.5%	2.9%	59.6%	0%	**-**	-	24.8%	74.0%	1.2%	0%	**-**	-	66.1%	26.5%	7.4%	0%	**-**	-	1.5%	66.8%	31.7%	0%	**-**	-	-
% Total	9.7%	0.8%	15.4%	0%	**25.9%**	-	9.8%	29.4%	0.5%	0%	**39.7%**	-	9.6%	3.8%	1.1%	0%	**14.5%**	-	0.3%	13.3%	6.3%	0%	**19.9%**	-	-
Motorcycles	0	0	0	0	**0**	-	0	2	0	0	**2**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	2
% Motorcycles	0%	0%	0%	0%	**0%**	-	0%	0.2%	0%	0%	**0.1%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Lights	390	31	622	0	**1043**	-	394	1173	20	0	**1587**	-	384	154	43	0	**581**	-	12	536	257	0	**805**	-	4016
% Lights	97.7%	100%	98.1%	0%	**98.0%**	-	97.5%	97.2%	100%	0%	**97.3%**	-	97.5%	97.5%	97.7%	0%	**97.5%**	-	100%	98.3%	99.2%	0%	**98.7%**	-	97.8%
Single-Unit Trucks	3	0	5	0	**8**	-	4	14	0	0	**18**	-	2	2	1	0	**5**	-	0	3	1	0	**4**	-	35
% Single-Unit Trucks	0.8%	0%	0.8%	0%	**0.8%**	-	1.0%	1.2%	0%	0%	**1.1%**	-	0.5%	1.3%	2.3%	0%	**0.8%**	-	0%	0.6%	0.4%	0%	**0.5%**	-	0.9%
Articulated Trucks	5	0	0	0	**5**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	5
% Articulated Trucks	1.3%	0%	0%	0%	**0.5%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.1%
Buses	1	0	7	0	**8**	-	6	18	0	0	**24**	-	8	2	0	0	**10**	-	0	6	1	0	**7**	-	49
% Buses	0.3%	0%	1.1%	0%	**0.8%**	-	1.5%	1.5%	0%	0%	**1.5%**	-	2.0%	1.3%	0%	0%	**1.7%**	-	0%	1.1%	0.4%	0%	**0.9%**	-	1.2%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EXHIBIT A

Old Fredericksburg Rd at Dietz Elkhorn Rd - TMC

Thu Mar 7, 2024
Full Length (7 AM-9 AM, 2 PM-6 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163035, Location: 29.731164, -98.672932

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
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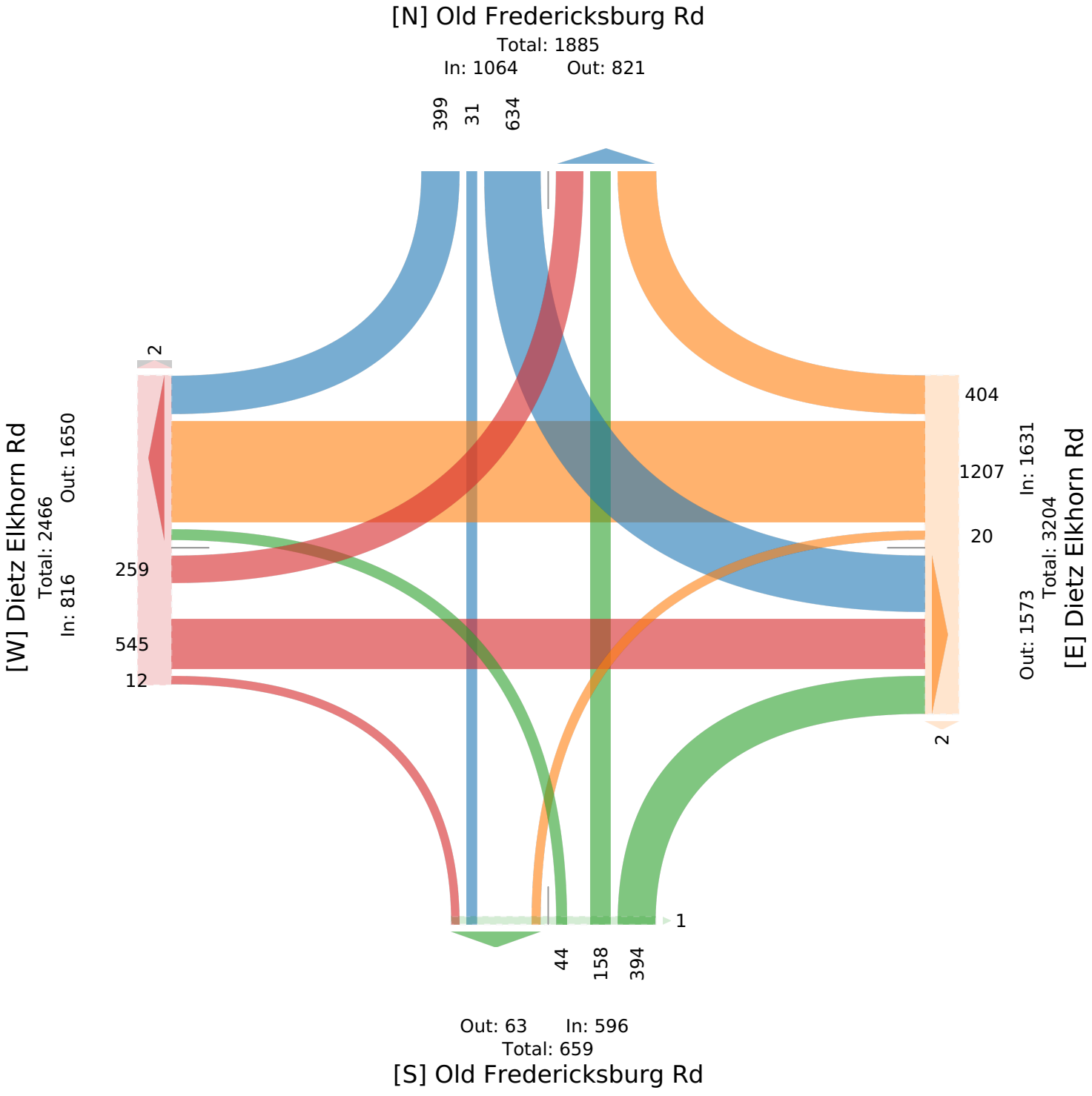

EXHIBIT A

Old Fredericksburg Rd at Dietz Elkhorn Rd - TMC

Thu Mar 7, 2024
AM Peak (7:15 AM - 8:15 AM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163035, Location: 29.731164, -98.672932

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Leg / Direction	Old Fredericksburg Rd Southbound						Dietz Elkhorn Rd Westbound						Old Fredericksburg Rd Northbound						Dietz Elkhorn Rd Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2024-03-07 7:15AM	13	3	9	0	**25**	0	3	83	0	0	**86**	0	58	3	0	0	**61**	0	0	54	13	0	**67**	1	**239**
7:30AM	11	1	10	0	**22**	0	14	103	0	0	**117**	0	19	11	1	0	**31**	0	0	16	11	0	**27**	0	**197**
7:45AM	27	1	16	0	**44**	0	44	80	1	0	**125**	1	10	17	1	0	**28**	0	1	9	27	0	**37**	0	**234**
8:00AM	65	2	25	0	**92**	0	25	49	2	0	**76**	1	6	8	4	0	**18**	0	1	9	14	0	**24**	0	**210**
Total	116	7	60	0	**183**	0	86	315	3	0	**404**	2	93	39	6	0	**138**	0	2	88	65	0	**155**	1	**880**
% Approach	63.4%	3.8%	32.8%	0%	**-**	-	21.3%	78.0%	0.7%	0%	**-**	-	67.4%	28.3%	4.3%	0%	**-**	-	1.3%	56.8%	41.9%	0%	**-**	-	-
% Total	13.2%	0.8%	6.8%	0%	**20.8%**	-	9.8%	35.8%	0.3%	0%	**45.9%**	-	10.6%	4.4%	0.7%	0%	**15.7%**	-	0.2%	10.0%	7.4%	0%	**17.6%**	-	-
PHF	0.446	0.583	0.600	-	**0.497**	-	0.489	0.765	0.375	-	**0.808**	-	0.401	0.574	0.375	-	**0.566**	-	0.500	0.407	0.602	-	**0.578**	-	0.921
Motorcycles	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Motorcycles	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Lights	114	7	60	0	**181**	-	83	312	3	0	**398**	-	91	38	6	0	**135**	-	2	84	64	0	**150**	-	864
% Lights	98.3%	100%	100%	0%	**98.9%**	-	96.5%	99.0%	100%	0%	**98.5%**	-	97.8%	97.4%	100%	0%	**97.8%**	-	100%	95.5%	98.5%	0%	**96.8%**	-	98.2%
Single-Unit Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	2	0	0	**2**	-	2
% Single-Unit Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	2.3%	0%	0%	**1.3%**	-	0.2%
Articulated Trucks	1	0	0	0	**1**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	1
% Articulated Trucks	0.9%	0%	0%	0%	**0.5%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.1%
Buses	1	0	0	0	**1**	-	3	3	0	0	**6**	-	2	1	0	0	**3**	-	0	2	1	0	**3**	-	13
% Buses	0.9%	0%	0%	0%	**0.5%**	-	3.5%	1.0%	0%	0%	**1.5%**	-	2.2%	2.6%	0%	0%	**2.2%**	-	0%	2.3%	1.5%	0%	**1.9%**	-	1.5%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EXHIBIT A

Old Fredericksburg Rd at Dietz Elkhorn Rd - TMC

Thu Mar 7, 2024
AM Peak (7:15 AM - 8:15 AM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163035, Location: 29.731164, -98.672932

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

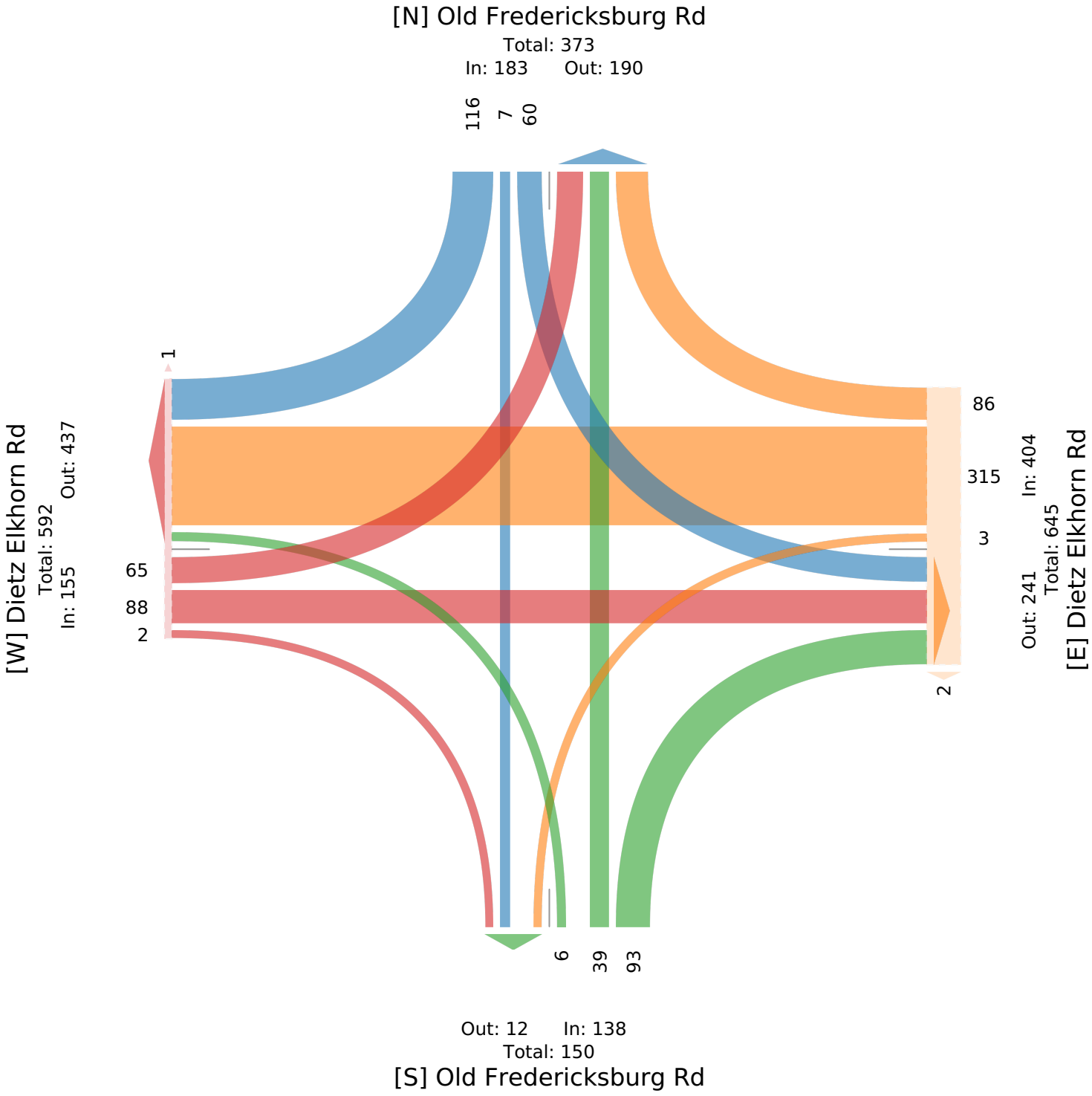

EXHIBIT A

Old Fredericksburg Rd at Dietz Elkhorn Rd - TMC

Thu Mar 7, 2024
PM Peak (3:15 PM - 4:15 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163035, Location: 29.731164, -98.672932

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Leg	Old Fredericksburg Rd						Dietz Elkhorn Rd						Old Fredericksburg Rd						Dietz Elkhorn Rd						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2024-03-07 3:15PM	19	1	36	0	**56**	0	23	91	0	0	**114**	0	11	5	6	0	**22**	0	0	21	12	0	**33**	0	**225**
3:30PM	17	0	26	0	**43**	0	29	52	2	0	**83**	0	13	9	1	0	**23**	0	0	30	20	0	**50**	0	**199**
3:45PM	19	1	40	0	**60**	0	18	54	1	0	**73**	0	11	7	3	0	**21**	0	2	27	12	0	**41**	0	**195**
4:00PM	13	2	46	0	**61**	0	15	41	1	0	**57**	0	16	4	2	0	**22**	0	0	20	7	0	**27**	0	**167**
Total	68	4	148	0	**220**	0	85	238	4	0	**327**	0	51	25	12	0	**88**	0	2	98	51	0	**151**	0	**786**
% Approach	30.9%	1.8%	67.3%	0%	**-**	-	26.0%	72.8%	1.2%	0%	**-**	-	58.0%	28.4%	13.6%	0%	**-**	-	1.3%	64.9%	33.8%	0%	**-**	-	**-**
% Total	8.7%	0.5%	18.8%	0%	**28.0%**	-	10.8%	30.3%	0.5%	0%	**41.6%**	-	6.5%	3.2%	1.5%	0%	**11.2%**	-	0.3%	12.5%	6.5%	0%	**19.2%**	-	**-**
PHF	0.895	0.500	0.804	-	**0.902**	-	0.733	0.654	0.500	-	**0.717**	-	0.797	0.694	0.500	-	**0.957**	-	0.250	0.817	0.638	-	**0.755**	-	0.873
Motorcycles	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Motorcycles	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Lights	68	4	148	0	**220**	-	83	231	4	0	**318**	-	50	22	12	0	**84**	-	2	94	50	0	**146**	-	768
% Lights	100%	100%	100%	0%	**100%**	-	97.6%	97.1%	100%	0%	**97.2%**	-	98.0%	88.0%	100%	0%	**95.5%**	-	100%	95.9%	98.0%	0%	**96.7%**	-	97.7%
Single-Unit Trucks	0	0	0	0	**0**	-	1	5	0	0	**6**	-	1	2	0	0	**3**	-	0	1	1	0	**2**	-	11
% Single-Unit Trucks	0%	0%	0%	0%	**0%**	-	1.2%	2.1%	0%	0%	**1.8%**	-	2.0%	8.0%	0%	0%	**3.4%**	-	0%	1.0%	2.0%	0%	**1.3%**	-	1.4%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Buses	0	0	0	0	**0**	-	1	2	0	0	**3**	-	0	1	0	0	**1**	-	0	3	0	0	**3**	-	7
% Buses	0%	0%	0%	0%	**0%**	-	1.2%	0.8%	0%	0%	**0.9%**	-	0%	4.0%	0%	0%	**1.1%**	-	0%	3.1%	0%	0%	**2.0%**	-	0.9%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EXHIBIT A

Old Fredericksburg Rd at Dietz Elkhorn Rd - TMC

Thu Mar 7, 2024
PM Peak (3:15 PM - 4:15 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163035, Location: 29.731164, -98.672932

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

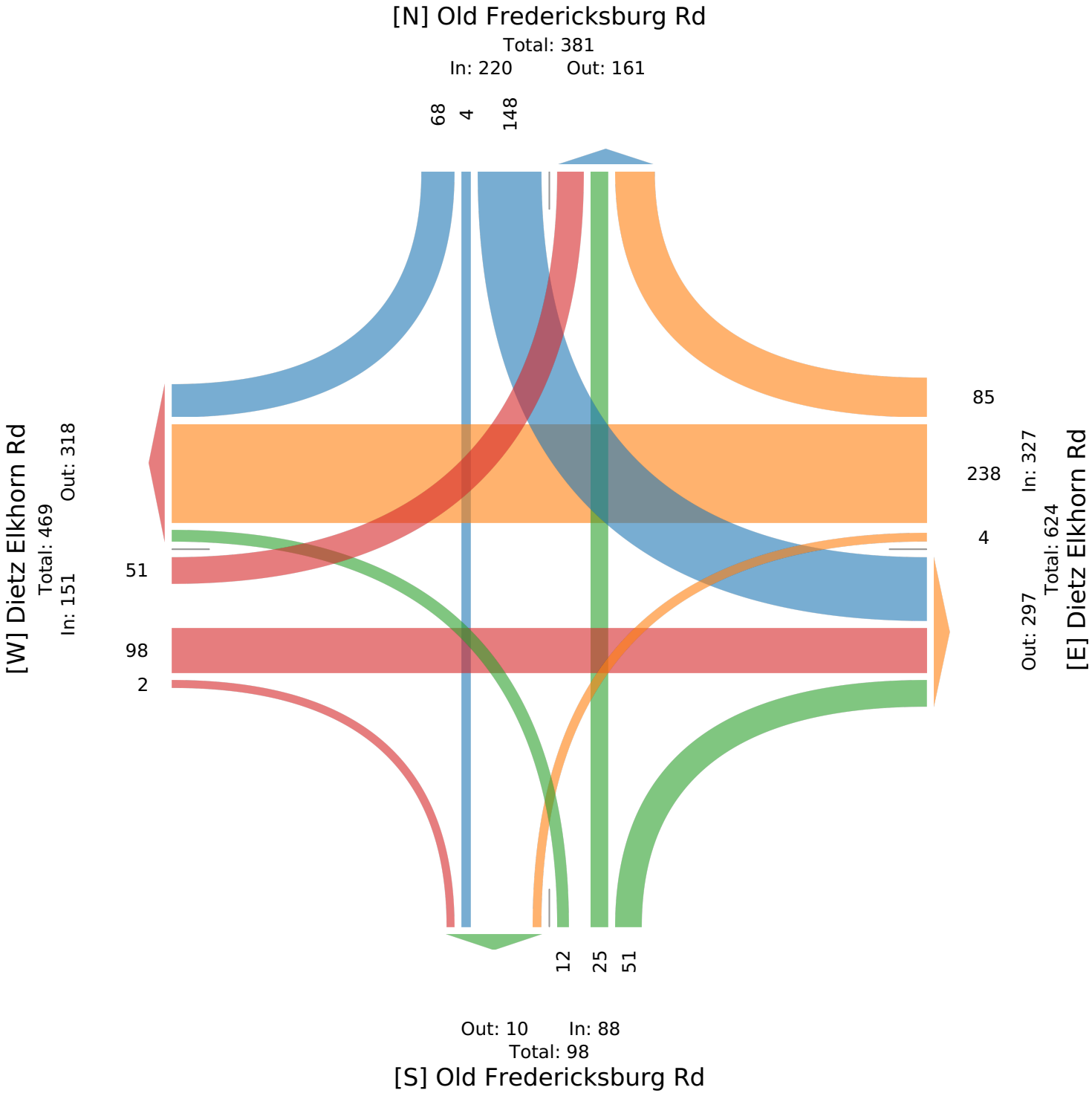

EXHIBIT A

Dietz Elkhorn Rd at Elkhorn Ridge/Square Gate - TMC

Thu Mar 7, 2024
Full Length (7 AM-9 AM, 2 PM-6 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163036, Location: 29.731127, -98.661353

Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Leg / Direction	Elkhorn Ridge Southbound						Dietz Elkhorn Rd Westbound						Square Gate Northbound						Dietz Elkhorn Rd Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2024-03-07 7:00AM	8	0	7	0	**15**	0	4	54	7	0	**65**	0	20	0	1	0	**21**	0	0	74	5	0	**79**	0	**180**
7:15AM	8	0	21	0	**29**	0	8	79	14	0	**101**	0	42	0	2	0	**44**	8	2	102	8	0	**112**	8	**286**
7:30AM	6	2	7	0	**15**	0	7	99	16	0	**122**	0	15	1	4	0	**20**	1	2	52	13	0	**67**	1	**224**
7:45AM	8	0	3	0	**11**	0	2	87	0	0	**89**	0	2	1	2	0	**5**	2	1	25	6	0	**32**	2	**137**
Hourly Total	30	2	38	0	**70**	0	21	319	37	0	**377**	0	79	2	9	0	**90**	11	5	253	32	0	**290**	11	**827**
8:00AM	9	1	1	0	**11**	0	1	40	2	0	**43**	0	1	1	1	0	**3**	0	2	27	6	0	**35**	0	**92**
8:15AM	5	1	2	0	**8**	0	0	25	2	0	**27**	0	0	1	4	0	**5**	0	3	20	8	0	**31**	0	**71**
8:30AM	9	1	1	0	**11**	0	3	32	0	0	**35**	0	1	0	1	0	**2**	2	3	23	12	0	**38**	2	**86**
8:45AM	6	0	4	0	**10**	0	5	32	0	0	**37**	0	2	0	1	0	**3**	0	1	20	9	0	**30**	0	**80**
Hourly Total	29	3	8	0	**40**	0	9	129	4	0	**142**	0	4	2	7	0	**13**	2	9	90	35	0	**134**	2	**329**
2:00PM	4	1	1	0	**6**	0	2	26	0	0	**28**	0	2	0	0	0	**2**	0	6	27	8	0	**41**	0	**77**
2:15PM	10	1	3	0	**14**	0	1	44	3	0	**48**	0	3	1	4	0	**8**	0	3	35	12	0	**50**	0	**120**
2:30PM	3	0	1	1	**5**	0	1	30	2	0	**33**	0	3	0	0	0	**3**	0	1	58	14	0	**73**	0	**114**
2:45PM	8	4	5	0	**17**	0	2	22	3	0	**27**	0	4	0	0	0	**4**	0	1	78	8	0	**87**	1	**135**
Hourly Total	25	6	10	1	**42**	0	6	122	8	0	**136**	0	12	1	4	0	**17**	0	11	198	42	0	**251**	1	**446**
3:00PM	7	3	9	1	**20**	0	5	49	10	0	**64**	0	12	4	4	0	**20**	10	5	56	7	0	**68**	10	**172**
3:15PM	3	1	0	0	**4**	0	12	93	9	0	**114**	0	2	1	2	0	**5**	0	1	48	11	0	**60**	0	**183**
3:30PM	8	1	2	0	**11**	0	4	67	6	0	**77**	0	4	1	2	0	**7**	0	0	52	14	0	**66**	0	**161**
3:45PM	10	2	6	0	**18**	0	2	48	5	0	**55**	0	2	1	5	0	**8**	0	3	49	9	0	**61**	0	**142**
Hourly Total	28	7	17	1	**53**	0	23	257	30	0	**310**	0	20	7	13	0	**40**	10	9	205	41	0	**255**	10	**658**
4:00PM	5	4	2	0	**11**	0	2	34	2	0	**38**	0	1	0	1	0	**2**	1	2	51	12	0	**65**	2	**116**
4:15PM	3	0	5	0	**8**	0	3	33	1	0	**37**	0	3	1	4	0	**8**	1	1	52	16	0	**69**	1	**122**
4:30PM	4	0	4	0	**8**	0	6	37	3	0	**46**	0	3	1	1	0	**5**	1	1	43	17	0	**61**	1	**120**
4:45PM	8	1	2	0	**11**	0	3	56	5	0	**64**	0	2	1	2	0	**5**	1	5	33	14	0	**52**	1	**132**
Hourly Total	20	5	13	0	**38**	0	14	160	11	0	**185**	0	9	3	8	0	**20**	4	9	179	59	0	**247**	5	**490**
5:00PM	4	2	1	0	**7**	0	4	38	5	0	**47**	0	3	0	3	0	**6**	0	2	39	19	0	**60**	3	**120**
5:15PM	6	3	1	0	**10**	0	4	37	1	0	**42**	0	1	1	2	0	**4**	0	3	49	15	0	**67**	0	**123**
5:30PM	3	2	3	0	**8**	0	2	32	0	0	**34**	0	3	1	2	0	**6**	0	4	33	12	0	**49**	0	**97**
5:45PM	7	3	1	0	**11**	0	2	28	5	0	**35**	0	2	0	0	0	**2**	0	3	27	20	0	**50**	0	**98**
Hourly Total	20	10	6	0	**36**	0	12	135	11	0	**158**	0	9	2	7	0	**18**	0	12	148	66	0	**226**	3	**438**
Total	152	33	92	2	**279**	0	85	1122	101	0	**1308**	0	133	17	48	0	**198**	27	55	1073	275	0	**1403**	32	**3188**
% Approach	54.5%	11.8%	33.0%	0.7%	**-**	-	6.5%	85.8%	7.7%	0%	**-**	-	67.2%	8.6%	24.2%	0%	**-**	-	3.9%	76.5%	19.6%	0%	**-**	-	-
% Total	4.8%	1.0%	2.9%	0.1%	**8.8%**	-	2.7%	35.2%	3.2%	0%	**41.0%**	-	4.2%	0.5%	1.5%	0%	**6.2%**	-	1.7%	33.7%	8.6%	0%	**44.0%**	-	-
Motorcycles	0	0	0	0	**0**	-	0	2	1	0	**3**	-	0	0	0	0	**0**	-	1	0	0	0	**1**	-	4
% Motorcycles	0%	0%	0%	0%	**0%**	-	0%	0.2%	1.0%	0%	**0.2%**	-	0%	0%	0%	0%	**0%**	-	1.8%	0%	0%	0%	**0.1%**	-	0.1%
Lights	148	33	92	2	**275**	-	82	1095	100	0	**1277**	-	131	15	46	0	**192**	-	53	1050	270	0	**1373**	-	3117
% Lights	97.4%	100%	100%	100%	**98.6%**	-	96.5%	97.6%	99.0%	0%	**97.6%**	-	98.5%	88.2%	95.8%	0%	**97.0%**	-	96.4%	97.9%	98.2%	0%	**97.9%**	-	97.8%
Single-Unit Trucks	2	0	0	0	**2**	-	3	8	0	0	**11**	-	1	0	0	0	**1**	-	1	7	3	0	**11**	-	25
% Single-Unit Trucks	1.3%	0%	0%	0%	**0.7%**	-	3.5%	0.7%	0%	0%	**0.8%**	-	0.8%	0%	0%	0%	**0.5%**	-	1.8%	0.7%	1.1%	0%	**0.8%**	-	0.8%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Buses	2	0	0	0	**2**	-	0	17	0	0	**17**	-	1	2	2	0	**5**	-	0	16	2	0	**18**	-	42
% Buses	1.3%	0%	0%	0%	**0.7%**	-	0%	1.5%	0%	0%	**1.3%**	-	0.8%	11.8%	4.2%	0%	**2.5%**	-	0%	1.5%	0.7%	0%	**1.3%**	-	1.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	26	-	-	-	-	-	30	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 96.3%	-	-	-	-	-	- 93.8%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7%	-	-	-	-	-	6.3%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EXHIBIT A

Dietz Elkhorn Rd at Elkhorn Ridge/Square Gate - TMC

Thu Mar 7, 2024
Full Length (7 AM-9 AM, 2 PM-6 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163036, Location: 29.731127, -98.661353

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

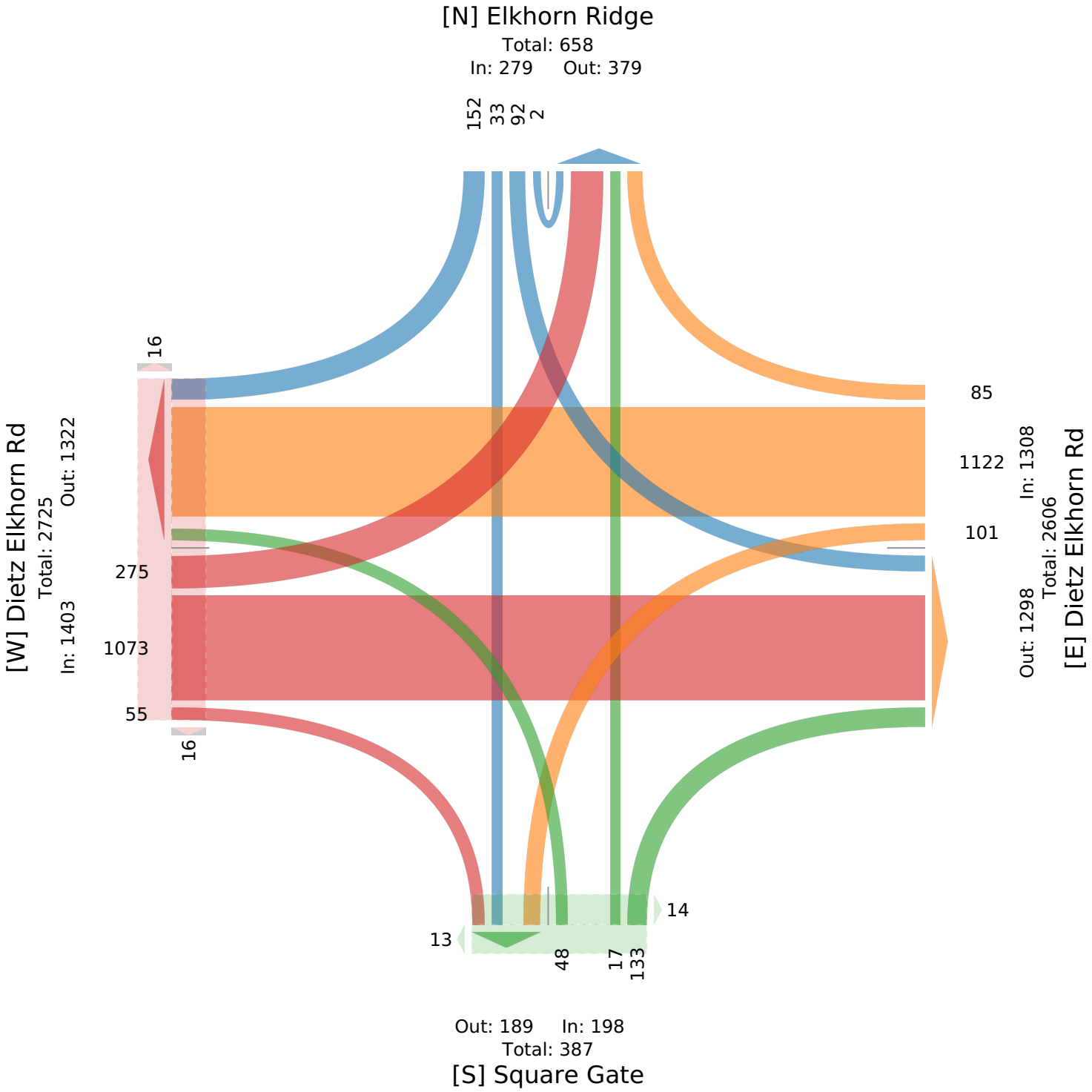

EXHIBIT A

Dietz Elkhorn Rd at Elkhorn Ridge/Square Gate - TMC

Thu Mar 7, 2024
AM Peak (7 AM - 8 AM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163036, Location: 29.731127, -98.661353

Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Leg	Elkhorn Ridge						Dietz Elkhorn Rd						Square Gate						Dietz Elkhorn Rd						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2024-03-07 7:00AM	8	0	7	0	**15**	0	4	54	7	0	**65**	0	20	0	1	0	**21**	0	0	74	5	0	**79**	0	**180**
7:15AM	8	0	21	0	**29**	0	8	79	14	0	**101**	0	42	0	2	0	**44**	8	2	102	8	0	**112**	8	**286**
7:30AM	6	2	7	0	**15**	0	7	99	16	0	**122**	0	15	1	4	0	**20**	1	2	52	13	0	**67**	1	**224**
7:45AM	8	0	3	0	**11**	0	2	87	0	0	**89**	0	2	1	2	0	**5**	2	1	25	6	0	**32**	2	**137**
Total	30	2	38	0	**70**	0	21	319	37	0	**377**	0	79	2	9	0	**90**	11	5	253	32	0	**290**	11	**827**
% Approach	42.9%	2.9%	54.3%	0%	**-**	-	5.6%	84.6%	9.8%	0%	**-**	-	87.8%	2.2%	10.0%	0%	**-**	-	1.7%	87.2%	11.0%	0%	**-**	-	-
% Total	3.6%	0.2%	4.6%	0%	**8.5%**	-	2.5%	38.6%	4.5%	0%	**45.6%**	-	9.6%	0.2%	1.1%	0%	**10.9%**	-	0.6%	30.6%	3.9%	0%	**35.1%**	-	-
PHF	0.938	0.250	0.452	-	**0.603**	-	0.656	0.806	0.578	-	**0.773**	-	0.470	0.500	0.563	-	**0.511**	-	0.625	0.620	0.615	-	**0.647**	-	0.723
Motorcycles	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Motorcycles	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Lights	29	2	38	0	**69**	-	20	314	37	0	**371**	-	77	1	8	0	**86**	-	5	247	30	0	**282**	-	808
% Lights	96.7%	100%	100%	0%	**98.6%**	-	95.2%	98.4%	100%	0%	**98.4%**	-	97.5%	50.0%	88.9%	0%	**95.6%**	-	100%	97.6%	93.8%	0%	**97.2%**	-	97.7%
Single-Unit Trucks	1	0	0	0	**1**	-	1	0	0	0	**1**	-	1	0	0	0	**1**	-	0	1	1	0	**2**	-	5
% Single-Unit Trucks	3.3%	0%	0%	0%	**1.4%**	-	4.8%	0%	0%	0%	**0.3%**	-	1.3%	0%	0%	0%	**1.1%**	-	0%	0.4%	3.1%	0%	**0.7%**	-	0.6%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Buses	0	0	0	0	**0**	-	0	5	0	0	**5**	-	1	1	1	0	**3**	-	0	5	1	0	**6**	-	14
% Buses	0%	0%	0%	0%	**0%**	-	0%	1.6%	0%	0%	**1.3%**	-	1.3%	50.0%	11.1%	0%	**3.3%**	-	0%	2.0%	3.1%	0%	**2.1%**	-	1.7%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	10	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90.9%	-	-	-	-	-	90.9%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.1%	-	-	-	-	-	9.1%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EXHIBIT A

Dietz Elkhorn Rd at Elkhorn Ridge/Square Gate - TMC

Thu Mar 7, 2024
AM Peak (7 AM - 8 AM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163036, Location: 29.731127, -98.661353

CJ Hensch & Associates, Inc.
Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

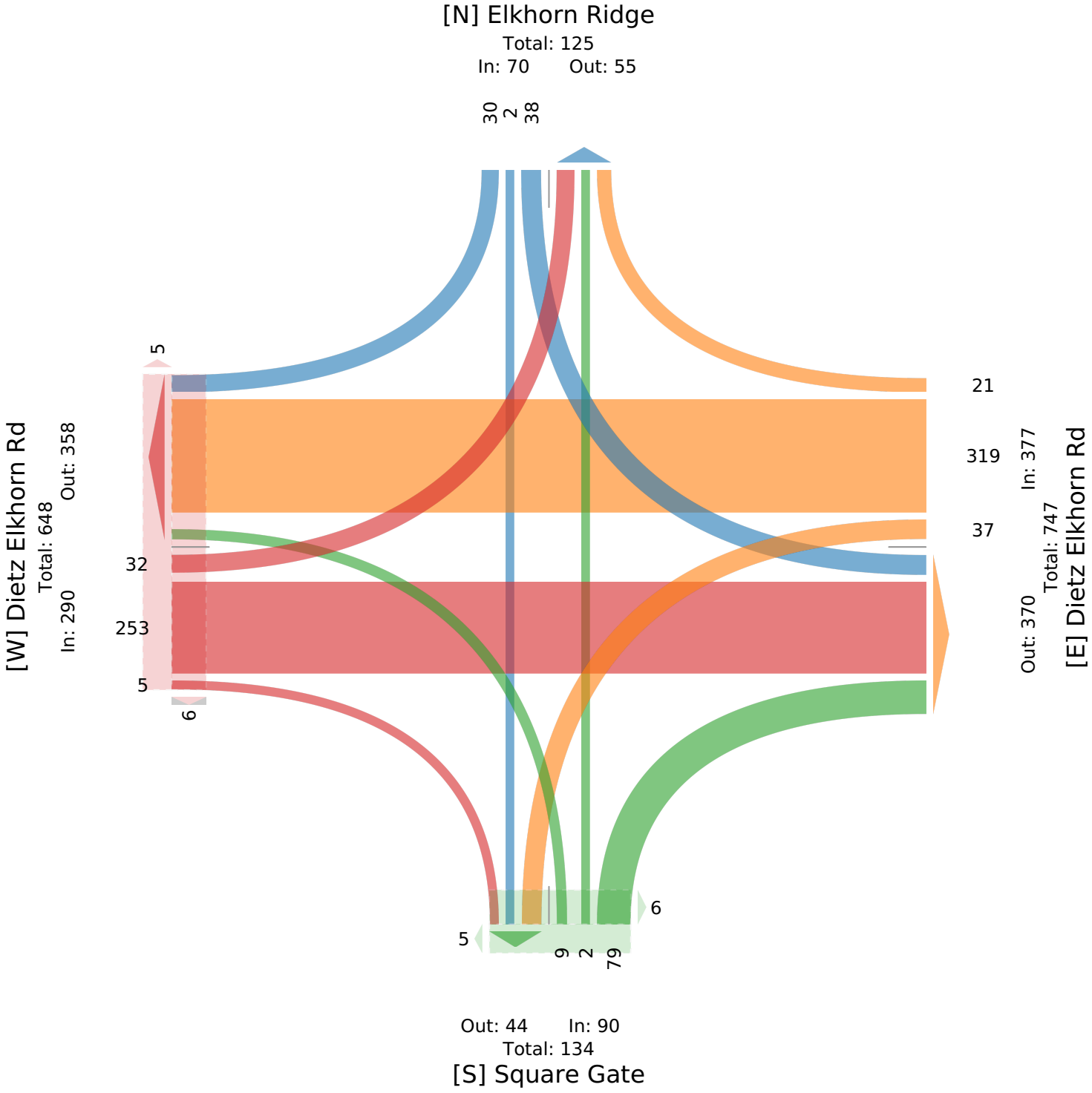

EXHIBIT A

Dietz Elkhorn Rd at Elkhorn Ridge/Square Gate - TMC

Thu Mar 7, 2024
PM Peak (3 PM - 4 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163036, Location: 29.731127, -98.661353

Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Leg	Elkhorn Ridge						Dietz Elkhorn Rd						Square Gate						Dietz Elkhorn Rd						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2024-03-07 3:00PM	7	3	9	1	**20**	0	5	49	10	0	**64**	0	12	4	4	0	**20**	10	5	56	7	0	**68**	10	**172**
3:15PM	3	1	0	0	**4**	0	12	93	9	0	**114**	0	2	1	2	0	**5**	0	1	48	11	0	**60**	0	**183**
3:30PM	8	1	2	0	**11**	0	4	67	6	0	**77**	0	4	1	2	0	**7**	0	0	52	14	0	**66**	0	**161**
3:45PM	10	2	6	0	**18**	0	2	48	5	0	**55**	0	2	1	5	0	**8**	0	3	49	9	0	**61**	0	**142**
Total	28	7	17	1	**53**	0	23	257	30	0	**310**	0	20	7	13	0	**40**	10	9	205	41	0	**255**	10	**658**
% Approach	52.8%	13.2%	32.1%	1.9%	**-**	-	7.4%	82.9%	9.7%	0%	**-**	-	50.0%	17.5%	32.5%	0%	**-**	-	3.5%	80.4%	16.1%	0%	**-**	-	-
% Total	4.3%	1.1%	2.6%	0.2%	**8.1%**	-	3.5%	39.1%	4.6%	0%	**47.1%**	-	3.0%	1.1%	2.0%	0%	**6.1%**	-	1.4%	31.2%	6.2%	0%	**38.8%**	-	-
PHF	0.700	0.583	0.472	0.250	**0.663**	-	0.479	0.691	0.750	-	**0.680**	-	0.417	0.438	0.650	-	**0.500**	-	0.450	0.915	0.732	-	**0.938**	-	0.899
Motorcycles	0	0	0	0	**0**	-	0	0	1	0	**1**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	1
% Motorcycles	0%	0%	0%	0%	**0%**	-	0%	0%	3.3%	0%	**0.3%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.2%
Lights	27	7	17	1	**52**	-	22	249	29	0	**300**	-	20	7	13	0	**40**	-	9	203	39	0	**251**	-	643
% Lights	96.4%	100%	100%	100%	**98.1%**	-	95.7%	96.9%	96.7%	0%	**96.8%**	-	100%	100%	100%	0%	**100%**	-	100%	99.0%	95.1%	0%	**98.4%**	-	97.7%
Single-Unit Trucks	1	0	0	0	**1**	-	1	1	0	0	**2**	-	0	0	0	0	**0**	-	0	0	2	0	**2**	-	5
% Single-Unit Trucks	3.6%	0%	0%	0%	**1.9%**	-	4.3%	0.4%	0%	0%	**0.6%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	4.9%	0%	**0.8%**	-	0.8%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Buses	0	0	0	0	**0**	-	0	7	0	0	**7**	-	0	0	0	0	**0**	-	0	2	0	0	**2**	-	9
% Buses	0%	0%	0%	0%	**0%**	-	0%	2.7%	0%	0%	**2.3%**	-	0%	0%	0%	0%	**0%**	-	0%	1.0%	0%	0%	**0.8%**	-	1.4%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	10	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EXHIBIT A

Dietz Elkhorn Rd at Elkhorn Ridge/Square Gate - TMC

Thu Mar 7, 2024
PM Peak (3 PM - 4 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1163036, Location: 29.731127, -98.661353

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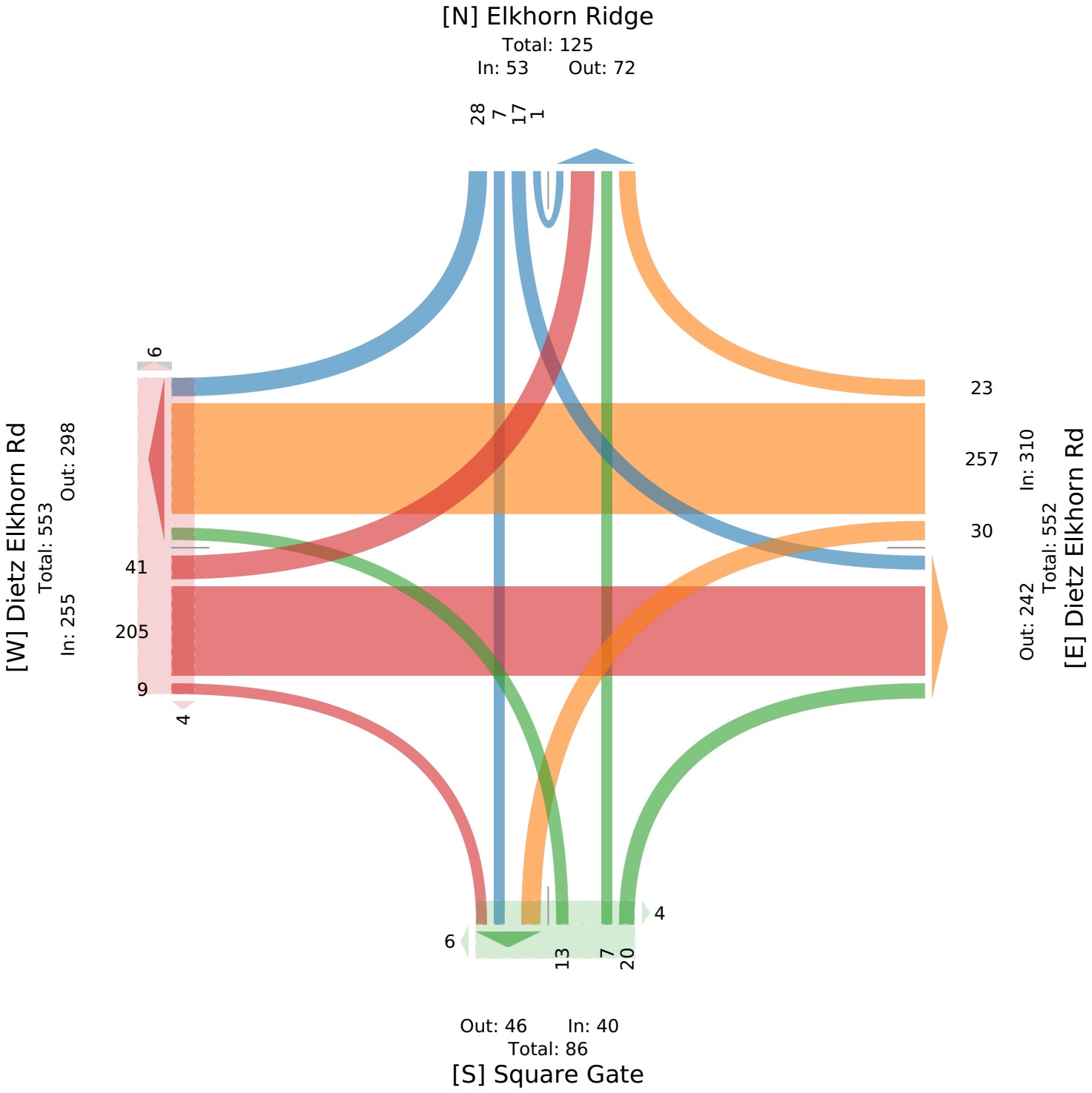

EXHIBIT A

APPENDIX B – SIM TRAFFIC QUEUEING REPORTS

Queuing and Blocking Report
Baseline

05/28/2024

Intersection: 1: Old Fredricksburg Road & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	388	423	195	226
Average Queue (ft)	138	245	99	83
95th Queue (ft)	283	355	169	189
Link Distance (ft)	2014	3576	1634	926
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Square Gate/Elkhorn Ridge & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	1188	712	54	98	53	50
Average Queue (ft)	520	476	11	54	33	16
95th Queue (ft)	1020	780	37	81	52	41
Link Distance (ft)	3576	5918	973	973	1193	1193
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair Oaks Parkway & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	184	190	176	527
Average Queue (ft)	92	98	89	267
95th Queue (ft)	140	164	140	509
Link Distance (ft)	5918	1763	1524	1021
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
Baseline

05/17/2024

Intersection: 1: Old Fredricksburg Road & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	95	562	99	453
Average Queue (ft)	53	231	45	141
95th Queue (ft)	75	409	76	324
Link Distance (ft)	1693	3577	3360	1693
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Square Gate/Elkhorn Ridge & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	180	1184	48	56	50	69
Average Queue (ft)	83	737	16	33	24	22
95th Queue (ft)	136	1271	40	47	46	43
Link Distance (ft)	3577	5914	965	965	1199	1199
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair Oaks Parkway & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	552	143	420	194
Average Queue (ft)	247	65	140	96
95th Queue (ft)	425	111	293	149
Link Distance (ft)	5914	3347	1843	1515
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
Baseline

05/28/2024

Intersection: 1: Old Fredericksburg Road & Dietz Elkhorn Road

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	86	331	93	63	78
Average Queue (ft)	56	145	57	34	40
95th Queue (ft)	77	261	79	56	65
Link Distance (ft)	1607	3574	2216	1455	1455
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Square Gate & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	191	400	53	79	100	55
Average Queue (ft)	88	172	14	33	42	23
95th Queue (ft)	142	312	42	57	73	51
Link Distance (ft)	3574	2057	927	927	632	632
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair oaks Pkwy & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	148	219	197	400
Average Queue (ft)	76	85	81	156
95th Queue (ft)	125	153	138	302
Link Distance (ft)	3802	2119	1617	1758
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Baseline

05/28/2024

Intersection: 4: Noble Lark & Dietz Elkhorn Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	229
Average Queue (ft)	114
95th Queue (ft)	195
Link Distance (ft)	1408
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

EXHIBIT A

Queuing and Blocking Report
Baseline

05/17/2024

Intersection: 1: Old Fredericksburg Road & Dietz Elkhorn Road

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	116	232	90	92	53
Average Queue (ft)	70	128	39	40	29
95th Queue (ft)	107	209	64	67	50
Link Distance (ft)	1647	3575	2363	1495	1495
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Square Gate & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	134	194	54	53	55	54
Average Queue (ft)	71	111	13	28	28	23
95th Queue (ft)	105	173	42	47	54	51
Link Distance (ft)	3575	2057	882	882	741	741
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair oaks Pkwy & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	203	100	266	119
Average Queue (ft)	103	55	111	69
95th Queue (ft)	165	85	212	104
Link Distance (ft)	3802	2124	1736	1966
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Baseline

05/17/2024

Intersection: 4: Noble Lark & Dietz Elkhorn Road

Movement	EB	NB
Directions Served	TR	LR
Maximum Queue (ft)	29	97
Average Queue (ft)	1	40
95th Queue (ft)	10	69
Link Distance (ft)	2057	1314
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

EXHIBIT A

Queuing and Blocking Report
Baseline

05/28/2024

Intersection: 1: Old Fredericksburg Road & Dietz Elkhorn Road

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	240	250	199	50	70
Average Queue (ft)	111	147	111	29	39
95th Queue (ft)	185	228	183	53	59
Link Distance (ft)	1607	3574	2216	1455	1455
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Square Gate & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	262	283	54	53	75	52
Average Queue (ft)	128	160	16	34	37	20
95th Queue (ft)	207	258	44	52	62	46
Link Distance (ft)	3574	2063	927	927	632	632
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair oaks Pkwy & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	190	142	476	406
Average Queue (ft)	93	86	184	194
95th Queue (ft)	144	128	360	352
Link Distance (ft)	3808	2119	1617	1758
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Baseline

05/28/2024

Intersection: 4: Noble Lark & Dietz Elkhorn Road

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

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
Baseline

05/18/2024

Intersection: 1: Old Fredericksburg Road & Dietz Elkhorn Road

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	143	1222	85	72	52
Average Queue (ft)	72	480	38	44	32
95th Queue (ft)	119	926	66	71	51
Link Distance (ft)	1647	3575	2363	1495	1495
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Square Gate & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	135	173	31	56	31	79
Average Queue (ft)	81	97	11	24	30	27
95th Queue (ft)	126	151	34	48	39	51
Link Distance (ft)	3575	2063	882	882	741	741
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair oaks Pkwy & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	233	94	281	203
Average Queue (ft)	112	57	108	73
95th Queue (ft)	183	80	203	129
Link Distance (ft)	3809	2124	1736	1966
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Baseline

05/18/2024

Intersection: 4: Noble Lark & Dietz Elkhorn Road

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

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
Baseline

05/28/2024

Intersection: 1: Old Fredericksburg Road & Dietz Elkhorn Road

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	131	581	89	68	101
Average Queue (ft)	66	230	53	32	52
95th Queue (ft)	104	418	74	59	84
Link Distance (ft)	1607	3574	2216	1455	1455
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Square Gate & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	155	765	53	74	75	52
Average Queue (ft)	82	384	16	34	40	20
95th Queue (ft)	135	709	46	64	61	48
Link Distance (ft)	3574	2069	927	927	632	632
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair oaks Pkwy & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	313	280	224	468
Average Queue (ft)	153	110	91	235
95th Queue (ft)	249	202	163	423
Link Distance (ft)	3802	2119	1617	1758
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Baseline

05/28/2024

Intersection: 4: Noble Lark & Dietz Elkhorn Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	201
Average Queue (ft)	90
95th Queue (ft)	154
Link Distance (ft)	1408
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
Baseline

05/18/2024

Intersection: 1: Old Fredericksburg Road & Dietz Elkhorn Road

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	97	255	66	74	67
Average Queue (ft)	57	99	36	40	29
95th Queue (ft)	86	178	57	62	52
Link Distance (ft)	1647	3575	2363	1495	1495
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Square Gate & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	141	243	31	55	31	79
Average Queue (ft)	81	145	16	27	24	28
95th Queue (ft)	125	214	41	54	45	63
Link Distance (ft)	3575	2069	882	882	741	741
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair oaks Pkwy & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	260	115	187	115
Average Queue (ft)	154	60	99	66
95th Queue (ft)	248	96	154	99
Link Distance (ft)	3802	2124	1736	1966
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Baseline

05/18/2024

Intersection: 4: Noble Lark & Dietz Elkhorn Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	35
95th Queue (ft)	52
Link Distance (ft)	1314
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

EXHIBIT A

APPENDIX C – SYNCHRO OUTPUT REPORTS

SimTraffic Simulation Summary
Baseline

05/16/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded Intervals	4
Vehs Entered	2920
Vehs Exited	2825
Starting Vehs	74
Ending Vehs	169
Travel Distance (mi)	3032
Travel Time (hr)	183.9
Total Delay (hr)	78.4
Total Stops	4099
Fuel Used (gal)	110.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	751
Vehs Exited	665
Starting Vehs	74
Ending Vehs	160
Travel Distance (mi)	721
Travel Time (hr)	34.7
Total Delay (hr)	9.7
Total Stops	1081
Fuel Used (gal)	24.3

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	721
Vehs Exited	699
Starting Vehs	160
Ending Vehs	182
Travel Distance (mi)	739
Travel Time (hr)	40.8
Total Delay (hr)	14.9
Total Stops	1028
Fuel Used (gal)	25.6

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	717
Vehs Exited	727
Starting Vehs	182
Ending Vehs	172
Travel Distance (mi)	786
Travel Time (hr)	51.4
Total Delay (hr)	24.2
Total Stops	987
Fuel Used (gal)	29.7

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	731
Vehs Exited	734
Starting Vehs	172
Ending Vehs	169
Travel Distance (mi)	786
Travel Time (hr)	56.9
Total Delay (hr)	29.5
Total Stops	1003
Fuel Used (gal)	30.5

SimTraffic Performance Report
Baseline

05/16/2024

1: Old Fredricksburg Road & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.3	0.2	0.3	0.3	0.3
Total Delay (hr)	1.1	2.9	1.4	2.7	8.0
Total Del/Veh (s)	10.8	18.3	12.3	38.5	18.3

2: Square Gate/Elkhorn Ridge & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.1	0.2	0.1	0.1
Total Delay (hr)	2.5	2.5	0.4	0.2	5.6
Total Del/Veh (s)	14.2	19.6	7.0	6.6	14.4

3: Fair Oaks Parkway & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	20.0	20.1
Denied Del/Veh (s)	0.0	0.2	0.4	110.4	34.3
Total Delay (hr)	2.5	1.7	3.2	34.3	41.7
Total Del/Veh (s)	13.8	16.8	25.2	213.2	73.1

Total Network Performance

Denied Delay (hr)	20.2
Denied Del/Veh (s)	24.3
Total Delay (hr)	58.2
Total Del/Veh (s)	70.0

SimTraffic Simulation Summary
Baseline

05/16/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded Intervals	4
Vehs Entered	2157
Vehs Exited	2119
Starting Vehs	72
Ending Vehs	110
Travel Distance (mi)	2173
Travel Time (hr)	91.3
Total Delay (hr)	16.3
Total Stops	3512
Fuel Used (gal)	71.2

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	531
Vehs Exited	513
Starting Vehs	72
Ending Vehs	90
Travel Distance (mi)	520
Travel Time (hr)	21.6
Total Delay (hr)	3.6
Total Stops	848
Fuel Used (gal)	17.1

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	536
Vehs Exited	524
Starting Vehs	90
Ending Vehs	102
Travel Distance (mi)	544
Travel Time (hr)	22.8
Total Delay (hr)	4.1
Total Stops	879
Fuel Used (gal)	17.9

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	517
Vehs Exited	538
Starting Vehs	102
Ending Vehs	81
Travel Distance (mi)	539
Travel Time (hr)	22.8
Total Delay (hr)	4.2
Total Stops	869
Fuel Used (gal)	17.7

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	573
Vehs Exited	544
Starting Vehs	81
Ending Vehs	110
Travel Distance (mi)	571
Travel Time (hr)	24.1
Total Delay (hr)	4.5
Total Stops	916
Fuel Used (gal)	18.5

SimTraffic Performance Report
Baseline

05/16/2024

1: Old Fredricksburg Road & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.2	0.1	0.3	0.3	0.2
Total Delay (hr)	0.6	3.1	0.3	1.3	5.2
Total Del/Veh (s)	9.4	20.5	6.9	17.6	16.2

2: Square Gate/Elkhorn Ridge & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.2	0.1	0.1	0.1
Total Delay (hr)	1.3	1.9	0.1	0.1	3.5
Total Del/Veh (s)	11.8	14.4	5.0	5.4	11.9

3: Fair Oaks Parkway & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.2	0.4	0.3	0.2
Total Delay (hr)	2.5	0.5	1.6	1.2	5.8
Total Del/Veh (s)	22.5	9.0	13.5	11.0	14.7

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.3
Total Delay (hr)	16.2
Total Del/Veh (s)	26.1

SimTraffic Simulation Summary
Baseline

05/17/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded Intervals	4
Vehs Entered	2813
Vehs Exited	2768
Starting Vehs	45
Ending Vehs	90
Travel Distance (mi)	2086
Travel Time (hr)	146.6
Total Delay (hr)	73.5
Total Stops	3419
Fuel Used (gal)	83.8

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	725
Vehs Exited	659
Starting Vehs	45
Ending Vehs	111
Travel Distance (mi)	500
Travel Time (hr)	24.1
Total Delay (hr)	6.6
Total Stops	929
Fuel Used (gal)	17.5

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	708
Vehs Exited	708
Starting Vehs	111
Ending Vehs	111
Travel Distance (mi)	536
Travel Time (hr)	33.1
Total Delay (hr)	14.2
Total Stops	848
Fuel Used (gal)	20.4

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	692
Vehs Exited	703
Starting Vehs	111
Ending Vehs	100
Travel Distance (mi)	513
Travel Time (hr)	41.1
Total Delay (hr)	23.2
Total Stops	812
Fuel Used (gal)	21.9

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	688
Vehs Exited	698
Starting Vehs	100
Ending Vehs	90
Travel Distance (mi)	538
Travel Time (hr)	48.2
Total Delay (hr)	29.6
Total Stops	830
Fuel Used (gal)	24.0

1: Old Fredericksburg Road & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2
Total Delay (hr)	0.7	3.4	0.6	0.5	5.1
Total Del/Veh (s)	11.1	23.9	8.0	6.7	14.8

2: Square Gate & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.2	0.1	0.0
Total Delay (hr)	1.0	1.1	0.1	0.2	2.4
Total Del/Veh (s)	9.3	8.0	4.5	6.0	8.0

3: Fair oaks Pkwy & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	41.3	41.4
Denied Del/Veh (s)	0.0	0.3	0.3	208.7	89.0
Total Delay (hr)	0.8	2.4	1.2	17.1	21.5
Total Del/Veh (s)	14.5	20.8	11.5	100.8	48.9

4: Noble Lark & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.3	0.1
Total Delay (hr)	0.6	0.3	0.9	1.7
Total Del/Veh (s)	4.3	3.5	11.8	6.0

Total Network Performance

Denied Delay (hr)	41.5
Denied Del/Veh (s)	51.2
Total Delay (hr)	32.0
Total Del/Veh (s)	40.3

SimTraffic Simulation Summary
Baseline

05/17/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded Intervals	4
Vehs Entered	2256
Vehs Exited	2219
Starting Vehs	42
Ending Vehs	79
Travel Distance (mi)	1840
Travel Time (hr)	75.8
Total Delay (hr)	11.3
Total Stops	3059
Fuel Used (gal)	61.0

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	579
Vehs Exited	542
Starting Vehs	42
Ending Vehs	79
Travel Distance (mi)	470
Travel Time (hr)	19.4
Total Delay (hr)	3.0
Total Stops	775
Fuel Used (gal)	15.7

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	537
Vehs Exited	539
Starting Vehs	79
Ending Vehs	77
Travel Distance (mi)	432
Travel Time (hr)	17.7
Total Delay (hr)	2.5
Total Stops	724
Fuel Used (gal)	14.1

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	560
Vehs Exited	584
Starting Vehs	77
Ending Vehs	53
Travel Distance (mi)	484
Travel Time (hr)	20.2
Total Delay (hr)	3.2
Total Stops	799
Fuel Used (gal)	15.9

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	580
Vehs Exited	554
Starting Vehs	53
Ending Vehs	79
Travel Distance (mi)	454
Travel Time (hr)	18.5
Total Delay (hr)	2.6
Total Stops	761
Fuel Used (gal)	15.2

SimTraffic Performance Report
Baseline

05/17/2024

1: Old Fredericksburg Road & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.2	0.2	0.2
Total Delay (hr)	0.7	2.0	0.2	0.5	3.3
Total Del/Veh (s)	10.3	18.4	6.0	6.5	11.9

2: Square Gate & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.1	0.1	0.1	0.1
Total Delay (hr)	1.0	0.9	0.1	0.2	2.1
Total Del/Veh (s)	10.1	9.9	5.0	5.1	8.9

3: Fair oaks Pkwy & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.2	0.3	0.3	0.2
Total Delay (hr)	1.0	0.5	1.3	0.8	3.6
Total Del/Veh (s)	12.3	7.6	11.6	8.6	10.2

4: Noble Lark & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.0	0.1	0.2
Total Delay (hr)	0.8	0.2	0.1	1.1
Total Del/Veh (s)	4.5	3.8	7.4	4.5

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.3
Total Delay (hr)	11.1
Total Del/Veh (s)	17.5

SimTraffic Simulation Summary
Baseline

05/17/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded Intervals	4
Vehs Entered	2174
Vehs Exited	2142
Starting Vehs	59
Ending Vehs	91
Travel Distance (mi)	1776
Travel Time (hr)	72.8
Total Delay (hr)	10.5
Total Stops	3030
Fuel Used (gal)	58.7

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	577
Vehs Exited	557
Starting Vehs	59
Ending Vehs	79
Travel Distance (mi)	464
Travel Time (hr)	19.0
Total Delay (hr)	2.8
Total Stops	799
Fuel Used (gal)	15.3

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	519
Vehs Exited	537
Starting Vehs	79
Ending Vehs	61
Travel Distance (mi)	415
Travel Time (hr)	16.9
Total Delay (hr)	2.2
Total Stops	704
Fuel Used (gal)	13.8

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	512
Vehs Exited	511
Starting Vehs	61
Ending Vehs	62
Travel Distance (mi)	429
Travel Time (hr)	17.3
Total Delay (hr)	2.3
Total Stops	728
Fuel Used (gal)	13.9

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	566
Vehs Exited	537
Starting Vehs	62
Ending Vehs	91
Travel Distance (mi)	468
Travel Time (hr)	19.5
Total Delay (hr)	3.2
Total Stops	799
Fuel Used (gal)	15.6

SimTraffic Performance Report
Baseline

05/17/2024

1: Old Fredericksburg Road & Diets Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.2	0.2	0.1
Total Delay (hr)	0.5	1.4	0.3	0.5	2.7
Total Del/Veh (s)	8.0	13.9	6.4	6.6	9.5

2: Square Gate & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.2	0.1	0.1	0.1
Total Delay (hr)	1.1	0.7	0.1	0.1	2.0
Total Del/Veh (s)	9.8	8.4	5.0	4.7	8.4

3: Fair oaks Pkwy & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.2	0.4	0.3	0.3
Total Delay (hr)	0.9	0.4	1.9	1.0	4.2
Total Del/Veh (s)	12.3	7.0	13.9	10.3	11.6

4: Noble Lark & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	All
Denied Delay (hr)	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0
Total Delay (hr)	0.4	0.1	0.6
Total Del/Veh (s)	3.9	2.2	3.3

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.3
Total Delay (hr)	10.3
Total Del/Veh (s)	16.6

SimTraffic Simulation Summary
Baseline

05/17/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded Intervals	4
Vehs Entered	2982
Vehs Exited	2903
Starting Vehs	54
Ending Vehs	133
Travel Distance (mi)	2384
Travel Time (hr)	153.2
Total Delay (hr)	69.4
Total Stops	3768
Fuel Used (gal)	91.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	754
Vehs Exited	685
Starting Vehs	54
Ending Vehs	123
Travel Distance (mi)	587
Travel Time (hr)	27.4
Total Delay (hr)	6.8
Total Stops	1052
Fuel Used (gal)	20.1

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	738
Vehs Exited	718
Starting Vehs	123
Ending Vehs	143
Travel Distance (mi)	595
Travel Time (hr)	35.7
Total Delay (hr)	14.6
Total Stops	911
Fuel Used (gal)	21.9

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	721
Vehs Exited	748
Starting Vehs	143
Ending Vehs	116
Travel Distance (mi)	585
Travel Time (hr)	42.7
Total Delay (hr)	22.1
Total Stops	865
Fuel Used (gal)	23.7

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	769
Vehs Exited	752
Starting Vehs	116
Ending Vehs	133
Travel Distance (mi)	617
Travel Time (hr)	47.4
Total Delay (hr)	25.8
Total Stops	940
Fuel Used (gal)	25.5

SimTraffic Performance Report
Baseline

05/17/2024

1: Old Fredericksburg Road & Diets Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.2	0.2	0.4	0.2	0.2
Total Delay (hr)	1.2	2.5	1.5	0.5	5.7
Total Del/Veh (s)	11.8	19.2	14.2	6.9	14.0

2: Square Gate & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.1	0.2	0.2	0.1
Total Delay (hr)	2.1	1.0	0.3	0.2	3.7
Total Del/Veh (s)	12.0	10.0	6.3	6.8	10.1

3: Fair oaks Pkwy & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.1	30.3	30.3
Denied Del/Veh (s)	0.0	0.3	0.5	171.8	61.5
Total Delay (hr)	1.1	1.7	3.2	21.2	27.1
Total Del/Veh (s)	13.0	15.9	23.8	133.4	56.6

4: Noble Lark & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	All
Denied Delay (hr)	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0
Total Delay (hr)	0.9	0.3	1.2
Total Del/Veh (s)	4.8	3.0	4.1

Total Network Performance

Denied Delay (hr)	30.5
Denied Del/Veh (s)	36.0
Total Delay (hr)	38.9
Total Del/Veh (s)	46.1

SimTraffic Simulation Summary
Baseline

05/17/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded Intervals	4
Vehs Entered	2175
Vehs Exited	2146
Starting Vehs	44
Ending Vehs	73
Travel Distance (mi)	1955
Travel Time (hr)	80.5
Total Delay (hr)	12.5
Total Stops	3365
Fuel Used (gal)	64.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	526
Vehs Exited	488
Starting Vehs	44
Ending Vehs	82
Travel Distance (mi)	445
Travel Time (hr)	18.3
Total Delay (hr)	2.6
Total Stops	784
Fuel Used (gal)	14.6

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	563
Vehs Exited	568
Starting Vehs	82
Ending Vehs	77
Travel Distance (mi)	511
Travel Time (hr)	21.2
Total Delay (hr)	3.3
Total Stops	876
Fuel Used (gal)	16.7

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	537
Vehs Exited	549
Starting Vehs	77
Ending Vehs	65
Travel Distance (mi)	503
Travel Time (hr)	20.8
Total Delay (hr)	3.5
Total Stops	854
Fuel Used (gal)	16.6

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	549
Vehs Exited	541
Starting Vehs	65
Ending Vehs	73
Travel Distance (mi)	496
Travel Time (hr)	20.2
Total Delay (hr)	3.0
Total Stops	851
Fuel Used (gal)	16.2

SimTraffic Performance Report
Baseline

05/17/2024

1: Old Fredericksburg Road & Diets Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.1	0.2	0.1
Total Delay (hr)	0.7	2.7	0.2	0.5	4.1
Total Del/Veh (s)	10.0	19.6	7.0	7.2	13.4

2: Square Gate & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.2	0.1	0.1	0.1
Total Delay (hr)	1.0	1.3	0.1	0.1	2.5
Total Del/Veh (s)	9.7	10.4	4.8	5.1	9.2

3: Fair oaks Pkwy & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.1	0.2	0.4	0.3	0.3
Total Delay (hr)	1.2	0.4	1.5	0.8	4.0
Total Del/Veh (s)	12.8	7.5	11.9	9.8	11.0

4: Noble Lark & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Delay (hr)	0.2	0.2	0.2	0.6
Total Del/Veh (s)	2.9	3.5	6.8	3.7

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.3
Total Delay (hr)	12.3
Total Del/Veh (s)	19.9

SimTraffic Simulation Summary
Baseline

05/17/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded Intervals	4
Vehs Entered	2928
Vehs Exited	2851
Starting Vehs	47
Ending Vehs	124
Travel Distance (mi)	2209
Travel Time (hr)	117.5
Total Delay (hr)	39.8
Total Stops	4010
Fuel Used (gal)	79.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	765
Vehs Exited	689
Starting Vehs	47
Ending Vehs	123
Travel Distance (mi)	551
Travel Time (hr)	25.2
Total Delay (hr)	5.9
Total Stops	1109
Fuel Used (gal)	19.0

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	742
Vehs Exited	749
Starting Vehs	123
Ending Vehs	116
Travel Distance (mi)	569
Travel Time (hr)	30.2
Total Delay (hr)	10.2
Total Stops	1052
Fuel Used (gal)	20.2

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	711
Vehs Exited	719
Starting Vehs	116
Ending Vehs	108
Travel Distance (mi)	559
Travel Time (hr)	31.7
Total Delay (hr)	12.1
Total Stops	942
Fuel Used (gal)	20.7

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	710
Vehs Exited	694
Starting Vehs	108
Ending Vehs	124
Travel Distance (mi)	531
Travel Time (hr)	30.4
Total Delay (hr)	11.6
Total Stops	907
Fuel Used (gal)	19.7

SimTraffic Performance Report
Baseline

05/17/2024

1: Old Fredericksburg Road & Diets Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.2	0.1	0.2	0.2	0.2
Total Delay (hr)	0.5	3.6	0.5	0.4	5.1
Total Del/Veh (s)	8.4	22.4	7.2	6.3	14.1

2: Square Gate & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	0.9	1.6	0.1	0.2	2.8
Total Del/Veh (s)	9.0	8.5	4.7	5.8	8.2

3: Fair oaks Pkwy & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	3.8	3.9
Denied Del/Veh (s)	0.1	0.4	0.4	21.9	8.5
Total Delay (hr)	1.1	1.4	1.5	20.1	24.1
Total Del/Veh (s)	14.0	14.7	13.8	115.7	52.9

4: Noble Lark & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.4	0.2
Total Delay (hr)	0.2	0.3	1.9	2.4
Total Del/Veh (s)	2.4	3.9	15.2	8.1

Total Network Performance

Denied Delay (hr)	4.0
Denied Del/Veh (s)	4.9
Total Delay (hr)	35.8
Total Del/Veh (s)	43.4

SimTraffic Simulation Summary
Baseline

06/09/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	70
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	3324
Vehs Exited	3196
Starting Vehs	0
Ending Vehs	128
Travel Distance (mi)	2608
Travel Time (hr)	160.7
Total Delay (hr)	69.2
Total Stops	4318
Fuel Used (gal)	98.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

Vehs Entered	309
Vehs Exited	240
Starting Vehs	0
Ending Vehs	69
Travel Distance (mi)	239
Travel Time (hr)	9.6
Total Delay (hr)	1.3
Total Stops	431
Fuel Used (gal)	7.8

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	782
Vehs Exited	705
Starting Vehs	69
Ending Vehs	146
Travel Distance (mi)	589
Travel Time (hr)	30.0
Total Delay (hr)	9.4
Total Stops	1069
Fuel Used (gal)	20.8

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	771
Vehs Exited	786
Starting Vehs	146
Ending Vehs	131
Travel Distance (mi)	627
Travel Time (hr)	39.4
Total Delay (hr)	17.3
Total Stops	983
Fuel Used (gal)	23.6

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	717
Vehs Exited	734
Starting Vehs	131
Ending Vehs	114
Travel Distance (mi)	563
Travel Time (hr)	37.0
Total Delay (hr)	17.2
Total Stops	894
Fuel Used (gal)	21.9

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	745
Vehs Exited	731
Starting Vehs	114
Ending Vehs	128
Travel Distance (mi)	589
Travel Time (hr)	44.7
Total Delay (hr)	24.0
Total Stops	941
Fuel Used (gal)	24.0

SimTraffic Performance Report
Baseline

06/09/2024

1: Old Fredericksburg Road & Diets Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.3	0.1	0.3	0.1	0.2
Total Delay (hr)	1.7	3.4	1.6	0.5	7.1
Total Del/Veh (s)	15.6	21.6	14.6	7.0	16.0

2: Square Gate & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.2	0.2	0.1	0.1
Total Delay (hr)	2.6	2.4	0.4	0.3	5.7
Total Del/Veh (s)	14.1	16.0	6.8	8.1	13.2

3: Fair oaks Pkwy & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.1	24.3	24.4
Denied Del/Veh (s)	0.1	0.3	0.4	120.7	46.3
Total Delay (hr)	1.3	1.5	2.8	24.0	29.6
Total Del/Veh (s)	14.1	14.1	21.5	129.3	57.8

4: Noble Lark & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Delay (hr)	0.5	0.5	0.0	1.0
Total Del/Veh (s)	2.5	4.3	3.4	3.2

Total Network Performance

Denied Delay (hr)	24.6
Denied Del/Veh (s)	26.2
Total Delay (hr)	44.7
Total Del/Veh (s)	48.4

Queuing and Blocking Report
Baseline

06/09/2024

Intersection: 1: Old Fredericksburg Road & Diets Elkhorn Road

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	190	247	265	50	100
Average Queue (ft)	87	108	85	30	44
95th Queue (ft)	170	201	163	48	77
Link Distance (ft)	1590	3575	1110	862	862
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Square Gate & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	239	341	50	98	112	31
Average Queue (ft)	87	111	15	47	34	25
95th Queue (ft)	164	219	44	76	66	44
Link Distance (ft)	3575	2074	989	989	697	697
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair oaks Pkwy & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	153	143	392	764
Average Queue (ft)	79	80	118	566
95th Queue (ft)	135	133	254	989
Link Distance (ft)	3799	998	787	701
Upstream Blk Time (%)				69
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Baseline

06/09/2024

Intersection: 4: Noble Lark & Dietz Elkhorn Road

Movement	NB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	18
95th Queue (ft)	41
Link Distance (ft)	630
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

SimTraffic Simulation Summary
Baseline

06/04/2024

Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded Intervals	4
Vehs Entered	2207
Vehs Exited	2167
Starting Vehs	53
Ending Vehs	93
Travel Distance (mi)	1948
Travel Time (hr)	80.4
Total Delay (hr)	12.6
Total Stops	3305
Fuel Used (gal)	63.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	546
Vehs Exited	520
Starting Vehs	53
Ending Vehs	79
Travel Distance (mi)	475
Travel Time (hr)	19.5
Total Delay (hr)	3.0
Total Stops	801
Fuel Used (gal)	15.5

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	556
Vehs Exited	541
Starting Vehs	79
Ending Vehs	94
Travel Distance (mi)	500
Travel Time (hr)	20.6
Total Delay (hr)	3.2
Total Stops	845
Fuel Used (gal)	16.3

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	548
Vehs Exited	574
Starting Vehs	94
Ending Vehs	68
Travel Distance (mi)	494
Travel Time (hr)	20.5
Total Delay (hr)	3.3
Total Stops	846
Fuel Used (gal)	16.3

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Vehs Entered	557
Vehs Exited	532
Starting Vehs	68
Ending Vehs	93
Travel Distance (mi)	478
Travel Time (hr)	19.8
Total Delay (hr)	3.1
Total Stops	813
Fuel Used (gal)	15.5

SimTraffic Performance Report
Baseline

06/04/2024

1: Old Fredericksburg Road & Diets Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.2	0.2	0.1
Total Delay (hr)	0.6	2.7	0.3	0.5	4.1
Total Del/Veh (s)	9.4	19.4	7.8	7.5	13.2

2: Square Gate & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.3	0.1	0.1	0.2
Total Delay (hr)	0.9	1.2	0.1	0.1	2.4
Total Del/Veh (s)	9.3	10.2	4.8	4.7	9.0

3: Fair oaks Pkwy & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.2	0.4	0.4	0.3
Total Delay (hr)	1.1	0.6	1.7	0.9	4.3
Total Del/Veh (s)	12.8	8.4	13.0	10.0	11.4

4: Noble Lark & Dietz Elkhorn Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Delay (hr)	0.2	0.2	0.0	0.4
Total Del/Veh (s)	2.9	3.5	2.2	3.1

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.3
Total Delay (hr)	12.4
Total Del/Veh (s)	19.7

Queuing and Blocking Report
Baseline

06/04/2024

Intersection: 1: Old Fredericksburg Road & Diets Elkhorn Road

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	93	194	91	119	52
Average Queue (ft)	55	109	42	43	30
95th Queue (ft)	80	173	69	77	50
Link Distance (ft)	1575	3574	1240	1132	1132
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Square Gate & Dietz Elkhorn Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	LT	R
Maximum Queue (ft)	109	128	53	52	54	55
Average Queue (ft)	51	77	16	24	28	24
95th Queue (ft)	79	109	44	48	46	47
Link Distance (ft)	3574	2073	1026	1026	881	881
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Fair oaks Pkwy & Dietz Elkhorn Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	137	136	245	132
Average Queue (ft)	79	60	97	69
95th Queue (ft)	109	98	167	106
Link Distance (ft)	3799	1344	931	929
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Baseline

06/04/2024

Intersection: 4: Noble Lark & Dietz Elkhorn Road

Movement	NB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	12
95th Queue (ft)	35
Link Distance (ft)	716
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

EXHIBIT A

APPENDIX D – EXISTING LOS RESULTS 2021 FAIR OAKS PARKWAY & DIETZ ELKHORN ROAD

EXHIBIT A

Dietz Elkhorn & Fair Oaks	Intersection Analysis									
	Northbound Fair Oaks		Southbound Fair Oaks		Eastbound Dietz Elkhorn		Westbound Dietz Elkhorn		Intersection Average	
	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS
2021 AM Peak Period										
Existing	9.0	A	9.9	A	8.8	A	9.3	A	9.4	A
Rounabout	5.1	A	6.5	A	5.1	A	5.0	A	5.6	A
2026 AM Peak Period										
Existing	12.6	B	17.1	C	11.0	B	12.5	B	14.3	B
Rounabout	6.5	A	10.0	B	6.7	A	6.7	A	8.0	A
2031 AM Peak Period										
Existing	56.7	F	232.6	F	20.8	C	34.9	D	121.5	F
Rounabout	10.1	B	31.7	D	11.2	B	11.0	B	19.4	C
2021 PM Peak Period										
Existing	12.1	B	10.3	B	9.9	A	10.0	A	11.0	B
Rounabout	7.6	A	5.8	A	5.6	A	6.2	A	6.6	A
2026 PM Peak Period										
Existing	54.6	F	21.2	C	15.6	C	16.3	C	33.9	D
Rounabout	13.7	B	8.2	A	8.0	A	9.6	A	10.8	B
2031 PM Peak Period										
Existing	545.9	F	206.3	F	51.5	F	61.7	F	306.0	F
Rounabout	101.6	F	16.6	C	16.6	C	27.1	D	54.7	F

EXHIBIT A

APPENDIX E – RIGHT-OUT AUTOTURN EXHIBIT DISPLAYING TURNAROUND MOVEMENT

EXHIBIT A

LEGACY
ENGINEERING GROUP

Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste 830, San Antonio, Texas 78230
210.660.1960 / TBPE Firm Registration No. 20623

Noble Lark Traffic Study

Dietz Elkhorn Road & Noble Lark Drive

Proposed Option #5 (Right-Out Only)

Legend

Raised Concrete Median

N

DATE:
6/10/2024
SCALE:
1" = 25'

PAGE: