

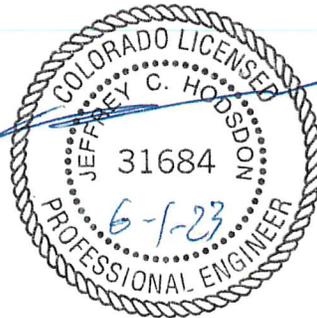


LSC TRANSPORTATION CONSULTANTS, INC.  
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Koinonia Ranch Minor Subdivision  
Transportation Memorandum  
PCD File No.: SP-21-004  
(LSC #S204710)  
June 1, 2023

**Traffic Engineer's Statement**

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



**Developer's Statement**

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

Sarah B Bartels

9/13/23  
Date

# Koinonia Ranch Minor Subdivision

## Transportation Memorandum

Prepared for:  
Sally Bartels  
3647 Tuscanna Grove  
Colorado Springs, CO 80920-2820

JUNE 1, 2022

---

LSC Transportation Consultants  
Prepared by: Jeffrey C. Hodsdon, P.E.

PCD File No. SP-21-004  
LSC #204710



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June 1, 2023

Sally Bartels  
3647 Tuscanna Grove  
Colorado Springs, CO 80920-2820

RE: Koinonia Ranch Minor Subdivision  
Transportation Memorandum  
El Paso County, CO  
PCD File No. SP-21-004  
LSC #204710

Dear Ms. Bartels,

LSC Transportation Consultants, Inc. has prepared this transportation memorandum for the proposed Koinonia Ranch residential development located in El Paso County, Colorado. The proposed development will be located on El Paso County parcel 5219000059. The site is north of Old Ranch Road approximately 3,500 feet west of the intersection with Black Forest Road.

The parcel is proposed to be subdivided into six single-family lots. The existing home on the site will remain on one of the subdivision lots. This report presents the estimated vehicle-trip generation and roadway impacts of the proposed development. This report has been prepared for submittal to El Paso County.

## REPORT CONTENTS

The preparation of this report included the following:

- Inventory of the existing adjacent and nearby roadway system. This includes functional classifications, roadway width and surface condition, posted speed limit, intersection/access spacing, intersection sight distance, etc.;
- A review of the proposed site land use and access location;
- Crash history at the intersection of Black Forest Road/Old Ranch Road;
- Estimates of current traffic volumes on Old Ranch Road adjacent to the site;
- Estimates of the net new and total daily and peak-hour trip generation for the proposed subdivision;
- The estimated directional distribution of site-generated vehicle trips;
- Projections of additional daily trips on Old Ranch Road in the vicinity of the site;

- Projections of peak-hour site-generated turning-movement traffic volumes at the site-access intersection;
- Evaluation of the post-development traffic volumes on Old Ranch Road in the vicinity of the site and at the site-access intersection; and
- Findings and recommendations.

## **RECENT TRAFFIC REPORTS**

*Black Forest Road Widening Project Traffic Impact Study* – November 2019 (AECOM) – Prepared for the City of Colorado Springs.

## **LAND USE/ACCESS**

### **Proposed Koinonia Minor Subdivision**

Figure 1 shows the site location relative to the adjacent and nearby roadways. The site is located on the north side of Old Ranch Road approximately 3,500 feet west of the intersection with Black Forest Road. There is currently an existing driveway to the existing single-family home on the parcel located 3,575 feet west of Black Forest Road (centerline-to-centerline).

Figure 2 shows the site plan and proposed access point. As shown, the proposed subdivision road to serve the development is planned to be located approximately 190 feet west of the existing driveway. The proposed subdivision road will replace the existing residential driveway, which will be closed. This subdivision access/proposed road intersection with Old Ranch Road is proposed to be full-movement.

## **OTHER AREA PARCELS ADJACENT TO OLD RANCH ROAD**

- The Black Forest Saddle Club also accesses Old Ranch Road. This is an existing land use.
- The Wolf Ranch Master Plan (City of Colorado Springs) along the south side of Old Ranch Road will not add a vehicular access to Old Ranch Road.

This report also considers potential future trip generation by other area potential future land uses:

- The parcel northwest of Black Forest Road/Old Ranch Road – 10650 Black Forest Road (EDARP EA# 21214) has the potential to add four lots which would access Old Ranch Road west of Black Forest Road.
- The vacant lot west of this site.

## **ROAD AND TRAFFIC CONDITIONS**

Streets adjacent to the site are identified below, followed by a brief description of each:

**Old Ranch Road** in the vicinity of the site, the roadway extends approximately 5,700 feet to the west from Black Forest Road where it ends at the intersection with Forest Drive. The El Paso County Road Book (2019) identifies this segment of Old Ranch Road as a County-maintained, 30-foot-wide gravel roadway with 60 feet of right-of-way. The posted speed limit is 25 mph. The functional classification as listed in the Road Book is “Urban Area - Local” and the administration classification is “Secondary Service.” The MTCP 2040 classification of Old Ranch Road, according to County staff, is Rural Major Collector (and shown on Map 14 of the MTCP).

MTCP Map 7 and Map 11 (Gravel Road Analysis – existing and 2040, respectively, show this section of Old Ranch Road as “Adequate.” Therefore, the roadway existing/baseline condition should not be considered “deficient” as it does not appear that significant changes have occurred, with respect to trip loading to Old Ranch Road, since the adoption of the MTCP.

Approximately one mile west of the end of Old Ranch Road, there is another segment of Old Ranch Road that extends from Milam Road to west of Voyager Parkway. This western segment of Old Ranch Road is paved. It is anticipated that the two segments of Old Ranch Road may be connected in the future, although it is not shown in any long-term plans.

**Black Forest Road** is a two-lane minor arterial. The roadway extends from just south of Woodmen Road north to the county line. The intersection with Old Ranch Road is stop-controlled. The roadway is planned for improvements between Hodgen Road and Stapleton Drive per the 2016 *Major Transportation Corridors Plan (MTCP)*. The posted speed limit is 55 miles per hour (mph) approaching Old Ranch Road in the northbound direction and drops to 40 mph immediately prior to the intersection. In the southbound direction the speed limit is 40 mph.

### **Existing Traffic Volumes**

Figure 3 shows the traffic volumes on Old Ranch Road and at the intersection of Old Ranch Road and Black Forest Road. The traffic volumes at the Old Ranch Road/Black Forest Road are based on turning-movement count data and the daily volume shown for Old Ranch Road just west of the Black Forest Road intersection has been based on actual counts for most of a 24-hour period. LSC has estimated existing traffic volumes on Old Ranch Road adjacent to the site and for the existing property access driveway.

### **Crash History**

Three years of crash history were analyzed at the intersection of Old Ranch Road/Black Forest Road. Only one crash was recorded during the study period, which was a rear-end crash that did not result in any injuries.

## SITE ACCESS

Per the El Paso County *Engineering Criteria Manual*, intersections on a collector are required to have a minimum spacing of ¼ mile. The proposed access location will meet this minimum in both directions.

The intersection will have a required sight distance of 335 feet assuming a posted speed limit of 25 mph. The proposed subdivision road/access intersection with Old Ranch Road is anticipated to meet the required minimum sight distance in both directions. The required intersection line-of-sight “triangles” should be maintained and free of site improvements (that would limit the line of sight needed to maintain prescribed sight distance). Examples of site improvements include site grading, structures, landscaping, monument signs, parking areas, berms, etc.

## OLD RANCH ROAD CONNECTION SCENARIO

As mentioned previously, there is a potential for the two segments of Old Ranch Road to be connected in the future. An analysis was completed to determine the long-term impacts of the proposed development, should such a connection occur in the future. To forecast the volume of traffic traveling on Old Ranch Road, the Pikes Peak Area Council of Government (PPACG) travel demand model was modified (by LSC) with the connection. Based on LSC model projections, it is estimated that Old Ranch Road will carry 4,500 vehicles per day. Historical count data on the west segment of Old Ranch Road was used to estimate the peak-hour directional traffic.

## TRIP GENERATION ESTIMATE

Estimates of the vehicle trips projected to be generated by the proposed site have been made using the nationally-published average trip-generation rates in *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE). The land use code 210 Single-Family Housing was used to calculate site-generated traffic.

Table 1 below presents a summary of the estimated site trip generation for the proposed development. A detailed trip-generation estimate for the site, including ITE rates, is presented in Table 2 (attached).

**Table 1: Estimated New Trip-Generation Summary**

Analysis Period	Weekday		Total
	In	Out	
Morning peak hour (vehicle trips/hour)	1	3	4
Evening peak hour (vehicle trips/hour)	3	2	5
Weekday – 24-hour total (vehicle trips/day)	24	24	47

Based on the ITE estimate for the proposed development, the site would generate approximately 47 net new vehicle trips on the average weekday, with half entering and half exiting the site. Approximately 1 entering vehicles and 3 exiting vehicles are projected for the weekday morning peak hour and 3 entering vehicles and 2 exiting vehicles are projected for the weekday evening peak hour.

## **TRIP DIRECTIONAL DISTRIBUTION & SITE-GENERATED TRAFFIC**

### **Site-Generated Traffic Volumes Prior to the Potential Future Old Ranch Connection**

Figure 4 shows the directional-distribution estimate for the proposed development. This assumes almost all trips oriented to/from the east.

Site-generated traffic volumes at the access intersection and at the intersection of Black Forest Road/Old Ranch Road have been calculated by applying the directional-distribution percentages estimated by LSC to the trip-generation estimates (from Table 2). Figure 5 shows estimates of the new site-generated traffic to be added by the proposed subdivision (net new trips from the five additional lots).

### **Site-Generated Traffic Volumes with Potential Future Old Ranch Connection**

Appendix Figure 1 shows (for reference) the projected directional-distribution estimate and the site-generated traffic volumes at the access intersection if and when Old Ranch is extended west to Milam Road. Trip-distribution estimates for this scenario have been based on the following factors: the area roadway system and the *Pikes Peak Area Council of Governments* (PPACG) travel demand model. As shown, it has been assumed that 66 percent of site-generated traffic would travel to/from the west via Old Ranch Road.

## **FUTURE TOTAL TRAFFIC VOLUMES**

### **Short-Term Total Traffic Volumes**

Figure 6 shows the estimated short-term total traffic (existing traffic plus the projected new post-development (“build”) traffic volumes from Figure 5). These volumes assume Old Ranch Road prior to a possible future extension to Milam Road.

### **2043 Projected Background Traffic Volumes**

Figure 7 shows the estimated long-term background traffic volumes. These volumes assume Old Ranch Road prior to a possible future extension to Milam Road. Future background traffic volumes are based, in part, on projections contained in the *Black Forest Road Widening Project Traffic Impact Study* – November 2019 (AECOM) – Prepared for the City of Colorado Springs.

These volumes also include potential additional trips from the Black Forest Subdivision and one additional vacant lot along Old Ranch Road.

**2043 Projected Total Traffic Volumes**

Figure 8 shows the estimated long-term total traffic (2043 background traffic plus the projected new post-development (“build”) traffic volumes from Figure 5). These volumes assume Old Ranch Road **prior to** a possible future extension to Milam Road.

**Post-Development Projected Total Volumes with Potential Future Old Ranch Connection**

Appendix Figure 2 shows the projected long-term total volumes at the site access if and when Old Ranch is extended west to Milam Road.

**INTERSECTION LEVEL OF SERVICE ANALYSIS**

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from “A” to “F.” LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 3 shows the level of service delay ranges for signalized and unsignalized intersections. Figure 6 and Figure 8 provides the levels of service for the projected post-development (“build”)/total traffic scenarios.

**Table 3: Intersection Levels of Service Delay Ranges**

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) <sup>(1)</sup>
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

(1) For unsignalized intersections if V/C ratio is greater than 1.0 the level of service is LOS F regardless of the projected average control delay per vehicle.

**Old Ranch Road/Site Access**

The site access intersection has been analyzed to determine the projected control delay and corresponding levels of service for turning movements. The level of service would be “A” in the short- and long-term scenarios.

### **Old Ranch Road/Black Forest Road**

The Old Ranch Road/Black Forest Road intersection is projected to operate at LOS B or better in the short term and LOS C or better based on the long-term scenario shown in Figure 8.

### **Post-Development Projected Long-Term LOS with Potential Future Old Ranch Connection**

As shown in Appendix Figure 2, all yielding turning movements at the site access are projected to operate at LOS B or better during both peak hours in the long term, assuming the future Old Ranch Road connection.

### **OLD RANCH ROAD FUTURE PROJECTED VOLUMES AND “LINK LOS”**

As mentioned previously, there is not a current project planned to connect the two segments of Old Ranch Road. Prior to this connection, all site-generated traffic, as well as all traffic generated by parcels accessing Old Ranch Road, will use the Old Ranch Road/Black Forest intersection. Note: These volumes are included in the volumes shown in Figure 8.

The attached Appendix Figure 3 shows the combined total projected new traffic on Old Ranch Road (prior to a possible future extension to Milam Road). This estimate includes total traffic for 10 new lots on Old Ranch Road: 5 lots within Koinonia Ranch, 4 lots for Black Forest Subdivision, and development of an additional currently-undeveloped residential lot.

The projected total ADT adjacent to and just east of the site is not anticipated to exceed the design ADT of a Rural Gravel Roadway. Based on estimated ADT (based on ITE rates) just west of Black Forest Road (but east of the easternmost residential driveway), both the existing (estimated) and post-development (build) ADT would be over 200 vpd, but less than 300 vpd. This is based on ITE trip generation for ten single-family homes to the east with access to Old Ranch between the site and Black Forest Road (about 100 background trips generated). However, as the projected ADT on the east near Black Forest Road is projected to exceed 200 vpd, a deviation request is required to keep the roadway gravel. This deviation has been prepared and is included with this submittal.

### **AUXILIARY TURN LANES**

No additional auxiliary lanes are necessary with

Note that per ECM 2.2.7.B.2, paving is required when the ADT of a road exceeds 200. Per the project scope, paving will be required because of this criteria. Please identify the fair share portion of paving that will be required.

As shown, all parcels with access to Old Ranch Road, including the proposed development, are projected to generate less than 25 vehicles inbound or outbound during the peak hours. This indicates that with the current configuration of Old Ranch Road, no thresholds for auxiliary lanes would be met at the intersection of Old Ranch Road/Black Forest Road, with or without the proposed development. As indicated above, three years of crash history were analyzed at the

intersection of Old Ranch Road/Black Forest Road. Only one crash was recorded during the study period, which was a rear-end crash that did not result in any injuries.

### **MTCP ROADWAY IMPROVEMENTS**

The 2016 *El Paso County Major Transportation Corridor Plan (MTCP)* shows that Black Forest Road between Hodgen Road and Stapleton Drive is identified for “rural road upgrade” – *MTCP* project ID U11.

### **PEDESTRIAN AND BICYCLE ACCOMMODATION**

There are currently no sidewalks, bike lanes, or trails in the vicinity of the site. The subdivision road will be a rural gravel road and sidewalks are not required.

### **COUNTY ROAD IMPROVEMENT FEE PROGRAM**

This subdivision will be required to participate in the Countywide Road Impact Fee program. The applicant has selected the “opt-out” option. The fee obligation per residential dwelling unit will be payable at the time of the building permit. This fee amount per dwelling unit is \$3,830.00. Based on 5 new homes, the total building permit fee would be \$19,150. Note: program fees are subject to change.

### **REIMBURSABLE MTCP IMPROVEMENTS**

A potentially reimbursable road improvement in the vicinity is the Black Forest Road rural upgrade – *MTCP* project ID U11. Old Ranch Road is shown as a “Collector” on the *MTCP* and could potentially be added to the *MTCP* reimbursable project list in the future.

### **DEVIATIONS**

Two deviations have been prepared for inclusion with this application. Please refer to the separate deviation request forms.

- A deviation for length of cul-de-sac.
- A deviation to keep Old Ranch Road as a gravel roadway.

### **FINDINGS AND CONCLUSIONS**

#### **Trip Generation**

- The development is expected to generate approximately 47 net new vehicle trips on the average weekday, with approximately 4 trips occurring during the morning peak hour and 6 trips during the evening peak hour.

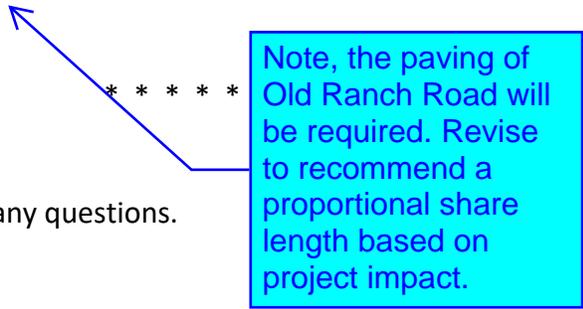
### Auxiliary Turn Lanes

- No additional auxiliary lanes or other improvements are required for the proposed development.

### Old Ranch Road

- The projected total ADT adjacent to and just east of the site is not anticipated to exceed the design ADT of a Rural Gravel Roadway. Based on estimated ADT (based on ITE rates) just west of Black Forest Road (but east of the easternmost residential driveway), both the existing (estimated) and post-development (build) ADT would be over 200 vpd, but less than 300 vpd.

\* \* \* \* \*



Note, the paving of Old Ranch Road will be required. Revise to recommend a proportional share length based on project impact.

Please contact me if you have any questions.

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By Jeffrey C. Hodsdon, P.E.  
Principal

JCH:jas

Enclosures: Table 2  
Figures 1-8  
Appendix Figures 1-3  
Level of Service Reports

### References:

*Trip Generation, 11<sup>th</sup> Edition, 2021*, Institute of Transportation Engineers  
*El Paso County Major Transportation Corridors Plan, 2016*  
*Engineering Criteria Manual, 2016*, El Paso County  
*Black Forest Road Widening Project Traffic Impact Study – November 2019 (AECOM) – Prepared for the City of Colorado Springs.*

# Table 2

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**Table 2: Detailed Trip Generation Estimate – Koinonia Ranch Minor Subdivision**

Land Use Code	Land Use Description	Trip Generation Units <sup>(2)</sup>	Trip Generation Rates <sup>(1)</sup>					Total Trips Generated				
			Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour	
				In	Out	In	Out		In	Out	In	Out
210	Single Family Detached Housing - Existing	1 DU	9.43	0.18	0.53	0.59	0.35	9	0	1	1	0
210	Single Family Detached Housing - Proposed	5 DU	9.43	0.18	0.53	0.59	0.35	47	1	3	3	2
						<b>Total</b>		<b>57</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>2</b>
Notes:												
(1) Source: "Trip Generation, 11th Edition, 2021" by the Institute of Transportation Engineers (ITE)												
(2) DU = dwelling unit												
Source: LSC Transportation Consultants, Inc.											May-23	

# Figures 1-8

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Figure 1

# Vicinity Map

Koinonia Ranch Minor Subdivision (LSC# 204710)



Approximate  
Scale:  
1" = 350'

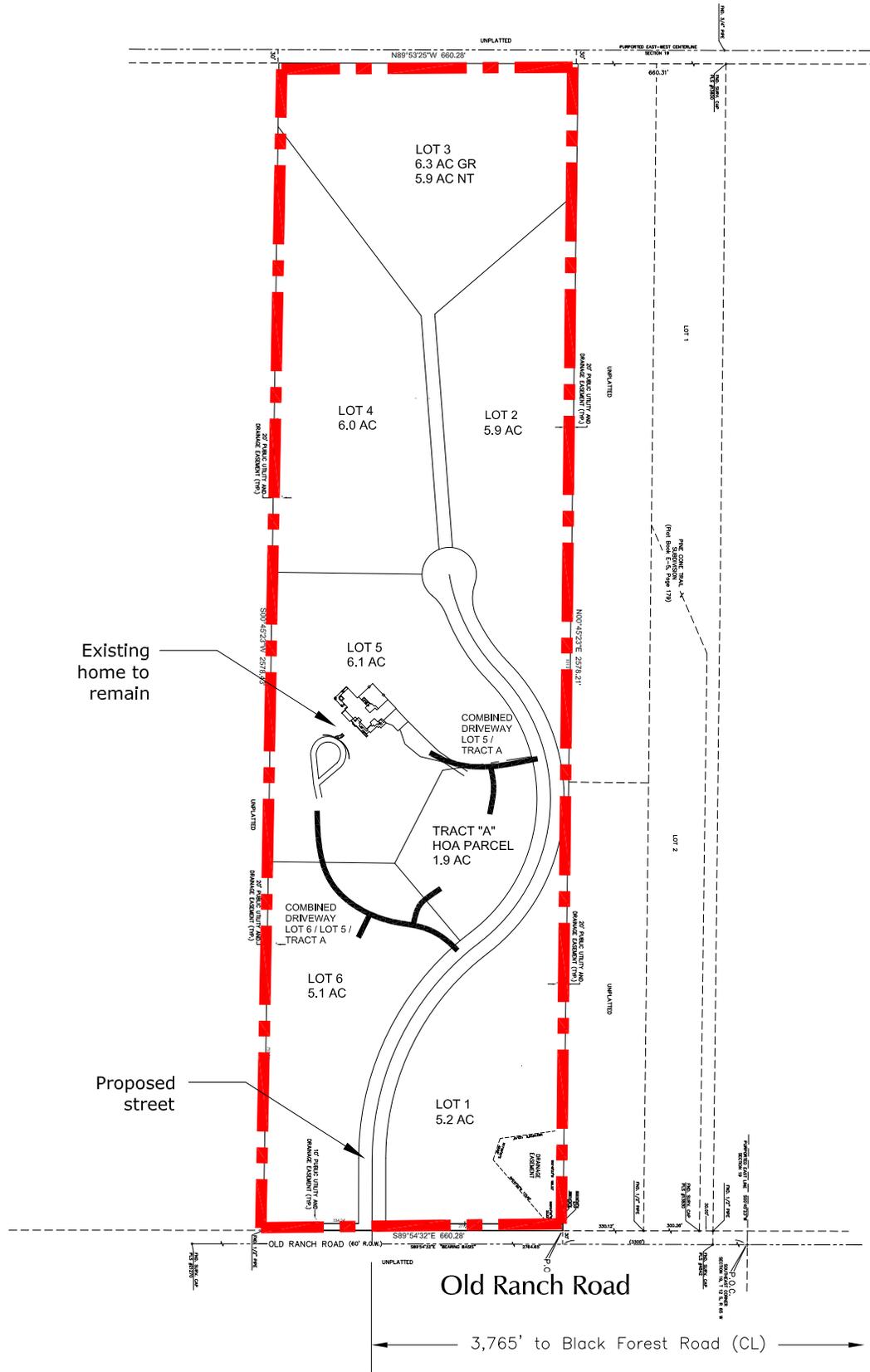
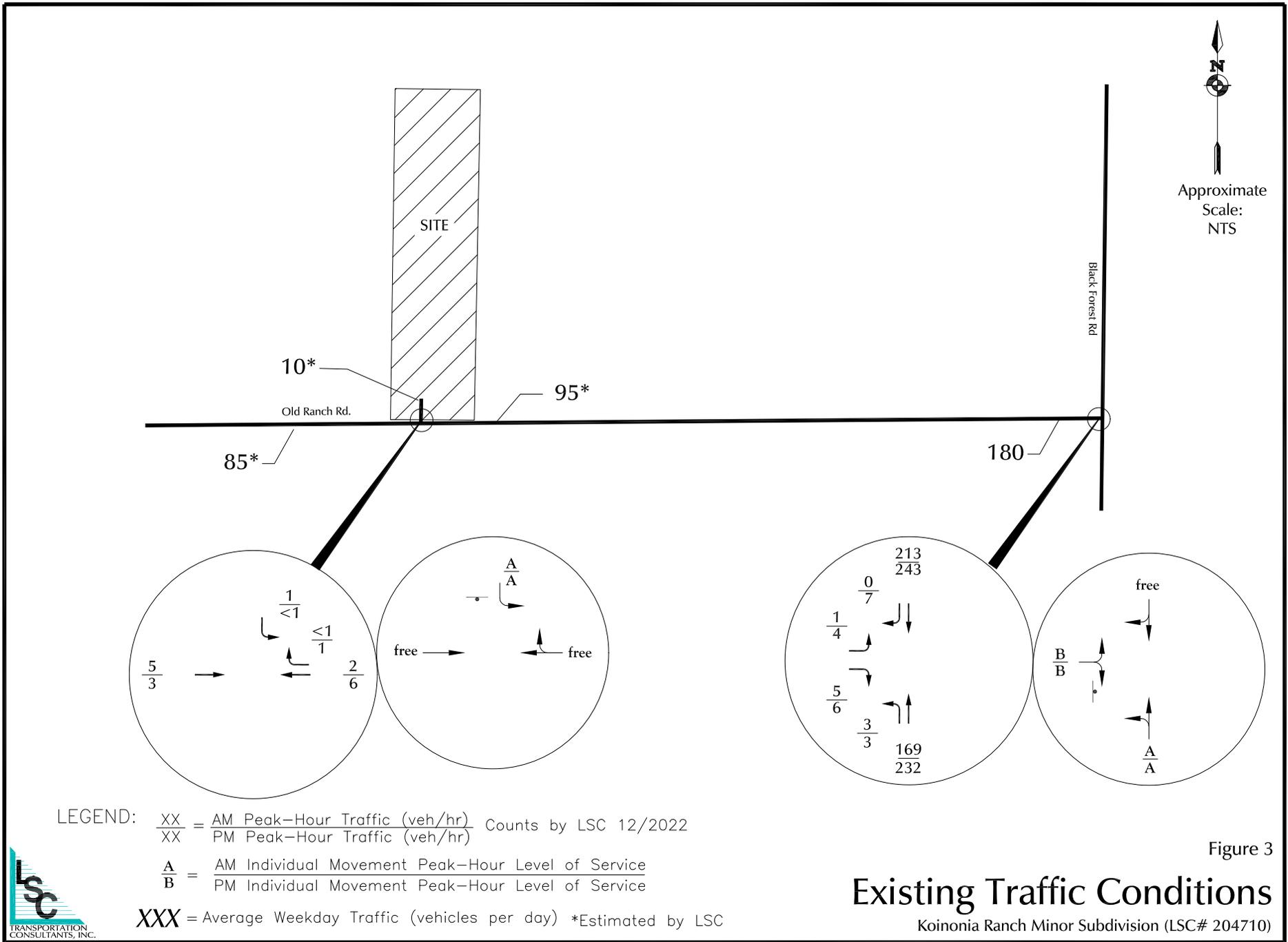


Figure 2  
Site Plan

Koinonia Ranch Minor Subdivision (LSC# 204710)





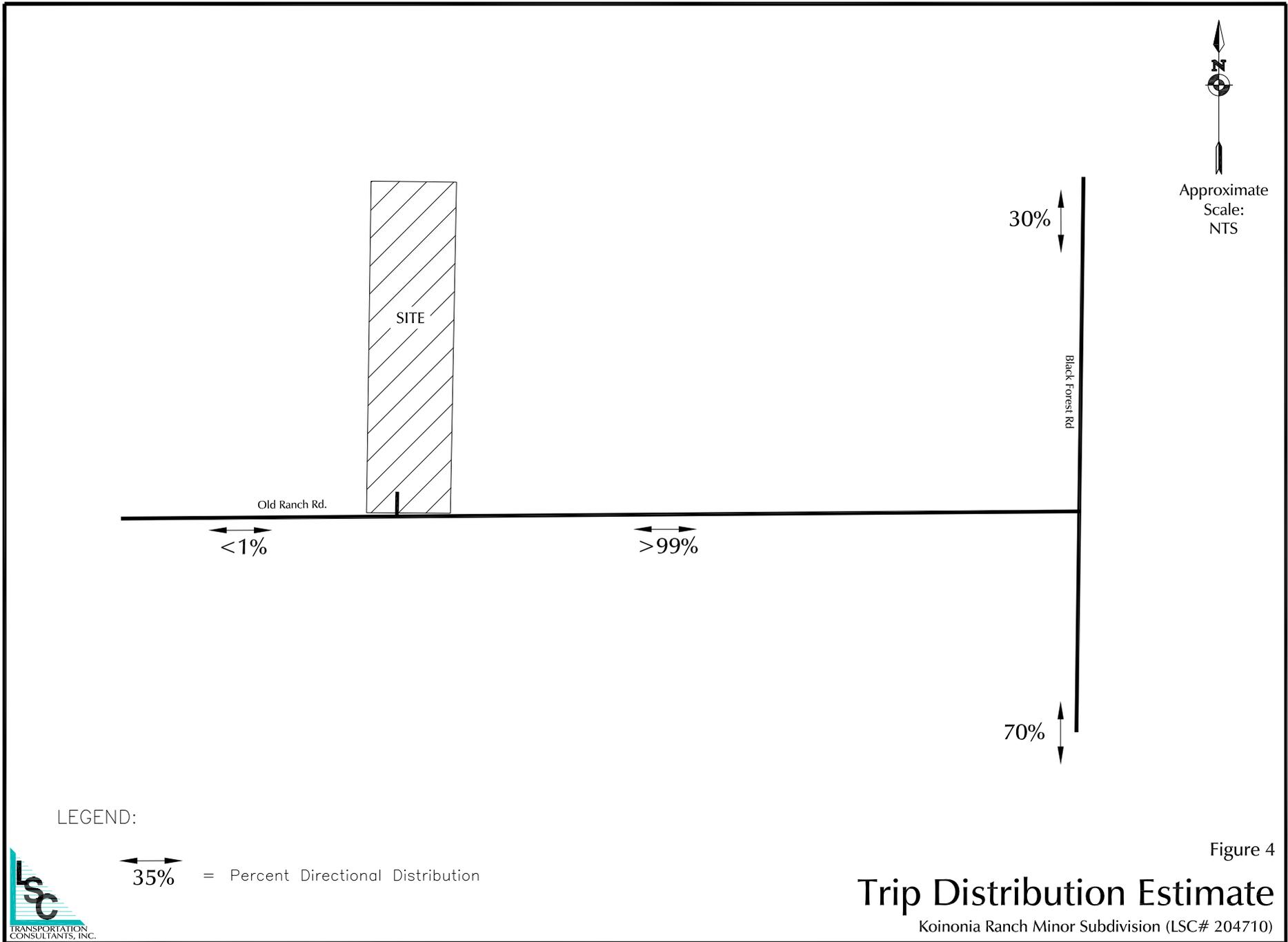


Figure 4

# Trip Distribution Estimate

Koinonia Ranch Minor Subdivision (LSC# 204710)

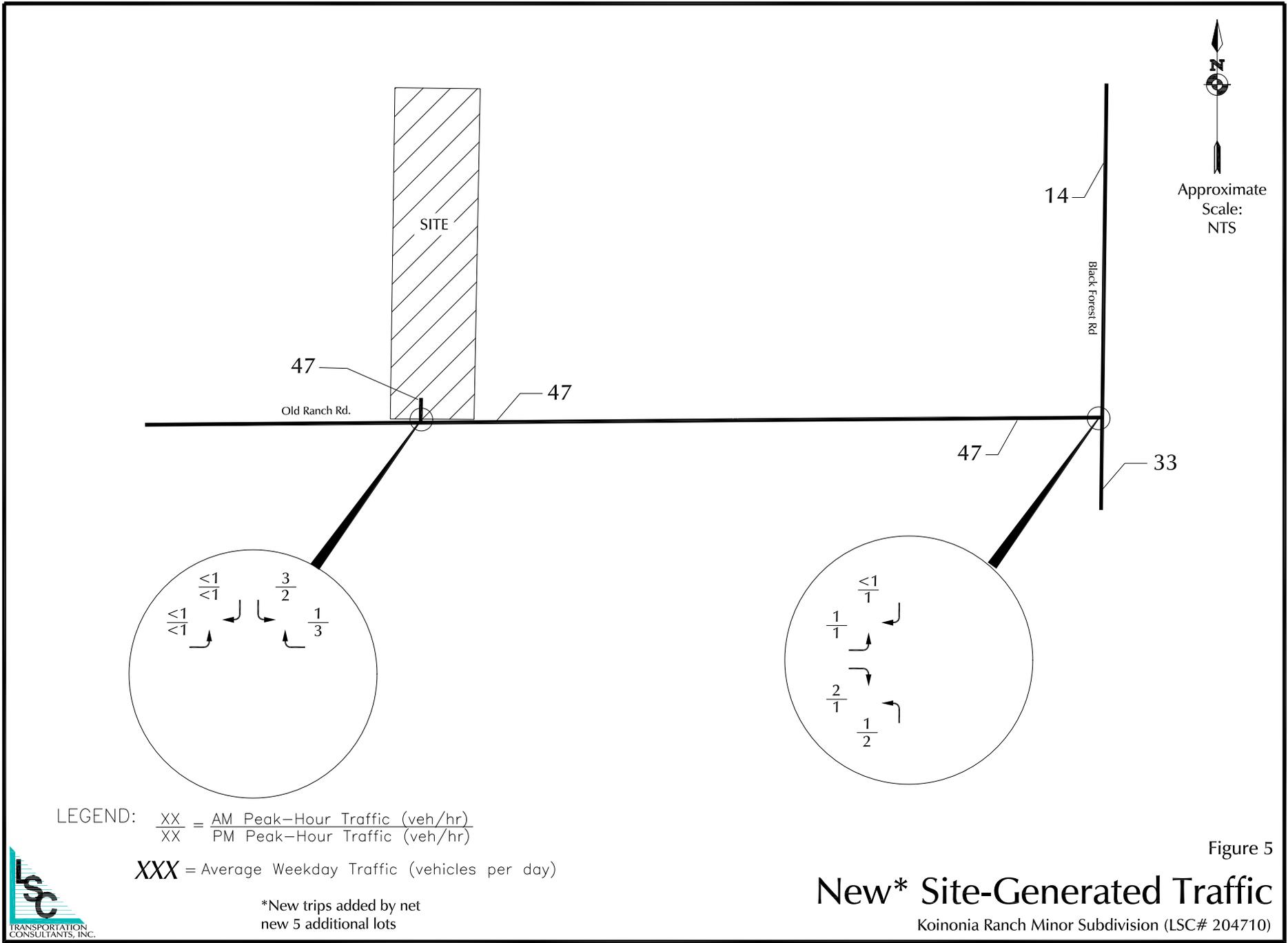


Figure 5

**New\* Site-Generated Traffic**  
 Koinonia Ranch Minor Subdivision (LSC# 204710)



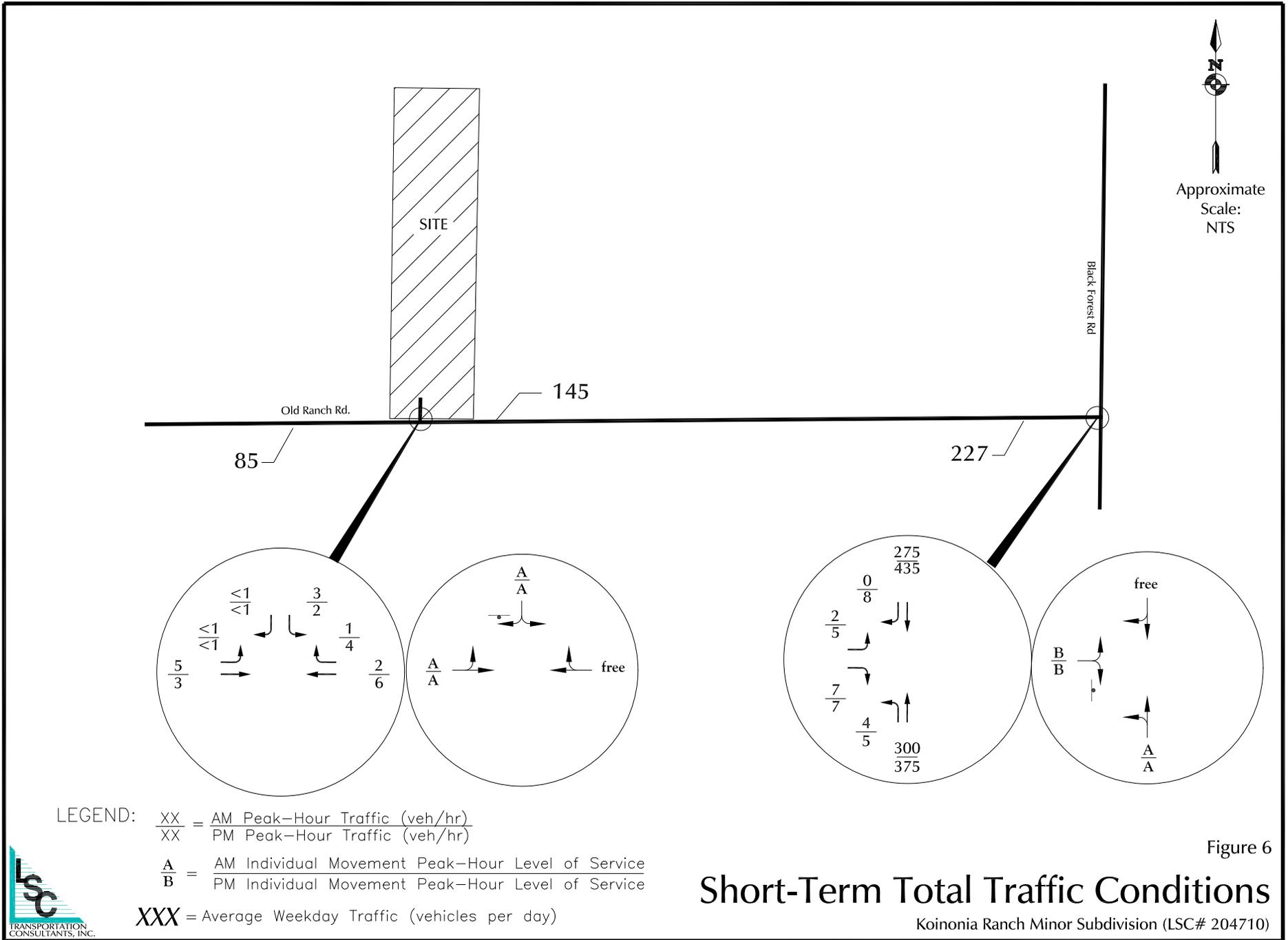
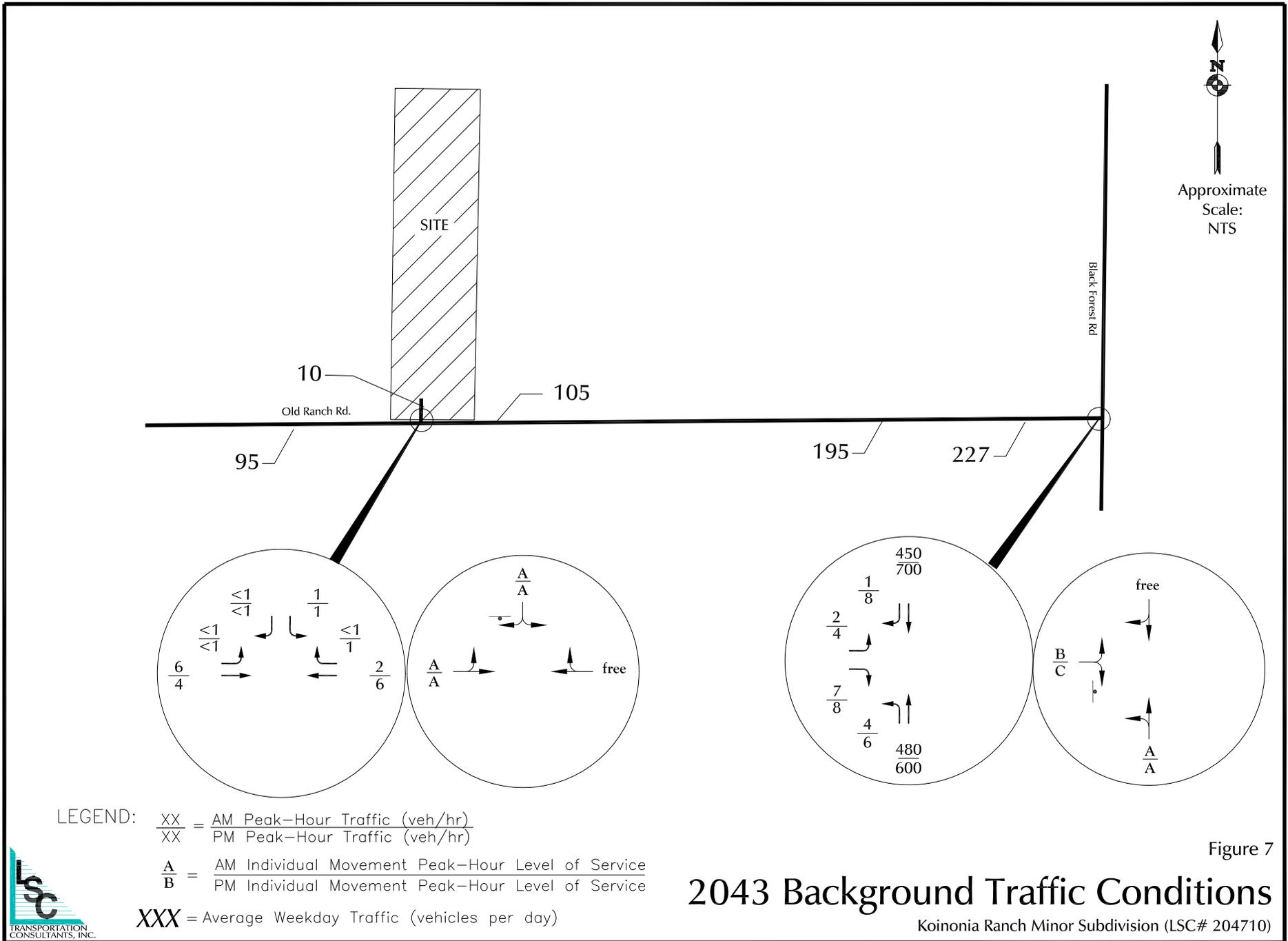


Figure 6



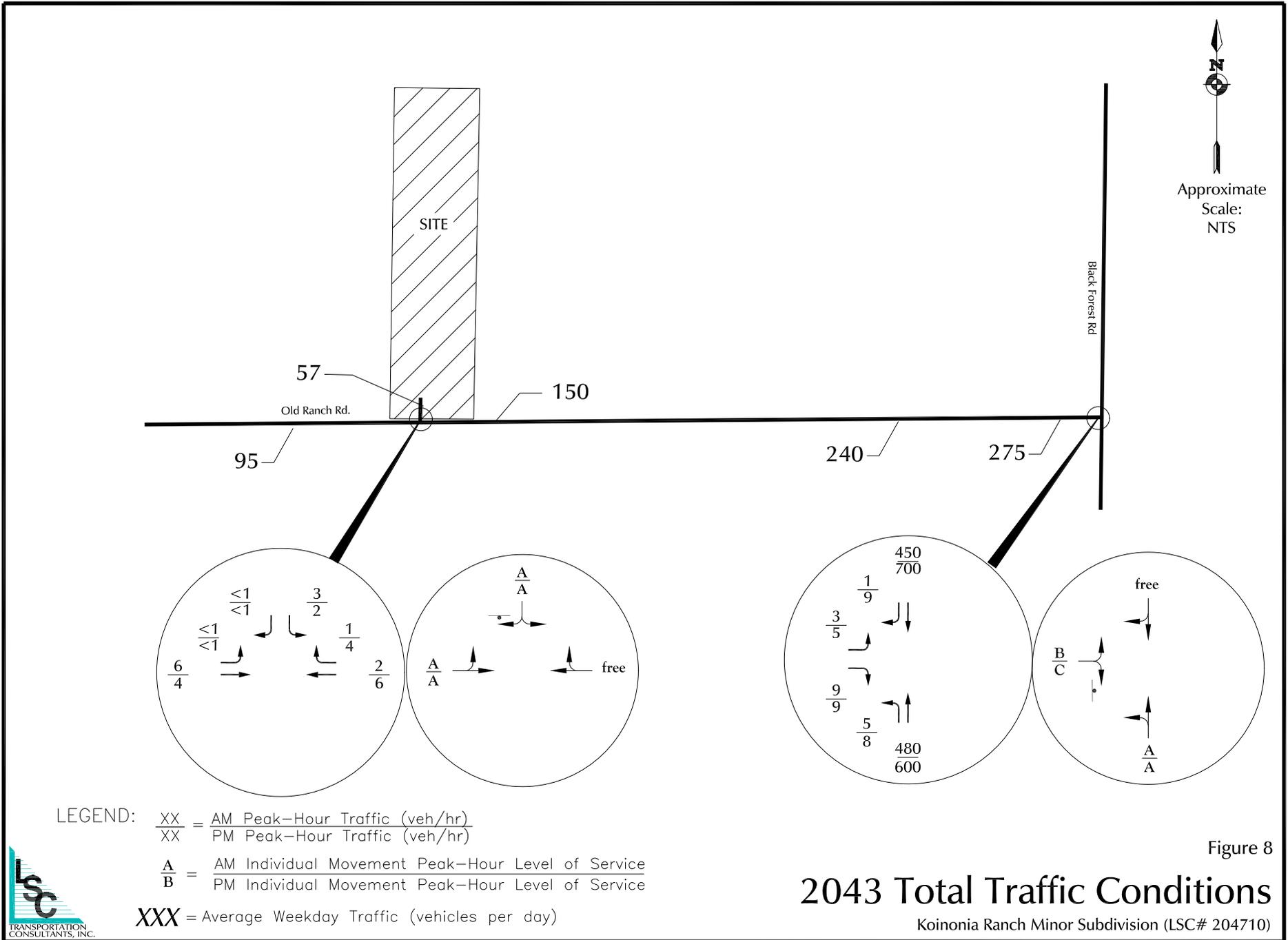


Figure 8

# 2043 Total Traffic Conditions

Koinonia Ranch Minor Subdivision (LSC# 204710)



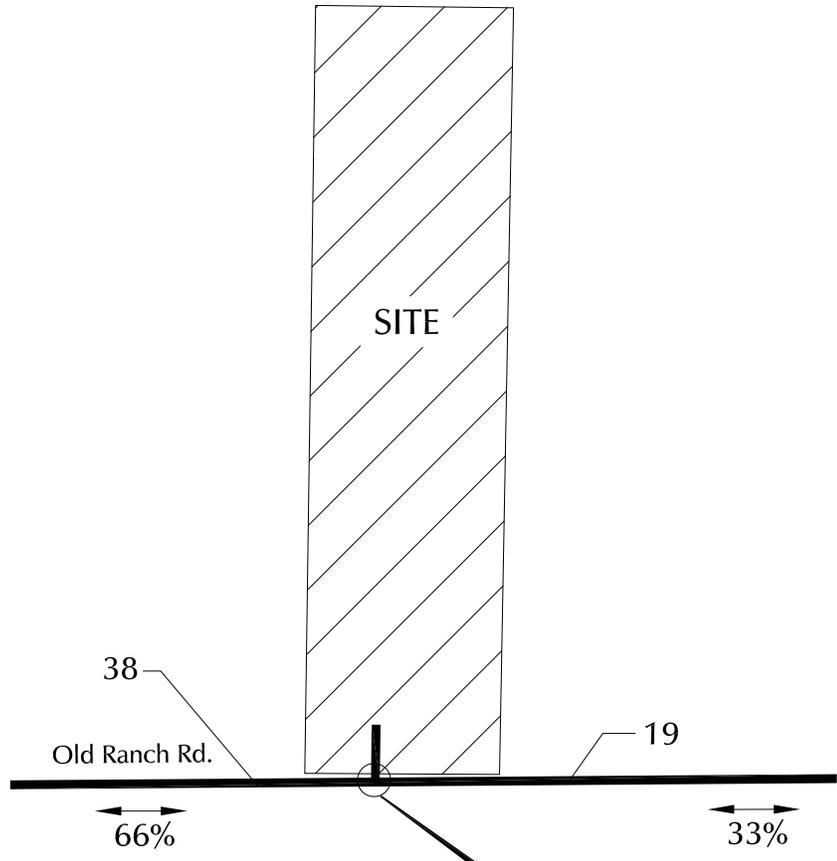
# Appendix Figures 1-3

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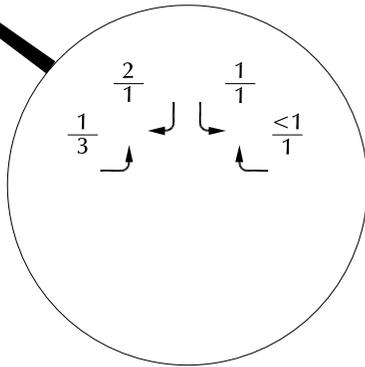
Approximate  
Scale:  
NTS



LEGEND:  $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$

$\longleftrightarrow$  XX% = Percent Directional Distribution

XXX = Average Weekday Traffic (vehicles per day)



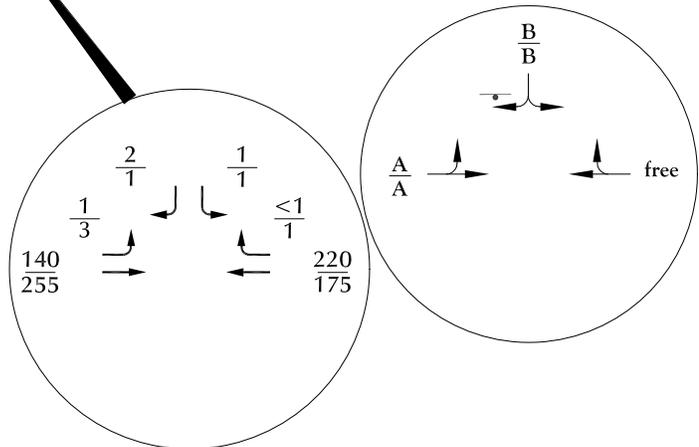
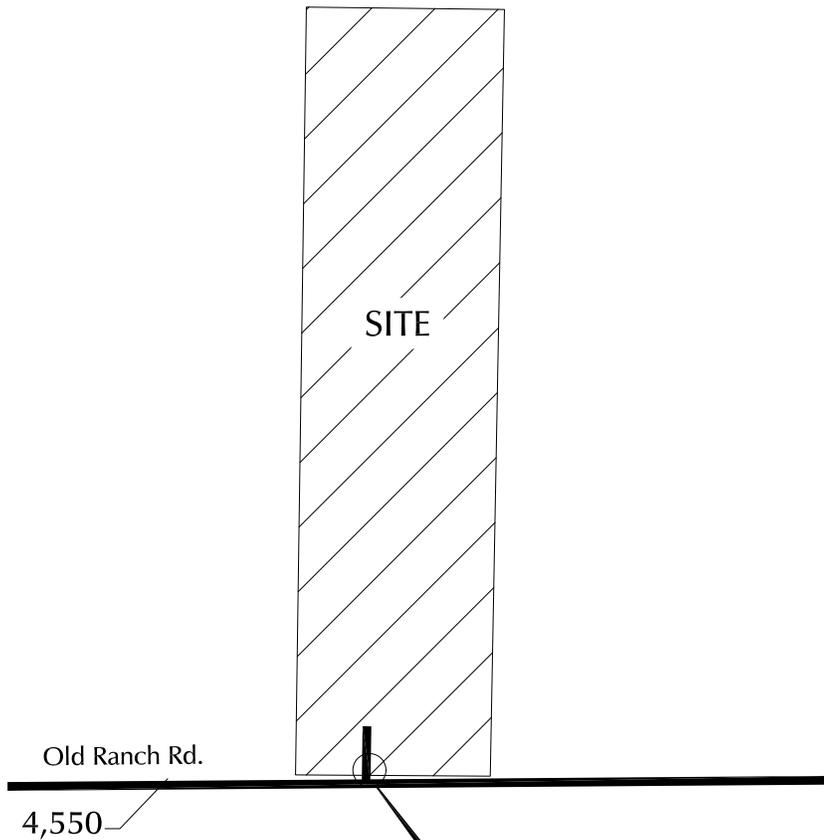
Appendix Figure 1

# Long-Term Trip Distribution & Site Generated Traffic (with all 6 lots) with Potential Future Old Ranch Road Connection





Approximate  
Scale:  
NTS



LEGEND:

$\frac{XX}{XX}$  = AM Peak-Hour Traffic (veh/hr)  
 $\frac{XX}{XX}$  = PM Peak-Hour Traffic (veh/hr)

$\frac{A}{B}$  = AM Individual Movement Peak-Hour Level of Service  
 $\frac{B}{B}$  = PM Individual Movement Peak-Hour Level of Service

⊥ = Stop Sign

XXX = Average Weekday Traffic (vehicles per day)

Appendix Figure 2

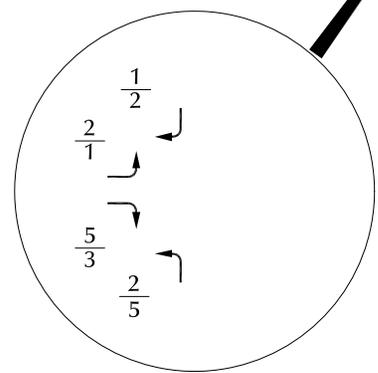
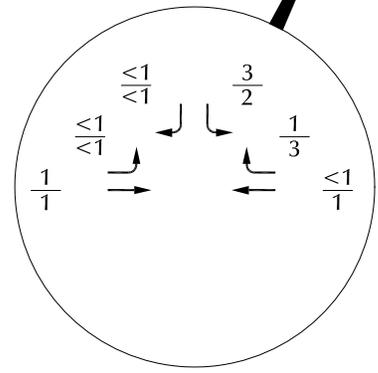
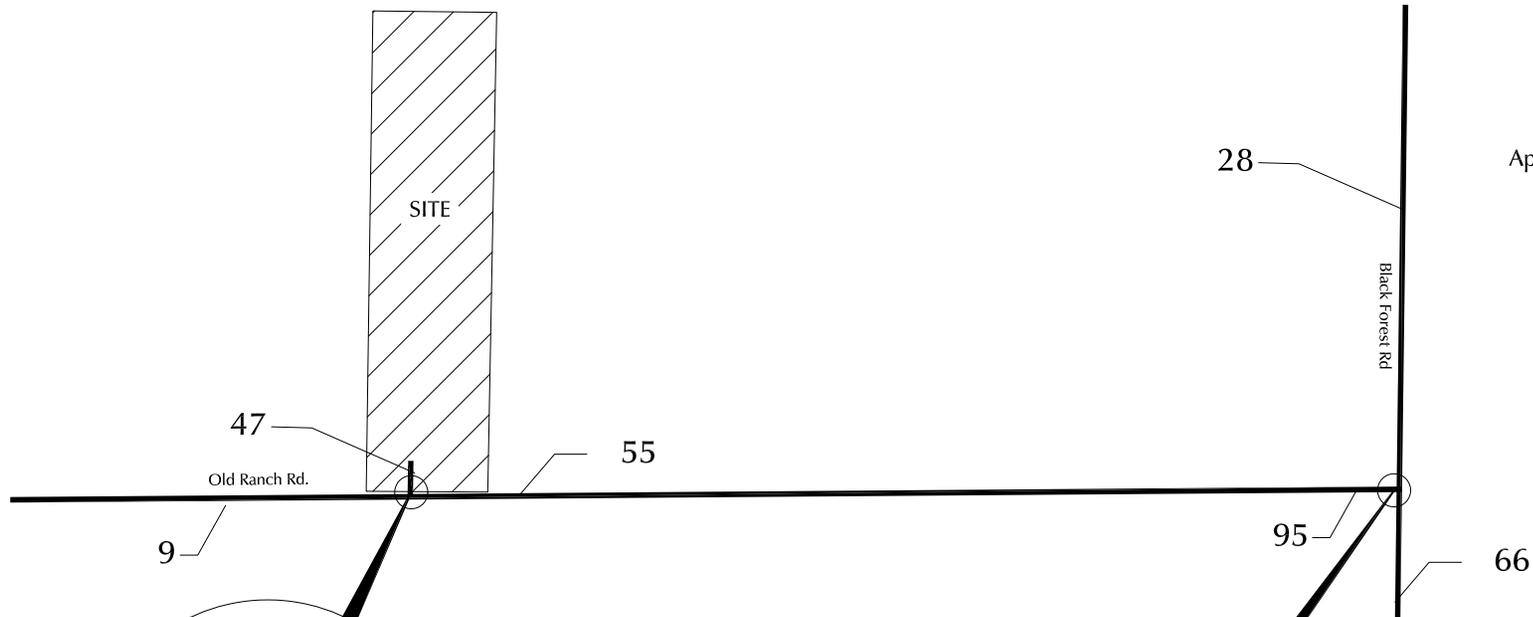
# Long-Term Total Traffic Conditions with Old Ranch Road Connection

Koinonia Ranch Minor Subdivision (LSC# 204710)





Approximate  
Scale:  
NTS



LEGEND:  $\frac{XX}{XX}$  = AM Peak-Hour Traffic (veh/hr)  
 $\frac{XX}{XX}$  = PM Peak-Hour Traffic (veh/hr)  
 XXX = Average Weekday Traffic (vehicles per day)

Note: Represents total traffic for 10 new lots on Old Ranch Rd (5 lots from Koinonia Ranch, 4 lots from Black Forest Subdivision, and 1 additional vacant lot).

Appendix Figure 3

# Total Projected New Traffic

Koinonia Ranch Minor Subdivision (LSC# 204710)



# Traffic Counts

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# LSC Transportation Consultants, Inc.

2504 E. Pikes Peak Ave, Suite 304  
 Colorado Springs, CO 80909  
 719-633-2868

File Name : black forest rd - old ranch rd am  
 Site Code : 0S24340  
 Start Date : 6/22/2022  
 Page No : 1

### Groups Printed- Unshifted

Start Time	Black Forest Rd Southbound					Westbound					Black Forest Rd Northbound					Old Ranch Rd Eastbound					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total		
06:30 AM	0	15	0	0	15	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	23
06:35 AM	0	11	0	0	11	0	0	0	0	0	0	8	0	0	8	2	0	0	0	0	2	21
06:40 AM	0	11	0	0	11	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	19
06:45 AM	0	9	0	0	9	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	15
06:50 AM	0	16	0	0	16	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	22
06:55 AM	0	16	0	0	16	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	24
<b>Total</b>	<b>0</b>	<b>78</b>	<b>0</b>	<b>0</b>	<b>78</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>124</b>
07:00 AM	0	11	0	0	11	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	25
07:05 AM	0	10	0	0	10	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	14
07:10 AM	0	9	0	0	9	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	23
07:15 AM	0	16	0	0	16	0	0	0	0	0	0	10	1	0	11	1	0	0	0	0	1	28
07:20 AM	0	18	0	0	18	0	0	0	0	0	0	11	0	0	11	1	0	0	0	0	1	30
07:25 AM	0	8	0	0	8	0	0	0	0	0	0	12	0	0	12	2	0	0	0	0	2	22
07:30 AM	0	17	0	0	17	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	26
07:35 AM	0	19	0	0	19	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	30
07:40 AM	0	15	0	0	15	0	0	0	0	0	0	9	0	0	9	1	0	0	0	0	1	25
07:45 AM	0	22	0	0	22	0	0	0	0	0	0	16	0	0	16	1	0	0	0	0	1	39
07:50 AM	0	19	0	0	19	0	0	0	0	0	0	19	0	0	19	0	0	1	0	0	1	39
07:55 AM	0	16	0	0	16	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	29
<b>Total</b>	<b>0</b>	<b>180</b>	<b>0</b>	<b>0</b>	<b>180</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>142</b>	<b>1</b>	<b>0</b>	<b>143</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>330</b>
08:00 AM	0	12	0	0	12	0	0	0	0	0	0	18	1	0	19	0	0	0	0	0	0	31
08:05 AM	0	16	0	0	16	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	0	24
08:10 AM	0	14	0	0	14	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	37
08:15 AM	0	30	0	0	30	0	0	0	0	0	0	14	0	0	14	1	0	0	0	0	1	45
08:20 AM	0	18	0	0	18	0	0	0	0	0	0	14	0	0	14	2	0	0	0	0	2	34
08:25 AM	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	32
Grand Total	0	363	0	0	363	0	0	0	0	0	0	278	4	0	282	11	0	1	0	0	12	657
Apprch %	0	100	0	0		0	0	0	0		0	98.6	1.4	0		91.7	0	8.3	0			
Total %	0	55.3	0	0	55.3	0	0	0	0	0	0	42.3	0.6	0	42.9	1.7	0	0.2	0	1.8		

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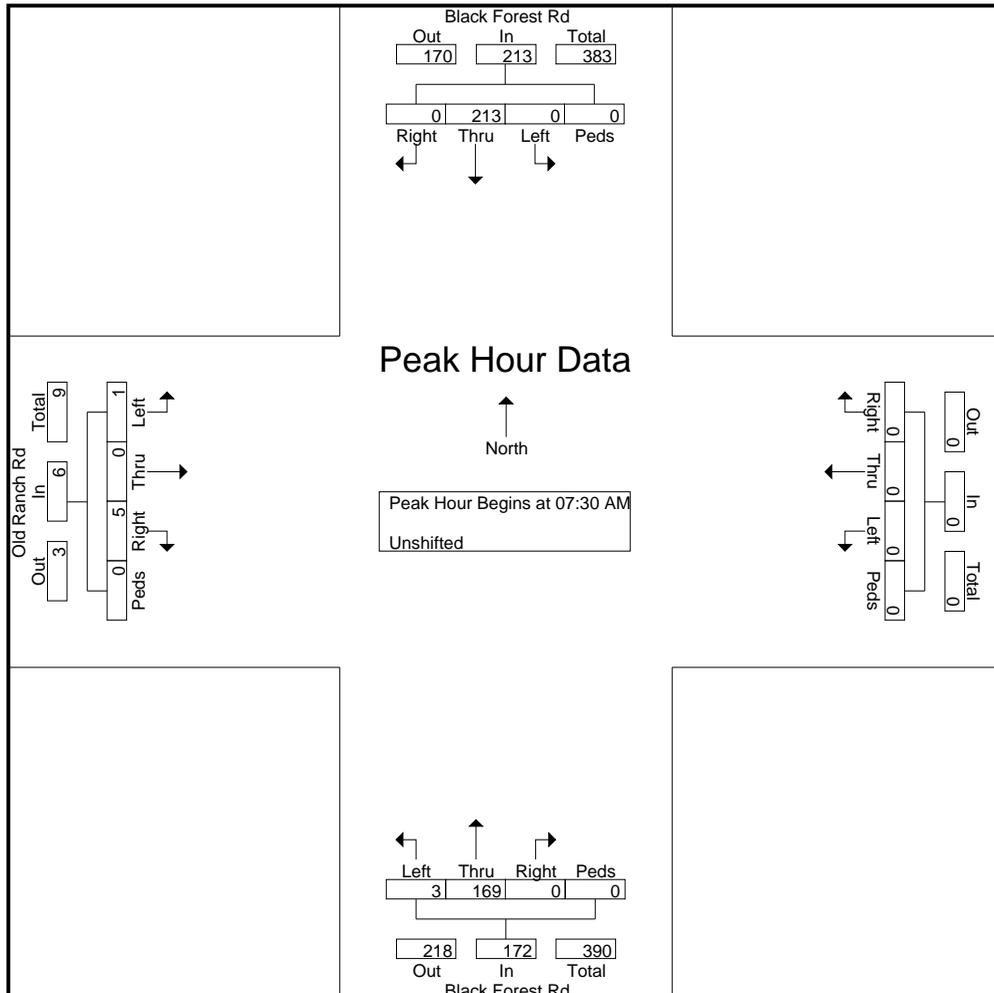
File Name : black forest rd - old ranch rd am

Site Code : 0S24340

Start Date : 6/22/2022

Page No : 2

Start Time	Black Forest Rd Southbound					Westbound					Black Forest Rd Northbound					Old Ranch Rd Eastbound					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total		
Peak Hour Analysis From 06:30 AM to 08:25 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:30 AM																						
07:30 AM	0	17	0	0	17	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	26
07:35 AM	0	19	0	0	19	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	30
07:40 AM	0	15	0	0	15	0	0	0	0	0	0	9	0	0	9	1	0	0	0	0	1	25
07:45 AM	0	22	0	0	22	0	0	0	0	0	0	16	0	0	16	1	0	0	0	0	1	39
07:50 AM	0	19	0	0	19	0	0	0	0	0	0	19	0	0	19	0	0	1	0	0	1	39
07:55 AM	0	16	0	0	16	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	29
08:00 AM	0	12	0	0	12	0	0	0	0	0	0	18	1	0	19	0	0	0	0	0	0	31
08:05 AM	0	16	0	0	16	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	0	24
08:10 AM	0	14	0	0	14	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	37
08:15 AM	0	30	0	0	30	0	0	0	0	0	0	14	0	0	14	1	0	0	0	0	1	45
08:20 AM	0	18	0	0	18	0	0	0	0	0	0	14	0	0	14	2	0	0	0	0	2	34
08:25 AM	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	32
Total Volume	0	213	0	0	213	0	0	0	0	0	0	169	3	0	172	5	0	1	0	6	6	391
% App. Total	0	100	0	0		0	0	0	0		0	98.3	1.7	0		83.3	0	16.7	0			
PHF	.000	.592	.000	.000	.592	.000	.000	.000	.000	.000	.000	.612	.125	.000	.623	.208	.000	.083	.000	.250		.724



# LSC Transportation Consultants, Inc.

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File Name : Black Forest Rd - Old Ranch Rd PM

Site Code : S224340

Start Date : 6/16/2022

Page No : 1

### Groups Printed- Unshifted

Start Time	Black Forest Rd Southbound					Westbound					Black Forest Rd Northbound					Old Ranch Rd Eastbound					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total		
04:00 PM	0	12	0	0	12	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	30
04:05 PM	2	12	0	0	14	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	38
04:10 PM	0	25	0	0	25	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	39
04:15 PM	1	26	0	0	27	0	0	0	0	0	0	17	1	0	18	0	0	0	0	0	0	45
04:20 PM	1	14	0	0	15	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	32
04:25 PM	0	16	0	0	16	0	0	0	0	0	0	17	0	0	17	1	0	0	0	0	1	34
04:30 PM	0	24	0	0	24	0	0	0	0	0	0	16	0	0	16	1	0	0	0	0	1	41
04:35 PM	2	25	0	0	27	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	45
04:40 PM	1	23	0	0	24	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	44
04:45 PM	1	26	0	0	27	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	45
04:50 PM	0	12	0	0	12	0	0	0	0	0	0	18	1	0	19	1	0	0	0	0	1	32
04:55 PM	0	23	0	0	23	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	45
<b>Total</b>	<b>8</b>	<b>238</b>	<b>0</b>	<b>0</b>	<b>246</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>219</b>	<b>2</b>	<b>0</b>	<b>221</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>470</b>	
05:00 PM	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	1	0	1	0	2	34	
05:05 PM	1	20	0	0	21	0	0	0	0	0	0	26	1	0	27	2	0	3	0	5	53	
05:10 PM	0	19	0	0	19	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	45	
05:15 PM	0	13	0	0	13	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	28	
05:20 PM	1	18	0	0	19	0	0	0	0	0	0	19	0	0	19	0	0	1	0	1	39	
05:25 PM	0	17	0	0	17	0	0	0	0	0	0	13	0	0	13	1	0	0	0	1	31	
05:30 PM	0	20	0	0	20	0	0	0	0	0	0	13	2	0	15	2	0	0	0	2	37	
05:35 PM	0	22	0	0	22	0	0	0	0	0	0	27	1	0	28	0	0	1	0	1	51	
05:40 PM	0	21	0	0	21	0	0	0	0	0	0	27	1	0	28	0	0	0	0	0	49	
05:45 PM	0	9	0	0	9	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	26	
05:50 PM	0	24	0	0	24	0	0	0	0	0	0	14	1	0	15	0	0	0	0	0	39	
05:55 PM	0	11	0	0	11	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	29	
<b>Total</b>	<b>2</b>	<b>209</b>	<b>0</b>	<b>0</b>	<b>211</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>232</b>	<b>6</b>	<b>0</b>	<b>238</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>12</b>	<b>461</b>	
<b>Grand Total</b>	<b>10</b>	<b>447</b>	<b>0</b>	<b>0</b>	<b>457</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>451</b>	<b>8</b>	<b>0</b>	<b>459</b>	<b>9</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>15</b>	<b>931</b>	
<b>Apprch %</b>	<b>2.2</b>	<b>97.8</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>98.3</b>	<b>1.7</b>	<b>0</b>		<b>60</b>	<b>0</b>	<b>40</b>	<b>0</b>			
<b>Total %</b>	<b>1.1</b>	<b>48</b>	<b>0</b>	<b>0</b>	<b>49.1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>48.4</b>	<b>0.9</b>	<b>0</b>	<b>49.3</b>	<b>1</b>	<b>0</b>	<b>0.6</b>	<b>0</b>	<b>1.6</b>		

# LSC Transportation Consultants, Inc.

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 719-633-2868

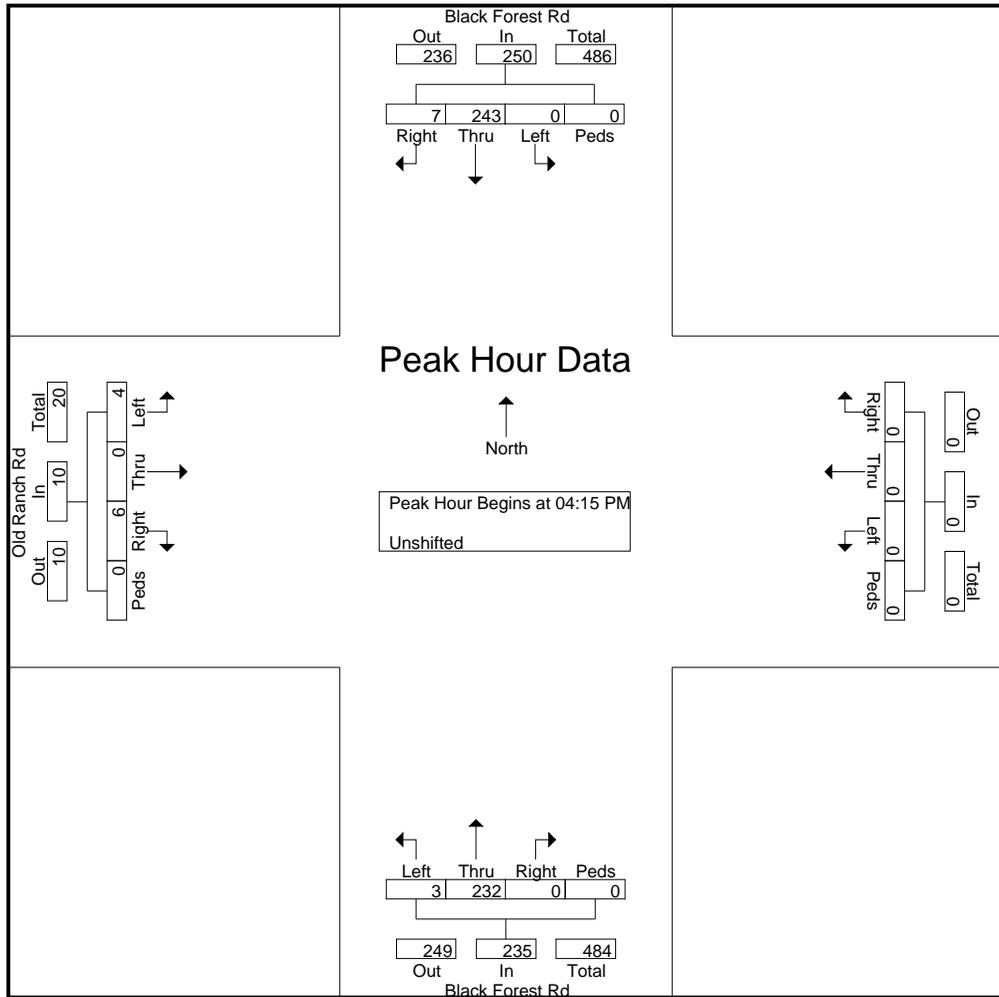
File Name : Black Forest Rd - Old Ranch Rd PM

Site Code : S224340

Start Date : 6/16/2022

Page No : 2

Start Time	Black Forest Rd Southbound					Westbound					Black Forest Rd Northbound					Old Ranch Rd Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:55 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	1	26	0	0	27	0	0	0	0	0	0	17	1	0	18	0	0	0	0	0	45
04:20 PM	1	14	0	0	15	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	32
04:25 PM	0	16	0	0	16	0	0	0	0	0	0	17	0	0	17	1	0	0	0	1	34
04:30 PM	0	24	0	0	24	0	0	0	0	0	0	16	0	0	16	1	0	0	0	1	41
04:35 PM	2	25	0	0	27	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	45
04:40 PM	1	23	0	0	24	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	44
04:45 PM	1	26	0	0	27	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	45
04:50 PM	0	12	0	0	12	0	0	0	0	0	0	18	1	0	19	1	0	0	0	1	32
04:55 PM	0	23	0	0	23	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	45
05:00 PM	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	1	0	1	0	2	34
05:05 PM	1	20	0	0	21	0	0	0	0	0	0	26	1	0	27	2	0	3	0	5	53
05:10 PM	0	19	0	0	19	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	45
Total Volume	7	243	0	0	250	0	0	0	0	0	0	232	3	0	235	6	0	4	0	10	495
% App. Total	2.8	97.2	0	0		0	0	0	0		0	98.7	1.3	0		60	0	40	0		
PHF	.292	.779	.000	.000	.772	.000	.000	.000	.000	.000	.000	.744	.250	.000	.725	.250	.000	.111	.000	.167	.778



# LSC Transportation Consultants, Inc.

2504 E. Pikes Peak Ave, Suite 304  
 Colorado Springs, CO 80909  
 719-633-2868

File Name : Old Ranch Rd AM V 10-19-22

Site Code : 224340\_\_

Start Date : 10/19/2022

Page No : 1

### Groups Printed- Class 1

Start Time	Southbound					Old Ranch Rd Westbound					Northbound					Old Ranch Rd Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
<b>Total</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
*** BREAK ***																					
07:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	0	3
<b>Total</b>	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	6	0	0	0	6
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
08:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	0	3
08:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	1
08:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1
<b>Total</b>	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	7	0	0	0	7
09:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
09:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	1
09:45	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	0	1
<b>Total</b>	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	5	0	0	0	5
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
10:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6	0	0	0	6
10:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***																					
<b>Total</b>	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8	0	0	0	8
*** BREAK ***																					
11:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2
<b>Total</b>	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	0	0	0	2
12:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1
12:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2
12:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	2
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
<b>Total</b>	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8	0	0	0	8
13:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	0	4
13:15	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	0	1
<b>Grand Total</b>	0	0	0	0	0	0	32	0	0	32	0	0	0	0	0	0	45	0	0	0	45
<b>Apprch %</b>	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	0	100	0	0	0	100
<b>Total %</b>	0	0	0	0	0	0	41.6	0	0	41.6	0	0	0	0	0	0	58.4	0	0	0	58.4

# LSC Transportation Consultants, Inc.

2504 E. Pikes Peak Ave, Suite 304  
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 719-633-2868

File Name : Old Ranch Rd PM combo

Site Code : 224340\_\_

Start Date : 11/12/2022

Page No : 1

Groups Printed- Class 1

Start Time	Southbound					Old Ranch Rd Westbound					Northbound					Old Ranch Rd Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
13:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***																					
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
14:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
14:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
14:45	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	6	0	0	6	14
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
15:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
15:30	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
15:45	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	4	0	0	4	12
16:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
16:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
16:30	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	1	0	0	1	7
16:45	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
Total	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	7	0	0	7	22
17:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
17:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
17:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
17:45	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
Total	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	8	0	0	8	17
18:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
*** BREAK ***																					
18:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
18:45	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	3	0	0	3	10
19:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
19:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
19:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
19:45	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	3	0	0	3	11
20:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
20:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
20:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
20:45	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	3	0	0	3	9
*** BREAK ***																					
21:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1

\*\*\* BREAK \*\*\*

# LSC Transportation Consultants, Inc.

2504 E. Pikes Peak Ave, Suite 304  
 Colorado Springs, CO 80909  
 719-633-2868

File Name : Old Ranch Rd PM combo  
 Site Code : 224340\_\_  
 Start Date : 11/12/2022  
 Page No : 2

Groups Printed- Class 1

Start Time	Southbound					Old Ranch Rd Westbound					Northbound					Old Ranch Rd Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
23:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Grand Total	0	0	0	0	0	0	64	0	0	64	0	0	0	0	0	0	34	0	0	34	98
Apprch %	0	0	0	0	0	0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	65.3	0	0	65.3	0	0	0	0	0	0	34.7	0	0	34.7	

### Old Ranch Road Hourly Traffic Data and Calculated ADT

Hourly Interval		Link Volume		Total
Start	End	WB	EB	
00:00	01:00	0	0	0
01:00	02:00	0	0	0
02:00	03:00	0	0	0
03:00	04:00	0	0	0
04:00	05:00	0	0	0
05:00	06:00	0	0	0
06:00	07:00	0	4	4
07:00	08:00	1	6	7
08:00	09:00	6	7	13
09:00	10:00	6	5	11
10:00	11:00	4	8	12
11:00	12:00	5	2	7
12:00	13:00	4	8	12
13:00	14:00	6	5	11
14:00	15:00	8	6	14
15:00	16:00	8	4	12
16:00	17:00	10	6	16
17:00	18:00	10	8	17
18:00	19:00	7	3	10
19:00	20:00	8	3	11
20:00	21:00	6	3	9
21:00	22:00	2	0	2
22:00	23:00	0	0	0
23:00	00:00	2	0	2
<b>Sum</b>				<b>171</b>
<b>ADT w/Adj. (veh/day)</b>				<b>180</b>

# Levels of Service

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HCM 6th TWSC  
1: Black Forest Rd & Old Ranch Rd

Existing  
AM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	1	5	3	165	213	0
Future Vol, veh/h	1	5	3	165	213	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	6	3	190	245	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	441	245	245	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	196	-	-	-	-	-
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	574	794	1321	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	837	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	572	794	1321	-	-	-
Mov Cap-2 Maneuver	572	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1321	-	746	-	-
HCM Lane V/C Ratio	0.003	-	0.01	-	-
HCM Control Delay (s)	7.7	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC  
2: Old Ranch Rd & Site Access

Existing  
AM

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	5	2	0	1	0
Future Vol, veh/h	0	5	2	0	1	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	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	2	0	1	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	2	0	-	0	7	2
Stage 1	-	-	-	-	2	-
Stage 2	-	-	-	-	5	-
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	1620	-	-	-	1014	1082
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1018	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1620	-	-	-	1014	1082
Mov Cap-2 Maneuver	-	-	-	-	1014	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1018	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	8.6			
HCM LOS						A
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1620	-	-	-	1014	
HCM Lane V/C Ratio	-	-	-	-	0.001	
HCM Control Delay (s)	0	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

HCM 6th TWSC  
1: Black Forest Rd & Old Ranch Rd

Existing  
PM

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	4	6	3	232	243	7
Future Vol, veh/h	4	6	3	232	243	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	87	87	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	8	3	267	264	8

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	541	268	272	0	0
Stage 1	268	-	-	-	-
Stage 2	273	-	-	-	-
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	502	771	1291	-	-
Stage 1	777	-	-	-	-
Stage 2	773	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	500	771	1291	-	-
Mov Cap-2 Maneuver	500	-	-	-	-
Stage 1	775	-	-	-	-
Stage 2	773	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1291	-	634	-	-
HCM Lane V/C Ratio	0.003	-	0.02	-	-
HCM Control Delay (s)	7.8	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	3	6	1	0	0
Future Vol, veh/h	0	3	6	1	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	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	7	1	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	8	0	-	0	11
Stage 1	-	-	-	-	8
Stage 2	-	-	-	-	3
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1612	-	-	-	1009
Stage 1	-	-	-	-	1015
Stage 2	-	-	-	-	1020
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1612	-	-	-	1009
Mov Cap-2 Maneuver	-	-	-	-	1009
Stage 1	-	-	-	-	1015
Stage 2	-	-	-	-	1020

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1612	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 6th TWSC  
 1: Black Forest Rd & Old Ranch Rd

Short-Term Total  
 AM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	2	7	4	300	275	0
Future Vol, veh/h	2	7	4	300	275	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	9	4	326	299	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	633	299	299	0	-	0
Stage 1	299	-	-	-	-	-
Stage 2	334	-	-	-	-	-
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	444	741	1262	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	442	741	1262	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1262	-	644	-	-
HCM Lane V/C Ratio	0.003	-	0.018	-	-
HCM Control Delay (s)	7.9	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	5	2	1	3	0
Future Vol, veh/h	0	5	2	1	3	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	-	-	-	-	0	-
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	6	3	1	4	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	4	0	-	0	10
Stage 1	-	-	-	-	4
Stage 2	-	-	-	-	6
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1618	-	-	-	1010
Stage 1	-	-	-	-	1019
Stage 2	-	-	-	-	1017
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1618	-	-	-	1010
Mov Cap-2 Maneuver	-	-	-	-	1010
Stage 1	-	-	-	-	1019
Stage 2	-	-	-	-	1017

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1618	-	-	-	1010
HCM Lane V/C Ratio	-	-	-	-	0.004
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	5	7	5	375	435	8
Future Vol, veh/h	5	7	5	375	435	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	9	5	408	473	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	896	478	482	0	0
Stage 1	478	-	-	-	-
Stage 2	418	-	-	-	-
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	311	587	1081	-	-
Stage 1	624	-	-	-	-
Stage 2	664	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	309	587	1081	-	-
Mov Cap-2 Maneuver	309	-	-	-	-
Stage 1	620	-	-	-	-
Stage 2	664	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1081	-	427	-	-
HCM Lane V/C Ratio	0.005	-	0.036	-	-
HCM Control Delay (s)	8.3	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	3	6	5	2	0
Future Vol, veh/h	0	3	6	5	2	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	-	-	-	-	0	-
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	4	8	6	3	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	14	0	-	0	15	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	4	-
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	1604	-	-	-	1004	1070
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	1019	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1604	-	-	-	1004	1070
Mov Cap-2 Maneuver	-	-	-	-	1004	-
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	1019	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	8.6			
HCM LOS						A
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1604	-	-	-	1004	
HCM Lane V/C Ratio	-	-	-	-	0.003	
HCM Control Delay (s)	0	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	7	4	480	450	1
Future Vol, veh/h	2	7	4	480	450	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	9	4	522	489	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1020	490	490	0	-	0
Stage 1	490	-	-	-	-	-
Stage 2	530	-	-	-	-	-
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	262	578	1073	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	261	578	1073	-	-	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	613	-	-	-	-	-
Stage 2	590	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1073	-	455	-	-
HCM Lane V/C Ratio	0.004	-	0.025	-	-
HCM Control Delay (s)	8.4	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	6	2	0	1	0
Future Vol, veh/h	0	6	2	0	1	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	-	-	-	-	0	-
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	8	3	0	1	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	3	0	-	0	11	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	8	-
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	1619	-	-	-	1009	1081
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1619	-	-	-	1009	1081
Mov Cap-2 Maneuver	-	-	-	-	1009	-
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	1015	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		8.6		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1619	-	-	-	1009	
HCM Lane V/C Ratio	-	-	-	-	0.001	
HCM Control Delay (s)	0	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	8	6	600	700	8
Future Vol, veh/h	4	8	6	600	700	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	10	6	645	753	9

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1415	758	762	0	-	0
Stage 1	758	-	-	-	-	-
Stage 2	657	-	-	-	-	-
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	151	407	850	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	149	407	850	-	-	-
Mov Cap-2 Maneuver	149	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	516	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	850	-	258	-	-
HCM Lane V/C Ratio	0.008	-	0.06	-	-
HCM Control Delay (s)	9.3	0	19.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	4	6	1	1	0
Future Vol, veh/h	0	4	6	1	1	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	-	-	-	-	0	-
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	5	8	1	1	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	9	0	-	0	14	9
Stage 1	-	-	-	-	9	-
Stage 2	-	-	-	-	5	-
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	1611	-	-	-	1005	1073
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	1018	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1611	-	-	-	1005	1073
Mov Cap-2 Maneuver	-	-	-	-	1005	-
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	1018	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		8.6		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1611	-	-	-	1005	
HCM Lane V/C Ratio	-	-	-	-	0.001	
HCM Control Delay (s)	0	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	3	9	5	480	450	1
Future Vol, veh/h	3	9	5	480	450	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	12	5	522	489	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1022	490	490	0	-	0
Stage 1	490	-	-	-	-	-
Stage 2	532	-	-	-	-	-
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	261	578	1073	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	259	578	1073	-	-	-
Mov Cap-2 Maneuver	259	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	589	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1073	-	442	-	-
HCM Lane V/C Ratio	0.005	-	0.035	-	-
HCM Control Delay (s)	8.4	0	13.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	6	2	1	3	0
Future Vol, veh/h	0	6	2	1	3	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	-	-	-	-	0	-
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	8	3	1	4	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	4	0	-	0	12
Stage 1	-	-	-	-	4
Stage 2	-	-	-	-	8
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1618	-	-	-	1008
Stage 1	-	-	-	-	1019
Stage 2	-	-	-	-	1015
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1618	-	-	-	1008
Mov Cap-2 Maneuver	-	-	-	-	1008
Stage 1	-	-	-	-	1019
Stage 2	-	-	-	-	1015

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1618	-	-	-	1008
HCM Lane V/C Ratio	-	-	-	-	0.004
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	9	8	600	700	9
Future Vol, veh/h	5	9	8	600	700	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	12	9	645	753	10

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1421	758	763	0	-	0
Stage 1	758	-	-	-	-	-
Stage 2	663	-	-	-	-	-
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	150	407	850	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	147	407	850	-	-	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.6	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	850	-	249	-	-
HCM Lane V/C Ratio	0.01	-	0.072	-	-
HCM Control Delay (s)	9.3	0	20.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	4	6	4	2	0
Future Vol, veh/h	0	4	6	4	2	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	-	-	-	-	0	-
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	5	8	5	3	0

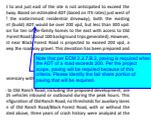
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	13	0	-	0	16 11
Stage 1	-	-	-	-	11 -
Stage 2	-	-	-	-	5 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1606	-	-	-	1002 1070
Stage 1	-	-	-	-	1012 -
Stage 2	-	-	-	-	1018 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1606	-	-	-	1002 1070
Mov Cap-2 Maneuver	-	-	-	-	1002 -
Stage 1	-	-	-	-	1012 -
Stage 2	-	-	-	-	1018 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1606	-	-	-	1002
HCM Lane V/C Ratio	-	-	-	-	0.003
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

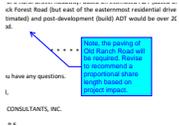
# V3\_Traffic Memo.pdf Markup Summary 10-5-2023

lpackman (2)



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Note that per ECM 2.2.7.B.2, paving is required when the ADT of a road exceeds 200. Per the project scope, paving will be required because of this criteria. Please identify the fair share portion of paving that will be required.



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Note, the paving of Old Ranch Road will be required. Revise to recommend a proportional share length based on project impact.