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Meridian Ranch Sketch Plan  
2017 Amendment  
Traffic Impact Analysis  
(LSC #174350)  
July 7, 2017

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.

  
Kirstin Day Ferrin, P.E., #38417




7/6/2017  
Date

Developer's Statement

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

GTL, INC.

  
Raul Guzman, Vice President

July 6, 2017  
Date



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June 27, 2017

Mr. Raul Guzman  
GTL Development, Inc.  
P.O. Box 80036  
San Diego, California 92138

RE: Meridian Ranch Sketch Plan  
2017 Amendment  
El Paso County, CO  
Traffic Impact Analysis  
LSC #174350

Dear Raul:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the currently proposed amendment to the Meridian Ranch Sketch Plan. As shown on Figure 1, Meridian Ranch is located east of Meridian Road, west of Eastonville Road, and north of Stapleton Drive in El Paso County, Colorado. Figure 1 also identifies the areas to be amended. The proposed Sketch Plan Amendment would eliminate the business park use and increase the maximum number of residential dwelling units from 4,050 to 4,500.

## REPORT CONTENTS

This report is being prepared as part of a submittal to El Paso County. The report identifies the traffic impacts of the proposed Sketch Plan Amendment on the streets and roadways within and adjacent to Meridian Ranch and presents updated recommendations for the transportation system. The report contains the following: the existing roadway and traffic conditions in the site's vicinity including the roadway widths, lane geometries, and traffic controls, etc.; the peak-hour turning movement traffic counts at key intersections in the vicinity of the site; the average weekday and peak-hour vehicle-trips to be generated by Meridian Ranch at buildout; the assignment of these trips to the area streets, roadways, and intersections; projections of long-term background traffic volumes; resulting total traffic volumes on the area roadways; the Sketch Plan Amendment's resulting relative traffic impacts; the projected levels of service at the intersections within and adjacent to Meridian Ranch for the long term following buildout; and the recommended transportation system including functional classification of streets and roadways, number of lanes, intersection lane geometry/auxiliary turn lanes, and intersection traffic control.

## LAND USE AND ACCESS

Figure 2 shows the proposed amendment to the Sketch Plan. LSC completed a traffic impact analysis based on the previous Sketch Plan Amendment dated July 29, 2015. Table 1 shows a comparison of the land uses assumed in the 2015 report and the currently proposed Sketch Plan Amendment. The proposed Sketch Plan Amendment replaces the 40-acre business park parcel located north of Stapleton Drive and west of Eastonville Road with residential uses (The Vistas Filing 2). The removal of the business park allows for the maximum number of dwelling units for the entire Sketch Plan Area to be increased from 4,050 to 4,500, however only 4,302 dwelling units are currently planned.

Access for The Vistas Filing 2 is proposed via two full-movement access points to the future extension of Lambert Road. The first access would align with Rainbow Bridge Drive and the second access point would be about 850 feet to the west.

Revise to north of Rex Road per the Letter of Intent

The other area of amendment is located south of Rex Road and east of the future Crestone Peak Drive. This area is now shown as Park Mesa Filing 1-4. Access to Park Mesa Filing 1-4 is proposed via Crestone Peak Drive, an extension of Lambert Road and a single full-movement access point to Rex Road. The 2015 traffic study assumed two full-movement access points to Rex Road for this parcel.

The Amended Sketch Plan shows a potential access point to Eastonville Road to serve the elementary/middle school to Eastonville Road just north of Falcon High School. This report assumes this access for purposes of assigning the school trip generation to the area streets and roadways, however as access would be a request by the school district rather than Meridian Ranch, the access analysis and recommendations are not included in this report. Two additional potential access points are shown to Eastonville Road for the Regional Park north and south of Rex Road. These access points were also included in the 2015 study.

## ROADWAY AND TRAFFIC CONDITIONS

### Area Roadways

The major area roadways within and adjacent to Meridian Ranch are described below.

- **Meridian Road** extends north from Blaney Road to County Line Road. Meridian Road is shown as a four-lane Principal Arterial south of Stapleton Drive, a four-lane Minor Arterial between Stapleton Drive and Rex Road, and a two-lane Minor Arterial north of Rex Road on the new *El Paso County Major Transportation Corridors Plan (MTCP)*.
- **Stapleton Drive** is shown as a four-lane Principal Arterial on the *El Paso County MTCP* and *El Paso County Corridor Preservation Plan (CPP)*. Stapleton Drive extends east from Towner Drive to US Highway (US) 24. Stapleton Drive is planned to ultimately be extended west to connect with the Briargate Parkway extension.

- **Londonderry Drive** is a two-lane Collector extending east from the Falcon Hills neighborhood to Eastonville Road. Londonderry Drive has one through lane in each direction and a raised center median.
- **Rex Road** extends east from Goodson Road to Pyramid Peak Drive within the Meridian Ranch development. Rex Road will be extended east through Meridian Ranch to Eastonville Road and ultimately will be extended to US Highway 24. Rex Road is no longer shown as an arterial street on the new *El Paso County MTCP* and the *El Paso County CPP*.
- **Eastonville Road** is a two-lane roadway extending northeast from Meridian Road to past Hodgen Road. The Eastonville Road cross section north of Stapleton Drive is planned as a two-lane Rural Minor Arterial. Eastonville is shown as a two-lane Minor Arterial on the new *El Paso County MTCP* and *CPP*.

### Existing Traffic Volumes

Figure 3 shows the peak-hour traffic volumes at the key intersections from the attached traffic counts conducted by LSC in 2016 and 2017. Figure 3 also shows estimates of average daily traffic (ADT) by LSC at key locations based on the peak-hour traffic counts.

### 2040 BACKGROUND TRAFFIC

Figure 4 shows the projected background traffic volumes at the area intersections and on area street segments for the year 2040. Baseline traffic is the non-Meridian Ranch traffic estimated to be on the area roadways. The background traffic includes through traffic and traffic generated by other area developments such as 4 Way Ranch, Falcon Hills, and Woodmen Hills. Background traffic volumes result from trips that do not have an origin or destination within Meridian Ranch. Note: The peak-hour background link volumes on the three east/west streets are shown for locations just west of the proposed Sketch Plan Amendment areas.

The 2040 background traffic volumes are based on previous traffic studies completed by LSC in the area, including the previous *Meridian Ranch Sketch Plan Traffic Impact and Analysis* by LSC dated January, 25, 2012 and *Meridian Ranch Sketch Plan 2015 Amendment Traffic Impact Analysis* by LSC dated July 29, 2015.

### TRIP GENERATION

The trip generation estimate for the amended Sketch Plan is based on nationally published trip generation rates from *Trip Generation, 9th Edition, 2012* by the Institute of Transportation Engineers (ITE). Table 2 shows the results of the trip generation estimate. Table 2 also shows the trip generation estimate from the previous Sketch Plan report completed by LSC in July 2015.

Table 2 includes an estimate of internal trips, which are trips beginning and ending within Meridian Ranch. Internal trips reflect travel between residential areas and the schools, shopping centers,

parks, and the recreation centers that will be part of the Sketch Plan at full buildout. Internal trips between residential and non-residential uses have been balanced.

As shown on the table the total new external vehicle-trips to be generated by the entire Meridian Ranch Sketch Plan Area (including existing land uses) is about 44,902 vehicles per day. This is about 2,261 trips fewer than was estimated in the 2015 report.

## **TRIP DISTRIBUTION AND ASSIGNMENT**

The directional distribution of the traffic volumes to be generated by Meridian Ranch on the area roadways is an important factor in determining the traffic impacts. Figure 5 shows the overall long-term external trip directional distribution estimate for Meridian Ranch at buildout. The estimates were based on the following factors: the location of Meridian Ranch land uses with respect to nearby residential, employment, commercial, and activity centers and the balance of the Colorado Springs metropolitan area; the land use types; and the internal/external street and roadway system serving the site. The estimates were based on buildout of the area's roadway network.

Many of the trips generated by land uses within Meridian Ranch will occur between the different land uses. Table 2 shows the number of internal trips assumed for each land use. These internal trips have been assigned separately based on the location of the neighborhood commercial parcel, schools, parks, and community centers.

A percentage of the trips generated by the commercial parcels were also assigned separately to account for the pass-by phenomenon. A pass-by trip is one made by a motorist who would already be on an adjacent roadway regardless of the proposed development, but who stops in at the site while passing by. The motorist would then continue on his or her way to a final destination in the original direction. The pass-by percentages shown were based on the *Trip Generation Handbook - An ITE Proposed Recommended Practice, 2nd Edition, 2004* by ITE.

Figure 6 shows the projected Meridian Ranch traffic volumes at buildout. Peak-hour traffic volumes at major intersections and average daily traffic volumes on street segments between intersections are shown. These volumes represent traffic generated by all uses within Meridian Ranch, including existing and future uses, and not just those within the amended areas. Figure 7 shows the change in the projected overall site-generated traffic volumes from those shown in the 2015 traffic report.

Note: the Amended Sketch Plan (Figure 2) shows a potential future access point to Eastonville Road to serve the future elementary/middle school planned for the site just north of Falcon High School. This potential future access was also shown in the previous Sketch Plan Amendment. The traffic assignment in Figure 6 takes this potential access into account by assuming this access operational for purposes of assigning the school trip generation to the area streets and roadways. However, as this access would be a request by the school district rather than Meridian Ranch, the specific access analysis and recommendations have not been included in this report.

Figures 8 and 9 show the projected traffic volumes due to the amended areas only. Figure 8 shows the volumes due to Park Mesa Filings 1-4 only and Figures 9 shows the projected traffic volumes due to The Vistas II only.

### 2040 TOTAL TRAFFIC

Figure 10 shows the projected total traffic volumes at the area intersections for the year 2040. The 2040 total traffic volumes are the sum of the 2040 baseline traffic volumes (from Figure 4) and the Meridian Ranch traffic volumes (from Figure 6).

### PROJECTED LEVELS OF SERVICE

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A represents control delay of less than 10 seconds for unsignalized and signalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 3 shows the level of service delay ranges.

Table 3 Intersection Levels of Service		
Level of Service	Signalized Intersections	Unsignalized Intersections
	Control Delay (seconds per vehicle)	
A	less than 10 sec	less than 10 sec
B	10-20 sec	10-15 sec
C	20-35 sec	15-25 sec
D	35-55 sec	25-35 sec
E	55-80 sec	35-50 sec
F	more than 80 sec	more than sec

The major intersections within and adjacent to Meridian Ranch were analyzed to determine the projected levels of service for the 2040 total traffic volumes based on the unsignalized intersection analysis procedures from the *Highway Capacity Manual* and the signalized intersection analysis procedures from the Synchro computer program. Figure 11 shows the level of service analysis results. The level of service reports are attached. Figure 11 also shows the recommended intersection lane geometry and traffic control.

Based on the HCM method of analysis some of the movements at the intersection of Rainbow Bridge/Lambert and the southwest Vistas II access point to Lambert Road are projected to operate at LOS E or LOS F during the afternoon peak hours. The future upstream signal at Lambert/Stapleton will create gaps in northeastbound traffic. A SimTraffic simulation was run to better

# Elaborate and provide an estimate for the percentage of buildout which would trigger these improvements.

analyze the operational effects of the adjacent signal-controlled intersection. The projected 2040 afternoon peak hour volumes were entered into the model and the model was run five times. The results were then averaged. The average projected delay for all movements were within or lower than the LOS D ranges shown in Table 3.

## FUNCTIONAL CLASSIFICATIONS AND LANEAGE

Figure 12 shows the recommended functional classifications and number of through lanes for the roadways (Collector and above) adjacent to and within Meridian Ranch. The functional classifications and number of through lanes are consistent with the new *El Paso County MTCP*.

## CONCLUSIONS AND RECOMMENDATIONS

1. The existing and proposed street network within and in the vicinity of Meridian Ranch will be adequate to accommodate the proposed amended Sketch Plan land uses.
2. Figure 11 shows the recommended building lane geometry and traffic control.
  - a. In order to operate at LOS D or better for all movements, the Londonderry Drive/Lambert Road intersection may need to be signalized at some point in the future. The intersection is not projected to operate at LOS D or better for all movements with either two-way Stop-sign control or all-way Stop-sign control. More detailed analysis at future filings will be able to determine when or if a signal is required at this intersection.
  - b. In order to operate at LOS D or better for all movement, the intersection of Londonderry Drive/Rainbow Bridge Drive may need to be converted to all-way, stop-sign control in the future.
  - c. The intersections of Meridian Road/Rex Road, Stapleton Road/Lambert Road and Stapleton Road/Eastonville Road should be signalized once warranted.
3. Figure 12 shows the buildout number of through lanes on the major streets in the study area and functional classifications.
4. Figure 13 summarizes key recommendations from this report for the proposed amendment to the Sketch Plan.
5. Current estimates for long-term traffic on Londonderry Drive and Rex Road are shown to be between 3,900 and 8,750 vehicles per day. Two-lane roads with auxiliary turn lanes where indicated could accommodate these projected volumes. This is demonstrated by the level of service analysis.
6. Future access points to Eastonville Road may be added later for the park site and/or the schools. The prescribed spacing of access points per the MTCP and the ECM would be one-quarter mile.

In the report discuss the following:

1. When the Lambert Road connection to Stapleton Rd is anticipated to be constructed.
2. Discuss the agreement between Meridian and the County Engineer regarding GTL's responsibility with regards to the Stapleton Rd and Eastonville Rd improvement.

\* \* \* \* \*

We trust this traffic impact analysis will assist you in gaining approval of the proposed Meridian Ranch Sketch Plan Amendment. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By 

Jeffrey C. Hodsdon, P.E., PTOE  
Principal

JCH:bjwb

Enclosures: Tables 1 and 2  
Figures 1-13  
Traffic Counts  
Level of Service Reports

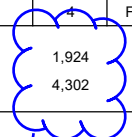


**Table 1  
Meridian Ranch Sketch Plan  
Land Use Comparison**

Meridian Ranch Sketch Plan 2015 Traffic Analysis 29, 2015				July	Currently Proposed Sketch Plan			Change in Land Use	
Filing	Land Use	Quantity	Unit		Land Use	Quantity	Unit	Quantity	Unit
<b>Existing and Approved Land Uses</b>									
Meridian Ranch Filing 1	Single-Family Detached Housing	800	DU <sup>(1)</sup>		Single-Family Detached Housing	800	DU	0	DU
Meridian Ranch Filing 2	Single-Family Detached Housing	350	DU		Single-Family Detached Housing	350	DU	0	DU
Meridian Ranch Filing 3	Single-Family Detached Housing	122	DU		Single-Family Detached Housing	122	DU	0	DU
Meridian Ranch Filing 4	Single-Family Detached Housing	96	DU		Single-Family Detached Housing	96	DU	0	DU
Meridian Ranch Filing 6	Single-Family Detached Housing	54	DU		Single-Family Detached Housing	54	DU	0	DU
Meridian Ranch Filing 7	Single-Family Detached Housing	131	DU		Single-Family Detached Housing	131	DU	0	DU
Meridian Ranch Estates Fil 2&3	Single-Family Detached Housing	62	DU		Single-Family Detached Housing	62	DU	0	DU
Meridian Ranch Filing 11	Single-Family Detached Housing	200	DU		Single-Family Detached Housing	200	DU	0	DU
Stonebridge Fil 1&2	Single-Family Detached Housing	175	DU		Single-Family Detached Housing	175	DU	0	DU
Meridian Ranch Fil 4B & Meridian Ranch Commercial	Single-Family Detached Housing	62	DU		Single-Family Detached Housing	62	DU	0	DU
	Shopping Center	90	KSF <sup>(2)</sup>		Shopping Center	90	KSF	0	KSF
	Gasoline/Service Station with Convenience Market	20	VFP <sup>(3)</sup>		Gasoline/Service Station with Convenience Market	20	VFP	0	VFP
Meridian Ranch Filing 8	Single-Family Detached Housing	145	DU		Single-Family Detached Housing	145	DU	0	DU
Meridian Ranch Filing 9	Single-Family Detached Housing	162	DU		Single-Family Detached Housing	181	DU	19	DU
Other	Meridian Ranch Elementary School	600	Students		Meridian Ranch Elementary School	600	Students	0	Students
	Falcon High School	2000	Students		Falcon High School	2000	Students	0	Students
	Recreation Center	16.6	KSF		Recreation Center	16.6	KSF	0	KSF
	Antler Creek Golf Course	27	Holes		Antler Creek Golf Course	27	Holes	0	Holes
	Community Park	4	Fields		Community Park	4	Fields	0	Fields
	Residential Dwelling Units	2,359	DU		Residential Dwelling Units	2,378	DU	19	DU
<b>Future Phases</b>									
Phase I	The Vistas Filing 1 <sup>(4)</sup>	Single-Family Detached Housing	220	DU	Single-Family Detached Housing	221	DU	127	DU
	The Vistas Filing 2	Business Park	40	Acres	Single-Family Detached Housing	126	DU	-40	Acres
Phase II		Single-Family Detached Housing	171	DU					
Phase V	Park Mesa Filings 1-5	Single-Family Detached Housing	130	DU	Single-Family Detached Housing	757	DU	107	DU
		Single-Family Detached Housing	349	DU					
Phase VII		Middle School	900	Students	Middle School	900	Students	0	Students
		Elementary School	600	Students	Elementary School	600	Students	0	Students
		Recreation Center	16.6	KSF	Recreation Center	16.6	KSF	0	KSF
Phase III	Stonebridge the Enclave Filing 4	Single-Family Detached Housing	375	DU	Single-Family Detached Housing	141	DU	13	DU
	Winding Walk Filing 1				Single-Family Detached Housing	180	DU		
	Winding Walk Filing 2				Single-Family Detached Housing	67	DU		
Phase IV	View Point at Stonebridge Filing 3 <sup>(4)</sup>	Single-Family Detached Housing	310	DU	Single-Family Detached Housing	164	DU	16	DU
	Stonebridge the Enclave Filing 5				Single-Family Detached Housing	89	DU	DU	
	Winding Walk Filing 3				Single-Family Detached Housing	73	DU	DU	
Phase VI	Rolling Hills Estates	Single-Family Detached Housing	122	DU	Single-Family Detached Housing	106	DU	-16	DU
Future Phases		Community Park - Regional	4	Fields	Community Park - Regional	4	Fields	0	Fields
		Community Park - Community	4	Fields	Community Park - Community	4	Fields	0	Fields
<b>Future Phases</b>		Residential Dwelling Units	1,677	DU	Residential Dwelling Units	1,924	DU	247	DU
<b>Total</b>		Residential Dwelling Units	4,036	DU	Residential Dwelling Units	4,302	DU	266	DU

Notes:  
 (1) dwelling unit  
 (2) thousand square feet of floor area  
 (3) vehicle fueling positions  
 (4) Currently approved or pending approval  
 Source: LSC Transportation Consultants, Inc.

The totals do not match the sketch plan amendment. Update this or the sketch plan so the numbers match.



**Table 2  
Meridian Ranch Sketch Plan  
Trip Generation Comparison**

ITE Land Use	ITE Code	Quantity	Unit	Trip Generation Rates <sup>(1)</sup>						Raw ITE Trip Generation (Individual Driveway Trips)					Passby <sup>(2)</sup> (%)	Passby Trips					Internal Trips (%)	Internal Trips					Total New External Trips						
				Daily	AM Peak Hour			PM Peak Hour			Daily	AM Peak Hour		PM Peak Hour		Daily	AM Peak Hour		PM Peak Hour			Daily	AM Peak Hour		PM Peak Hour								
					In	Out	Total	In	Out	Total		In	Out	In			Out	In	Out	In			Out	In	Out	In	Out						
<b>Currently Proposed Meridian Ranch Sketch Plan Land Uses</b>																																	
Single-Family Detached Housing	210	4,302	DU <sup>(3)</sup>	9.52	0.19	0.56	0.75	0.63	0.37	1.00	40,955	807	2,420	2,710	1,592	0%	0	0	0	0	0	0	13%	5,240	397	561	272	309	35,715	410	1,859	2,438	1,283
Elementary School	520	1,200	Students	1.29	0.25	0.20	0.45	0.07	0.08	0.15	1,548	297	243	88	92	0%	0	0	0	0	0	0	75%	1,161	223	182	66	69	387	74	61	22	23
High School	530	2,000	Students	1.71	0.29	0.14	0.43	0.06	0.07	0.13	3,420	585	275	122	138	0%	0	0	0	0	0	0	25%	855	146	69	31	35	2,565	439	206	91	103
Middle School/Junior High School	522	900	Students	1.62	0.30	0.24	0.54	0.08	0.08	0.16	1,458	267	219	71	73	0%	0	0	0	0	0	0	50%	729	134	110	36	37	729	133	109	35	36
Recreational Community Center	495	17	KSF <sup>(4)</sup>	33.82	1.35	0.70	2.05	1.34	1.40	2.74	561	22	12	22	23	0%	0	0	0	0	0	0	75%	421	17	9	17	17	140	5	3	5	6
Soccer Complex	488	12	Fields	71.33	0.70	0.70	1.40	14.26	6.41	20.67	856	8	8	171	77	0%	0	0	0	0	0	0	50%	428	4	4	86	39	428	4	4	85	38
Shopping Center	820	90	KSF	70.46	0.98	0.63	1.61	3.23	3.36	6.59	6,342	88	56	290	302	34%	2,156	30	19	99	103		25%	1,047	15	9	48	50	3,139	43	28	143	149
Gasoline/Service Station with Convenience Market	925	20	VFP <sup>(5)</sup>	162.78	5.08	5.08	10.16	6.76	6.76	13.51	3,256	102	102	135	135	56%	1,823	57	57	76	76		25%	358	11	11	15	15	1,075	34	34	44	44
Golf Course	430	27	Holes	35.74	1.63	0.43	2.06	1.49	1.43	2.92	965	44	12	40	39	0%	0	0	0	0	0	0	25%	241	11	3	10	10	724	33	9	30	29
Total Non-Residential Trips											18,406	1,413	927	939	879		3,979	87	76	175	179		5,240	561	397	309	272	9,187	765	454	455	428	
Total Trips											<b>59,361</b>	<b>2,220</b>	<b>3,347</b>	<b>3,649</b>	<b>2,471</b>								<b>44,902</b>	<b>1,175</b>	<b>2,313</b>	<b>2,893</b>	<b>1,711</b>						
<b>Land Uses Assumed in the Meridian Ranch Sketch Plan Updated Traffic Analysis - July 29, 2015</b>																																	
Single-Family Detached Housing	210	4,036	DU <sup>(3)</sup>	9.52	0.19	0.56	0.75	0.63	0.37	1.00	38,423	757	2,270	2,543	1,493	0%	0	0	0	0	0	0	15%	5,839	408	625	326	322	32,584	349	1,645	2,217	1,171
Elementary School	520	1,200	Students	1.29	0.25	0.20	0.45	0.07	0.08	0.15	1,548	297	243	88	92	0%	0	0	0	0	0	0	75%	1,161	223	182	66	69	387	74	61	22	23
High School	530	2,000	Students	1.71	0.29	0.14	0.43	0.06	0.07	0.13	3,420	585	275	122	138	0%	0	0	0	0	0	0	25%	855	146	69	31	35	2,565	439	206	91	103
Middle School/Junior High School	522	900	Students	1.62	0.30	0.24	0.54	0.08	0.08	0.16	1,458	267	219	71	73	0%	0	0	0	0	0	0	50%	729	134	110	36	37	729	133	109	35	36
Recreational Community Center	495	17	KSF <sup>(4)</sup>	33.82	1.35	0.70	2.05	1.34	1.40	2.74	561	22	12	22	23	0%	0	0	0	0	0	0	75%	421	17	9	17	17	140	5	3	5	6
Soccer Complex	488	12	Fields	71.33	0.70	0.70	1.40	14.26	6.41	20.67	856	8	8	171	77	0%	0	0	0	0	0	0	50%	428	4	4	86	39	428	4	4	85	38
Shopping Center	820	90	KSF	70.46	0.98	0.63	1.61	3.23	3.36	6.59	6,342	88	56	290	302	34%	2,156	30	19	99	103		25%	1,047	15	9	48	50	3,139	43	28	143	149
Gasoline/Service Station with Convenience Market	925	20	VFP <sup>(5)</sup>	162.78	5.08	5.08	10.16	6.76	6.76	13.51	3,256	102	102	135	135	56%	1,823	57	57	76	76		25%	358	11	11	15	15	1,075	34	34	44	44
Golf Course	430	27	Holes	35.74	1.63	0.43	2.06	1.49	1.43	2.92	965	44	12	40	39	0%	0	0	0	0	0	0	25%	241	11	3	10	10	724	33	9	30	29
Business Park	770	40	Acres	149.79	16.03	2.83	18.86	3.37	13.47	16.84	5,992	641	113	135	539	0%	0	0	0	0	0	0	10%	599	64	11	13	54	5,393	577	102	122	485
Total Non-Residential Trips											24,398	2,054	1,040	1,074	1,418		3,979	87	76	175	179		5,839	625	408	322	326	14,580	1,342	556	577	913	
Total Trips											<b>62,820</b>	<b>2,811</b>	<b>3,310</b>	<b>3,616</b>	<b>2,911</b>								<b>47,163</b>	<b>1,691</b>	<b>2,201</b>	<b>2,793</b>	<b>2,084</b>						
<b>Change in Trips Estimated Based on Currently Proposed Plan and Trip Generation Estimate from 2015 Report</b>											<b>-3,459</b>	<b>-591</b>	<b>36</b>	<b>33</b>	<b>-440</b>								<b>-2,261</b>	<b>-516</b>	<b>111</b>	<b>100</b>	<b>-373</b>						

Notes:  
(1) Source: "Trip Generation, 9th Edition, 2012" by the Institute of Transportation Engineers (ITE)  
(2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice 2nd Edition, June 2004" by ITE  
(3) DU = Dwelling Unit  
(4) KSF = thousand square feet of floor area  
(5) VFP = vehicle fueling position



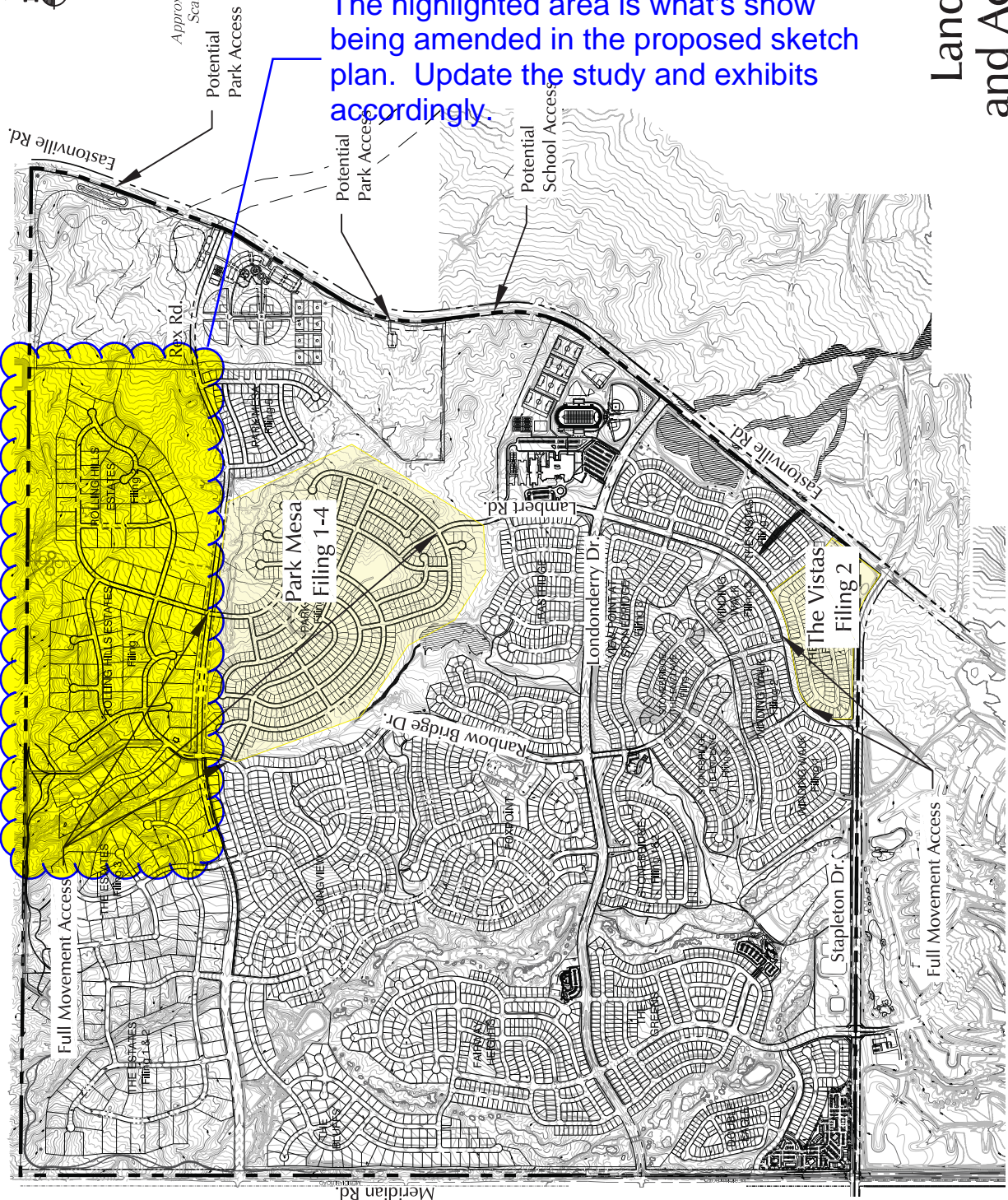
# Vicinity Map

Figure 1

Meridian Ranch Sketch Plan Amendment 2017 (LSC #174350)



Approximate Scale  
Scale: NTS



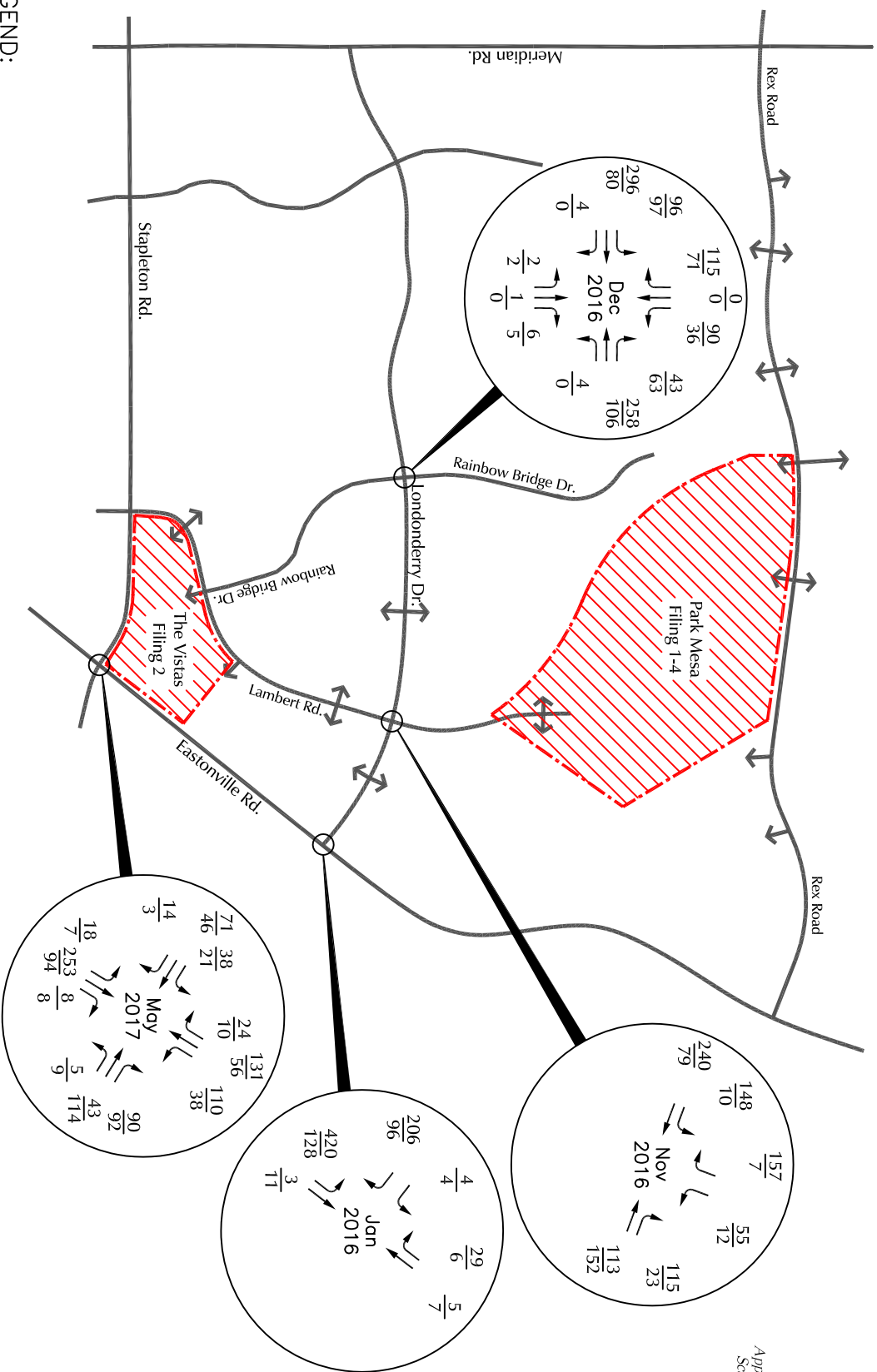
The highlighted area is what's show being amended in the proposed sketch plan. Update the study and exhibits accordingly.

Figure 2

# Land Use and Access

LEGEND:

$\frac{26}{45}$  = AM (7:00–8:00am) Weekday Peak–Hour Traffic (vehicles per hour) Based on counts by LSC in 2016 and 2017.  
 $\frac{PM}{45}$  (4:45–5:45pm) Weekday Peak–Hour Traffic (vehicles per hour)



Approximate Scale  
 Scale: 1" = 2,000'

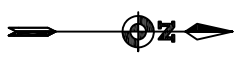
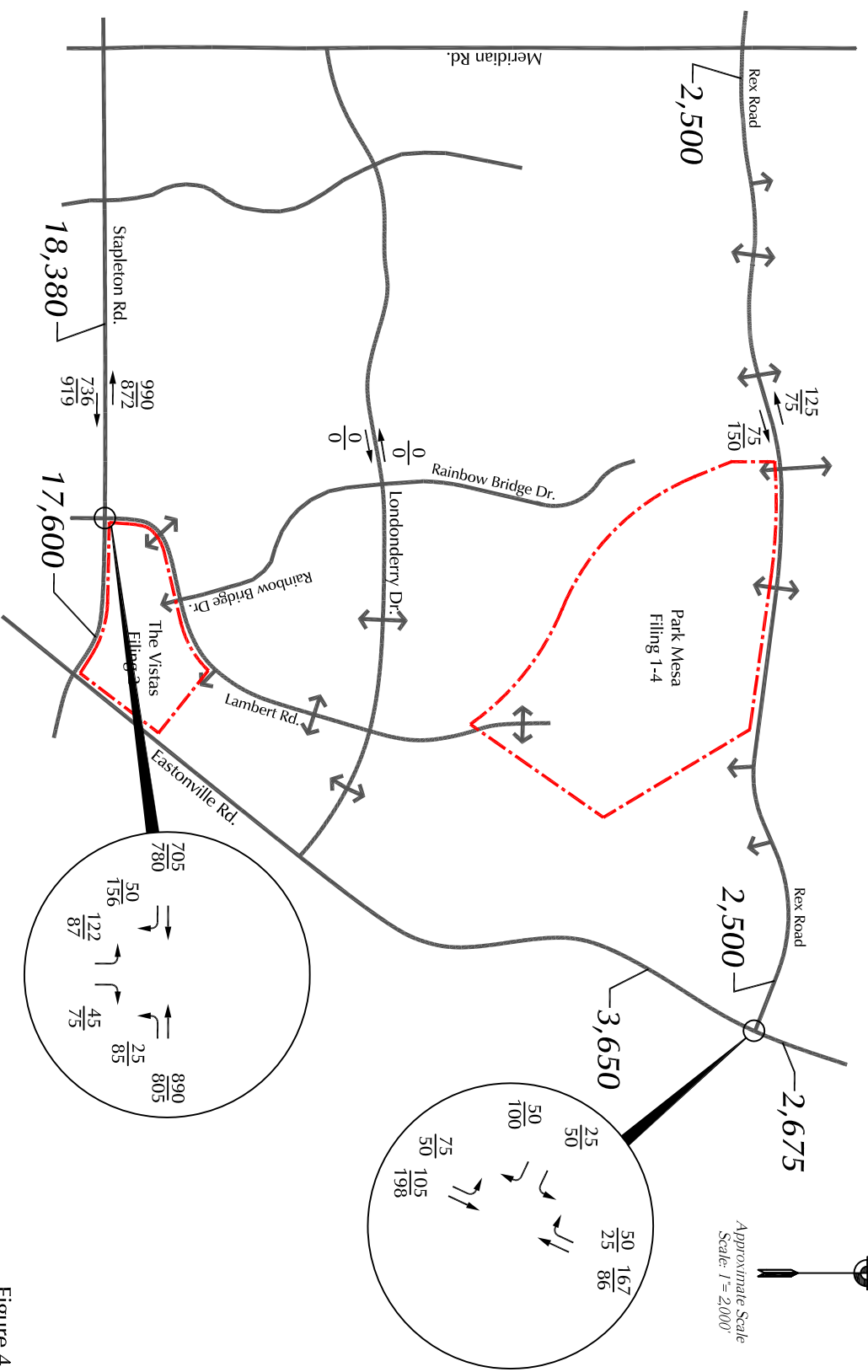


Figure 3

# Existing Traffic



Approximate Scale  
Scale: 1" = 2,000'

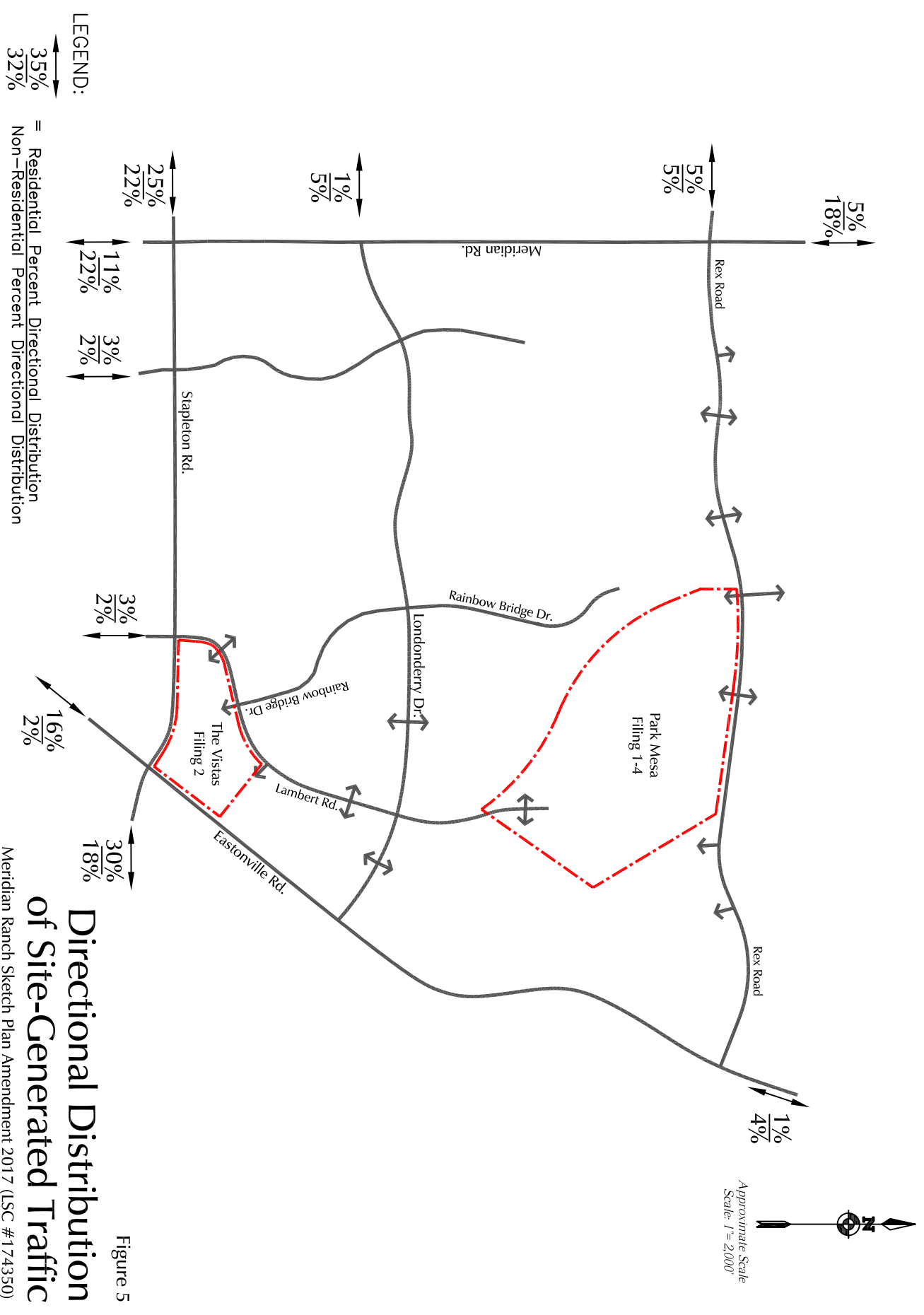


**LEGEND:**

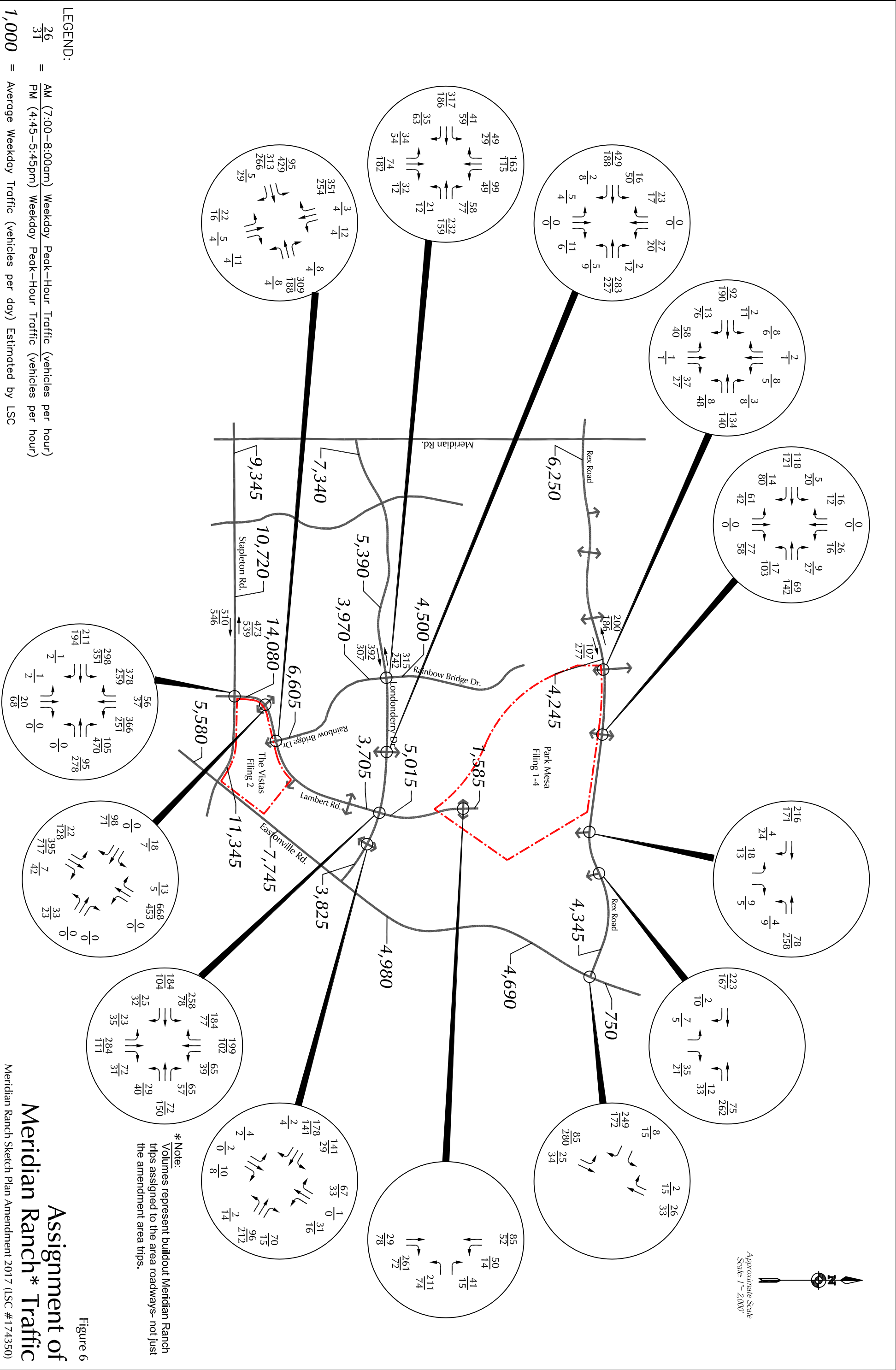
- $\frac{26}{31}$  = AM (7:00–8:00am) Weekday Peak–Hour Traffic (vehicles per hour)
- $\frac{26}{31}$  = PM (4:45–5:45pm) Weekday Peak–Hour Traffic (vehicles per hour)
- 1,000** = Average Weekday Traffic (vehicles per day) Estimated by LSC

**Year 2040  
Background Traffic**

Figure 4



**Figure 5**  
**Directional Distribution**  
**of Site-Generated Traffic**  
 Meridian Ranch Sketch Plan Amendment 2017 (LSC #174350)



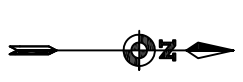
Approximate Scale  
Scale: 1" = 2,000'

\* Note:  
Volumes represent buildout Meridian Ranch trips assigned to the area roadways- not just the amendment area trips.

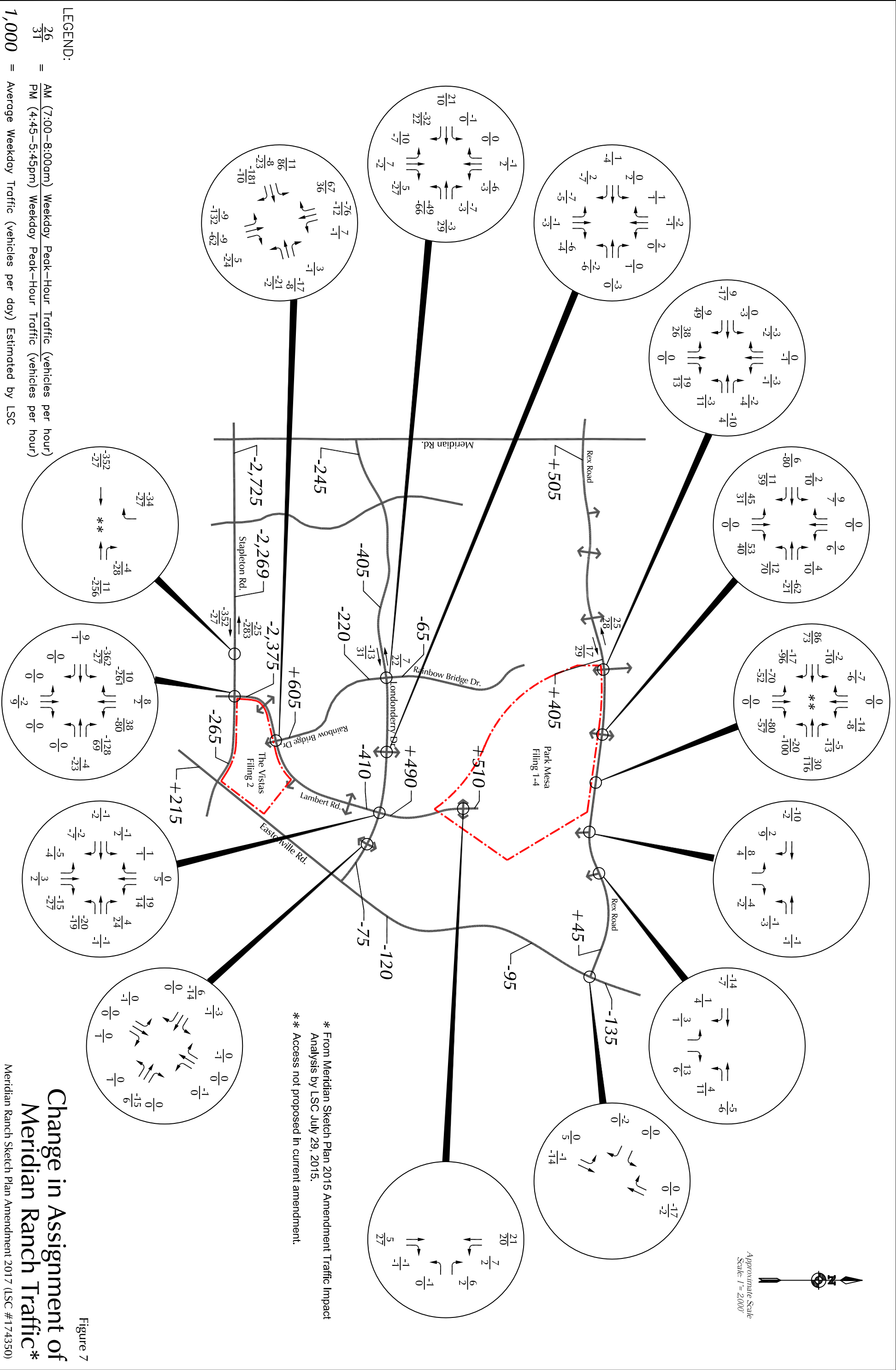
LEGEND:  
 $\frac{26}{31}$  = AM (7:00-8:00am) Weekday Peak-Hour Traffic (vehicles per hour)  
 $\frac{PM}{4:45-5:45pm}$  = Weekday Peak-Hour Traffic (vehicles per hour)  
**1,000** = Average Weekday Traffic (vehicles per day) Estimated by LSC

Figure 6  
**Assignment of Meridian Ranch \* Traffic**  
 Meridian Ranch Sketch Plan Amendment 2017 (LSC #174350)





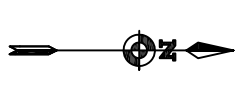
Approximate Scale  
Scale: 1" = 2,000'



\* From Meridian Sketch Plan 2015 Amendment Traffic Impact Analysis by LSC July 29, 2015.  
\*\* Access not proposed in current amendment.

LEGEND:  
 $\frac{26}{31}$  = AM (7:00-8:00am) Weekday Peak-Hour Traffic (vehicles per hour)  
 $\frac{PM}{4:45-5:45pm}$  = PM (4:45-5:45pm) Weekday Peak-Hour Traffic (vehicles per hour)  
**1,000** = Average Weekday Traffic (vehicles per day) Estimated by LSC

Figure 7  
**Change in Assignment of Meridian Ranch Traffic\***  
 Meridian Ranch Sketch Plan Amendment 2017 (LSC #174350)



Approximate Scale  
Scale: 1" = 2,000'

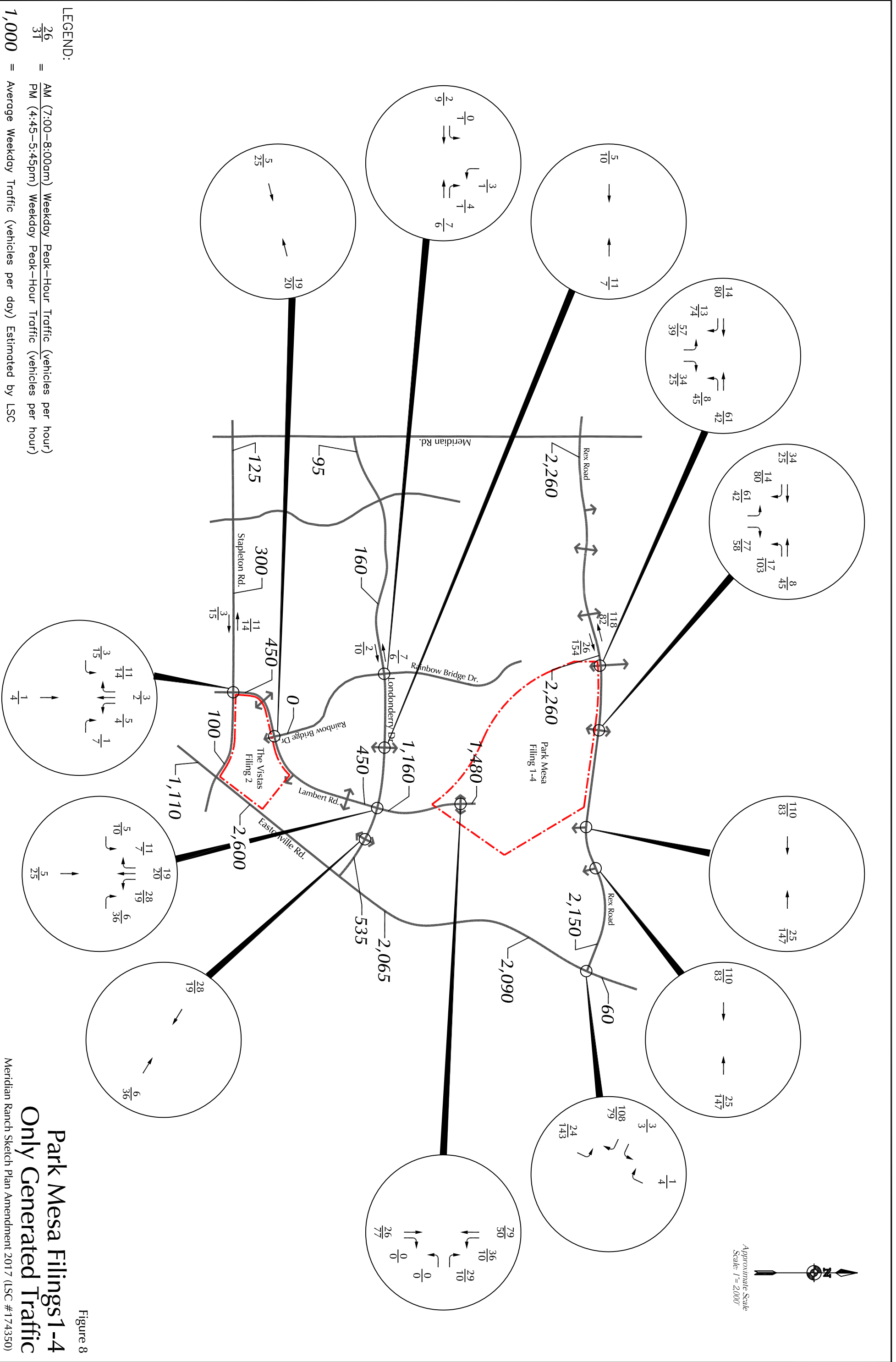
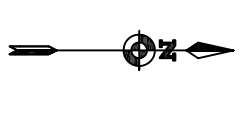
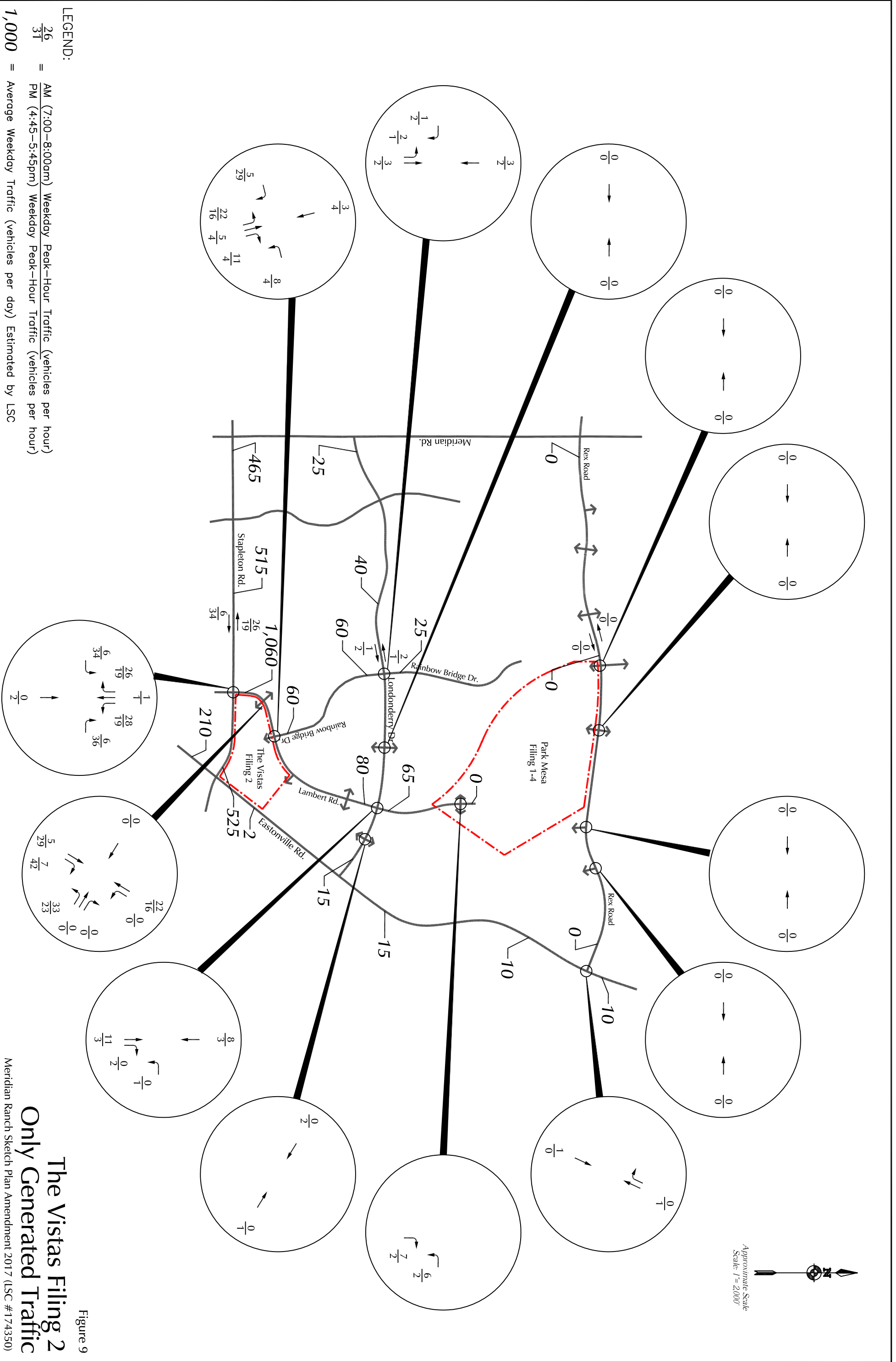


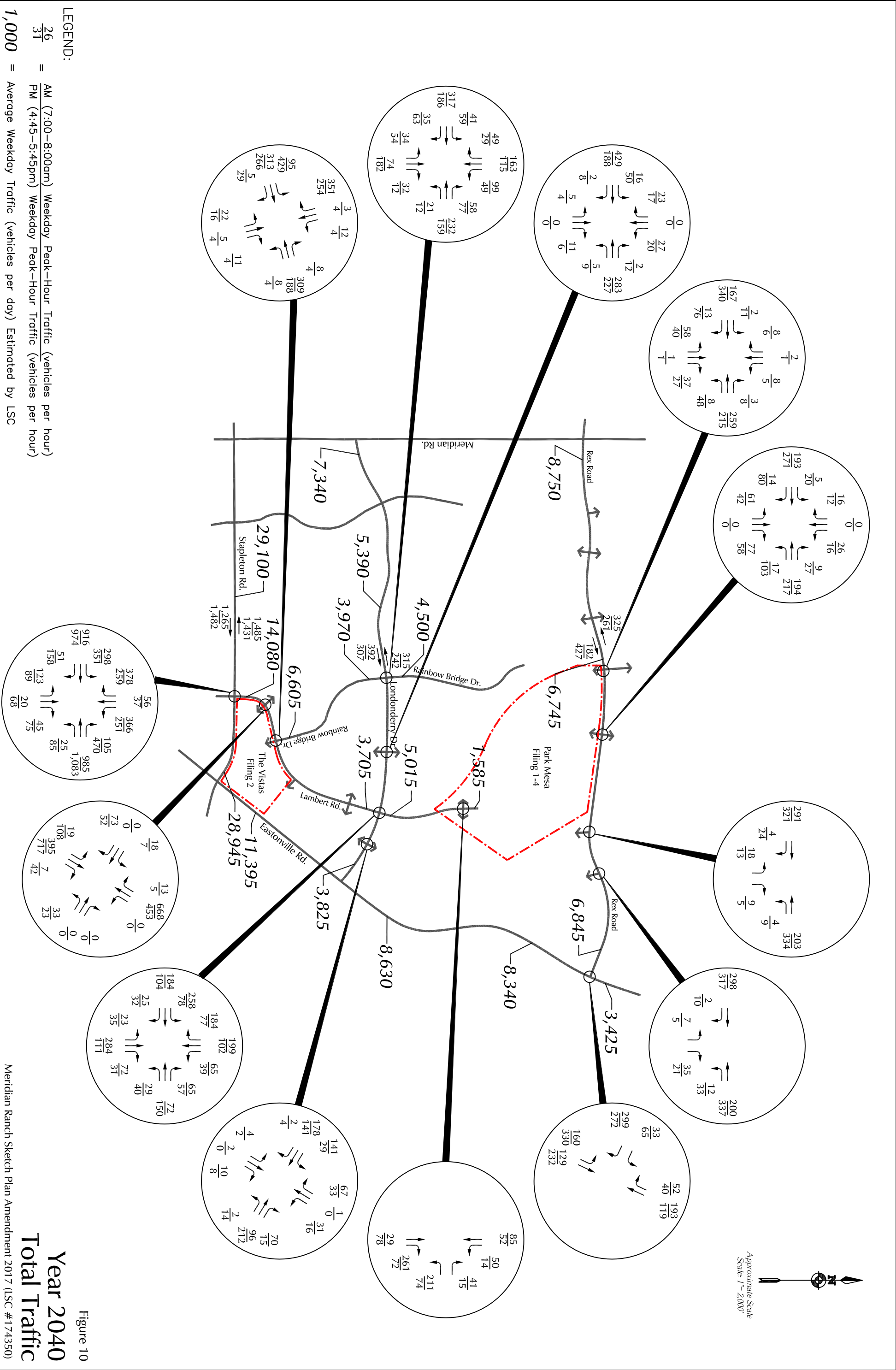
Figure 8

**Park Mesa Filings 1-4**  
**Only Generated Traffic**  
Meridian Ranch Sketch Plan Amendment 2017 (LSC #174350)



Approximate Scale  
Scale: 1" = 2,000'





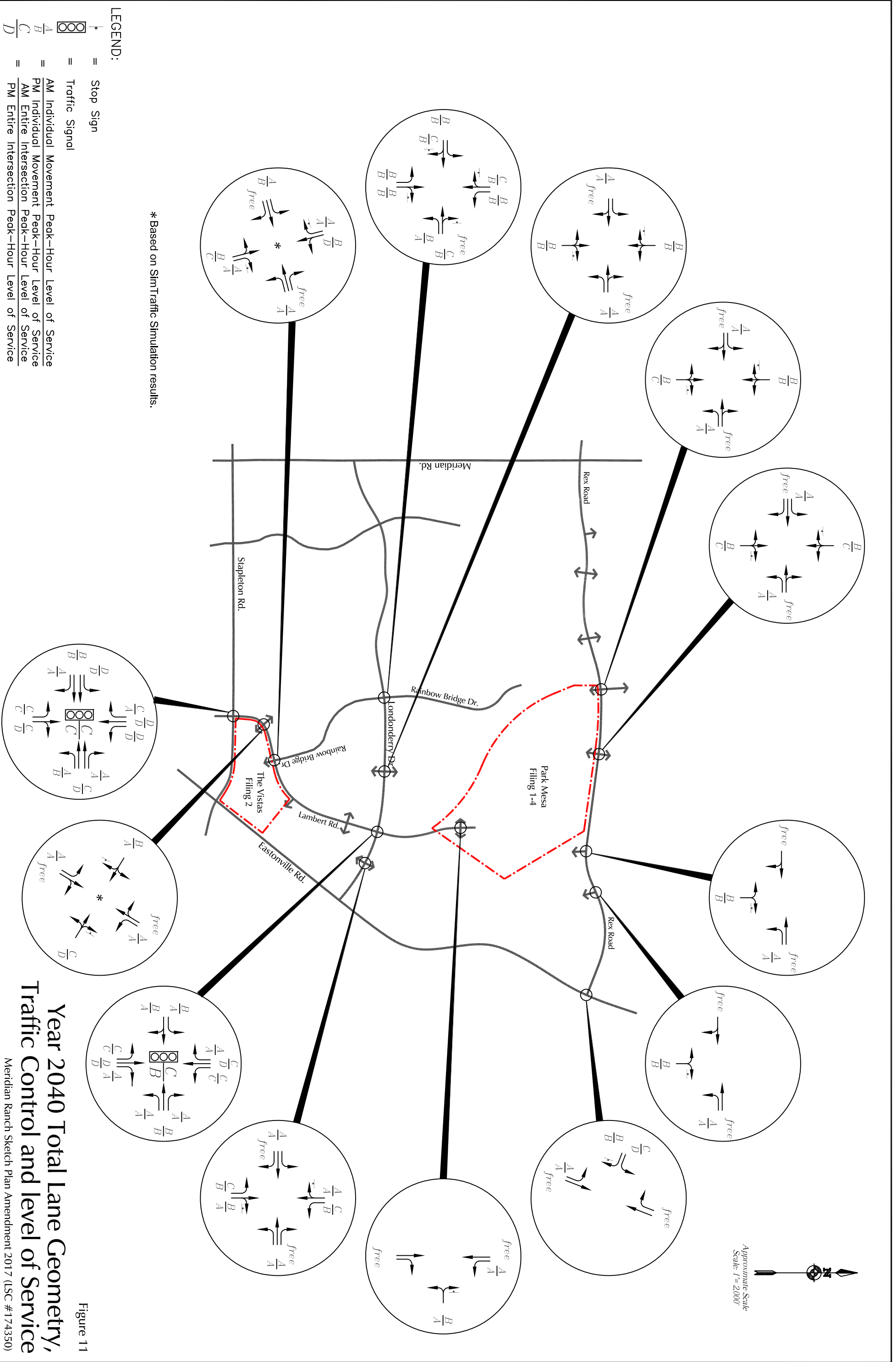






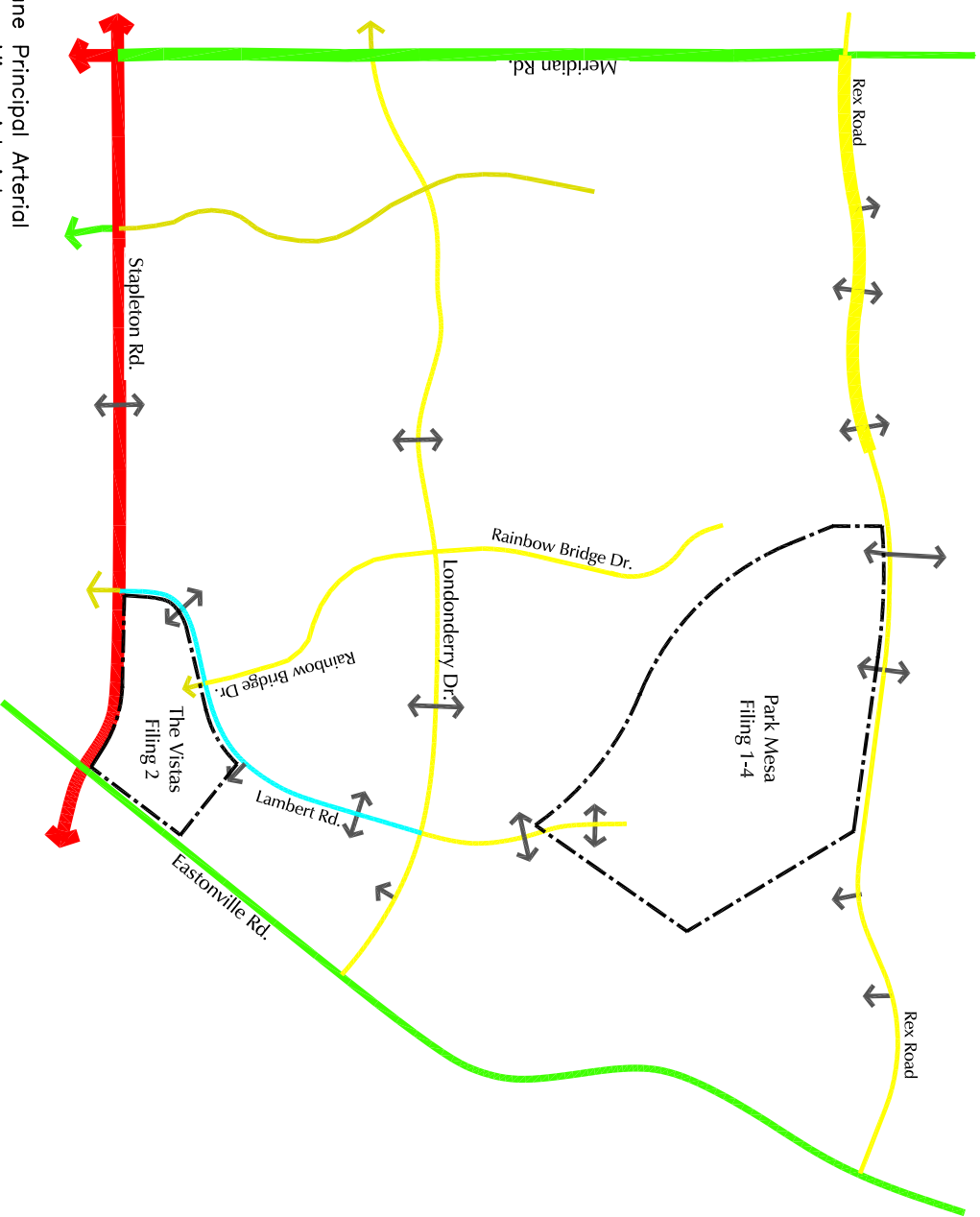


Figure 11  
**Year 2040 Total Lane Geometry, Traffic Control and level of Service**  
 Meridian Ranch Sketch Plan Amendment 2017 (LSC #174350)

**LEGEND:**

	=	4-Lane Principal Arterial
	=	4-Lane Minor Arterial
	=	2-Lane Minor Arterial
	=	2-Lane Non-Residential Collector
	=	4-Lane Residential Collector
	=	2-Lane Residential Collector



Approximate Scale  
Scale: 1" = 2,000'




Figure 12

# Roadway Classifications Year 2040

Meridian Ranch Sketch Plan Amendment 2017 (LSC #174350)

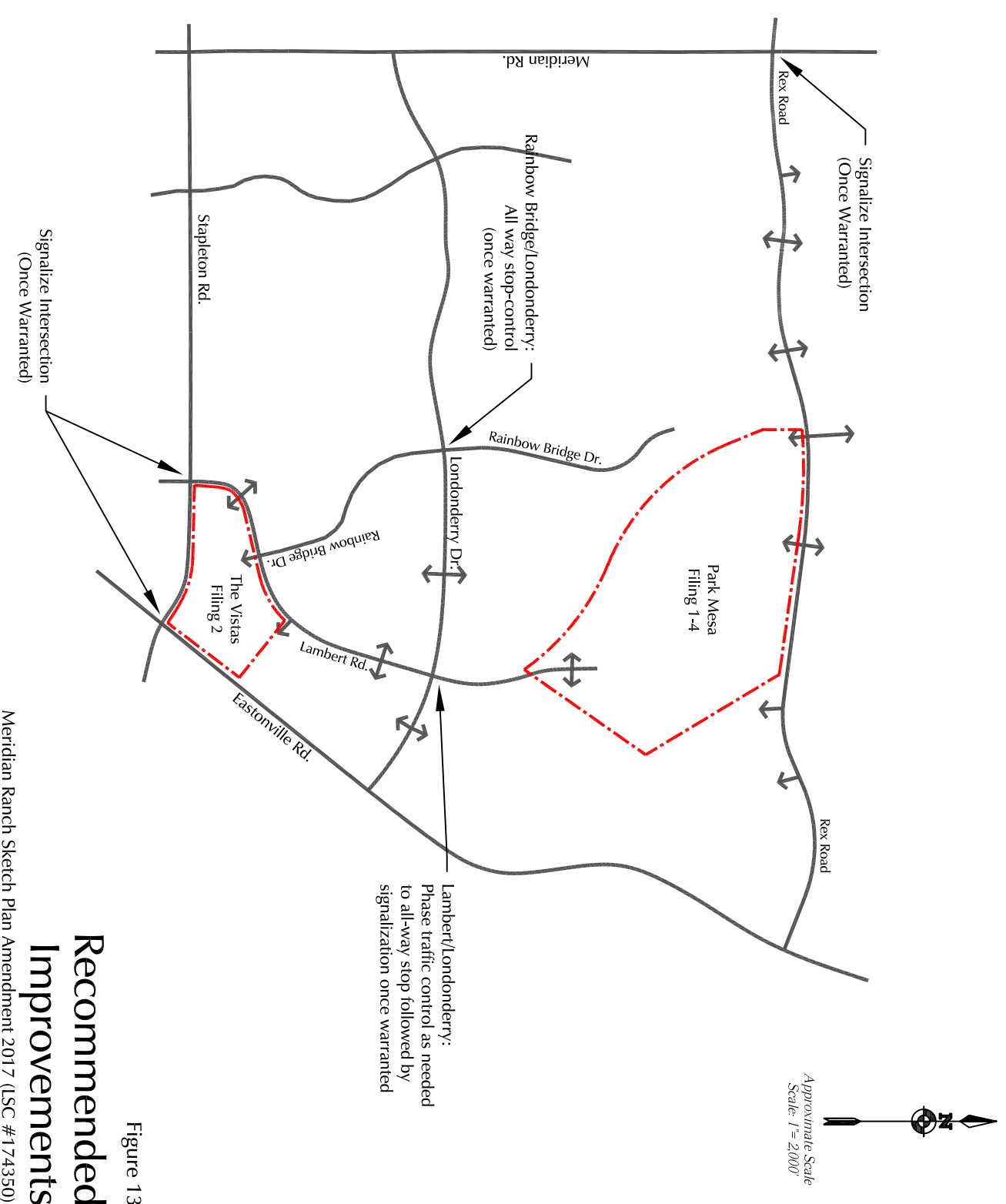


Figure 13

# Recommended Improvements

Meridian Ranch Sketch Plan Amendment 2017 (LSC #174350)

Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Eastonville Rd - Stapleton Dr 5-23-17 AM  
 Site Code : 00174350  
 Start Date : 05/23/2017  
 Page No : 1

Groups Printed- Unshifted

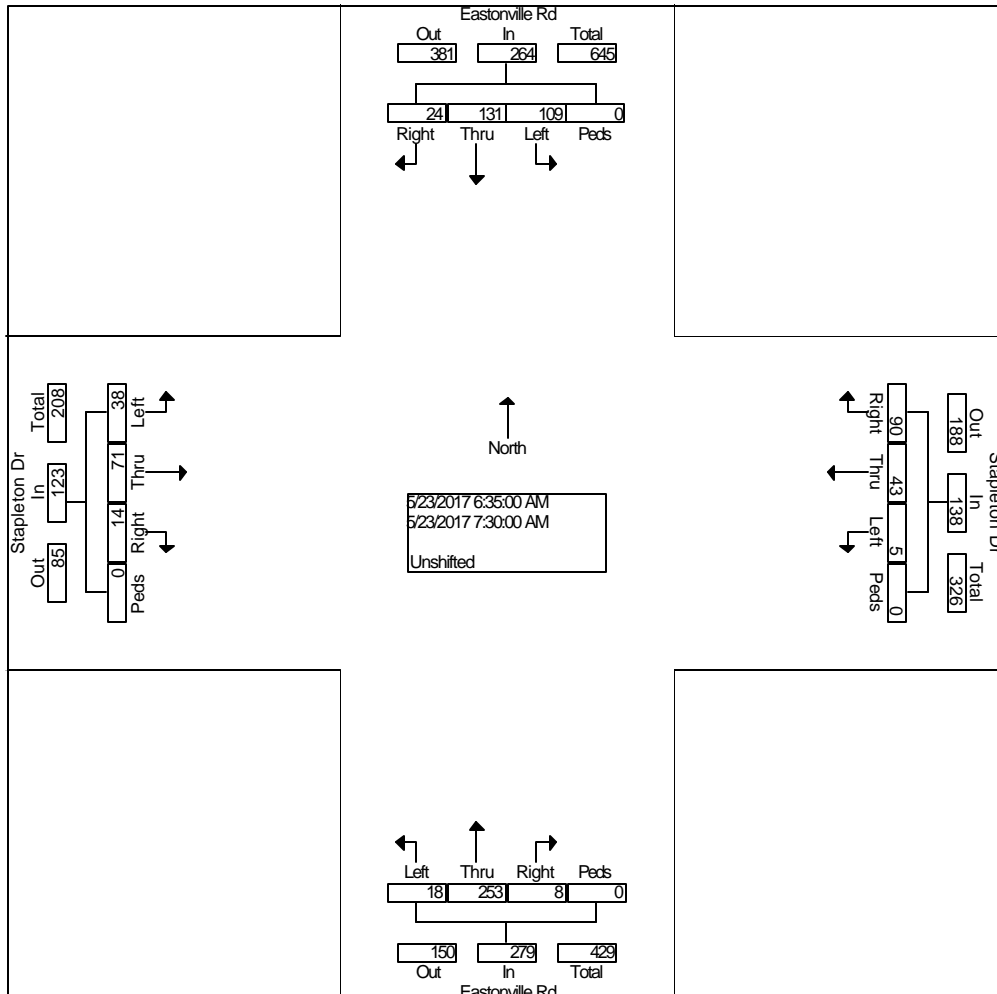
Start Time	Eastonville Rd From North				Stapleton Dr From East				Eastonville Rd From South				Stapleton Dr From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
06:30 AM	1	11	18	0	9	1	0	0	0	30	1	0	1	12	5	0	89
06:45 AM	2	16	25	0	19	5	2	0	0	42	3	0	4	17	8	0	143
07:00 AM	10	46	24	0	35	9	1	0	0	111	6	0	6	19	18	0	285
07:15 AM	10	54	37	0	25	20	1	0	7	75	7	0	2	16	6	0	260
07:30 AM	2	14	19	0	7	25	2	0	2	3	3	0	2	21	5	0	105
07:45 AM	4	7	11	0	11	15	2	0	0	8	2	0	4	29	2	0	95
08:00 AM	0	11	11	0	14	11	1	0	0	9	0	1	0	25	2	0	85
08:15 AM	3	11	22	0	7	10	1	0	1	10	2	0	0	11	2	0	80
Grand Total	32	170	167	0	127	96	10	0	10	288	24	1	19	150	48	0	1142
Apprch %	8.7	46.1	45.3	0.0	54.5	41.2	4.3	0.0	3.1	89.2	7.4	0.3	8.8	69.1	22.1	0.0	
Total %	2.8	14.9	14.6	0.0	11.1	8.4	0.9	0.0	0.9	25.2	2.1	0.1	1.7	13.1	4.2	0.0	



Counts by LSC

File Name : Eastonville Rd - Stapleton Dr 5-23-17 AM  
 Site Code : 00174350  
 Start Date : 05/23/2017  
 Page No : 2

Start Time	Eastonville Rd From North					Stapleton Dr From East					Eastonville Rd From South					Stapleton Dr From West					Int. Total
	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	
Peak Hour From 06:30 AM to 08:25 AM - Peak 1 of 1																					
Intersection	06:35 AM																				
Volume	24	13	10	0	264	90	43	5	0	138	8	25	18	0	279	14	71	38	0	123	804
Percent	9.1	49.6	41.3	0.0		65.2	31.2	3.6	0.0		2.9	90.7	6.5	0.0		11.4	57.7	30.9	0.0		
07:10 Volume	3	18	8	0	29	15	4	0	0	19	0	38	1	0	39	2	6	7	0	15	102
Peak Factor																					
High Int.	07:25 AM																				
Volume	2	23	14	0	39	15	4	0	0	19	0	39	3	0	42	3	7	5	0	15	0.657
Peak Factor	0.56					0.60					0.55					0.68					3



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Eastonville Rd - Stapleton Dr PM  
 Site Code : 00174350  
 Start Date : 05/11/2017  
 Page No : 1

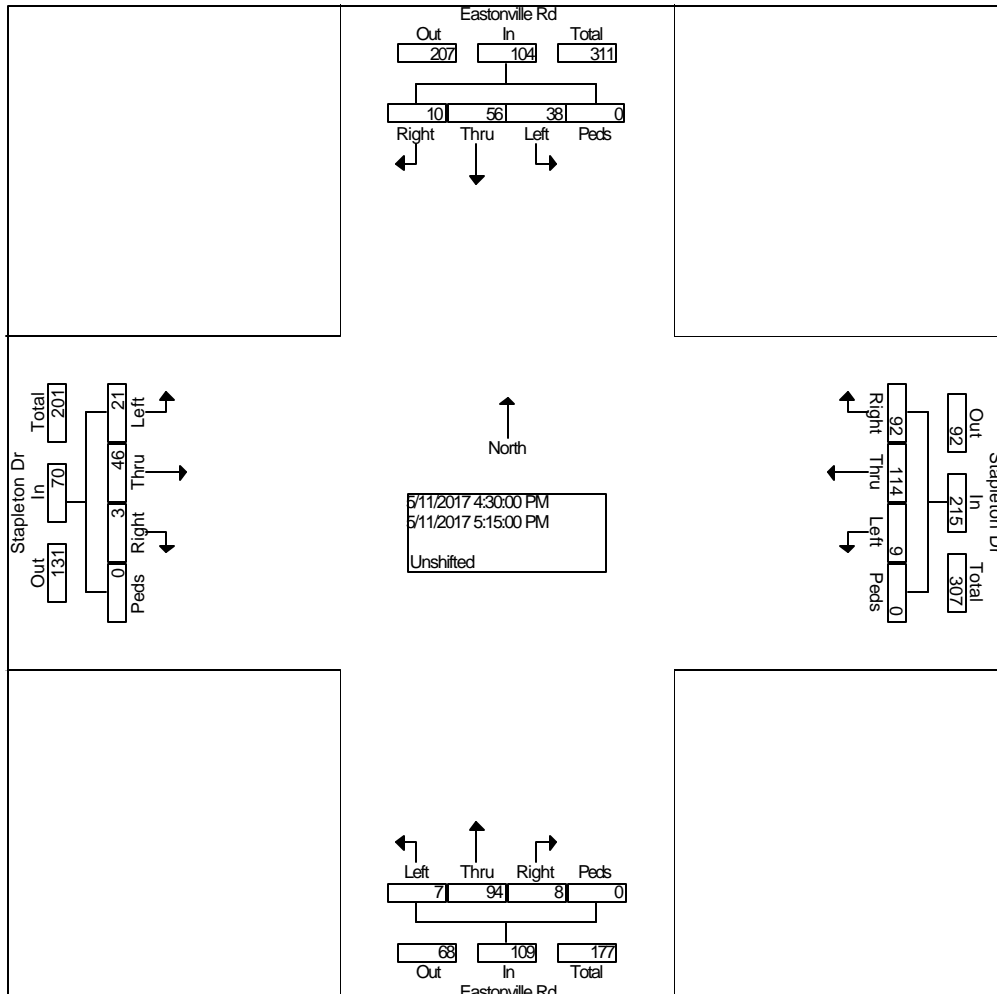
Groups Printed- Unshifted

Start Time	Eastonville Rd From North				Stapleton Dr From East				Eastonville Rd From South				Stapleton Dr From West				Int. Total				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds					
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	2	19	12	0	16	19	1	0	1	23	1	0	1	13	2	0					110
04:15 PM	0	12	5	0	24	25	3	0	1	19	4	0	1	5	6	0					105
04:30 PM	3	16	12	0	16	35	5	0	2	19	3	0	2	9	9	0					131
04:45 PM	4	9	7	0	23	29	2	0	4	34	1	0	1	9	8	0					131
Total	9	56	36	0	79	108	11	0	8	95	9	0	5	36	25	0					477
05:00 PM	2	18	11	0	28	27	2	0	1	20	3	0	0	9	2	0					123
05:15 PM	1	13	8	0	25	23	0	0	1	21	0	0	0	19	2	0					113
05:30 PM	1	19	1	0	12	14	2	0	3	37	3	0	1	13	1	0					107
05:45 PM	1	16	1	0	11	13	1	0	2	31	1	0	1	9	1	0					88
Total	5	66	21	0	76	77	5	0	7	109	7	0	2	50	6	0					431
Grand Total	14	122	57	0	155	185	16	0	15	204	16	0	7	86	31	0					908
Apprch %	7.3	63.2	29.5	0.0	43.5	52.0	4.5	0.0	6.4	86.8	6.8	0.0	5.6	69.4	25.0	0.0					
Total %	1.5	13.4	6.3	0.0	17.1	20.4	1.8	0.0	1.7	22.5	1.8	0.0	0.8	9.5	3.4	0.0					

Counts by LSC

File Name : Eastonville Rd - Stapleton Dr PM  
 Site Code : 00174350  
 Start Date : 05/11/2017  
 Page No : 2

Start Time	Eastonville Rd From North					Stapleton Dr From East					Eastonville Rd From South					Stapleton Dr From West					Int. Total
	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	10	56	38	0	104	92	11	9	0	215	8	94	7	0	109	3	46	21	0	70	498
Percent	9.6	53.8	36.5	0.0		42.8	53.0	4.2	0.0		7.3	86.2	6.4	0.0		4.3	65.7	30.0	0.0		
04:45 Volume	4	9	7	0	20	23	29	2	0	54	4	34	1	0	39	1	9	8	0	18	131
Peak Factor	0.950																				
High Int.	04:30 PM																				
Volume	3	16	12	0	31	28	27	2	0	57	4	34	1	0	39	0	19	2	0	21	0.83
Peak Factor	0.83																				
						05:00 PM					04:45 PM					05:15 PM					
Volume																					
Peak Factor																					



Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↵	↵			↵	↵			↵	↵	
Traffic Vol, veh/h	0	41	317	35	0	21	232	58	0	34	74	32
Future Vol, veh/h	0	41	317	35	0	21	232	58	0	34	74	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	43	334	37	0	22	244	61	0	36	78	34
Number of Lanes	0	1	1	0	0	1	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	22.3	18.2	12.3
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	70%	0%	90%	0%	80%	0%	77%
Vol Right, %	0%	30%	0%	10%	0%	20%	0%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	106	41	352	21	290	99	212
LT Vol	34	0	41	0	21	0	99	0
Through Vol	0	74	0	317	0	232	0	163
RT Vol	0	32	0	35	0	58	0	49
Lane Flow Rate	36	112	43	371	22	305	104	223
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.082	0.232	0.088	0.695	0.046	0.58	0.225	0.44
Departure Headway (Hd)	8.224	7.491	7.334	6.753	7.495	6.84	7.78	7.102
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	435	479	489	534	478	528	462	507
Service Time	5.982	5.249	5.08	4.499	5.243	4.588	5.53	4.851
HCM Lane V/C Ratio	0.083	0.234	0.088	0.695	0.046	0.578	0.225	0.44
HCM Control Delay	11.7	12.5	10.8	23.6	10.6	18.7	12.8	15.3
HCM Lane LOS	B	B	B	C	B	C	B	C
HCM 95th-tile Q	0.3	0.9	0.3	5.4	0.1	3.7	0.9	2.2

**Intersection**

Intersection Delay, s/veh  
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations		↶	↷	
Traffic Vol, veh/h	0	99	163	49
Future Vol, veh/h	0	99	163	49
Peak Hour Factor	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	104	172	52
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.5
HCM LOS	B

**Intersection**

Int Delay, s/veh 2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↕	↕		↕	↕	
Traffic Vol, veh/h	2	167	13	8	259	3	58	1	37	8	2	8
Future Vol, veh/h	2	167	13	8	259	3	58	1	37	8	2	8
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	250	-	-	250	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	1	1	2	2	2	1	2	1
Mvmt Flow	2	176	14	8	273	3	61	1	39	8	2	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	276	0	0	189	0	0	483	480	183	498	485	274
Stage 1	-	-	-	-	-	-	187	187	-	291	291	-
Stage 2	-	-	-	-	-	-	296	293	-	207	194	-
Critical Hdwy	4.11	-	-	4.12	-	-	7.12	6.52	6.22	7.11	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Follow-up Hdwy	2.209	-	-	2.218	-	-	3.518	4.018	3.318	3.509	4.018	3.309
Pot Cap-1 Maneuver	1293	-	-	1385	-	-	494	485	859	484	482	767
Stage 1	-	-	-	-	-	-	815	745	-	719	672	-
Stage 2	-	-	-	-	-	-	712	670	-	797	740	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1293	-	-	1385	-	-	484	481	859	459	478	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	484	481	-	459	478	-
Stage 1	-	-	-	-	-	-	814	744	-	718	668	-
Stage 2	-	-	-	-	-	-	698	666	-	759	739	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	12.5	11.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	582	1293	-	-	1385	-	-	562
HCM Lane V/C Ratio	0.174	0.002	-	-	0.006	-	-	0.034
HCM Control Delay (s)	12.5	7.8	-	-	7.6	-	-	11.6
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

Timings  
43: Lambert Rd & Londonderry Dr

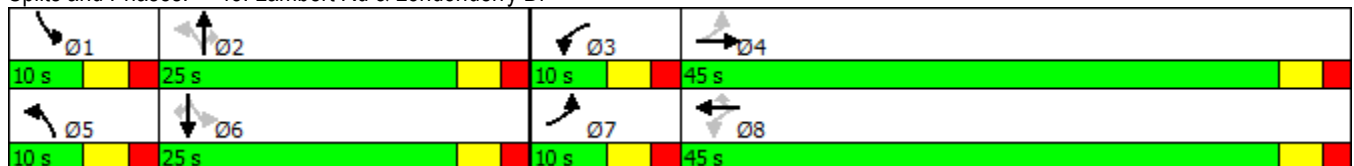
2040 Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	258	184	29	72	65	23	284	72	65	199	184
Future Volume (vph)	258	184	29	72	65	23	284	72	65	199	184
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		2	6		6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	10.0	45.0	10.0	45.0	45.0	10.0	25.0	25.0	10.0	25.0	25.0
Total Split (%)	11.1%	50.0%	11.1%	50.0%	50.0%	11.1%	27.8%	27.8%	11.1%	27.8%	27.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	47.5	44.7	45.4	40.3	40.3	21.3	17.4	17.4	23.2	21.3	21.3
Actuated g/C Ratio	0.55	0.52	0.53	0.47	0.47	0.25	0.20	0.20	0.27	0.25	0.25
v/c Ratio	0.47	0.23	0.05	0.09	0.11	0.09	0.79	0.17	0.41	0.57	0.42
Control Delay	14.8	14.1	9.3	14.7	0.9	21.4	48.7	1.0	27.9	34.4	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	14.1	9.3	14.7	0.9	21.4	48.7	1.0	27.9	34.4	6.7
LOS	B	B	A	B	A	C	D	A	C	C	A
Approach Delay		14.5		7.7			38.0			22.1	
Approach LOS		B		A			D			C	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 85.6  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 21.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 53.3%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 43: Lambert Rd & Londonderry Dr



HCM 2010 TWSC  
47: Boulder Ridge Dr & Londonderry Dr

2040 Total Traffic  
AM Peak Hour

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↕	↕		↕	↕	
Traffic Vol, veh/h	16	429	2	5	283	2	5	0	11	27	0	23
Future Vol, veh/h	16	429	2	5	283	2	5	0	11	27	0	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	200	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	452	2	5	298	2	5	0	12	28	0	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	300	0	0	454	0	0	808	797	453	801	796	299
Stage 1	-	-	-	-	-	-	486	486	-	309	309	-
Stage 2	-	-	-	-	-	-	322	311	-	492	487	-
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	1261	-	-	1107	-	-	299	319	607	303	320	741
Stage 1	-	-	-	-	-	-	563	551	-	701	660	-
Stage 2	-	-	-	-	-	-	690	658	-	558	550	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1261	-	-	1107	-	-	285	313	607	293	314	741
Mov Cap-2 Maneuver	-	-	-	-	-	-	401	409	-	405	410	-
Stage 1	-	-	-	-	-	-	555	544	-	692	657	-
Stage 2	-	-	-	-	-	-	664	655	-	540	543	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	12.1	12.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	523	1261	-	-	1107	-	-	512
HCM Lane V/C Ratio	0.032	0.013	-	-	0.005	-	-	0.103
HCM Control Delay (s)	12.1	7.9	-	-	8.3	-	-	12.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3



**Intersection**

Int Delay, s/veh 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	291	4	4	203	18	9
Future Vol, veh/h	291	4	4	203	18	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	306	4	4	214	19	9

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	311
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1249
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1249
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	566	-	-	1249	-
HCM Lane V/C Ratio	0.05	-	-	0.003	-
HCM Control Delay (s)	11.7	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

**Intersection**

Int Delay, s/veh 1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷	↶	↷	
Traffic Vol, veh/h	298	2	12	200	7	35
Future Vol, veh/h	298	2	12	200	7	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	314	2	13	211	7	37

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	316
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1244
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1244
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	671	-	-	1244	-
HCM Lane V/C Ratio	0.066	-	-	0.01	-
HCM Control Delay (s)	10.7	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

**Intersection**

Int Delay, s/veh 6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗
Traffic Vol, veh/h	33	299	160	129	193	52
Future Vol, veh/h	33	299	160	129	193	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	300	0	250	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	2	2	1
Mvmt Flow	35	315	168	136	203	55

Major/Minor	Minor2	Major1		Major2
Conflicting Flow All	676	203	203	0
Stage 1	203	-	-	-
Stage 2	473	-	-	-
Critical Hdwy	6.41	6.21	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-
Pot Cap-1 Maneuver	420	840	1375	-
Stage 1	833	-	-	-
Stage 2	629	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	369	840	1375	-
Mov Cap-2 Maneuver	369	-	-	-
Stage 1	833	-	-	-
Stage 2	552	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	4.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1375	-	369	840	-	-
HCM Lane V/C Ratio	0.122	-	0.094	0.375	-	-
HCM Control Delay (s)	8	-	15.8	11.8	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.3	1.8	-	-

**Intersection**

Int Delay, s/veh 5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑	↑	↑
Traffic Vol, veh/h	211	41	29	261	50	85
Future Vol, veh/h	211	41	29	261	50	85
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	-	-	225	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	222	43	31	275	53	89

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	226	31	0	0	31	0
Stage 1	31	-	-	-	-	-
Stage 2	195	-	-	-	-	-
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	762	1043	-	-	1582	-
Stage 1	992	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	736	1043	-	-	1582	-
Mov Cap-2 Maneuver	724	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	810	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	12.2		0		2.7
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 762	1582	-
HCM Lane V/C Ratio	-	- 0.348	0.033	-
HCM Control Delay (s)	-	- 12.2	7.4	-
HCM Lane LOS	-	- B	A	-
HCM 95th %tile Q(veh)	-	- 1.6	0.1	-

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↗		↖	↗	
Traffic Vol, veh/h	141	178	2	2	96	70	4	2	10	31	1	67
Future Vol, veh/h	141	178	2	2	96	70	4	2	10	31	1	67
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	285	-	250	285	-	200	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	148	187	2	2	101	74	4	2	11	33	1	71

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	101	0	0	187	0	0	625	589	187	596	589	101
Stage 1	-	-	-	-	-	-	484	484	-	105	105	-
Stage 2	-	-	-	-	-	-	141	105	-	491	484	-
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	1491	-	-	1387	-	-	397	421	855	415	421	954
Stage 1	-	-	-	-	-	-	564	552	-	901	808	-
Stage 2	-	-	-	-	-	-	862	808	-	559	552	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1491	-	-	1387	-	-	339	379	855	377	379	954
Mov Cap-2 Maneuver	-	-	-	-	-	-	339	379	-	377	379	-
Stage 1	-	-	-	-	-	-	508	497	-	812	807	-
Stage 2	-	-	-	-	-	-	796	807	-	495	497	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0.1	11.6	11.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	339	707	1491	-	-	1387	-	-	377	933
HCM Lane V/C Ratio	0.012	0.018	0.1	-	-	0.002	-	-	0.087	0.077
HCM Control Delay (s)	15.8	10.2	7.7	-	-	7.6	-	-	15.5	9.2
HCM Lane LOS	C	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0	0.1	0.3	-	-	0	-	-	0.3	0.2

Timings  
130: Lambert Rd & Stapleton Dr

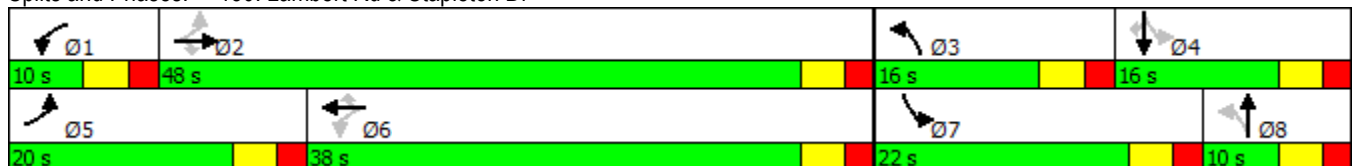
2040 Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	298	916	51	25	985	105	123	20	366	56	378
Future Volume (vph)	298	916	51	25	985	105	123	20	366	56	378
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	48.0	48.0	10.0	38.0	38.0	16.0	10.0	22.0	16.0	16.0
Total Split (%)	22.2%	53.3%	53.3%	11.1%	42.2%	42.2%	17.8%	11.1%	24.4%	17.8%	17.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	49.4	45.7	45.7	34.8	29.7	29.7	13.3	5.1	24.8	13.3	13.3
Actuated g/C Ratio	0.59	0.54	0.54	0.41	0.35	0.35	0.16	0.06	0.29	0.16	0.16
v/c Ratio	0.81	0.50	0.06	0.09	0.83	0.15	0.45	0.47	0.88	0.20	0.79
Control Delay	38.2	14.6	0.1	9.8	32.2	0.4	30.1	29.9	51.7	37.4	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	14.6	0.1	9.8	32.2	0.4	30.1	29.9	51.7	37.4	23.3
LOS	D	B	A	A	C	A	C	C	D	D	C
Approach Delay		19.6			28.7			30.0		37.3	
Approach LOS		B			C			C		D	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 84.4  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 27.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 83.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 130: Lambert Rd & Stapleton Dr



Intersection												
Int Delay, s/veh	3.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗			↕			↕	
Traffic Vol, veh/h	5	193	14	17	194	9	61	0	77	26	0	16
Future Vol, veh/h	5	193	14	17	194	9	61	0	77	26	0	16
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	250	-	200	250	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	203	15	18	204	9	64	0	81	27	0	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	214	0	0	203	0	0	467	463	203	499	459	209
Stage 1	-	-	-	-	-	-	214	214	-	245	245	-
Stage 2	-	-	-	-	-	-	253	249	-	254	214	-
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	1356	-	-	1369	-	-	506	496	838	482	499	831
Stage 1	-	-	-	-	-	-	788	725	-	759	703	-
Stage 2	-	-	-	-	-	-	751	701	-	750	725	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1356	-	-	1369	-	-	489	488	838	430	491	831
Mov Cap-2 Maneuver	-	-	-	-	-	-	489	488	-	430	491	-
Stage 1	-	-	-	-	-	-	785	722	-	756	694	-
Stage 2	-	-	-	-	-	-	726	692	-	675	722	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	12.3	12.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	637	1356	-	-	1369	-	-	527
HCM Lane V/C Ratio	0.228	0.004	-	-	0.013	-	-	0.084
HCM Control Delay (s)	12.3	7.7	-	-	7.7	-	-	12.5
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	0.3

SimTraffic Performance Report

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Interval #1 7:00

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.5	0.0	0.0	2.0	0.0	0.0	12.2	3.4	6.7	7.3	2.7

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Interval #2 7:15

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.5	0.0	0.0	0.0	0.0	0.0	10.3	3.5	13.4	8.9	3.2

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Interval #3 7:30

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.4	0.0		1.7	0.0	0.0	12.3	4.2	7.4	7.5	3.0

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Interval #4 7:45

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.4	0.0	0.0	0.2	0.0	0.0	7.6	4.1	6.8	7.8	2.8

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Entire Run

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.5	0.0	0.0	1.2	0.0	0.0	11.3	3.8	7.4	8.1	3.0

152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Interval #1 7:00

Lane	SE	NW	NE	NE	SW	All
Movements Served	LTR	LTR	L	TR	TR	
Stop Del/Veh (s)	9.9	13.2	3.4	0.3	0.3	1.6

152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Interval #2 7:15

Lane	SE	NW	NE	NE	SW	All
Movements Served	LTR	LTR	L	TR	TR	
Stop Del/Veh (s)	11.0	18.2	3.5	0.3	0.3	1.8

152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Interval #3 7:30

Lane	SE	NW	NE	NE	SW	All
Movements Served	LTR	LTR	L	TR	TR	
Stop Del/Veh (s)	9.4	16.9	2.8	0.3	0.4	1.5



## SimTraffic Performance Report

### 152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Interval #4 7:45

Lane	SE	NW	NE	NE	SW	All
Movements Served	LTR	LTR	L	TR	TR	
Stop Del/Veh (s)	10.5	18.4	3.8	0.3	0.4	1.9

### 152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Entire Run

Lane	SE	NW	NE	NE	SW	All
Movements Served	LTR	LTR	L	TR	TR	
Stop Del/Veh (s)	10.4	16.7	3.4	0.3	0.4	1.7

### Total Zone Performance By Interval

Interval Start	7:00	7:15	7:30	7:45	All
Stop Del/Veh (s)	108.8	99.4	95.7	88.7	353.4

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↵	↵			↵	↵			↵	↵	
Traffic Vol, veh/h	0	59	186	63	0	12	159	77	0	54	182	12
Future Vol, veh/h	0	59	186	63	0	12	159	77	0	54	182	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	62	196	66	0	13	167	81	0	57	192	13
Number of Lanes	0	1	1	0	0	1	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	13.6	13.8	12.9
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	94%	0%	75%	0%	67%	0%	80%
Vol Right, %	0%	6%	0%	25%	0%	33%	0%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	194	59	249	12	236	49	144
LT Vol	54	0	59	0	12	0	49	0
Through Vol	0	182	0	186	0	159	0	115
RT Vol	0	12	0	63	0	77	0	29
Lane Flow Rate	57	204	62	262	13	248	52	152
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.114	0.376	0.12	0.457	0.025	0.437	0.105	0.28
Departure Headway (Hd)	7.189	6.635	6.965	6.277	7.07	6.329	7.307	6.653
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	496	539	512	569	503	564	487	537
Service Time	4.976	4.422	4.75	4.061	4.857	4.115	5.101	4.446
HCM Lane V/C Ratio	0.115	0.378	0.121	0.46	0.026	0.44	0.107	0.283
HCM Control Delay	10.9	13.4	10.7	14.3	10	14	11	12
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	0.4	1.7	0.4	2.4	0.1	2.2	0.3	1.1

**Intersection**

Intersection Delay, s/veh  
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations		↶	↷	
Traffic Vol, veh/h	0	49	115	29
Future Vol, veh/h	0	49	115	29
Peak Hour Factor	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	52	121	31
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	11.7
HCM LOS	B

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↕	↕		↕	↕	
Traffic Vol, veh/h	11	340	76	58	215	8	40	1	27	5	1	6
Future Vol, veh/h	11	340	76	58	215	8	40	1	27	5	1	6
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	250	-	-	250	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	1	1	2	2	2	1	2	1
Mvmt Flow	12	358	80	61	226	8	42	1	28	5	1	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	235	0	0	438	0	0	777	778	398	789	814	231
Stage 1	-	-	-	-	-	-	421	421	-	353	353	-
Stage 2	-	-	-	-	-	-	356	357	-	436	461	-
Critical Hdwy	4.11	-	-	4.12	-	-	7.12	6.52	6.22	7.11	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Follow-up Hdwy	2.209	-	-	2.218	-	-	3.518	4.018	3.318	3.509	4.018	3.309
Pot Cap-1 Maneuver	1338	-	-	1122	-	-	314	328	652	310	312	811
Stage 1	-	-	-	-	-	-	610	589	-	666	631	-
Stage 2	-	-	-	-	-	-	661	628	-	601	565	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1338	-	-	1122	-	-	296	307	652	282	292	811
Mov Cap-2 Maneuver	-	-	-	-	-	-	296	307	-	282	292	-
Stage 1	-	-	-	-	-	-	605	584	-	660	597	-
Stage 2	-	-	-	-	-	-	619	594	-	569	560	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.7			16.7			13.8		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	378	1338	-	-	1122	-	-	420				
HCM Lane V/C Ratio	0.189	0.009	-	-	0.054	-	-	0.03				
HCM Control Delay (s)	16.7	7.7	-	-	8.4	-	-	13.8				
HCM Lane LOS	C	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.7	0	-	-	0.2	-	-	0.1				

Timings  
43: Lambert Rd & Londonderry Dr

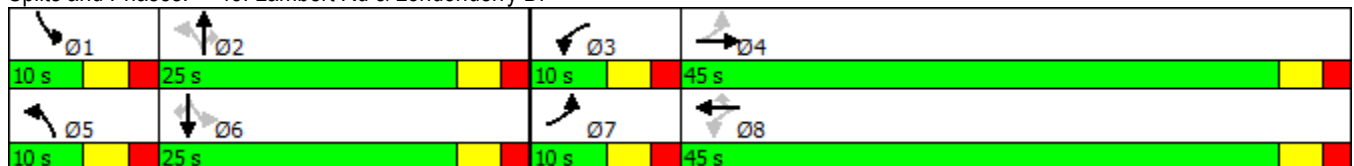
2040 Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	78	104	40	150	57	35	111	31	39	102	77
Future Volume (vph)	78	104	40	150	57	35	111	31	39	102	77
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		2	6		6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	10.0	45.0	10.0	45.0	45.0	10.0	25.0	25.0	10.0	25.0	25.0
Total Split (%)	11.1%	50.0%	11.1%	50.0%	50.0%	11.1%	27.8%	27.8%	11.1%	27.8%	27.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	48.0	45.2	46.9	42.9	42.9	13.7	11.0	11.0	13.7	11.0	11.0
Actuated g/C Ratio	0.62	0.58	0.61	0.55	0.55	0.18	0.14	0.14	0.18	0.14	0.14
v/c Ratio	0.13	0.14	0.05	0.15	0.08	0.15	0.44	0.09	0.20	0.52	0.30
Control Delay	7.3	9.7	7.1	11.7	0.3	24.0	36.7	0.5	24.8	38.8	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	9.7	7.1	11.7	0.3	24.0	36.7	0.5	24.8	38.8	4.6
LOS	A	A	A	B	A	C	D	A	C	D	A
Approach Delay		8.7		7.9			27.8			24.2	
Approach LOS		A		A			C			C	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 77.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.52  
 Intersection Signal Delay: 16.6  
 Intersection Capacity Utilization 33.5%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 43: Lambert Rd & Londonderry Dr



**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	50	188	8	9	227	12	4	0	6	20	0	17
Future Vol, veh/h	50	188	8	9	227	12	4	0	6	20	0	17
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	200	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	53	198	8	9	239	13	4	0	6	21	0	18

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	252	0	0	206	0	0	580	578	202	575	576	245
Stage 1	-	-	-	-	-	-	307	307	-	264	264	-
Stage 2	-	-	-	-	-	-	273	271	-	311	312	-
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	1313	-	-	1365	-	-	426	427	839	429	428	794
Stage 1	-	-	-	-	-	-	703	661	-	741	690	-
Stage 2	-	-	-	-	-	-	733	685	-	699	658	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1313	-	-	1365	-	-	402	407	839	411	408	794
Mov Cap-2 Maneuver	-	-	-	-	-	-	488	473	-	499	483	-
Stage 1	-	-	-	-	-	-	675	634	-	711	685	-
Stage 2	-	-	-	-	-	-	712	680	-	666	631	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.3	10.6	11.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	652	1313	-	-	1365	-	-	602
HCM Lane V/C Ratio	0.016	0.04	-	-	0.007	-	-	0.065
HCM Control Delay (s)	10.6	7.9	-	-	7.7	-	-	11.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.2

**Intersection**

Int Delay, s/veh 0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	321	24	9	334	13	5
Future Vol, veh/h	321	24	9	334	13	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	338	25	9	352	14	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	363
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1196
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1196
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	445	-	-	1196	-
HCM Lane V/C Ratio	0.043	-	-	0.008	-
HCM Control Delay (s)	13.4	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

**Intersection**

Int Delay, s/veh 0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	317	10	33	337	5	21
Future Vol, veh/h	317	10	33	337	5	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	334	11	35	355	5	22

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	344
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1215
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1215
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	568	-	-	1215	-
HCM Lane V/C Ratio	0.048	-	-	0.029	-
HCM Control Delay (s)	11.7	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



**Intersection**

Int Delay, s/veh 7.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗	↘	↗	↗	↗
Traffic Vol, veh/h	65	272	330	232	119	40
Future Vol, veh/h	65	272	330	232	119	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	300	0	250	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	2	2	1
Mvmt Flow	68	286	347	244	125	42

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1064	125	125	0	0
Stage 1	125	-	-	-	-
Stage 2	939	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-
Pot Cap-1 Maneuver	248	928	1468	-	-
Stage 1	903	-	-	-	-
Stage 2	382	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	189	928	1468	-	-
Mov Cap-2 Maneuver	189	-	-	-	-
Stage 1	903	-	-	-	-
Stage 2	292	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	4.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1468	-	189	928	-	-
HCM Lane V/C Ratio	0.237	-	0.362	0.309	-	-
HCM Control Delay (s)	8.2	-	34.5	10.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.9	-	1.5	1.3	-	-

**Intersection**

Int Delay, s/veh 3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑	↑	↑
Traffic Vol, veh/h	74	15	78	72	14	52
Future Vol, veh/h	74	15	78	72	14	52
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	-	-	225	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	16	82	76	15	55

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	166	82	0	0	82	0
Stage 1	82	-	-	-	-	-
Stage 2	84	-	-	-	-	-
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	824	978	-	-	1515	-
Stage 1	941	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	816	978	-	-	1515	-
Mov Cap-2 Maneuver	799	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	930	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	9.9		0		1.6
HCM LOS	A				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 824	1515	-
HCM Lane V/C Ratio	-	- 0.114	0.01	-
HCM Control Delay (s)	-	- 9.9	7.4	-
HCM Lane LOS	-	- A	A	-
HCM 95th %tile Q(veh)	-	- 0.4	0	-

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↗		↖	↗	
Traffic Vol, veh/h	29	141	4	14	212	15	2	0	8	16	0	33
Future Vol, veh/h	29	141	4	14	212	15	2	0	8	16	0	33
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	285	-	250	285	-	200	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	148	4	15	223	16	2	0	8	17	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	223	0	0	148	0	0	479	462	148	467	462	223
Stage 1	-	-	-	-	-	-	209	209	-	253	253	-
Stage 2	-	-	-	-	-	-	270	253	-	214	209	-
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	1346	-	-	1434	-	-	497	497	899	506	497	817
Stage 1	-	-	-	-	-	-	793	729	-	751	698	-
Stage 2	-	-	-	-	-	-	736	698	-	788	729	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1346	-	-	1434	-	-	464	480	899	489	480	817
Mov Cap-2 Maneuver	-	-	-	-	-	-	464	480	-	489	480	-
Stage 1	-	-	-	-	-	-	775	712	-	734	691	-
Stage 2	-	-	-	-	-	-	697	691	-	763	712	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.4	9.8	10.6
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	464	899	1346	-	-	1434	-	-	489	817
HCM Lane V/C Ratio	0.005	0.009	0.023	-	-	0.01	-	-	0.034	0.043
HCM Control Delay (s)	12.8	9	7.7	-	-	7.5	-	-	12.6	9.6
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0	0.1	-	-	0	-	-	0.1	0.1

Timings  
130: Lambert Rd & Stapleton Dr

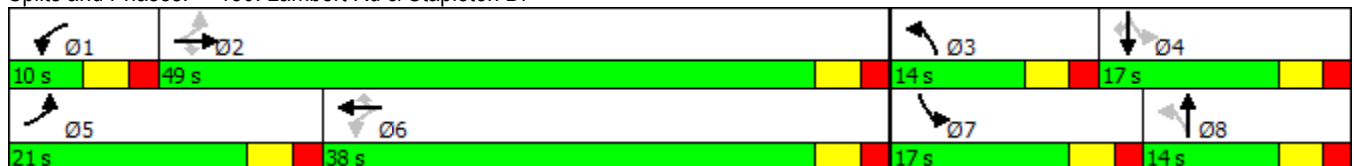
2040 Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	351	974	158	85	1083	470	89	68	251	37	259	
Future Volume (vph)	351	974	158	85	1083	470	89	68	251	37	259	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	
Protected Phases	5	2		1	6		3	8	7	4		
Permitted Phases	2		2	6		6	8		4		4	
Detector Phase	5	2	2	1	6	6	3	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	21.0	49.0	49.0	10.0	38.0	38.0	14.0	14.0	17.0	17.0	17.0	
Total Split (%)	23.3%	54.4%	54.4%	11.1%	42.2%	42.2%	15.6%	15.6%	18.9%	18.9%	18.9%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	
Act Effct Green (s)	53.0	45.1	45.1	37.0	32.0	32.0	16.5	8.4	24.0	14.6	14.6	
Actuated g/C Ratio	0.60	0.51	0.51	0.42	0.36	0.36	0.19	0.10	0.27	0.17	0.17	
v/c Ratio	0.92	0.57	0.19	0.32	0.89	0.56	0.32	0.73	0.82	0.13	0.56	
Control Delay	52.4	17.2	2.7	12.7	36.9	4.7	27.7	47.4	49.8	35.8	9.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.4	17.2	2.7	12.7	36.9	4.7	27.7	47.4	49.8	35.8	9.7	
LOS	D	B	A	B	D	A	C	D	D	D	A	
Approach Delay		24.0			26.4			39.9		29.8		
Approach LOS		C			C			D		C		

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 88.4  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 26.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 88.1%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 130: Lambert Rd & Stapleton Dr



**Intersection**

Int Delay, s/veh 3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗			↕			↕	
Traffic Vol, veh/h	20	271	80	103	217	27	42	0	58	16	0	12
Future Vol, veh/h	20	271	80	103	217	27	42	0	58	16	0	12
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	250	-	200	250	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	285	84	108	228	28	44	0	61	17	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	257	0	0	285	0	0	793	801	285	817	786	243
Stage 1	-	-	-	-	-	-	327	327	-	459	459	-
Stage 2	-	-	-	-	-	-	466	474	-	358	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	1308	-	-	1277	-	-	306	318	754	295	324	796
Stage 1	-	-	-	-	-	-	686	648	-	582	566	-
Stage 2	-	-	-	-	-	-	577	558	-	660	648	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1308	-	-	1277	-	-	278	286	754	251	292	796
Mov Cap-2 Maneuver	-	-	-	-	-	-	278	286	-	251	292	-
Stage 1	-	-	-	-	-	-	675	638	-	573	518	-
Stage 2	-	-	-	-	-	-	520	511	-	597	638	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.4	15.8	16.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	439	1308	-	-	1277	-	-	355
HCM Lane V/C Ratio	0.24	0.016	-	-	0.085	-	-	0.083
HCM Control Delay (s)	15.8	7.8	-	-	8.1	-	-	16.1
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.9	0	-	-	0.3	-	-	0.3

SimTraffic Performance Report

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Interval #1 5:00

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.1	0.0	0.0	0.6	0.0	0.0	16.8	1.8	15.2	4.7	1.6

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Interval #2 5:15

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.5	0.0	0.0	2.3	0.0	0.0	16.9	2.7	16.1	4.8	1.8

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Interval #3 5:30

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.1	0.0	0.0	0.0	0.0	0.0	18.5	3.3	15.1	4.5	1.9

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Interval #4 5:45

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.2	0.0	0.0		0.0	0.0	10.8	3.3	26.4	3.8	1.7

126: Rainbow Bridge Dr & Lambert Rd Performance by lane Entire Run

Lane	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	T	R	L	T	R	LT	R	LT	R	
Stop Del/Veh (s)	1.2	0.0	0.0	0.9	0.0	0.0	15.5	3.6	17.8	4.5	1.8

152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Interval #1 5:00

Lane	SE	NW	NE	NE	SW	SW	All
Movements Served	LTR	LTR	L	TR	L	TR	
Stop Del/Veh (s)	6.4	14.5	1.4	0.3		0.3	1.0

152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Interval #2 5:15

Lane	SE	NW	NE	NE	SW	All
Movements Served	LTR	LTR	L	TR	TR	
Stop Del/Veh (s)	6.0	23.0	1.9	0.3	0.3	1.2

152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Interval #3 5:30

Lane	SE	NW	NE	NE	SW	All
Movements Served	LTR	LTR	L	TR	TR	
Stop Del/Veh (s)	8.5	27.3	1.8	0.3	0.3	1.2

## SimTraffic Performance Report

### 152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Interval #4 5:45

Lane	SE	NW	NE	NE	SW	All
Movements Served	LTR	LTR	L	TR	TR	
Stop Del/Veh (s)	6.9	26.1	2.3	0.3	0.3	1.4

### 152: Lambert Rd & Vistas II South Access/Winding Walk Access Performance by lane Entire Run

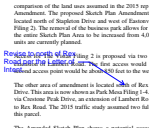
Lane	SE	NW	NE	NE	SW	SW	All
Movements Served	LTR	LTR	L	TR	L	TR	
Stop Del/Veh (s)	7.0	22.6	1.9	0.3		0.3	1.2

### Total Zone Performance By Interval

Interval Start	5:00	5:15	5:30	5:45	All
Stop Del/Veh (s)	56.3	57.3	61.4	64.2	207.8

# Markup Summary

dsdlaforce (5)



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**Lock:** Unlocked  
**Status:**  
**Checkmark:** Unchecked  
**Author:** dsdlaforce  
**Date:** 7/17/2017 5:19:50 PM  
**Color:** ■  
**Label:**

Revise to north of Rex Road per the Letter of Intent.



**Subject:** Text Box  
**Page Label:** 7  
**Lock:** Unlocked  
**Status:**  
**Checkmark:** Unchecked  
**Author:** dsdlaforce  
**Date:** 7/18/2017 10:27:34 AM  
**Color:** ■  
**Label:**

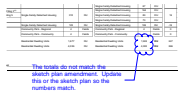
In the report discuss the following:

1. When the Lambert Road connection to Stapleton Rd is anticipated to be constructed.
2. Discuss the agreement between Meridian and the County Engineer regarding GTL's responsibility with regards to the Stapleton Rd and Eastonville Rd improvement.



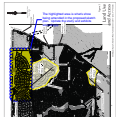
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**Status:**  
**Checkmark:** Unchecked  
**Author:** dsdlaforce  
**Date:** 7/18/2017 10:25:40 AM  
**Color:** ■  
**Label:**

Elaborate and provide an estimate for the percentage of buildout which would trigger these improvements.



**Subject:** Cloud+  
**Page Label:** 9  
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**Checkmark:** Unchecked  
**Author:** dsdlaforce  
**Date:** 7/18/2017 11:02:02 AM  
**Color:** ■  
**Label:**

The totals do not match the sketch plan amendment. Update this or the sketch plan so the numbers match.



**Subject:** Cloud+  
**Page Label:** 12  
**Lock:** Unlocked  
**Status:**  
**Checkmark:** Unchecked  
**Author:** dsdlaforce  
**Date:** 7/18/2017 10:00:55 AM  
**Color:** ■  
**Label:**

The highlighted area is what's show being amended in the proposed sketch plan. Update the study and exhibits accordingly.