

Traffic Impact Study

To: Bill Guman, William Guman and Associates, LTD

From: Eli Farney, PE, PTOE

Date: July 23, 2024

BOCES Campus

El Paso County, Colorado

Prepared By:



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Executive Summary

JR Engineering (JR) has completed a review of the traffic impacts resulting from the proposed development of the Board of Cooperative Educational Services (BOCES) Campus (Project) in El Paso County, Colorado (County).

The objectives of this Traffic Impact Study (TIS, Study) are:

- Collect Year 2024 existing traffic count data at nearby intersections.
- Estimate site-generated traffic and route trips onto adjacent streets.
- Perform traffic operations analysis for Year 2029 Opening Day and 2045 Future Year scenarios.
- Make recommendations for roadway improvements to accommodate new traffic.

The methodology, content, and findings of this TIS are consistent with the following document:

- *El Paso County Engineering Criteria Manual*, Appendix B: Transportation Impact Study Guidelines

Key Findings of this TIS

- **Levels of Service:** 2024 Existing condition levels of service are LOS B or better. In the 2029 Opening Day condition, all movements are expected to operate at LOS B or better with total traffic volumes. In the 2045 Future Year condition, all movements are expected to operate at LOS C or better with total traffic.
- **Queue Lengths:** Queuing is expected to be minimal at each intersection as a result of low traffic volumes in the vicinity of the Project. No operational concerns with queue lengths are anticipated.
- **Recommendations:** JR recommends adding both left and right turn lanes at each of the Study intersections to accommodate turning traffic by 2029 Opening Day. These turn lanes are not triggered solely by the BOCES Campus site, but along with the surrounding background developments.

Introduction

JR has completed a review of the existing and forecasted traffic operations in the vicinity of the BOCES Campus. A vicinity map is included in **Figure 1**.

Proposed Land Use

The development is anticipated to contain a vocational training educational campus for teenagers, including vocations such as medical training, law enforcement training, and horticulture training. Part of the campus is expected to include workforce homes that will house staff, though students will commute to the school by car or bus. An on-site water treatment facility is also expected. For the purpose of estimating site-generated traffic volumes using ITE *Trip Generation Manual*, 11th Edition, the following land uses were assumed:

- Affordable Housing (ITE 223) – 121 dwelling units
- High School (ITE 525) – 500 students

A site plan is included in **Appendix A**.

Study Intersections

Three intersections were analyzed in this Study:

1. Judge Orr Road & Elbert Road
2. West Access & Elbert Road
3. South Access & Judge Orr Road

Proposed Roadway Improvements

The following improvements are proposed in order to accommodate forecasted traffic volumes:

- Add left and right turn lanes at the Study intersections
 - Based on El Paso County criteria for required turn lanes

Proposed lane geometry and intersection control are shown in **Figure 4**.

Judge Orr Road Classification

Judge Orr Road is classified as a Rural Four-Lane Minor Arterial roadway in the El Paso County *2040 Major Transportation Corridors Plan* (MTCP).

As part of the *Saddlehorn Ranch Filing No. 2 TIS*, a deviation (by JR Engineering, dated September 4, 2020) was approved for modification to the standard County cross-section of Judge Orr Road. The County does not have a standard cross-section for a Rural Four-Lane Minor Arterial. The approved deviation (included in **Appendix E**) shows an interim Rural Four-Lane Minor Arterial cross-section with an additional eastbound 12-foot travel lane on the south side, adjacent to the Saddlehorn Ranch development. The Saddlehorn Ranch study notes that additional right-of-way (ROW) is required for completion of the full four-lane section.

The BOCES Project will maintain a two-lane section along Judge Orr Road in Year 2029 Opening Day. The Study shows that traffic operations are satisfactory with a two-lane section. Necessary turn lanes will be constructed. It is anticipated that the Project will dedicate ROW to the County to accommodate the ultimate four-lane section. The approved deviation request from the Saddlehorn Ranch study includes 180 feet of ROW for Judge Orr Road, while existing ROW for Judge Orr Road is 60 feet.



Figure 1 - Vicinity Map



1500 750 0 1500



ORIGINAL SCALE: 1" = 1500'

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JR ENGINEERING

Existing Conditions

Existing Land Use

The Project site is currently vacant. The site does not generate trips in the existing condition.

Existing Traffic Volumes

Existing traffic volumes were obtained on Wednesday, February 21, 2024 by All Traffic Data Services at the intersection of Judge Orr Road & Elbert Road. Existing traffic volumes and lane geometry are shown in **Figure 2**. Traffic counts are included in **Appendix B**.

Traffic Volumes and Distribution

Background Traffic Volumes

To determine background traffic volumes, JR considered traffic studies for other known developments in the vicinity of the BOCES Campus, as shown in **Figure 1**. The site-generated trips from the Saddlehorn Ranch and Davis Ranch studies were considered as background traffic beginning in year 2029. The site-generated trips from the Esteban Rodriguez study were considered as background traffic in year 2045, since this development is not anticipated to be complete by 2029.

- *Saddlehorn Ranch Filing No. 2 TIS* by LSC Transportation Consultants, dated April 11, 2023
- *Davis Ranch Subdivision Master TIS* by LSC Transportation Consultants, dated July 7, 2023
- *Esteban Rodriguez Site TIS* by JR Engineering

Additionally, JR applied a 1% annual growth rate to existing traffic volumes to account for other future regional development. Future background traffic volumes are shown in **Figure 5** (2029) and **Figure 7** (2045).

Site-Generated Traffic Volumes

Site-generated traffic volumes were estimated using ITE *Trip Generation Manual*, 11th Edition. The vocational school and workforce housing development is expected to produce the following trips:

- Average Daily Trips: 1,552
- AM Peak Entering Site: 248
- AM Peak Exiting Site: 151
- PM Peak Entering Site: 67
- PM Peak Exiting Site: 59

Trip generation volumes are higher in the AM peak hour, which is typical for a school. Site-generated traffic volumes are shown in **Figure 3**. A trip generation report is included in **Appendix C**.

Distribution of Site-Generated Traffic

Site-generated traffic was routed onto adjacent streets according to a distribution based on existing traffic counts. The distribution is shown in **Figure 3**.

Total Traffic

Total traffic is the sum of background and site-generated traffic. JR forecasted total traffic volumes at the Study intersections in the years 2029 (Opening Day) and 2045 (Future Year). Total traffic volumes are shown in **Figure 6** (2029) and **Figure 8** (2045).

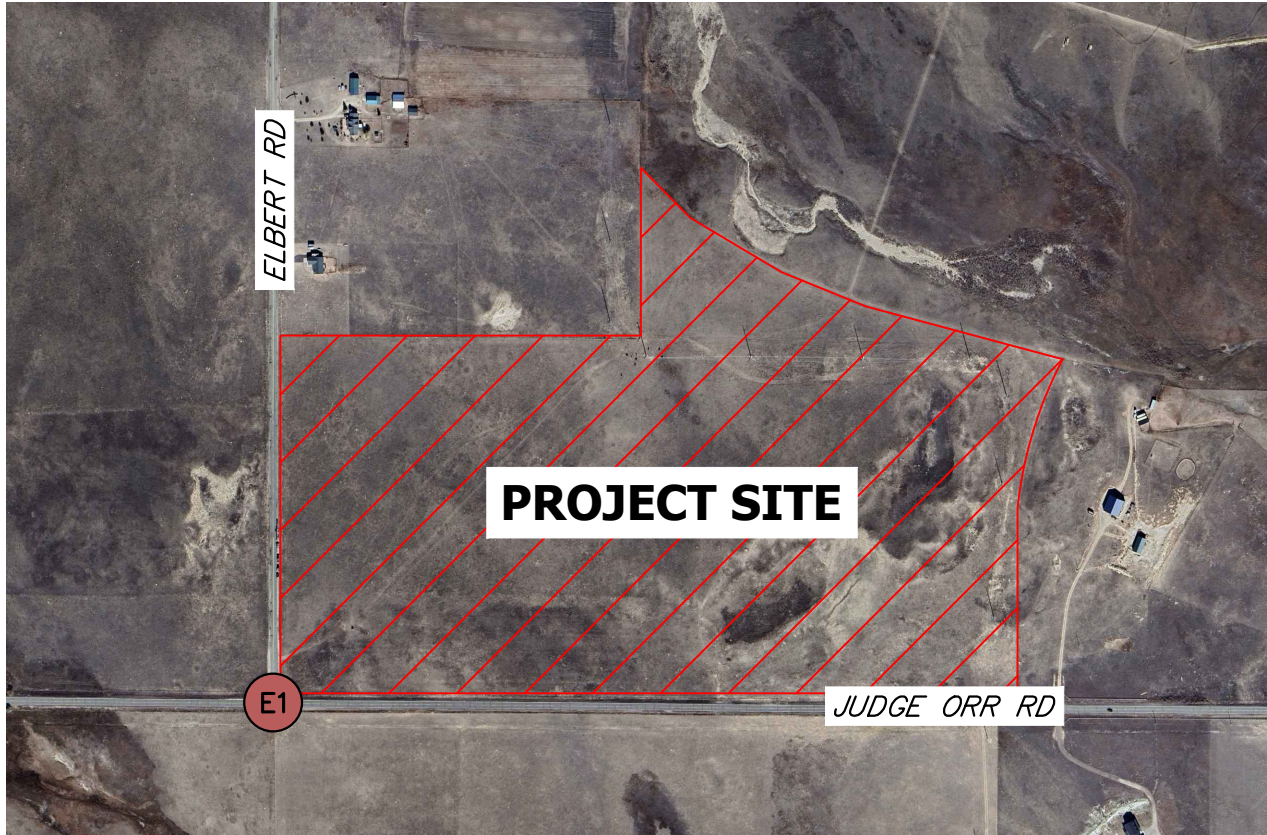
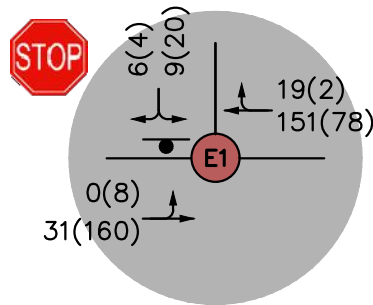


Figure 2 - 2024 Existing Traffic Volumes and Lane Geometry



500 250 0 500

ORIGINAL SCALE: 1" = 500'



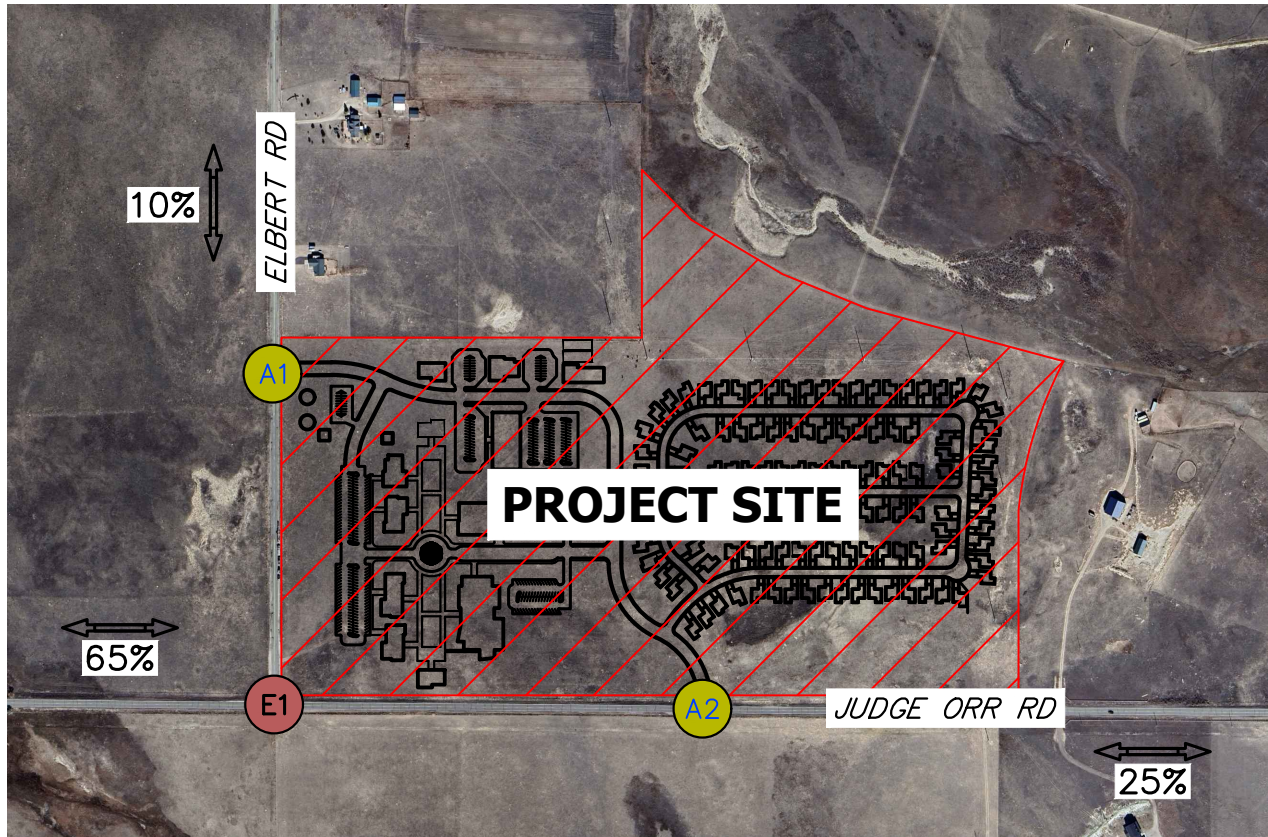
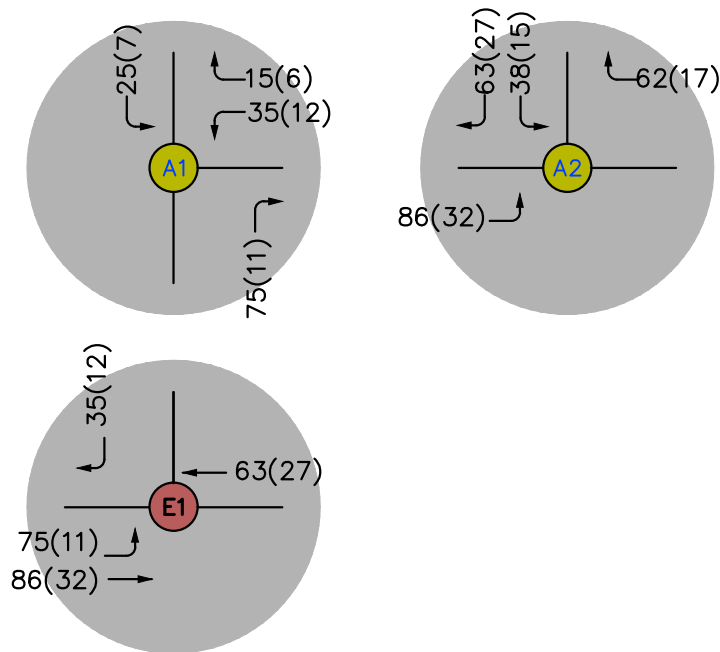


Figure 3 - Site Generated Traffic Volumes and Distribution



500 250 0 500

ORIGINAL SCALE: 1" = 500'



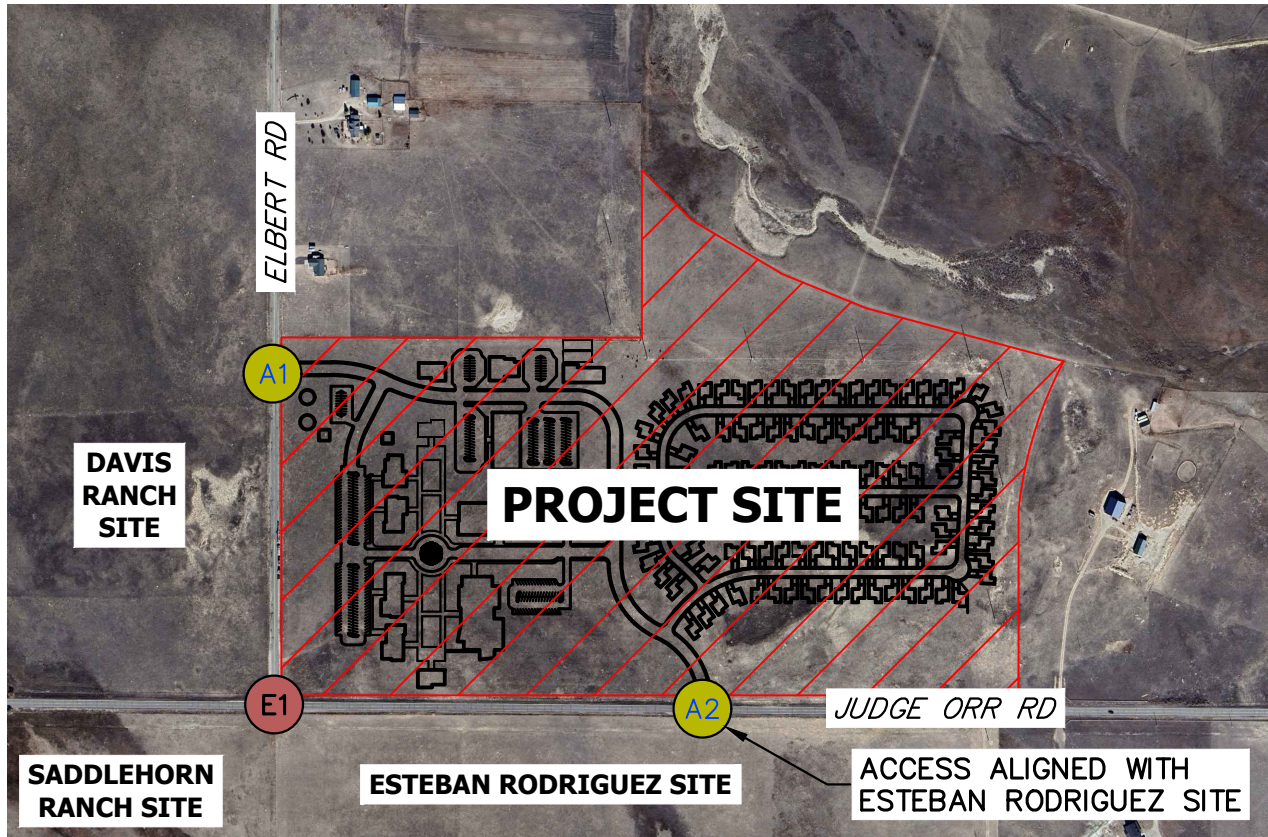
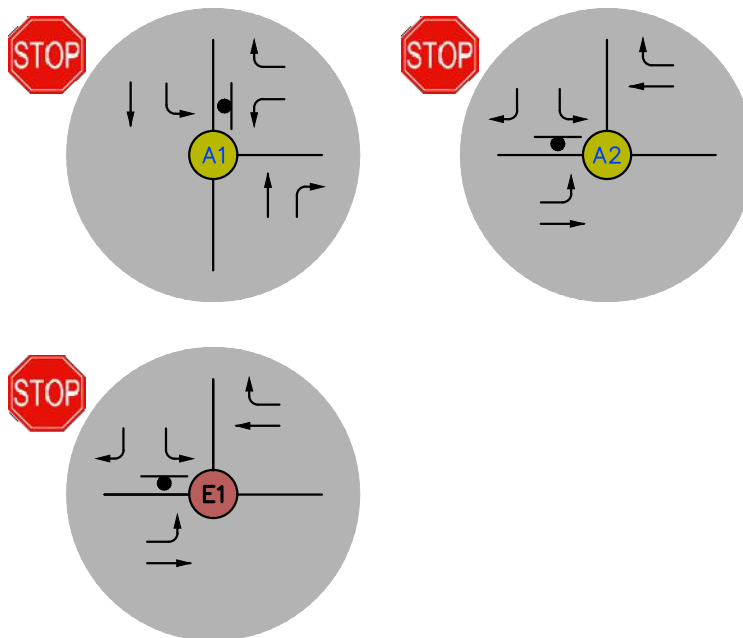


Figure 4 - Proposed Lane Geometry



500 250 0 500

ORIGINAL SCALE: 1" = 500'



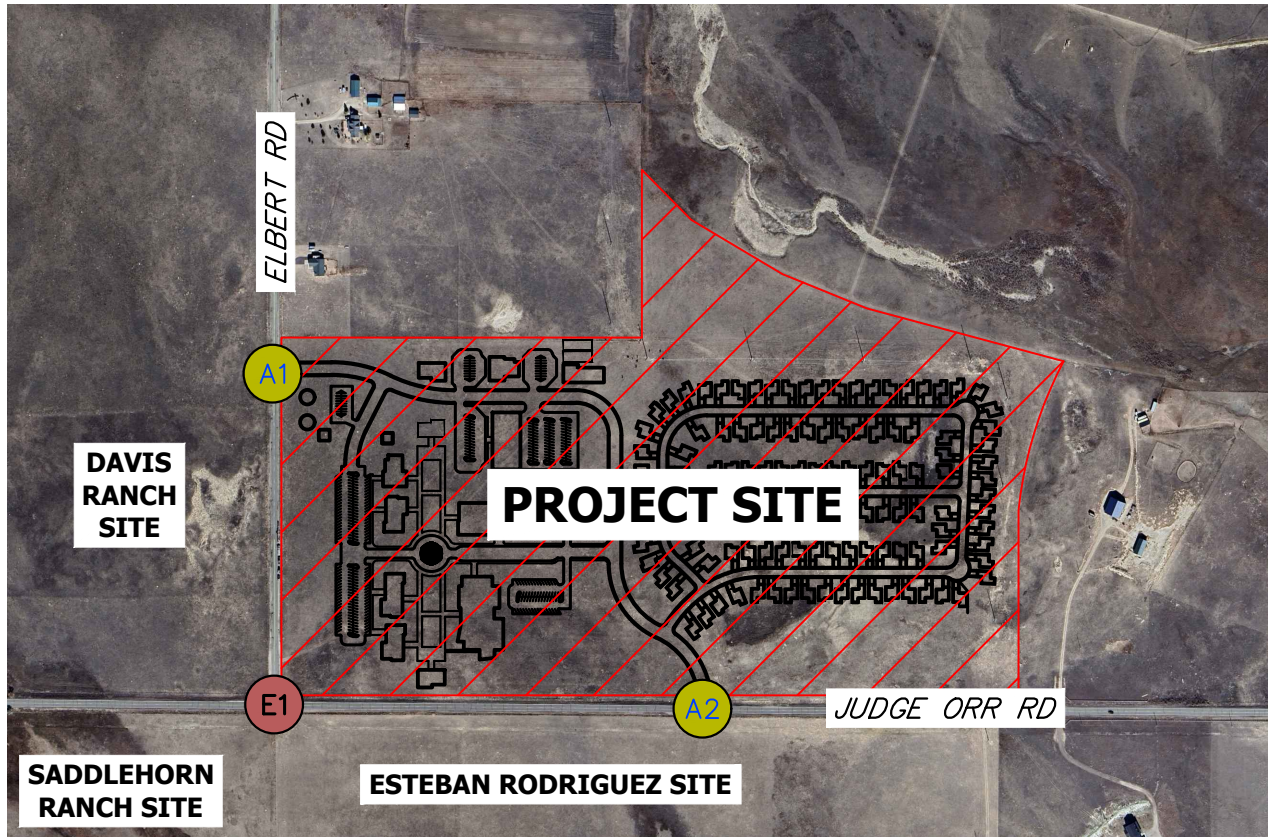
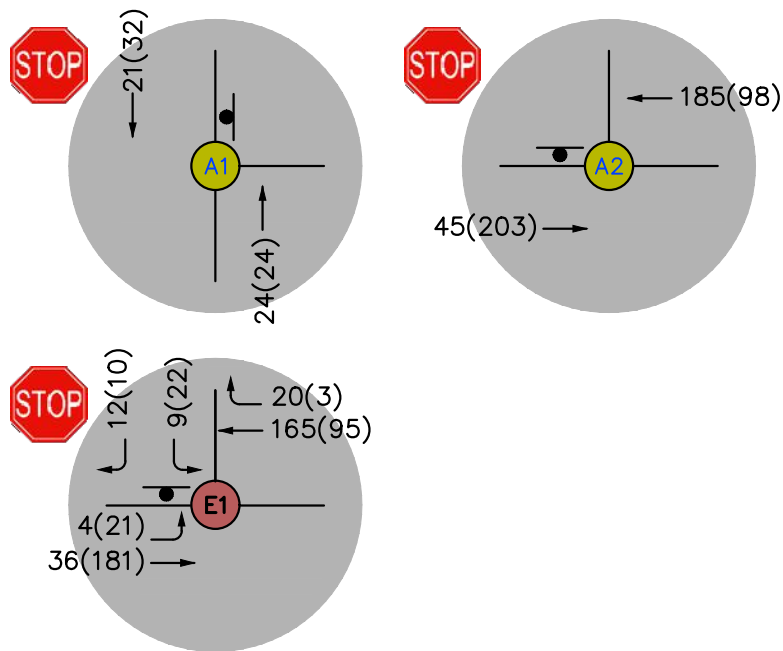


Figure 5 - 2029 Opening Day Background Traffic Volumes



500 250 0 500

ORIGINAL SCALE: 1" = 500'



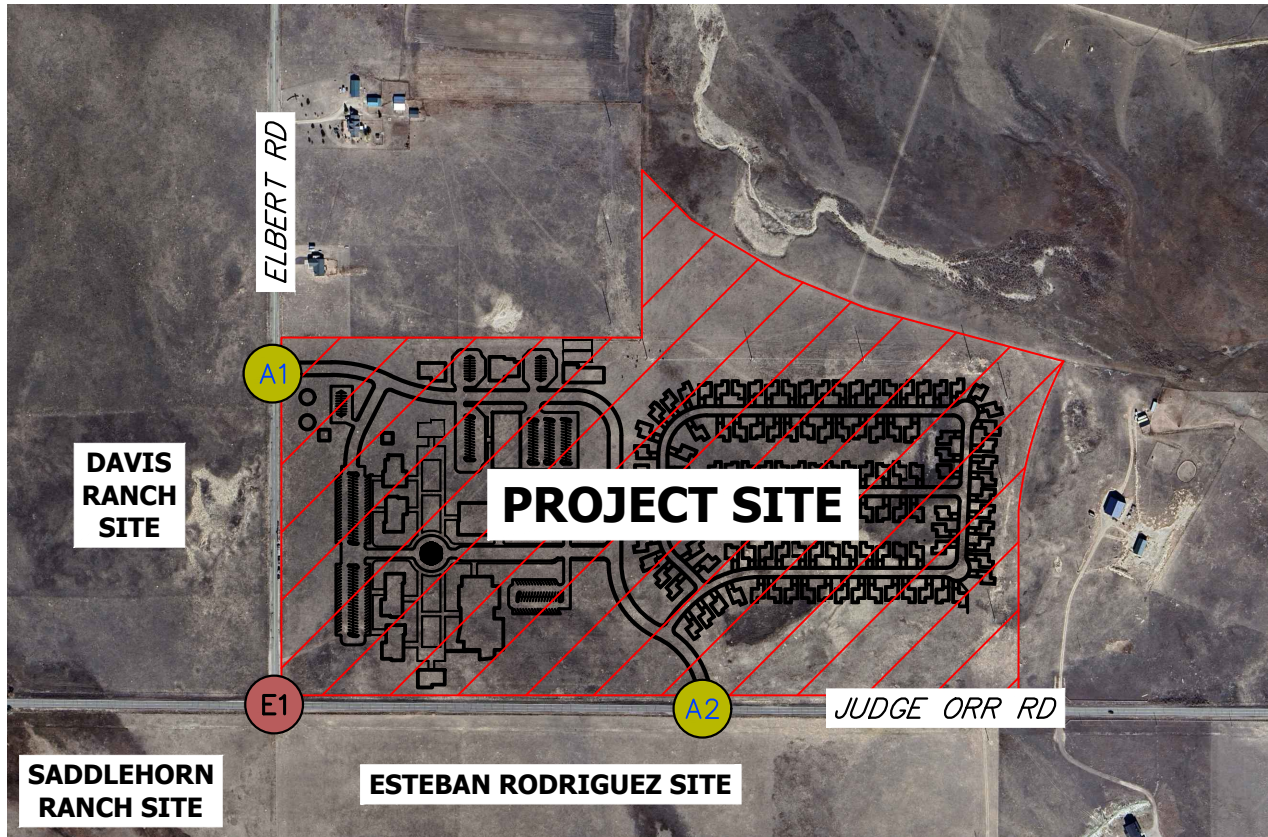
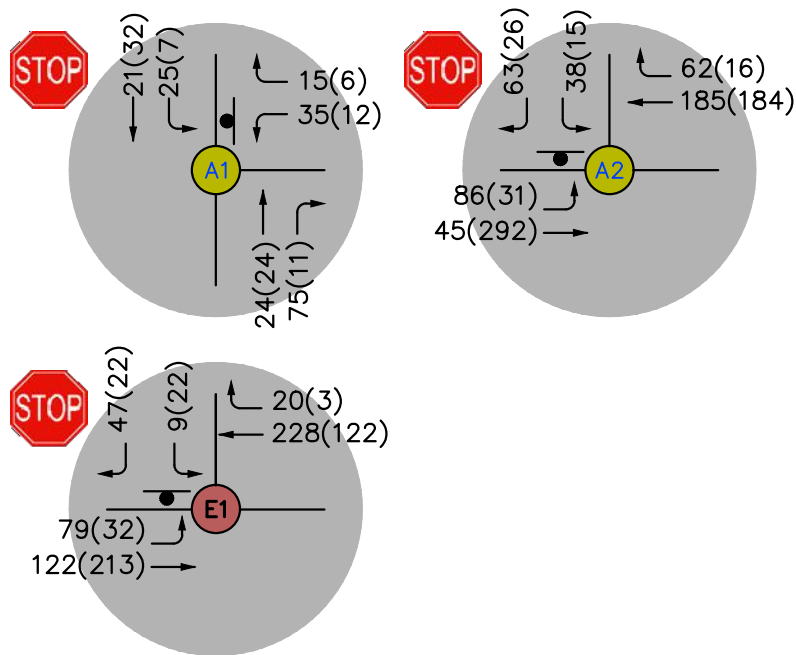


Figure 6 - 2029 Opening Day Total Traffic Volumes



500 250 0 500

ORIGINAL SCALE: 1" = 500'



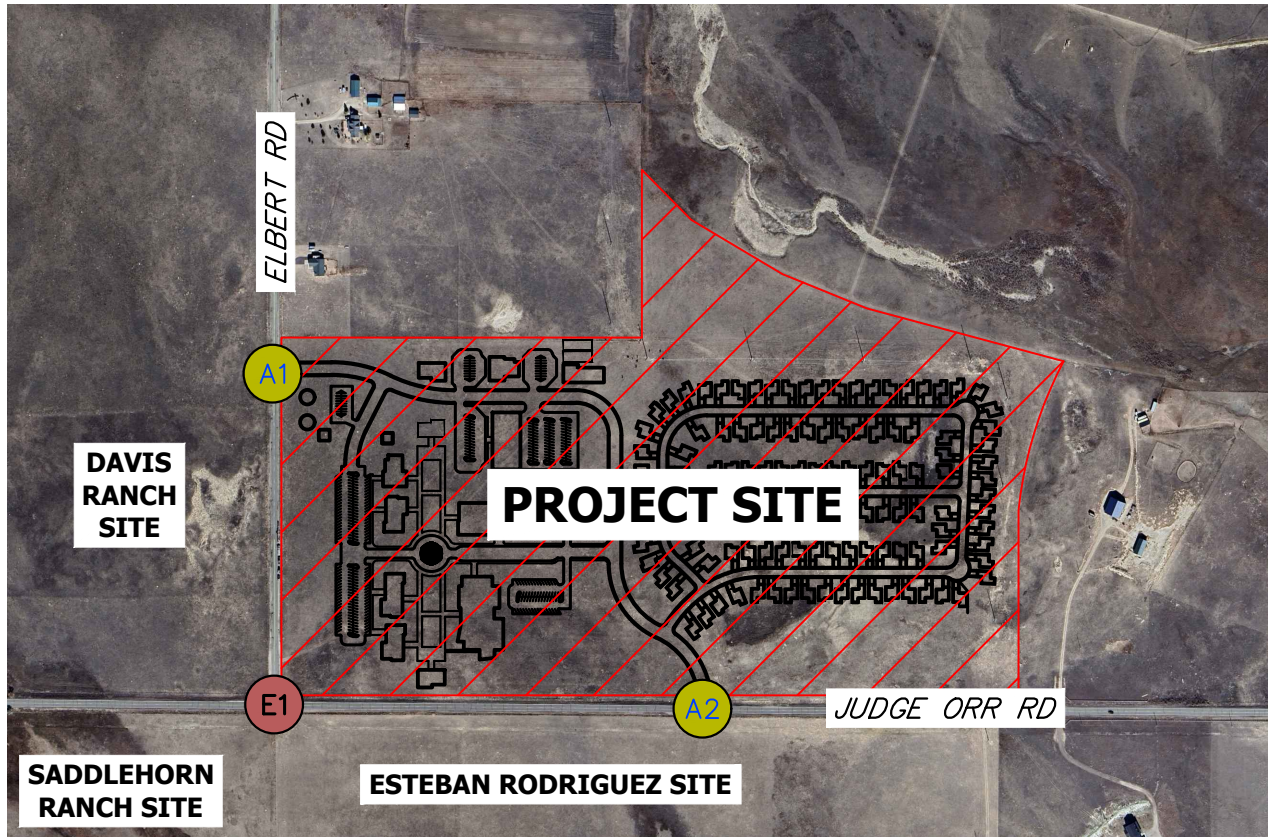
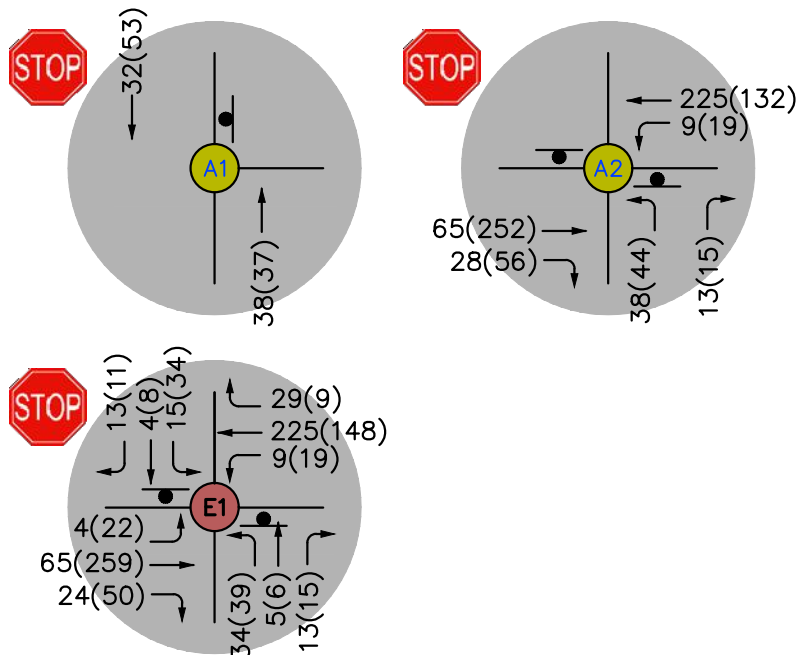


Figure 7 - 2045 Future Year Background Traffic Volumes



500 250 0 500

ORIGINAL SCALE: 1" = 500'



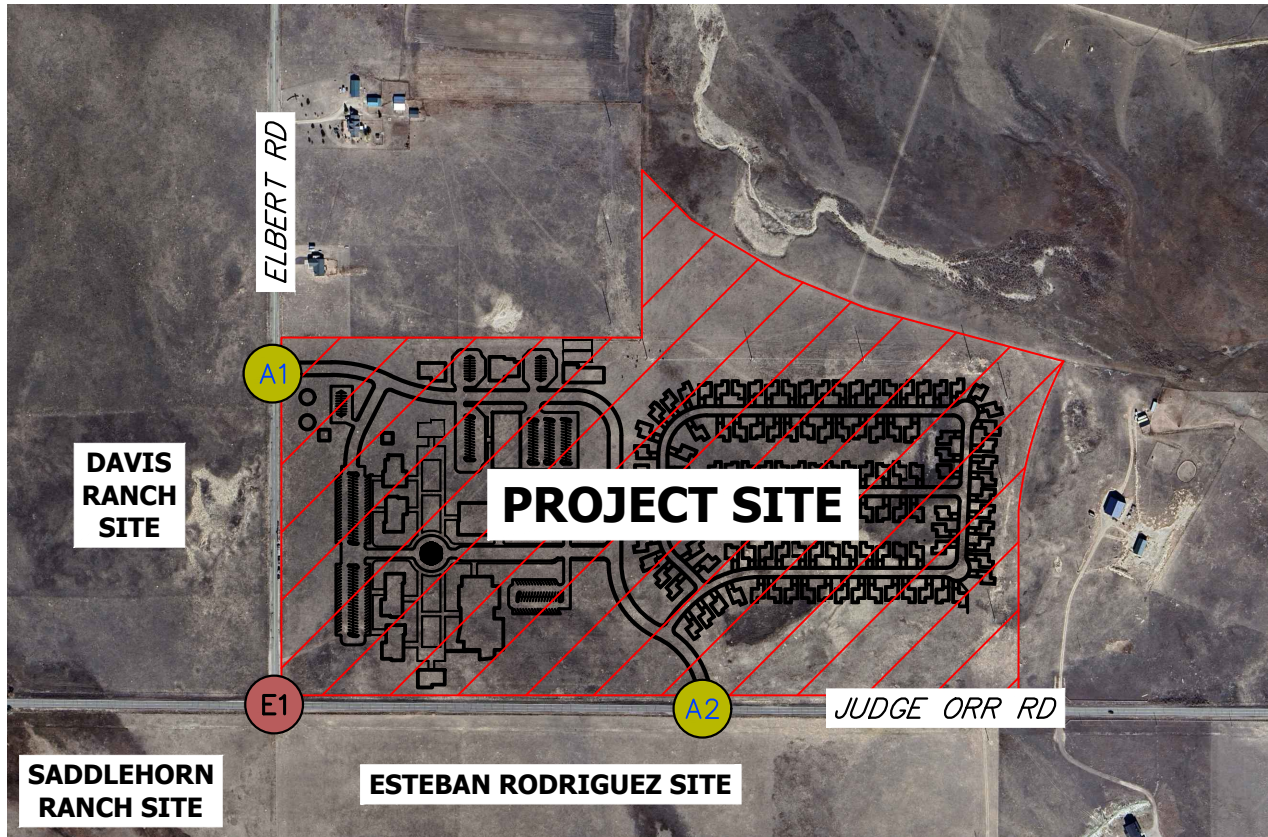
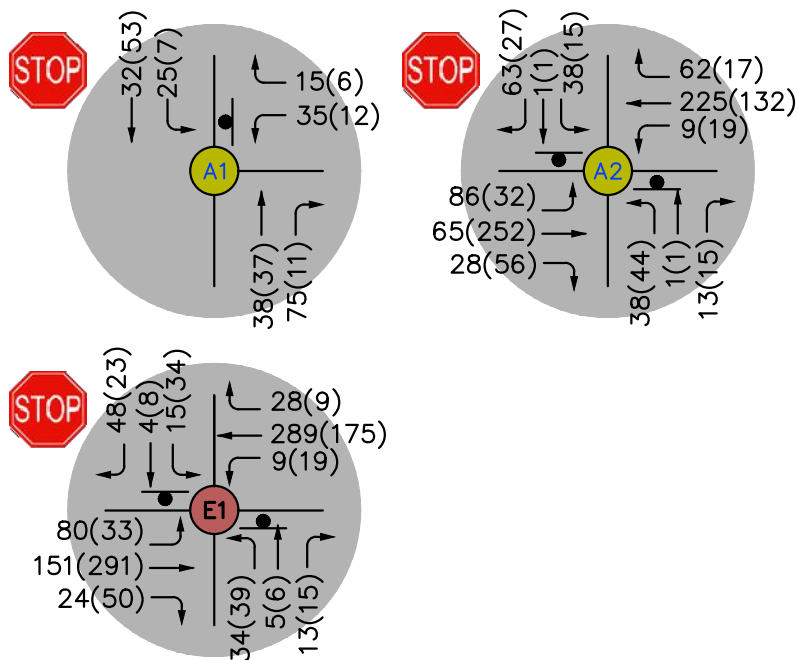


Figure 8 - 2045 Future Year Total Traffic Volumes



500 250 0 500

ORIGINAL SCALE: 1" = 500'



Traffic Operations Analysis

Traffic operations were analyzed using *Highway Capacity Manual*, 7th Edition methodology. Synchro reports are included in **Appendix D**.

Levels of Service




JR analyzed each of the Study intersections for peak hour level of service (LOS). **Table 1** includes the LOS for each movement in the existing condition (year 2024). **Table 2** includes the forecasted LOS for background traffic and total traffic in the year 2029. **Table 3** includes the forecasted LOS for background traffic and total traffic in the year 2045.

Table 1: 2024 Existing Levels of Service






Intersection	Movement/Approach	AM Peak LOS	PM Peak LOS
1: Judge Orr Rd & Elbert Rd	EB Left/Through	A	A
	WB Through/Right	N/A	N/A
	SB Left/Right	A	B

Table 2: 2029 Opening Day Levels of Service

Intersection	Movement/Approach	AM Peak LOS		PM Peak LOS	
		Background Traffic	Total Traffic	Background Traffic	Total Traffic
1: Judge Orr Rd & Elbert Rd	EB Left	A	A	A	A
	SB Left	A	B	B	B
	SB Right	A	B	A	A
2: West Access & Elbert Rd	WB Left	N/A	A	N/A	A
	WB Right	N/A	A	N/A	A
	SB Left	N/A	A	N/A	A
3: South Access & Judge Orr Rd	EB Left	N/A	A	N/A	A
	SB Left	N/A	B	N/A	B
	SB Right	N/A	A	N/A	A

Table 3: 2045 Future Year Levels of Service

Intersection	Movement/ Approach	AM Peak LOS		PM Peak LOS	
		Background Traffic	Total Traffic	Background Traffic	Total Traffic
 1: Judge Orr Rd & Elbert Rd	EB Left	A	A	A	A
	WB Left	A	A	A	A
	NB Left	B	C	C	C
	NB Through	B	C	B	C
	NB Right	A	A	A	B
	SB Left	B	C	C	C
	SB Through	B	C	B	C
	SB Right	A	B	A	A
 2: West Access & Elbert Rd	WB Left	N/A	A	N/A	A
	WB Right	N/A	A	N/A	A
	SB Left	N/A	A	N/A	A
 3: South Access & Judge Orr Rd	EB Left	N/A	A	N/A	A
	WB Left	A	A	A	A
	NB Left	B	C	B	C
	NB Through	N/A	C	N/A	B
	NB Right	A	A	A	A
	SB Left	N/A	C	N/A	B
	SB Through	N/A	B	N/A	B
	SB Right	N/A	B	N/A	A

Discussion on Levels of Service

In the 2024 Existing condition, movements at the Judge Orr & Elbert intersection operate at LOS B or better.


In the 2029 Opening Day condition, all movements are expected to operate at LOS B or better with only background traffic. With total traffic volumes, some movements are expected to degrade, but do not become worse than LOS B.

In the 2045 Future Year condition, all movements are expected to operate at LOS C or better with total traffic volumes.

Queue Lengths




JR analyzed each of the Study intersections for 95th percentile queue lengths. **Table 4** includes the queue lengths for the year 2024 with existing traffic. **Table 5** includes the queue lengths for the year 2029 with total traffic. **Table 6** includes the queue lengths for the year 2045 with total traffic.

Table 4: 2024 Existing 95th Percentile Queue Lengths






Intersection	Movement/Approach	AM Peak Queue (ft)	PM Peak Queue (ft)
1: Judge Orr Rd & Elbert Rd	EB Left/Through	<25	<25
	WB Through/Right	N/A	N/A
	SB Left/Right	<25	<25

Table 5: 2029 Opening Day 95th Percentile Queue Lengths

Intersection	Movement/Approach	AM Peak Queue (ft)	PM Peak Queue (ft)
1: Judge Orr Rd & Elbert Rd	EB Left	<25	<25
	SB Left	<25	<25
	SB Right	<25	<25
2: West Access & Elbert Rd	WB Left	<25	<25
	WB Right	<25	<25
	SB Left	<25	<25
3: South Access & Judge Orr Rd	EB Left	<25	<25
	SB Left	<25	<25
	SB Right	<25	<25

Table 6: 2045 Future Year 95th Percentile Queue Lengths

Intersection	Movement/Approach	AM Peak Queue (ft)	PM Peak Queue (ft)
 1: Judge Orr Rd & Elbert Rd	EB Left	<25	<25
	WB Left	<25	<25
	NB Left	<25	<25
	NB Through	<25	<25
	NB Right	<25	<25
	SB Left	<25	<25
	SB Through	<25	<25
 2: West Access & Elbert Rd	WB Left	<25	<25
	WB Right	<25	<25
	SB Left	<25	<25
 3: South Access & Judge Orr Rd	EB Left	<25	<25
	WB Left	<25	<25
	NB Left	<25	<25
	NB Through	<25	<25
	NB Right	<25	<25
	SB Left	<25	<25
	SB Through	<25	<25
	SB Right	<25	<25

Discussion on Queue Lengths

Queue lengths are expected to be minimal at each intersection in the Existing, Opening Day, and Future Year conditions. This is a result of low traffic volumes in the vicinity of the Project. No operational issues with queuing are anticipated.

Conclusion

Below is a summary of the conclusions and findings of this TIS.

Levels of Service

2024 Existing condition levels of service are LOS B or better. In the 2029 Opening Day condition, all movements are expected to operate at LOS B or better with total traffic volumes. In the 2045 Future Year condition, all movements are expected to operate at LOS C or better with total traffic.

Queue Lengths

Queue lengths are expected to be minimal at each intersection as a result of low traffic volumes in the vicinity of the Project. No operational concerns with queuing are anticipated.

Recommendations

JR recommends adding both left and right turn lanes at each of the Study intersections to accommodate turning traffic by 2029 Opening Day. These turn lanes are not triggered solely by the BOCES Campus site, but along with the surrounding background developments.

Appendix A: Site Plan

EXISTING LAND USE:

Vacant / grazing

CURRENT ZONING:

A-35 (Agricultural)

PROPOSED ZONING:

A-35 (Agricultural) Approval of Location and Subdivision Exemption Plat applications have been submitted concurrently with Development Plan

PLACETYPE:

Large-Lot Residential (immediately adjacent to 'Employment Center' [Your El Paso County Master Plan 2021])

PROPOSED LAND USE DATA TABLE:

LAND USE:	GROSS AREA:	ACREAGE:	NET AREA:	NET ACREAGE:
Water Treatment Facility	85,813sf	1.97ac	72,838sf	1.67ac
Vocational Education Campus	1,094,227sf	25.12ac	989,066sf	22.70ac
Campus Residential	1,084,644sf	24.90ac	886,692sf	20.35ac
Open Space Tract A	316,245sf	7.26ac	316,245sf	7.26ac
Open Space Tract B	320,166sf	7.35ac	316,110sf	7.25ac
Open Space Tract C	183,823sf	4.22ac	175,412sf	4.02ac
Open Space Tract D	213,444sf	4.90ac	114,008sf	2.61ac
Electric Transmission Easement	464,350sf	10.66ac	464,350sf	10.66ac
Street R.O.W.	included	included	427,991sf	9.86ac
TOTAL:	3,762,712sf	86.38ac	3,762,712sf	86.38ac

*all numbers rounded

PROPOSED LAND USES:

- A. Water Treatment Facility (developed and owned by PPBOCES)
 - Vocational Trades Building
- B. Construction Trades Training Facility (carpentry, plumbing, electrical)
- C. Law Enforcement Training facility (in conjunction with the El Paso County Sheriff department)
- D. Fire Fighting and Protection Training facility (in conjunction with the Peyton and Falcon Fire Protection Districts)
- E. Medical Training facility (EMT/paramedic training)
- F. Food Services facility (Culinary Arts)
- G. Meat Processing facility
- H. Veterinary Sciences Training facility (Animal husbandry)
- I. Information Technology facility (Computer Sciences and website development)
- J. Horticultural Sciences Training facilities (Greenhouse management, Aquaponics, and Turf Grass Management)
- K. Other Vocational Education training facilities based upon future needs of the community.
- L. Workforce/Campus Housing for PPBOCES teachers, instructors, and member District staff.

ADJACENT LAND OWNERS:

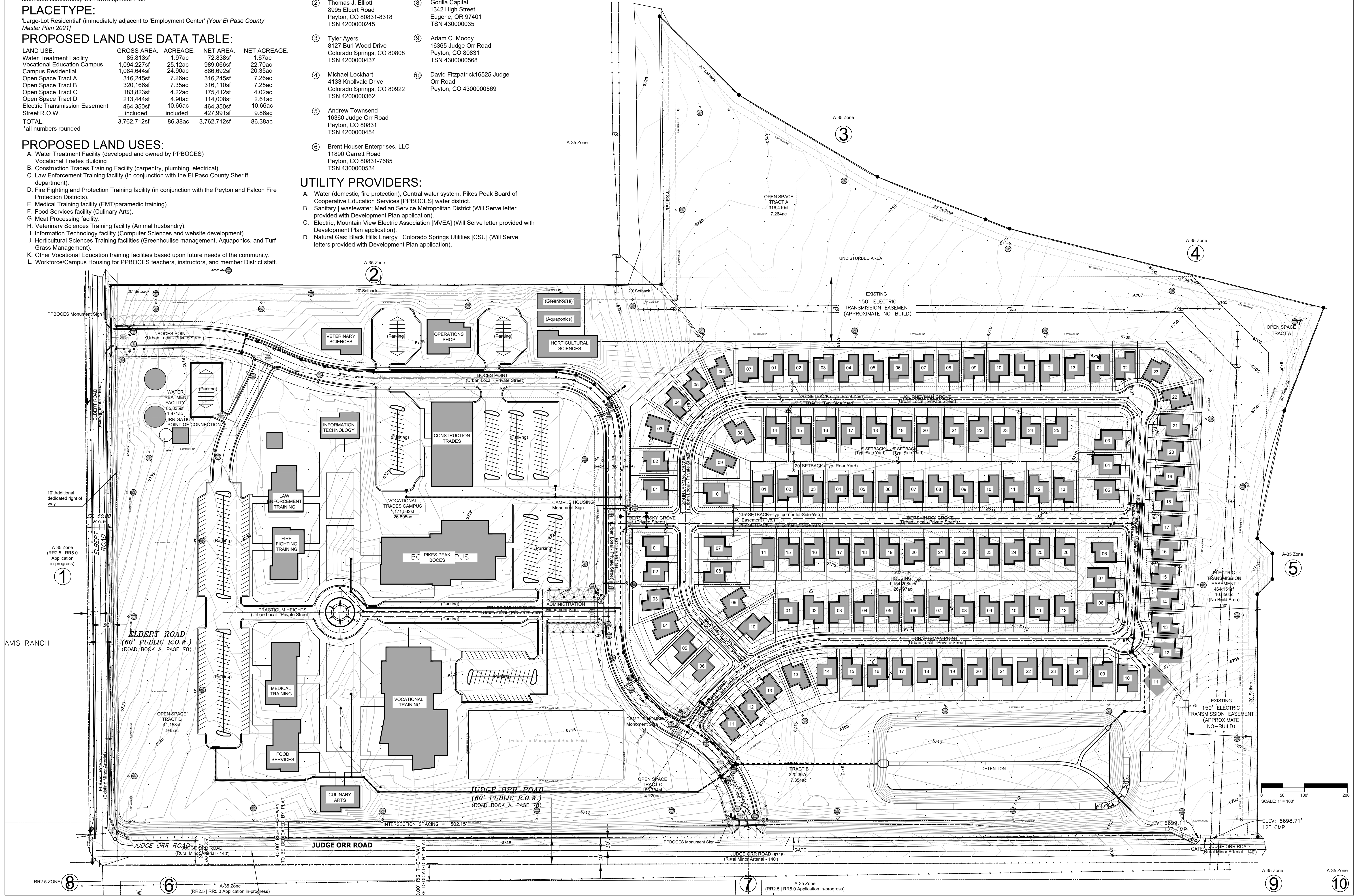
- | | |
|--|--|
| ① Jane Davis Living Trust
9060 Elbert Road
Peyton, CO 80831-8319
TSN 4200000470 | ⑦ Brent Houser Enterprises, LLC
11890 Garrett Road
Peyton, CO 80831-7685
TSN 4200000537 |
| ② Thomas J. Elliott
8995 Elbert Road
Peyton, CO 80831-8318
TSN 4200000245 | ⑧ Gorilla Capital
1342 High Street
Eugene, OR 97401
TSN 4300000305 |
| ③ Tyler Ayers
8127 Burl Wood Drive
Colorado Springs, CO 80808
TSN 4200000437 | ⑨ Adam C. Moody
16365 Judge Orr Road
Peyton, CO 80831
TSN 4300000568 |
| ④ Michael Lockhart
4133 Knollvale Drive
Colorado Springs, CO 80922
TSN 4200000362 | ⑩ David Fitzpatrick
16525 Judge Orr Road
Peyton, CO 4300000569 |
| ⑤ Andrew Townsend
16360 Judge Orr Road
Peyton, CO 80831
TSN 4200000454 | |
| ⑥ Brent Houser Enterprises, LLC
11890 Garrett Road
Peyton, CO 80831-7685
TSN 4300000534 | |

UTILITY PROVIDERS:

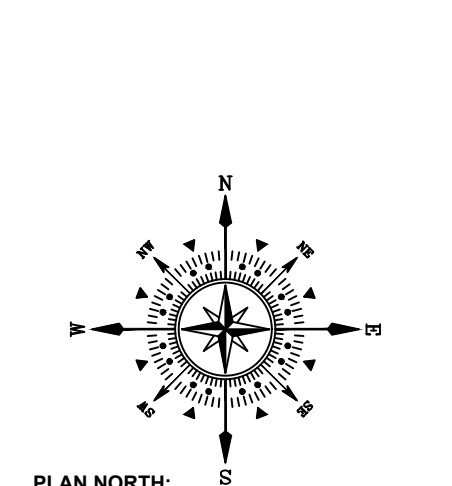
- A. Water (domestic, fire protection); Central water system: Pikes Peak Board of Cooperative Education Services [PPBOCES] water district.
- B. Sanitary | wastewater; Median Service Metropolitan District (Will Serve letter provided with Development Plan application).
- C. Electric; Mountain View Electric Association [MVEA] (Will Serve letter provided with Development Plan application).
- D. Natural Gas; Black Hills Energy | Colorado Springs Utilities [CSU] (Will Serve letters provided with Development Plan application).

PIKES PEAK BOCES

DEVELOPMENT PLAN



THIS DRAWING IS AN INSTRUMENT OF SERVICE AND AS SUCH REMAINS THE SOLE PROPERTY OF THE PIKES PEAK BOARD OF COOPERATIVE EDUCATION. SERVICES BOCES, WHETHER WORK FOR HOURS OR OTHERWISE, IS PROVIDED AS AN INSTRUMENT OF SERVICE AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. WITHOUT THE WRITTEN PERMISSION OF THE PIKES PEAK BOARD OF COOPERATIVE EDUCATION, NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. WITHOUT THE WRITTEN PERMISSION OF THE PIKES PEAK BOARD OF COOPERATIVE EDUCATION, NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. WITHOUT THE WRITTEN PERMISSION OF THE PIKES PEAK BOARD OF COOPERATIVE EDUCATION, NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.



Pikes Peak BOCES
Board of Cooperative Educational Services
Judge Orr Road
Peyton, CO 80831

PROJECT NAME:
PROJECT ADDRESS:
PROJECT DESCRIPTION:

DATE: 02/21/2024
DESIGNED: WFG
CHECKED:

REVISIONS:	DATE:	BY:	DESCRIPTION:
	03/21/2024	WFG	REVISED PHASE 2 & 3 LIMITS
	03/27/2024	WFG	REVISED PHASING AND LAYOUT PLAN

PLAN SCALE: 1" = 100' (OR AS NOTED ON PLAN)

SHEET TITLE:
DEVELOPMENT PLAN

SHEET NO.
DP1.1

2 of X SHEETS

FILE NO.
FILE#

Appendix B: Traffic Counts

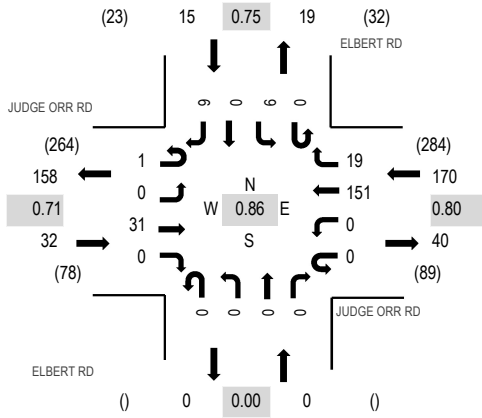
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Date: Wednesday, February 21, 2024

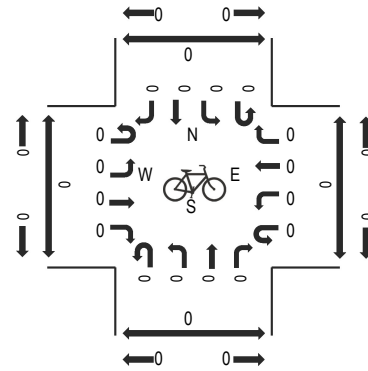
Peak Hour: 07:00 AM - 08:00 AM

Peak 15-Minutes: 07:15 AM - 07:30 AM

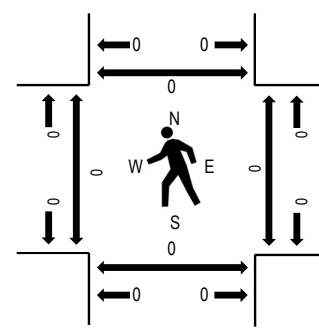
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians

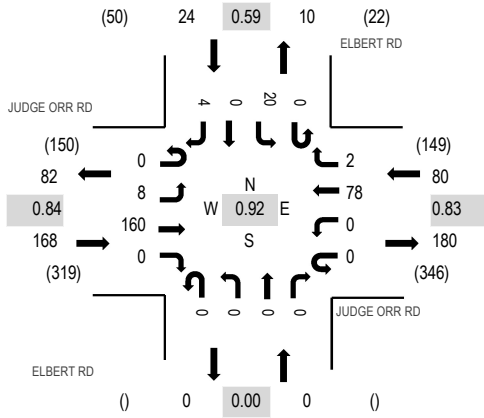


Note: Total study counts contained in parentheses.

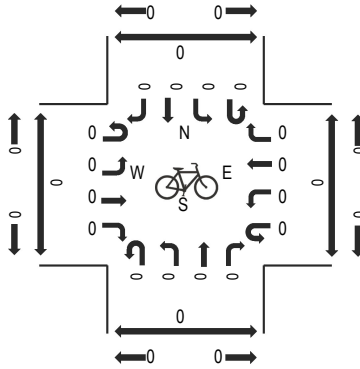
Traffic Counts - Motorized Vehicles

Interval Start Time	JUDGE ORR RD Eastbound				JUDGE ORR RD Westbound				ELBERT RD Northbound				ELBERT RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	1	0	0	0	47	6	0	0	0	0	0	2	0	3	59	217	0	0	0	0
7:15 AM	0	0	11	0	0	0	41	7	0	0	0	0	0	3	0	1	63	201	0	0	0	0
7:30 AM	0	0	10	0	0	0	38	4	0	0	0	0	0	1	0	1	54	183	0	0	0	0
7:45 AM	1	0	9	0	0	0	25	2	0	0	0	0	0	3	0	1	41	166	0	0	0	0
8:00 AM	0	1	16	0	0	0	20	5	0	0	0	0	0	0	0	1	43	168	0	0	0	0
8:15 AM	0	0	10	0	0	0	31	2	0	0	0	0	0	2	0	0	45		0	0	0	0
8:30 AM	0	0	9	0	0	0	25	1	0	0	0	0	0	1	0	1	37		0	0	0	0
8:45 AM	0	0	10	0	0	0	26	4	0	0	0	0	0	1	0	2	43		0	0	0	0
Count Total	1	1	76	0	0	0	253	31	0	0	0	0	0	13	0	10	385		0	0	0	0
Peak Hour	1	0	31	0	0	0	151	19	0	0	0	0	0	9	0	6	217		0	0	0	0

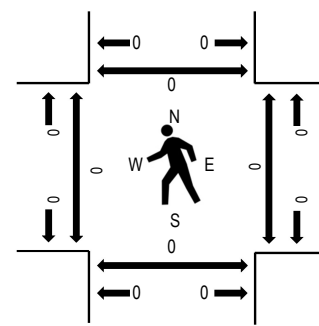
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	JUDGE ORR RD Eastbound				JUDGE ORR RD Westbound				ELBERT RD Northbound				ELBERT RD Southbound				Total	Rolling Hour	Pedestrian Crossings				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North	
4:00 PM	0	2	48	0	0	0	12	1	0	0	0	0	0	0	6	0	2	71	272	0	0	0	0
4:15 PM	0	2	35	0	0	0	23	1	0	0	0	0	0	5	0	1	67	261	0	0	0	0	
4:30 PM	0	1	40	0	0	0	26	0	0	0	0	0	0	6	0	1	74	242	0	0	0	0	
4:45 PM	0	3	37	0	0	0	17	0	0	0	0	0	0	3	0	0	60	238	0	0	0	0	
5:00 PM	0	5	32	0	0	0	18	1	0	0	0	0	0	4	0	0	60	246	0	0	0	0	
5:15 PM	0	1	33	0	0	0	10	2	0	0	0	0	0	1	0	1	48		0	0	0	0	
5:30 PM	0	0	46	0	0	0	15	0	0	0	0	0	0	8	0	1	70		0	0	0	0	
5:45 PM	0	2	32	0	0	0	22	1	0	0	0	0	0	10	0	1	68		0	0	0	0	
Count Total	0	16	303	0	0	0	143	6	0	0	0	0	0	43	0	7	518		0	0	0	0	
Peak Hour	0	8	160	0	0	0	78	2	0	0	0	0	0	20	0	4	272		0	0	0	0	

Appendix C: Trip Generation

Project: BOCES Campus

ITE Code	Description	Size	Units	Weekday Average Daily Trips			Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
223	Affordable Housing	121	Dwelling Units	291	291	582	18	43	61	33	23	56
525	High School	500	Students	485	485	970	230	108	338	34	36	70
			Unadjusted Volume	776	776	1552	248	151	399	67	59	126
			Internal Capture	0%	0%	0%	0%	0%	0%	0%	0%	0%
			Pass-By Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%
			Volume Added to Adjacent Streets	776	776	1552	248	151	399	67	59	126

Source: Institute of Transportation Engineers, *Trip Generation Manual*, 11th Edition

Appendix D: Synchro Reports

Lanes, Volumes, Timings
 1: Judge Orr Road & Elbert Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	31	151	19	9	6
Future Volume (vph)	0	31	151	19	9	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.984		0.946	
Flt Protected					0.971	
Satd. Flow (prot)	0	1863	1833	0	1711	0
Flt Permitted					0.971	
Satd. Flow (perm)	0	1863	1833	0	1711	0
Link Speed (mph)		55	55		40	
Link Distance (ft)		1180	2171		1823	
Travel Time (s)		26.8	49.3		41.4	
Peak Hour Factor	0.78	0.78	0.85	0.78	0.78	0.78
Adj. Flow (vph)	0	40	178	24	12	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	40	202	0	20	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.1%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	0	31	151	19	9	6
Future Vol, veh/h	0	31	151	19	9	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	85	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	40	178	24	12	8

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	202	0	-	0	230 190
Stage 1	-	-	-	-	190 -
Stage 2	-	-	-	-	40 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1370	-	-	-	759 852
Stage 1	-	-	-	-	842 -
Stage 2	-	-	-	-	983 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1370	-	-	-	759 852
Mov Cap-2 Maneuver	-	-	-	-	759 -
Stage 1	-	-	-	-	842 -
Stage 2	-	-	-	-	983 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	9.65
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1370	-	-	-	793
HCM Lane V/C Ratio	-	-	-	-	0.024
HCM Control Delay (s/veh)	0	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings
 1: Judge Orr Road & Elbert Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	160	78	2	20	4
Future Volume (vph)	8	160	78	2	20	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.978	
Flt Protected		0.997			0.960	
Satd. Flow (prot)	0	1857	1855	0	1749	0
Flt Permitted		0.997			0.960	
Satd. Flow (perm)	0	1857	1855	0	1749	0
Link Speed (mph)		55	55		40	
Link Distance (ft)		1180	2171		1823	
Travel Time (s)		26.8	49.3		41.4	
Peak Hour Factor	0.78	0.85	0.81	0.78	0.78	0.78
Adj. Flow (vph)	10	188	96	3	26	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	198	99	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.9%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	8	160	78	2	20	4
Future Vol, veh/h	8	160	78	2	20	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	85	81	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	188	96	3	26	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	99	0	-	0	306 98
Stage 1	-	-	-	-	98 -
Stage 2	-	-	-	-	209 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1494	-	-	-	686 958
Stage 1	-	-	-	-	926 -
Stage 2	-	-	-	-	826 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1494	-	-	-	680 958
Mov Cap-2 Maneuver	-	-	-	-	680 -
Stage 1	-	-	-	-	919 -
Stage 2	-	-	-	-	826 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0.38	0	10.26
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	93	-	-	-	715
HCM Lane V/C Ratio	0.007	-	-	-	0.043
HCM Control Delay (s/veh)	7.4	0	-	-	10.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings
 1: Judge Orr Road & Elbert Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	36	165	20	9	12
Future Volume (vph)	4	36	165	20	9	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	150	150
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Link Speed (mph)		55	55		40	
Link Distance (ft)		1180	2171		1823	
Travel Time (s)		14.6	26.9		31.1	
Peak Hour Factor	0.78	0.78	0.86	0.78	0.78	0.78
Adj. Flow (vph)	5	46	192	26	12	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	46	192	26	12	15
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.7%
	ICU Level of Service A
Analysis Period (min)	15













Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	4	36	165	20	9	12
Future Vol, veh/h	4	36	165	20	9	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	86	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	46	192	26	12	15

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	218	0	-	0	248 192
Stage 1	-	-	-	-	192 -
Stage 2	-	-	-	-	56 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1352	-	-	-	740 850
Stage 1	-	-	-	-	841 -
Stage 2	-	-	-	-	966 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1352	-	-	-	737 850
Mov Cap-2 Maneuver	-	-	-	-	737 -
Stage 1	-	-	-	-	837 -
Stage 2	-	-	-	-	966 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0.77	0	9.59
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1352	-	-	-	737	850
HCM Lane V/C Ratio	0.004	-	-	-	0.016	0.018
HCM Control Delay (s/veh)	7.7	-	-	-	10	9.3
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1

Lanes, Volumes, Timings
2: Elbert Road & West Access

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	24	0	0	21
Future Volume (vph)	0	0	24	0	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	1863	1863	1863	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	1863	1863	1863	1863	1863
Link Speed (mph)	30		40			40
Link Distance (ft)	540		1823			333
Travel Time (s)	8.6		41.4			6.2
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	0	0	31	0	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	31	0	0	27
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	6.7%			ICU Level of Service A		
Analysis Period (min)	15					

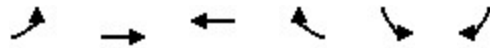
Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	0	0	24	0	0	21
Future Vol, veh/h	0	0	24	0	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	31	0	0	27

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	58	31	0
Stage 1	31	-	-
Stage 2	27	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	950	1043	-
Stage 1	992	-	-
Stage 2	996	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	950	1043	-
Mov Cap-2 Maneuver	950	-	-
Stage 1	992	-	-
Stage 2	996	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	1582	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Lanes, Volumes, Timings
 3: Judge Orr Road & South Access



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	45	185	0	0	0
Future Volume (vph)	0	45	185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	150	150
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	1863	1863	1863	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	1863	1863	1863	1863	1863
Link Speed (mph)		55	55		30	
Link Distance (ft)		2171	507		568	
Travel Time (s)		26.9	6.3		12.9	
Peak Hour Factor	0.78	0.81	0.87	0.78	0.78	0.78
Adj. Flow (vph)	0	56	213	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	56	213	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	13.1%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	0	45	185	0	0	0
Future Vol, veh/h	0	45	185	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	81	87	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	56	213	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	213	0	-	0	268 213
Stage 1	-	-	-	-	213 -
Stage 2	-	-	-	-	56 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1358	-	-	-	721 827
Stage 1	-	-	-	-	823 -
Stage 2	-	-	-	-	967 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1358	-	-	-	721 827
Mov Cap-2 Maneuver	-	-	-	-	721 -
Stage 1	-	-	-	-	823 -
Stage 2	-	-	-	-	967 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1358	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	-	0	0
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Lanes, Volumes, Timings
 1: Judge Orr Road & Elbert Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	21	181	95	3	22	10
Future Volume (vph)	21	181	95	3	22	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	150	150
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Link Speed (mph)		55	55		40	
Link Distance (ft)		1180	2171		1823	
Travel Time (s)		14.6	26.9		31.1	
Peak Hour Factor	0.78	0.86	0.83	0.78	0.78	0.78
Adj. Flow (vph)	27	210	114	4	28	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	210	114	4	28	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.5%
ICU Level of Service	A
Analysis Period (min)	15













Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↑	↗	↘	↗
Traffic Vol, veh/h	21	181	95	3	22	10
Future Vol, veh/h	21	181	95	3	22	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	86	83	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	210	114	4	28	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	118	0	-	0	379 114
Stage 1	-	-	-	-	114 -
Stage 2	-	-	-	-	264 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1470	-	-	-	623 938
Stage 1	-	-	-	-	910 -
Stage 2	-	-	-	-	780 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1470	-	-	-	612 938
Mov Cap-2 Maneuver	-	-	-	-	612 -
Stage 1	-	-	-	-	894 -
Stage 2	-	-	-	-	780 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0.85	0	10.46
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1470	-	-	-	612	938
HCM Lane V/C Ratio	0.018	-	-	-	0.046	0.014
HCM Control Delay (s/veh)	7.5	-	-	-	11.2	8.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0

Lanes, Volumes, Timings
2: Elbert Road & West Access

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	24	0	0	32
Future Volume (vph)	0	0	24	0	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	1863	1863	1863	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	1863	1863	1863	1863	1863
Link Speed (mph)	30		40			40
Link Distance (ft)	521		1823			273
Travel Time (s)	8.6		41.4			6.2
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	0	0	31	0	0	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	31	0	0	41
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	6.7%			ICU Level of Service A		
Analysis Period (min)	15					

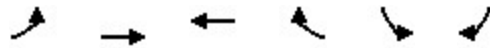
Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	0	0	24	0	0	32
Future Vol, veh/h	0	0	24	0	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	31	0	0	41

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	72	31	0	0	31	0
Stage 1	31	-	-	-	-	-
Stage 2	41	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	932	1043	-	-	1582	-
Stage 1	992	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	932	1043	-	-	1582	-
Mov Cap-2 Maneuver	932	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	981	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	1582	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Lanes, Volumes, Timings
 3: Judge Orr Road & South Access



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	203	98	0	0	0
Future Volume (vph)	0	203	98	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	150	150
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	1863	1863	1863	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	1863	1863	1863	1863	1863
Link Speed (mph)		55	55		30	
Link Distance (ft)		2171	507		573	
Travel Time (s)		26.9	6.3		13.0	
Peak Hour Factor	0.78	0.87	0.83	0.78	0.78	0.78
Adj. Flow (vph)	0	233	118	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	233	118	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	14.0%
Analysis Period (min)	15
	ICU Level of Service A

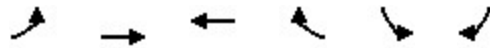
Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	0	203	98	0	0	0
Future Vol, veh/h	0	203	98	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	87	83	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	233	118	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	118	0	-	0	351 118
Stage 1	-	-	-	-	118 -
Stage 2	-	-	-	-	233 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1470	-	-	-	646 934
Stage 1	-	-	-	-	907 -
Stage 2	-	-	-	-	805 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1470	-	-	-	646 934
Mov Cap-2 Maneuver	-	-	-	-	646 -
Stage 1	-	-	-	-	907 -
Stage 2	-	-	-	-	805 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1470	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	-	0	0
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Lanes, Volumes, Timings
1: Judge Orr Road & Elbert Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	79	122	228	20	9	47
Future Volume (vph)	79	122	228	20	9	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	150	150
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Link Speed (mph)		55	55		40	
Link Distance (ft)		1180	2171		1823	
Travel Time (s)		14.6	26.9		31.1	
Peak Hour Factor	0.81	0.84	0.87	0.78	0.78	0.78
Adj. Flow (vph)	98	145	262	26	12	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	145	262	26	12	60
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.7%
ICU Level of Service	A
Analysis Period (min)	15













Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	79	122	228	20	9	47
Future Vol, veh/h	79	122	228	20	9	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	84	87	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	145	262	26	12	60

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	288	0	-	0	602 262
Stage 1	-	-	-	-	262 -
Stage 2	-	-	-	-	340 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1274	-	-	-	462 777
Stage 1	-	-	-	-	782 -
Stage 2	-	-	-	-	721 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1274	-	-	-	427 777
Mov Cap-2 Maneuver	-	-	-	-	427 -
Stage 1	-	-	-	-	722 -
Stage 2	-	-	-	-	721 -

Approach	EB	WB	SB
HCM Control Delay, s/v	3.24	0	10.61
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1274	-	-	-	427	777
HCM Lane V/C Ratio	0.077	-	-	-	0.027	0.078
HCM Control Delay (s/veh)	8.1	-	-	-	13.7	10
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.3

Lanes, Volumes, Timings
2: Elbert Road & West Access

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	15	24	75	25	21
Future Volume (vph)	35	15	24	75	25	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Link Speed (mph)	30		40			40
Link Distance (ft)	551		1823			273
Travel Time (s)	8.6		41.4			6.2
Peak Hour Factor	0.78	0.78	0.78	0.81	0.78	0.78
Adj. Flow (vph)	45	19	31	93	32	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	19	31	93	32	27
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.1%			ICU Level of Service A		
Analysis Period (min)	15					

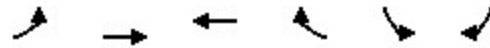
Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	35	15	24	75	25	21
Future Vol, veh/h	35	15	24	75	25	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	81	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	19	31	93	32	27

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	122	31	0	0	123	0
Stage 1	31	-	-	-	-	-
Stage 2	91	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	874	1043	-	-	1464	-
Stage 1	992	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	854	1043	-	-	1464	-
Mov Cap-2 Maneuver	854	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	912	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.17	0	4.08
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	854	1043	1464	-
HCM Lane V/C Ratio	-	-	0.053	0.018	0.022	-
HCM Control Delay (s/veh)	-	-	9.4	8.5	7.5	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.1	-

Lanes, Volumes, Timings
3: Judge Orr Road & South Access



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	86	45	185	62	38	63
Future Volume (vph)	86	45	185	62	38	63
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	150	150
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Link Speed (mph)		55	55		30	
Link Distance (ft)		2171	507		620	
Travel Time (s)		26.9	6.3		14.1	
Peak Hour Factor	0.82	0.78	0.86	0.79	0.78	0.79
Adj. Flow (vph)	105	58	215	78	49	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	58	215	78	49	80
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.8%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	86	45	185	62	38	63
Future Vol, veh/h	86	45	185	62	38	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	78	86	79	78	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	58	215	78	49	80

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	294	0	-	0	483 215
Stage 1	-	-	-	-	215 -
Stage 2	-	-	-	-	267 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1268	-	-	-	543 825
Stage 1	-	-	-	-	821 -
Stage 2	-	-	-	-	777 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1268	-	-	-	498 825
Mov Cap-2 Maneuver	-	-	-	-	498 -
Stage 1	-	-	-	-	753 -
Stage 2	-	-	-	-	777 -

Approach	EB	WB	SB
HCM Control Delay, s/v	5.22	0	11.04
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1268	-	-	-	498	825
HCM Lane V/C Ratio	0.083	-	-	-	0.098	0.097
HCM Control Delay (s/veh)	8.1	-	-	-	13	9.8
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.3	0.3

Lanes, Volumes, Timings
 1: Judge Orr Road & Elbert Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	32	213	122	3	22	22
Future Volume (vph)	32	213	122	3	22	22
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	150	150
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Link Speed (mph)		55	55		40	
Link Distance (ft)		1180	2171		1823	
Travel Time (s)		14.6	26.9		31.1	
Peak Hour Factor	0.78	0.87	0.84	0.78	0.78	0.78
Adj. Flow (vph)	41	245	145	4	28	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	245	145	4	28	28
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.1%
ICU Level of Service	A
Analysis Period (min)	15













Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	32	213	122	3	22	22
Future Vol, veh/h	32	213	122	3	22	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	87	84	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	245	145	4	28	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	149	0	-	0	472 145
Stage 1	-	-	-	-	145 -
Stage 2	-	-	-	-	327 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1432	-	-	-	550 902
Stage 1	-	-	-	-	882 -
Stage 2	-	-	-	-	731 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1432	-	-	-	535 902
Mov Cap-2 Maneuver	-	-	-	-	535 -
Stage 1	-	-	-	-	857 -
Stage 2	-	-	-	-	731 -

Approach	EB	WB	SB
HCM Control Delay, s/v	1.09	0	10.61
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1432	-	-	-	535	902
HCM Lane V/C Ratio	0.029	-	-	-	0.053	0.031
HCM Control Delay (s/veh)	7.6	-	-	-	12.1	9.1
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0.1

Lanes, Volumes, Timings
2: Elbert Road & West Access

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	12	6	24	11	7	32
Future Volume (vph)	12	6	24	11	7	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Link Speed (mph)	30		40			40
Link Distance (ft)	534		1823			273
Travel Time (s)	8.6		41.4			6.2
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	15	8	31	14	9	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	8	31	14	9	41
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	15.8%			ICU Level of Service A		
Analysis Period (min)	15					

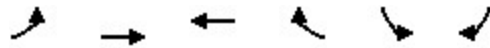
Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	12	6	24	11	7	32
Future Vol, veh/h	12	6	24	11	7	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	8	31	14	9	41

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	90	31	0	0	45
Stage 1	31	-	-	-	-
Stage 2	59	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	911	1043	-	-	1563
Stage 1	992	-	-	-	-
Stage 2	964	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	906	1043	-	-	1563
Mov Cap-2 Maneuver	906	-	-	-	-
Stage 1	992	-	-	-	-
Stage 2	958	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	8.85	0	1.31
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	906	1043	1563	-
HCM Lane V/C Ratio	-	-	0.017	0.007	0.006	-
HCM Control Delay (s/veh)	-	-	9	8.5	7.3	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-

Lanes, Volumes, Timings
 3: Judge Orr Road & South Access



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	32	203	98	17	15	27
Future Volume (vph)	32	203	98	17	15	27
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	150	150
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Link Speed (mph)		55	55		30	
Link Distance (ft)		2171	507		617	
Travel Time (s)		26.9	6.3		14.0	
Peak Hour Factor	0.78	0.87	0.83	0.78	0.78	0.78
Adj. Flow (vph)	41	233	118	22	19	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	233	118	22	19	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.7%
ICU Level of Service	A
Analysis Period (min)	15

























Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	32	203	98	17	15	27
Future Vol, veh/h	32	203	98	17	15	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	87	83	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	233	118	22	19	35

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	140	0	-	0	433 118
Stage 1	-	-	-	-	118 -
Stage 2	-	-	-	-	315 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1443	-	-	-	579 934
Stage 1	-	-	-	-	907 -
Stage 2	-	-	-	-	740 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1443	-	-	-	563 934
Mov Cap-2 Maneuver	-	-	-	-	563 -
Stage 1	-	-	-	-	881 -
Stage 2	-	-	-	-	740 -

Approach	EB	WB	SB
HCM Control Delay, s/v	1.13	0	9.94
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1443	-	-	-	563	934
HCM Lane V/C Ratio	0.028	-	-	-	0.034	0.037
HCM Control Delay (s/veh)	7.6	-	-	-	11.6	9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.1

Lanes, Volumes, Timings
1: Judge Orr Road & Elbert Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	65	24	9	225	29	34	5	13	15	4	13
Future Volume (vph)	4	65	24	9	225	29	34	5	13	15	4	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Link Speed (mph)		55			55			30			40	
Link Distance (ft)		1180			2171			308			1823	
Travel Time (s)		14.6			26.9			7.0			31.1	
Peak Hour Factor	0.78	0.80	0.78	0.78	0.87	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	5	81	31	12	259	37	44	6	17	19	5	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	81	31	12	259	37	44	6	17	19	5	17
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.5%
ICU Level of Service	A
Analysis Period (min)	15













Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Vol, veh/h	4	65	24	9	225	29	34	5	13	15	4	13
Future Vol, veh/h	4	65	24	9	225	29	34	5	13	15	4	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	80	78	78	87	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	81	31	12	259	37	44	6	17	19	5	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	296	0	0	112	0	0	376	410	81	376	404	259
Stage 1	-	-	-	-	-	-	92	92	-	282	282	-
Stage 2	-	-	-	-	-	-	284	319	-	95	122	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1266	-	-	1478	-	-	581	531	979	581	536	780
Stage 1	-	-	-	-	-	-	916	819	-	725	678	-
Stage 2	-	-	-	-	-	-	723	653	-	912	795	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1266	-	-	1478	-	-	557	525	979	557	529	780
Mov Cap-2 Maneuver	-	-	-	-	-	-	557	525	-	557	529	-
Stage 1	-	-	-	-	-	-	912	816	-	719	673	-
Stage 2	-	-	-	-	-	-	697	648	-	886	791	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.34			0.28			11.19			10.91		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	557	525	979	1266	-	-	1478	-	-	557	529	780
HCM Lane V/C Ratio	0.078	0.012	0.017	0.004	-	-	0.008	-	-	0.034	0.01	0.021
HCM Control Delay (s/veh)	12	11.9	8.7	7.9	-	-	7.5	-	-	11.7	11.9	9.7
HCM Lane LOS	B	B	A	A	-	-	A	-	-	B	B	A
HCM 95th %tile Q(veh)	0.3	0	0.1	0	-	-	0	-	-	0.1	0	0.1

Lanes, Volumes, Timings
2: Elbert Road & West Access

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	38	0	0	32
Future Volume (vph)	0	0	38	0	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	1863	1863	1863	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	1863	1863	1863	1863	1863
Link Speed (mph)	30		40			40
Link Distance (ft)	545		1823			273
Travel Time (s)	8.6		41.4			6.2
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	0	0	49	0	0	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	49	0	0	41
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	6.7%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	0	0	38	0	0	32
Future Vol, veh/h	0	0	38	0	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	49	0	0	41

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	90	49	0	0	49	0
Stage 1	49	-	-	-	-	-
Stage 2	41	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	911	1020	-	-	1558	-
Stage 1	974	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	911	1020	-	-	1558	-
Mov Cap-2 Maneuver	911	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	981	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	1558	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Lanes, Volumes, Timings
 3: Judge Orr Road & South Access

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	65	28	9	225	0	38	0	13	0	0	0
Future Volume (vph)	0	65	28	9	225	0	38	0	13	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1863	1863	1583	1770	1863	1863	1770	1863	1583	1863	1863	1863
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	1863	1863	1583	1770	1863	1863	1770	1863	1583	1863	1863	1863
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		2171			507			472			623	
Travel Time (s)		26.9			6.3			10.7			14.2	
Peak Hour Factor	0.78	0.80	0.78	0.78	0.87	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	0	81	36	12	259	0	49	0	17	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	36	12	259	0	49	0	17	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.8%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗	↘	↑	↗	↘	↑	↗
Traffic Vol, veh/h	0	65	28	9	225	0	38	0	13	0	0	0
Future Vol, veh/h	0	65	28	9	225	0	38	0	13	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	80	78	78	87	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	81	36	12	259	0	49	0	17	0	0	0

























Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	259	0	0	117	0	0	363	363	81	363	399	259
Stage 1	-	-	-	-	-	-	81	81	-	282	282	-
Stage 2	-	-	-	-	-	-	282	282	-	81	117	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1306	-	-	1471	-	-	593	565	979	593	539	780
Stage 1	-	-	-	-	-	-	927	827	-	725	678	-
Stage 2	-	-	-	-	-	-	725	678	-	927	799	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1306	-	-	1471	-	-	588	560	979	578	535	780
Mov Cap-2 Maneuver	-	-	-	-	-	-	588	560	-	578	535	-
Stage 1	-	-	-	-	-	-	927	827	-	719	673	-
Stage 2	-	-	-	-	-	-	719	673	-	911	799	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.32	10.92	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	588	-	979	1306	-	-	1471	-	-	-	-	-
HCM Lane V/C Ratio	0.083	-	0.017	-	-	-	0.008	-	-	-	-	-
HCM Control Delay (s/veh)	11.7	0	8.7	0	-	-	7.5	-	-	0	0	0
HCM Lane LOS	B	A	A	A	-	-	A	-	-	A	A	A
HCM 95th %tile Q(veh)	0.3	-	0.1	0	-	-	0	-	-	-	-	-

Lanes, Volumes, Timings
1: Judge Orr Road & Elbert Road

JR Engineering
07/17/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	259	50	19	148	9	39	6	15	34	8	11
Future Volume (vph)	22	259	50	19	148	9	39	6	15	34	8	11
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Link Speed (mph)		55			55			30			40	
Link Distance (ft)		1180			2171			308			1823	
Travel Time (s)		14.6			26.9			7.0			31.1	
Peak Hour Factor	0.78	0.88	0.78	0.78	0.85	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	28	294	64	24	174	12	50	8	19	44	10	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	294	64	24	174	12	50	8	19	44	10	14
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.8%
ICU Level of Service	A
Analysis Period (min)	15













Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗	↘	↑	↗	↘	↑	↗
Traffic Vol, veh/h	22	259	50	19	148	9	39	6	15	34	8	11
Future Vol, veh/h	22	259	50	19	148	9	39	6	15	34	8	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	88	78	78	85	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	294	64	24	174	12	50	8	19	44	10	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	186	0	0	358	0	0	579	585	294	577	638	174
Stage 1	-	-	-	-	-	-	351	351	-	223	223	-
Stage 2	-	-	-	-	-	-	228	234	-	355	415	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1389	-	-	1200	-	-	427	423	745	427	395	869
Stage 1	-	-	-	-	-	-	666	632	-	780	719	-
Stage 2	-	-	-	-	-	-	775	711	-	663	593	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1389	-	-	1200	-	-	392	406	745	392	379	869
Mov Cap-2 Maneuver	-	-	-	-	-	-	392	406	-	392	379	-
Stage 1	-	-	-	-	-	-	652	620	-	764	705	-
Stage 2	-	-	-	-	-	-	736	696	-	625	581	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.56			0.94			13.98			13.97		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	392	406	745	1389	-	-	1200	-	-	392	379	869
HCM Lane V/C Ratio	0.127	0.019	0.026	0.02	-	-	0.02	-	-	0.111	0.027	0.016
HCM Control Delay (s/veh)	15.5	14	10	7.6	-	-	8.1	-	-	15.3	14.8	9.2
HCM Lane LOS	C	B	A	A	-	-	A	-	-	C	B	A
HCM 95th %tile Q(veh)	0.4	0.1	0.1	0.1	-	-	0.1	-	-	0.4	0.1	0

Lanes, Volumes, Timings
2: Elbert Road & West Access

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	37	0	0	53
Future Volume (vph)	0	0	37	0	0	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	1863	1863	1863	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	1863	1863	1863	1863	1863
Link Speed (mph)	30		40			40
Link Distance (ft)	617		1823			273
Travel Time (s)	8.6		41.4			6.2
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	0	0	47	0	0	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	47	0	0	68
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	6.7%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	0	0	37	0	0	53
Future Vol, veh/h	0	0	37	0	0	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	47	0	0	68

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	115	47	0	0	47	0
Stage 1	47	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	881	1022	-	-	1560	-
Stage 1	975	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	881	1022	-	-	1560	-
Mov Cap-2 Maneuver	881	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	1560
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

Lanes, Volumes, Timings
 3: Judge Orr Road & South Access

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	252	56	19	132	0	44	0	15	0	0	0
Future Volume (vph)	0	252	56	19	132	0	44	0	15	0	0	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1863	1863	1583	1770	1863	1863	1770	1863	1583	1863	1863	1863
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	1863	1863	1583	1770	1863	1863	1770	1863	1583	1863	1863	1863
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		2171			507			472			565	
Travel Time (s)		26.9			6.3			10.7			12.8	
Peak Hour Factor	0.78	0.88	0.79	0.78	0.84	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	0	286	71	24	157	0	56	0	19	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	286	71	24	157	0	56	0	19	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.8%
ICU Level of Service	A
Analysis Period (min)	15

























Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗	↘	↑	↗	↘	↑	↗
Traffic Vol, veh/h	0	252	56	19	132	0	44	0	15	0	0	0
Future Vol, veh/h	0	252	56	19	132	0	44	0	15	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	88	79	78	84	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	286	71	24	157	0	56	0	19	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	157	0	0	357	0	0	492	492	286	492	563	157
Stage 1	-	-	-	-	-	-	286	286	-	206	206	-
Stage 2	-	-	-	-	-	-	206	206	-	286	357	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1423	-	-	1201	-	-	487	478	753	487	435	888
Stage 1	-	-	-	-	-	-	721	675	-	796	731	-
Stage 2	-	-	-	-	-	-	796	731	-	721	628	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1423	-	-	1201	-	-	477	468	753	465	426	888
Mov Cap-2 Maneuver	-	-	-	-	-	-	477	468	-	465	426	-
Stage 1	-	-	-	-	-	-	721	675	-	780	717	-
Stage 2	-	-	-	-	-	-	780	717	-	703	628	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			1.08			12.63			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	477	-	753	1423	-	-	1201	-	-	-	-	-
HCM Lane V/C Ratio	0.118	-	0.026	-	-	-	0.02	-	-	-	-	-
HCM Control Delay (s/veh)	13.6	0	9.9	0	-	-	8.1	-	-	0	0	0
HCM Lane LOS	B	A	A	A	-	-	A	-	-	A	A	A
HCM 95th %tile Q(veh)	0.4	-	0.1	0	-	-	0.1	-	-	-	-	-

Lanes, Volumes, Timings
1: Judge Orr Road & Elbert Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	151	24	9	289	28	34	5	13	15	4	48
Future Volume (vph)	80	151	24	9	289	28	34	5	13	15	4	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Link Speed (mph)		55			55			30			40	
Link Distance (ft)		1180			2171			308			1823	
Travel Time (s)		14.6			26.9			7.0			31.1	
Peak Hour Factor	0.81	0.85	0.78	0.78	0.88	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	99	178	31	12	328	36	44	6	17	19	5	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	178	31	12	328	36	44	6	17	19	5	62
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.2%
	ICU Level of Service A
Analysis Period (min)	15













Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Vol, veh/h	80	151	24	9	289	28	34	5	13	15	4	48
Future Vol, veh/h	80	151	24	9	289	28	34	5	13	15	4	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	85	78	78	88	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	99	178	31	12	328	36	44	6	17	19	5	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	364	0	0	208	0	0	729	763	178	730	757	328
Stage 1	-	-	-	-	-	-	375	375	-	351	351	-
Stage 2	-	-	-	-	-	-	354	387	-	378	406	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1194	-	-	1363	-	-	338	334	865	338	337	713
Stage 1	-	-	-	-	-	-	646	617	-	665	632	-
Stage 2	-	-	-	-	-	-	663	609	-	643	598	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1194	-	-	1363	-	-	277	304	865	296	306	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	304	-	296	306	-
Stage 1	-	-	-	-	-	-	593	566	-	660	627	-
Stage 2	-	-	-	-	-	-	596	604	-	572	548	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	2.66			0.24			17.31			12.59		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	277	304	865	1194	-	-	1363	-	-	296	306	713
HCM Lane V/C Ratio	0.157	0.021	0.019	0.083	-	-	0.008	-	-	0.065	0.017	0.086
HCM Control Delay (s/veh)	20.4	17.1	9.2	8.3	-	-	7.7	-	-	18	17	10.5
HCM Lane LOS	C	C	A	A	-	-	A	-	-	C	C	B
HCM 95th %tile Q(veh)	0.6	0.1	0.1	0.3	-	-	0	-	-	0.2	0.1	0.3

Lanes, Volumes, Timings
2: Elbert Road & West Access

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	15	38	75	25	32
Future Volume (vph)	35	15	38	75	25	32
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Link Speed (mph)	30		40			40
Link Distance (ft)	523		1823			273
Travel Time (s)	8.6		41.4			6.2
Peak Hour Factor	0.78	0.78	0.78	0.81	0.78	0.78
Adj. Flow (vph)	45	19	49	93	32	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	19	49	93	32	41
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.1%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	35	15	38	75	25	32
Future Vol, veh/h	35	15	38	75	25	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	81	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	19	49	93	32	41

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	154	49	0	0	141	0
Stage 1	49	-	-	-	-	-
Stage 2	105	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	838	1020	-	-	1442	-
Stage 1	974	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	819	1020	-	-	1442	-
Mov Cap-2 Maneuver	819	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	899	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.33	0	3.31
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	819	1020	1442	-
HCM Lane V/C Ratio	-	-	0.055	0.019	0.022	-
HCM Control Delay (s/veh)	-	-	9.6	8.6	7.6	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.1	-

Lanes, Volumes, Timings
3: Judge Orr Road & South Access

JR Engineering
07/17/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	65	28	9	225	62	38	1	13	38	1	63
Future Volume (vph)	86	65	28	9	225	62	38	1	13	38	1	63
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		2171			507			472			614	
Travel Time (s)		26.9			6.3			10.7			14.0	
Peak Hour Factor	0.82	0.80	0.78	0.78	0.87	0.79	0.78	0.78	0.78	0.78	0.78	0.79
Adj. Flow (vph)	105	81	36	12	259	78	49	1	17	49	1	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	81	36	12	259	78	49	1	17	49	1	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.4%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Vol, veh/h	86	65	28	9	225	62	38	1	13	38	1	63
Future Vol, veh/h	86	65	28	9	225	62	38	1	13	38	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	80	78	78	87	79	78	78	78	78	78	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	105	81	36	12	259	78	49	1	17	49	1	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	337	0	0	117	0	0	573	651	81	573	609	259
Stage 1	-	-	-	-	-	-	291	291	-	282	282	-
Stage 2	-	-	-	-	-	-	282	360	-	292	327	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1222	-	-	1471	-	-	430	388	979	430	410	780
Stage 1	-	-	-	-	-	-	717	672	-	725	678	-
Stage 2	-	-	-	-	-	-	725	626	-	716	648	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1222	-	-	1471	-	-	349	352	979	382	372	780
Mov Cap-2 Maneuver	-	-	-	-	-	-	349	352	-	382	372	-
Stage 1	-	-	-	-	-	-	655	614	-	719	673	-
Stage 2	-	-	-	-	-	-	644	621	-	642	592	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	3.88			0.25			14.89			12.31		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	349	352	979	1222	-	-	1471	-	-	382	372	780
HCM Lane V/C Ratio	0.14	0.004	0.017	0.086	-	-	0.008	-	-	0.127	0.003	0.102
HCM Control Delay (s/veh)	17	15.3	8.7	8.2	-	-	7.5	-	-	15.8	14.7	10.1
HCM Lane LOS	C	C	A	A	-	-	A	-	-	C	B	B
HCM 95th %tile Q(veh)	0.5	0	0.1	0.3	-	-	0	-	-	0.4	0	0.3

Lanes, Volumes, Timings
1: Judge Orr Road & Elbert Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	291	50	19	175	9	39	6	15	34	8	23
Future Volume (vph)	33	291	50	19	175	9	39	6	15	34	8	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Link Speed (mph)		55			55			30			40	
Link Distance (ft)		1180			2171			308			1823	
Travel Time (s)		14.6			26.9			7.0			31.1	
Peak Hour Factor	0.78	0.89	0.78	0.78	0.86	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	42	327	64	24	203	12	50	8	19	44	10	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	327	64	24	203	12	50	8	19	44	10	29
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.5%
ICU Level of Service	A
Analysis Period (min)	15













Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Vol, veh/h	33	291	50	19	175	9	39	6	15	34	8	23
Future Vol, veh/h	33	291	50	19	175	9	39	6	15	34	8	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	89	78	78	86	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	327	64	24	203	12	50	8	19	44	10	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	215	0	0	391	0	0	669	675	327	668	728	203
Stage 1	-	-	-	-	-	-	412	412	-	252	252	-
Stage 2	-	-	-	-	-	-	257	264	-	415	476	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1355	-	-	1167	-	-	371	375	714	372	350	837
Stage 1	-	-	-	-	-	-	617	595	-	752	698	-
Stage 2	-	-	-	-	-	-	747	690	-	614	557	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1355	-	-	1167	-	-	330	356	714	336	332	837
Mov Cap-2 Maneuver	-	-	-	-	-	-	330	356	-	336	332	-
Stage 1	-	-	-	-	-	-	598	576	-	736	684	-
Stage 2	-	-	-	-	-	-	695	676	-	571	539	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.76			0.83			15.68			14.38		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	330	356	714	1355	-	-	1167	-	-	336	332	837
HCM Lane V/C Ratio	0.152	0.022	0.027	0.031	-	-	0.021	-	-	0.13	0.031	0.035
HCM Control Delay (s/veh)	17.9	15.3	10.2	7.7	-	-	8.1	-	-	17.3	16.2	9.5
HCM Lane LOS	C	C	B	A	-	-	A	-	-	C	C	A
HCM 95th %tile Q(veh)	0.5	0.1	0.1	0.1	-	-	0.1	-	-	0.4	0.1	0.1

Lanes, Volumes, Timings
2: Elbert Road & West Access

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	12	6	37	11	7	53
Future Volume (vph)	12	6	37	11	7	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Link Speed (mph)	30		40			40
Link Distance (ft)	592		1823			273
Travel Time (s)	8.6		41.4			6.2
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	15	8	47	14	9	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	8	47	14	9	68
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	15.8%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	12	6	37	11	7	53
Future Vol, veh/h	12	6	37	11	7	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	8	47	14	9	68

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	133	47	0	0	62	0
Stage 1	47	-	-	-	-	-
Stage 2	86	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	860	1022	-	-	1542	-
Stage 1	975	-	-	-	-	-
Stage 2	937	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	855	1022	-	-	1542	-
Mov Cap-2 Maneuver	855	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	932	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.04	0	0.86
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	855	1022	1542	-
HCM Lane V/C Ratio	-	-	0.018	0.008	0.006	-
HCM Control Delay (s/veh)	-	-	9.3	8.6	7.3	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-

Lanes, Volumes, Timings
3: Judge Orr Road & South Access

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	252	56	19	132	17	44	1	15	15	1	27
Future Volume (vph)	32	252	56	19	132	17	44	1	15	15	1	27
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		2171			507			472			625	
Travel Time (s)		26.9			6.3			10.7			14.2	
Peak Hour Factor	0.78	0.88	0.79	0.78	0.84	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	41	286	71	24	157	22	56	1	19	19	1	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	286	71	24	157	22	56	1	19	19	1	35
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.7%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Vol, veh/h	32	252	56	19	132	17	44	1	15	15	1	27
Future Vol, veh/h	32	252	56	19	132	17	44	1	15	15	1	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	88	79	78	84	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	286	71	24	157	22	56	1	19	19	1	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	179	0	0	357	0	0	575	596	286	575	645	157
Stage 1	-	-	-	-	-	-	368	368	-	206	206	-
Stage 2	-	-	-	-	-	-	207	228	-	369	439	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1397	-	-	1201	-	-	429	417	753	429	391	888
Stage 1	-	-	-	-	-	-	651	621	-	796	731	-
Stage 2	-	-	-	-	-	-	795	716	-	651	578	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1397	-	-	1201	-	-	391	396	753	396	372	888
Mov Cap-2 Maneuver	-	-	-	-	-	-	391	396	-	396	372	-
Stage 1	-	-	-	-	-	-	632	603	-	780	717	-
Stage 2	-	-	-	-	-	-	748	701	-	614	561	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.79			0.97			14.27			11.2		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	391	396	753	1397	-	-	1201	-	-	396	372	888
HCM Lane V/C Ratio	0.144	0.003	0.026	0.029	-	-	0.02	-	-	0.049	0.003	0.039
HCM Control Delay (s/veh)	15.8	14.1	9.9	7.7	-	-	8.1	-	-	14.5	14.7	9.2
HCM Lane LOS	C	B	A	A	-	-	A	-	-	B	B	A
HCM 95th %tile Q(veh)	0.5	0	0.1	0.1	-	-	0.1	-	-	0.2	0	0.1

Appendix E: Judge Orr Road Deviation Request



Planning and Community
Development Department
2880 International Circle
Colorado Springs, Colorado 80910
Phone: 719.520.6300
Fax: 719.520.6695
Website www.elpasoco.com

DEVIATION REQUEST AND DECISION FORM

Updated: 6/26/2019

PROJECT INFORMATION

Project Name : Saddlehorn Ranch
 Schedule No.(s) : 4300000561, 4400000562, 4300000556
 Legal Description : SEE ATTACHED – Exhibit D

APPLICANT INFORMATION

Company : WILLIAM GUMAN & ASSOCIATES
 Name : BILL GUMAN
 Owner Consultant Contractor
 Mailing Address : 731 NORTH WEBER STREET, SUITE 10, COLORADO SPRINGS, COLORADO, 80903

 Phone Number : (719) 633-9700
 FAX Number : N/A
 Email Address : BILL@GUMAN.NET

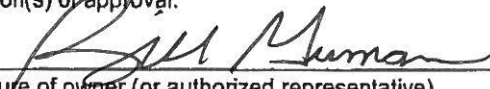
ENGINEER INFORMATION

Company : JR ENGINEERING
 Name : MIKE BRAMLETT Colorado P.E. Number : 32314
 Mailing Address : 5475 TECH CENTER DRIVE, SUITE 235, COLORADO SPRINGS, COLORADO 80919

 Phone Number : 719-593-2593
 FAX Number : N/A
 Email Address : MBRAMLETT@JRENGINEERING.COM

OWNER, APPLICANT, AND ENGINEER DECLARATION

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review until corrections are made, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.


 Signature of owner (or authorized representative)

04-SEP-2020
 Date

Engineer's Seal, Signature
 And Date of Signature





DEVIATION REQUEST (Attach diagrams, figures, and other documentation to clarify request)

A deviation from the standards of or in Section **ECM section 2.2.4 Roadway Functional Classifications** of the Engineering Criteria Manual (ECM) is requested for the Judge Orr Road cross section.

Identify the specific ECM standard which a deviation is requested:

The 824 acre Curtis Road Development Traffic Impact Analysis indicates Judge Orr Road is classified as a "4 Lane Minor Arterial in the El Paso County 2040 Major Transportation Corridors Plan. The ECM currently has no standard cross section for a 4 lane minor arterial. It is assumed that a 4 lane minor arterial (rural) cross section would add a 12 ft travel lane in each direction to Figure 2-5 Typical Rural Minor Arterial Cross Section (two lane). See Exhibit A

State the reason for the requested deviation:

The purpose of this deviation is to document the cross-section and ROW dedication necessary to be shown on the preliminary plan.

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

See Exhibit A for available ECM cross sections and See Exhibit B for the existing Judge Orr Road cross section.

The applicant will provide a 90 foot half right of way on all plats adjacent to Judge Orr Road consistent with the anticipated ROW needs identified in the MTCP.

The applicant is also subject to the El Paso County Road Impact Fee per resolution No. 19-471 and is therefore paying its fair and equitable share of necessary improvements identified in the MTCP.

LIMITS OF CONSIDERATION

(At least one of the conditions listed below must be met for this deviation request to be considered.)

- The ECM standard is inapplicable to the particular situation.
- Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.
- A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

Provide justification:

The MTCP minor 4-lane arterial cross-section is not provided in the Engineering Criteria Manual.

CRITERIA FOR APPROVAL

Per ECM section 5.8.7 the request for a deviation may be considered if the request is **not based exclusively on financial considerations**. The deviation must not be detrimental to public safety or surrounding property. The applicant must include supporting information demonstrating compliance with **all of the following criteria**:

The deviation will achieve the intended result with a comparable or superior design and quality of improvement.

This request is not based on financial considerations. There is not enough ROW to accommodate a 4-lane minor arterial street section. Per Table 10 of the Traffic Impact Study, Judge Orr is MTCP Project No. C15 and applicant will pay into the Fee program traffic impact fees to participate in funding the project. See Exhibit C

The deviation will not adversely affect safety or operations.

The deviation will not adversely affect safety or operations as Judge Orr Road is an existing, operable roadway

As final plats take access to Judge Orr Road the each intersection will be designed to accommodate the requirements listed in Table 10 Roadway Improvements of the Traffic Impact Study.

The deviation will not adversely affect maintenance and its associated cost.

Maintenance of the roadways will not be impacted as the existing roadway will be left in its existing condition at this time.

The deviation will not adversely affect aesthetic appearance.

The deviation has no bearing on the aesthetic appearance.

The deviation meets the design intent and purpose of the ECM standards.

Yes, the deviation meets the design intent and purpose of the ECM standards. Once ROW can be obtained, the road can be built out to the full 4-lane minor arterial street section.

The deviation meets the control measure requirements of Part I.E.3 and Part I.E.4 of the County's MS4 permit, as applicable.

Yes, the deviation meets the control measure requirements of Part I.E.3 and Part I.E.4 of the County's MS4 permit, this project is proposing Water Quality facilities as required by the criteria.

REVIEW AND RECOMMENDATION:

Approved by the ECM Administrator

This request has been determined to have met the criteria for approval. A deviation from Section 2.2.4 of the ECM is hereby granted based on the justification provided.

┌ **APPROVED** ┐
┌ Engineering Department ┐
┌ *01/05/2021 6:55:29 PM* ┐
┌ *dsdnijkamp* ┐
┌ EPC Planning & Community ┐
┌ Development Department ┐

Denied by the ECM Administrator

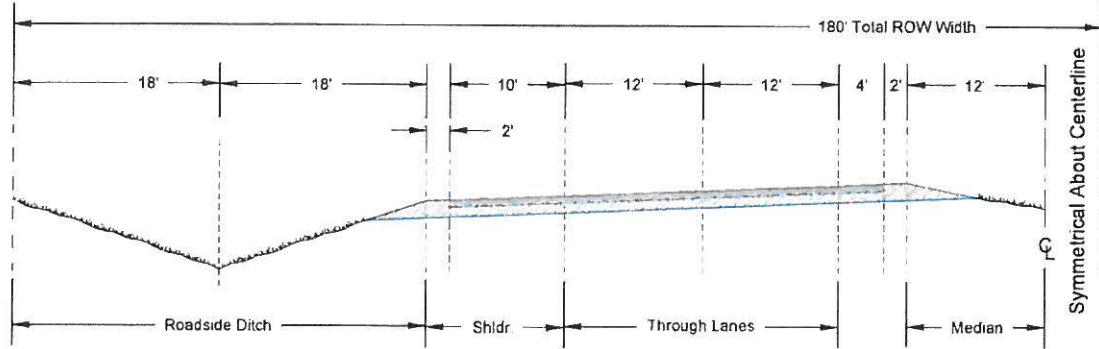
This request has been determined not to have met criteria for approval. A deviation from Section _____ of the ECM is hereby denied.

┌ ┐
┌ ┐

ECM ADMINISTRATOR COMMENTS/CONDITIONS:

Exhibit A

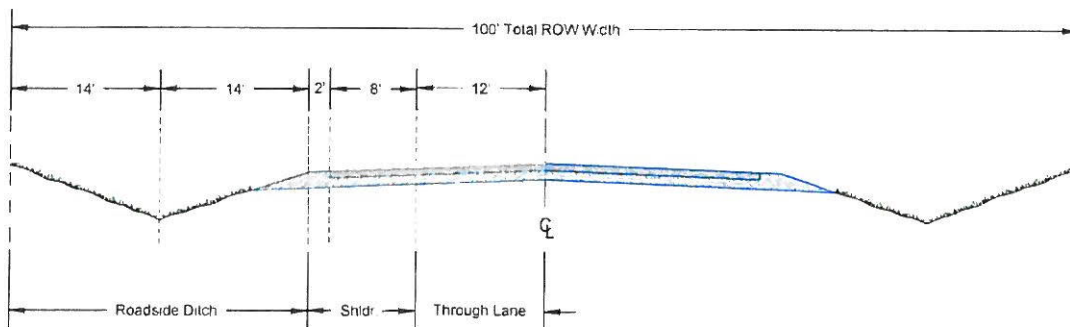
Figure 2-4. Typical Rural Principal Arterial Partial Cross-Section (4 Lane)



3. Minor Arterial

Minor arterials serve high-speed and high-volume traffic over medium distances, or are anticipated to serve this kind of traffic within a twenty-year period. Access is restricted through prescribed distances between intersections, use of medians, and no full movement parcel access (See Figure 2-5). Minor arterial status is assigned to rural roadways where the probability of significant travel demand in the future is high. Rights-of-way, easements, setbacks, and access limitations shall be pursued through the land development process on properties adjacent to minor arterials.

Figure 2-5. Typical Rural Minor Arterial Partial Cross Section



4. Major Collector

Major collectors serve as links between local access and arterial facilities over medium-to-long distances. Major collectors are managed to

Exhibit A - cont

Table 2-3. Roadway Design Criteria Continued

Criteria	Concern	Guideline
Minimize Space Devoted to Road Use	It is desirable to minimize local road mileage, thereby reducing construction and maintenance costs, as well as permitting the most efficient use of land. Roads should also have an appearance commensurate with their function.	Roads should be designed to complement local character.
Relate Road to Topography	Local roads are more attractive and economical if constructed to closely adhere to topography (minimize cut and fill).	The important role that roads play in the overall storm drainage system can be enhanced by closely following existing topography.
Layout Road to Achieve Optimum Subdivision of Land	The arrangement of roads should allow for economical and practical patterns, shapes, and sizes of adjacent lots. Roads as a function of land use must not unduly hinder the development of land.	Distances between roads, number of roads, and related elements all have a bearing on efficient subdivision of an area. Access to adjoining properties should also be encouraged.

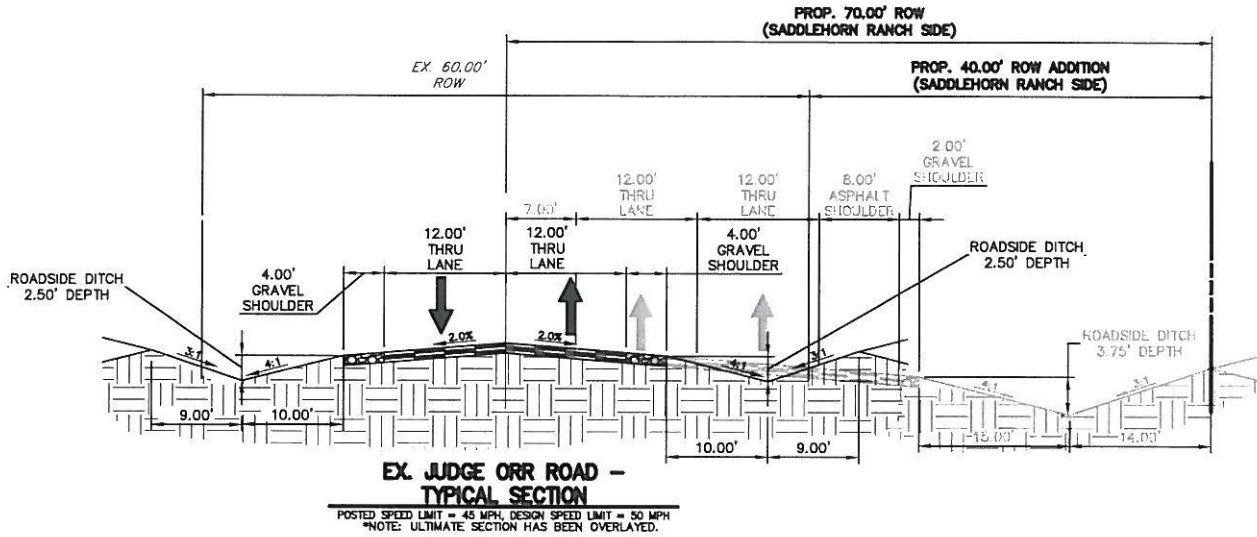
2.3.2 Design Standards by Functional Classification

Section 2.2.4 of these standards identifies the Roadway Functional Classifications recognized and used by the County. Table 2-4 through Table 2-7 summarize many of the minimum roadway design standards by category and functional classification. Detailed road Standard Drawings are provided in Appendix F.

Table 2-4. Roadway Design Standards for Rural Expressways and Arterials

Criteria	Expressways		Arterials		Minor
	6 Lane	4 Lane	6 Lane Principal	4 Lane Principal	
Design Speed / Posted Speed (MPH)	70 / 65	70 / 65	70 / 65	70 / 65	60 / 55
Clear Zone	34'	34'	34'	34'	30'
Minimum Centerline Curve Radius	2,050 ¹	2,050 ¹	2,050 ¹	2,050 ¹	1,505 ¹
Number of Through Lanes	6	4	6	4	2
Lane Width	12'	12'	12'	12'	12'
Right-of-Way	210'	180'	210'	180'	100'
Paved Width	56' ²	38' ²	56' ²	38' ²	40'
Median Width	24'	24'	24'	24'	n/a
Outside Shoulder Width (paved/gravel)	12'(10' ¹ /2')	12'(10' ¹ /2')	12'(10' ¹ /2')	12'(10' ¹ /2')	10'(8' ¹ /2')
Inside Shoulder Width (paved/gravel)	12'(10' ¹ /2')	6'(4' ¹ /2')	12'(10' ¹ /2')	6'(4' ¹ /2')	n/a
Design ADT		48,000		40,000	10,000
Design Vehicle	WB-67	WB-67	WB-67	WB-67	WB-67
Access Permitted	No	No	No	No	No
Access Spacing	n/a	n/a	n/a	n/a	n/a
Intersection Spacing	1 mile	1 mile	½ mile	½ mile	¼ mile
Parking Permitted	No	No	No	No	No
Minimum Flowline Grade	1%	1%	1%	1%	1%

Exhibit B



X:\2510000\all\2514200\Drawings\Blocks\2514200_Ex Judge Orr Road X Section_recover.dwg, 8.5x11 Portrait, 5/4/2020 8:36:55 AM, mcmullana

SADDLEHORN RANCH
 DEVIATION REQUEST
 EX. JUDGE ORR ROAD
 2514200
 5/4/20
 SHEET 1 OF 1

 **J-R ENGINEERING**
 A Westrian Company

Centennial 303-740-9393 • Colorado Springs 719-593-2593
 Fort Collins 970-491-9888 • www.jrengineering.com

Exhibit C

Table 10: Roadway Improvements for Saddlehorn Ranch

Offsite Intersections			
Item #	Improvement	Timing	Responsibility
US Highway 24/Judge Orr Intersection			
1.1	Realignment of Judge Orr Road at US Highway 24 per CDOT Hwy 24 PEL Study	Future (the PEL study identified this as high priority project with a time frame of less than 5 years)	CDOT
1.2	Southwest-bound right-turn deceleration lane on US 24 approaching Judge Orr Road	As required by other development(s) or with realignment of US 24/ Judge Orr	CDOT or by others
1.3	Construct southwest-bound right-turn acceleration lane on US 24 at Judge Orr Road	As required by other development(s) or with realignment of US 24/ Judge Orr	CDOT or by others
1.4	Eastbound left-turn lane on Judge Orr Road approaching US 24	With realignment of US 24/ Judge Orr	CDOT
1.5	Westbound dual left-turn lanes on Judge Orr Road approaching US 24	With realignment of US 24/ Judge Orr	CDOT
1.6	Northeast-bound right-turn deceleration lane on US 24 approaching Judge Orr Road	With realignment of US 24/ Judge Orr	CDOT
1.7	Eastbound right-turn deceleration lane on Judge Orr Road approaching US 24	As required by other development(s) or with realignment of US 24/ Judge Orr	CDOT or by others
US Highway 24/Stapleton Intersection			
2.1	Signalize the intersection	Once warrants are met	CDOT is collecting escrow from area developments impacting this intersection with each subdivision filing
Curtis Road/Falcon Highway			
3.1	Lengthen eastbound left-turn lane to ECM standards on Falcon Highway approaching Curtis Road	Currently warranted by ECM	Escrow for pro-rata share of improvement or construction at the time of Phase 2 development (fee program credit per fee program provisions)
3.2	Long Term: In the case of a future signalized intersection - Construct southbound right-turn deceleration lane on Curtis Road approaching Falcon Highway	Upon Signalization	Escrow for pro-rata share of improvement or construction if warranted at the time of development (fee program credit per fee program provisions)
3.2	Long Term: Reconstruct intersection as a modern roundabout (or signalize the intersection)	Once LOS of AWSC drops below acceptable levels (roundabout); or once signal warrants are met (for conversion to a signal or roundabout)	El Paso County -- This intersection will be fee-program eligible for a signal/roundabout and applicant will pay fee program traffic impact fees
Adjacent County Arterial Roadway ROW Requirements			
4.1	Judge Orr Right-of-Way Dedication - 4 Lane Minor Arterial, Rural 130' to 150' estimated right-of-way dedication' (Note: 4-lane Rural Principal is 180')	Shown in 2040 MTCP	Applicant
4.2	Judge Orr - 4 Lane Minor Arterial - Beyond above dedication, no additional right-of-way preservation needed	Shown in 2060 Corridor Pres Plan	Applicant
4.3	Curtis Road - 2 Lane Rural Principal Arterial 130' to 150' estimated right-of-way dedication (Note: 4-lane Rural Principal is 180')	Shown in 2040 MTCP	Applicant
4.4	Curtis Road - 4 Lane Rural Principal Arterial 180' right-of-way preservation	Shown in 2060 Corridor Pres Plan	Applicant
Roadway Segment Improvements			
5.1	Falcon Highway - Upgrade to Two-Lane Rural Minor Arterial	Shown in 2040 MTCP	MTCP Project No. U5; Details TBD; applicant will pay fee program traffic impact fees
5.2	Judge Orr Road - Widen to Four Lane Rural Minor Arterial	Shown in 2040 MTCP	MTCP Project No. C15; Details TBD; - applicant will pay fee program traffic impact fees.
5.3	Curtis Road - Upgrade to Two-Lane Rural Principal Arterial	Shown in 2040 MTCP	MTCP Project No. U1; Applicant per rezone condition of approval, potentially subject to fee program credit.
Internal Subdivision Roadways			
6.1	Construct internal streets to County Rural Local Standards	As development occurs and as needed for access	Applicant
Adjacent Intersection and Access Intersections			
Item #	Improvement	Timing	Responsibility
Judge Orr/Curtis Road Intersection			
7.1	Westbound right-turn deceleration lane	Once peak hour westbound right turn volume exceeds 50 vehicles per hour.	Escrow for improvement or construction if warranted at the time of development (fee program credit per fee program provisions)
7.2	Eastbound right-turn deceleration lane	Currently warranted by ECM	Escrow for improvement or construction at the time of Phase 2 development (fee program credit per fee program provisions)
7.3	Potentially sign for all way stop sign control (AWSC)	Once warrants for AWSC are met	El Paso County
7.4	Long Term: Reconstruct intersection as a modern roundabout (or signalize the intersection)	Once LOS of AWSC drops below acceptable levels (roundabout); or once signal warrants are met (for conversion to a signal or roundabout)	El Paso County, This intersection will be fee-program eligible for a signal/roundabout and applicant will pay fee program traffic impact fees
7.5	Long Term: In the case of a future signalized intersection - lengthening of northbound and southbound left-turn deceleration lanes.	As needed based on future speed limit and turning volume/stacking length criteria.	Escrow for improvement or construction if warranted at the time of development (fee program credit per fee program provisions)
Judge Orr/Barrosito Trail			
8.1	No Auxiliary Turn Lanes Required	-	-
Judge Orr/Del Cambre Trail			
9.1	No Auxiliary Turn Lanes Required	-	-
Curtis Road/Oscuro Trail			
10.1	Short Term No Auxiliary Turn Lanes Required	-	-
10.2	Long Term Construct northbound right-turn deceleration lane on Curtis Rd approaching the site access	With Phase 2/3 site development	Applicant
Curtis Road/North Site Access			
11.1	Short Term No Auxiliary Turn Lanes Required	-	-
11.2	Long Term Construct southbound left-turn deceleration lane on Curtis Rd approaching the site access	With Phase 2/3 site development	Applicant
11.3	Long Term Construct northbound right-turn deceleration lane on Curtis Rd approaching the site access	With Phase 2/3 site development	Applicant

Source: LSC Transportation Consultants, Inc.

PROPERTY DESCRIPTION: **Exhibit D**

PARCEL A:

A PARCEL OF LAND LOCATED IN SECTION 3, TOWNSHIP 13 SOUTH, RANGE 64 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 3; THENCE S 89 DEGREES 21 MINUTES 33 SECONDS E, ALONG THE NORTH LINE OF SAID SECTION 3, 5275.27 FEET TO THE NORTHEAST CORNER THEREOF; THENCE S 00 DEGREES 04 MINUTES 45 SECONDS E, ALONG THE EAST LINE OF SAID SECTION 3, 1841.19 FEET; THENCE N 89 DEGREES 49 MINUTES 04 SECONDS W, 5280.38 FEET TO A POINT ON THE WEST LINE OF SAID SECTION 3; THENCE N 00 DEGREES 05 MINUTES 14 SECONDS E, ALONG SAID WEST LINE, 1883.39 FEET TO THE POINT OF BEGINNING.

EXCEPT THOSE PORTIONS CONVEYED TO EL PASO COUNTY BY AND THROUGH THE BOARD OF COUNTY COMMISSIONERS OF EL PASO COUNTY, COLORADO, IN SPECIAL WARRANTY DEEDS RECORDED JANUARY 29, 2015 AT RECEPTION NO. 215008985 AND RECEPTION NO. 215008986.

PARCEL B:

A PARCEL OF LAND LOCATED IN SECTION 3, TOWNSHIP 13 SOUTH, RANGE 64 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 3; THENCE N 00 DEGREES 05 MINUTES 14 SECONDS E, ALONG THE WEST LINE OF SAID SECTION 3, 1974.75 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID WEST LINE, N 00 DEGREES 05 MINUTES 14 SECONDS E, 1649.14 FEET; THENCE S 89 DEGREES 49 MINUTES 04 SECONDS E, 5280.38 FEET TO A POINT ON THE EAST LINE OF SAID SECTION 3; THENCE S 00 DEGREES 04 MINUTES 45 SECONDS E, ALONG SAID EAST LINE, 1649.15 FEET; THENCE N 89 DEGREES 49 MINUTES 04 SECONDS W, 5285.17 FEET TO THE POINT OF BEGINNING.

PARCEL C:

A PARCEL OF LAND LOCATED IN SECTION 3 AND SECTION 10, TOWNSHIP 13 SOUTH, RANGE 64 WEST, OF THE 6TH P.M., EL PASO COUNTY, COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 3; THENCE N 00 DEGREES 05 MINUTES 14 SECONDS E, ALONG THE WEST LINE OF SAID SECTION 3, 327.11 FEET; THENCE S 89 DEGREES 49 MINUTES 04 SECONDS E, 5289.95 FEET TO A POINT ON THE EAST LINE OF SAID SECTION 3; THENCE S 00 DEGREES 04 MINUTES 45 SECONDS E, ALONG SAID EAST LINE, 327.11 FEET TO THE SOUTHEAST CORNER OF SAID SECTION 3; THENCE S 00 DEGREES 57 MINUTES 38 SECONDS W, ALONG THE EAST LINE OF SAID SECTION 10, 1320.52 FEET TO THE SOUTHEAST CORNER OF THE

NORTH HALF OF THE NORTH HALF OF SAID SECTION 10; THENCE N 89 DEGREES 48 MINUTES 49 SECONDS W, ALONG THE SOUTH LINE OF SAID NORTH HALF OF THE NORTH HALF OF SAID SECTION 10, 5285.51 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE N 00 DEGREES 43 MINUTES 38" SECONDS E, ALONG THE WEST LINE OF SAID SECTION 10, 1320.06 FEET TO THE POINT OF BEGINNING.

Per the Commitment for Title Insurance, issued by Westcor Land Title Insurance Company, Commitment No. 56676ECS, dated August 2, 2018.

PARCEL 21:

A PORTION OF THE SOUTH HALF OF SECTION 3, TOWNSHIP 13 SOUTH, RANGE 64 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 3; THENCE ALONG THE EAST LINE OF SAID SECTION 3, S00°42'25"E (BEARINGS ARE RELATIVE TO THE NORTH LINE OF SECTION 3, BEING MONUMENTED AT THE WESTERLY END BY A FOUND NO.6 REBAR WITH A 3-1/4" ALUMINUM CAP IN A VAULT, STAMPED "PLS 17496", AND AT THE EASTERLY END BY A FOUND NO. 6 REBAR WITH 3-1/2" ALUMINUM CAP IN A VAULT, STAMPED "LS 17496", AND MEASURED TO BEAR S89°59'26"E, A DISTANCE OF 5275.03 FEET), A DISTANCE OF 3490.37 FEET, TO THE SOUTHEAST CORNER OF THAT PARCEL DESCRIBED IN THE QUIT CLAIM DEED RECORDED AT RECEPTION NO. 213021177, IN THE OFFICIAL RECORDS OF EL PASO COUNTY; SAID CORNER ALSO BEING THE POINT OF BEGINNING; THENCE S00°42'25"E, CONTINUING ALONG THE WEST LINE OF THAT PARCEL DESCRIBED IN THE QUIT CLAIM DEED RECORDED AT RECEPTION NO.213113100, IN SAID OFFICIAL RECORDS, A DISTANCE OF 1647.65 FEET, TO THE NORTHEAST CORNER OF THAT PARCEL DESCRIBED IN THE QUIT CLAIM DEED RECORDED AT RECEPTION NO. 213043391, IN SAID OFFICIAL RECORDS; THENCE S89°33'10"W, ALONG THE NORTH LINE OF SAID PARCEL, A DISTANCE OF 5289.71 FEET, TO A POINT LYING ON THE WEST LINE OF SAID SECTION 3; THENCE ALONG SAID WEST LINE, N00°32'28"W, A DISTANCE OF 1645.40 FEET, TO THE SOUTHWEST CORNER OF SAID PARCEL, RECORDED AT RECEPTION NO. 213021177, IN SAID OFFICIAL RECORDS; THENCE N89°31'43"E, ALONG THE SOUTH LINE OF SAID PARCEL, A DISTANCE OF 5284.95 FEET, TO THE POINT OF BEGINNING.

Per the Commitment for Title Insurance, issued by Land Title Guarantee Company, Order No. SC55073032, dated October 1, 2018.

Being more particularly described by metes and bounds as follows:

COMMENCING at the Northeast Corner of Section 3, Township 13 South, Range 64 West of the 6th Principal Meridian; thence along the east line of said Section 3, S00°42'27"E (Basis of bearings is the North line of Section 3, Township 13 South, Range 64 West of the 6th Principal Meridian, monumented at the West end by a No. 6 Rebar with a 3-1/4" aluminum cap, properly marked, in a monument box, "PLS 17496" and at the East end by a No. 6 rebar with a 3-1/2" aluminum cap, properly marked, in a monument box, "PLS 17496", having a measured bearing and distance of S89°59'23"E, 5275.26'. Bearings are relative to Colorado State Plane Central Zone (0502)), a distance of 30.00 feet, to the **POINT OF BEGINNING**; thence continuing along

said east line, S00°42'27"E, a distance of 5,435.28 feet, to the Southeast Corner of said Section 3, said point also being the Northeast Corner of Section 10, Township 13 South, Range 64 West of the 6th Principal Meridian; thence along the east line of the North 1/2 of the North 1/2 of said Section 10, S00°19'54"W, a distance of 1,320.51 feet, to the North 1/16th Corner of said Section 10; thence leaving said east line and along the south line of the North 1/2 of the North 1/2 of said Section 10, S89°34'02"W, a distance of 2,642.78 feet, to the North-Center-Center 1/16th Corner of said Section 10; thence continuing along said south line, S89°34'07"W, a distance of 2,612.73 feet, to a point that is 30.00 feet distant from the North 1/16th Corner of said Section 10, said point also being a point on the east right-of-way line of Curtis Road; thence along said east right-of-way line and 30.00 feet parallel to the west line of said North 1/2 of the North 1/2 of said Section 10, N00°05'54"E, a distance of 1,319.14 feet, to a point that is 30.00 distant to the Northwest Corner of said Section 10, also being the Southwest corner of said Section 3; thence continuing along said east right-of-way line, along the following four (4) courses:

1. N00°32'28"W, a distance of 4,608.42 feet;
2. N89°27'32"E, a distance of 19.98 feet;
3. N00°32'28"W, a distance of 820.00 feet;
4. N44°46'13"E, a distance of 40.00 feet,

to a point on the south right-of-way line of Judge Orr Road, thence along said south right-of-way line, along the following three (3) courses:

1. S89°59'23"E, a distance of 822.24 feet;
2. N00°00'37"E, a distance of 20.00 feet;
3. S89°59'23"E, a distance of 4,374.49 feet,

to the **POINT OF BEGINNING**.

Containing 35,565,654 S.F. or 816.475 acres, more or less.