

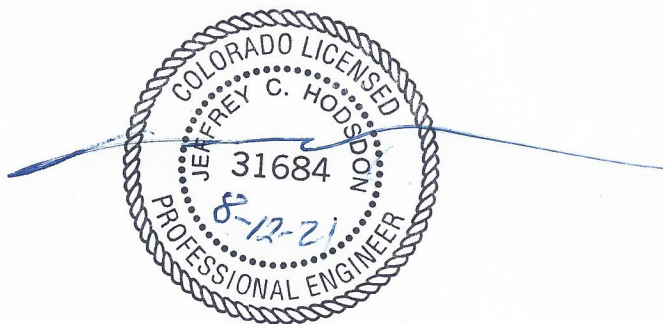


LSC TRANSPORTATION CONSULTANTS, INC.
2504 East Pikes Peak Avenue, Suite 304
Colorado Springs, CO 80909
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: <http://www.lsctrans.com>

Grandview Reserve Phase 1 Traffic Impact Analysis (LSC #S214240) August 12, 2021

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.

A handwritten signature in blue ink, appearing to be 'R' followed by a horizontal line.

8/12/21
Date

Grandview Reserve Phase 1

Traffic Impact Analysis

Prepared for:
Mr. Phil Stuepfert
HR Green
5619 DTC Parkway – Suite 1150
Greenwood Village, CO 80111

AUGUST 12, 2021

LSC Transportation Consultants, Inc.

Prepared by: Jeffrey C. Hodsdon, P.E. and Kirstin D. Ferrin, P.E.

LSC #S214240



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Level of Service Reports

Queuing Reports



LSC TRANSPORTATION CONSULTANTS, INC.
2504 East Pikes Peak Avenue, Suite 304
Colorado Springs, CO 80909
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: <http://www.lsctrans.com>

August 6, 2021

Mr. Phil Stuepfert
HR Green
5619 DTC Parkway – Suite 1150
Greenwood Village, CO 80111

RE: Grandview Reserve Phase 1
El Paso County, Colorado
Traffic Impact Analysis
LSC #S214240

Dear Phil:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for Phase 1 of the Grandview Reserve development in El Paso County, Colorado. As shown in Figure 1, the Phase 1 area is located east of Eastonville Road across from the Falcon Regional Park.

REPORT CONTENTS

This report is being submitted as part of a Preliminary Plan/PUD submittal for Phase 1. It also provides technical information and analysis in support of a deviation request associated with a proposed Phase 1 access to Rex Road, 575 feet east of Eastonville Road.

The report contains the following:

- The traffic count data and street conditions;
- Short-term and 2041 baseline/background traffic volume estimates;
- The projected average weekday and peak-hour vehicle trips to be generated by the site;
- The assignment of the site's projected traffic volumes to the key area streets and intersections for the short and long term and the resulting total traffic volumes for the short and long term;
- The resulting traffic impacts including level of service analysis at key intersections; and
- Findings and recommendations.

PREVIOUS TRAFFIC REPORTS

LSC completed a Master Traffic Impact Study (TIS) for Grandview Reserve (Sketch Plan) dated December 15, 2020. That report assumed the initial development would occur on the parcels on the east end of the overall development with access to US Highway 24 (US Hwy 24) only. Initial development is now planned to occur on the west side of the site with access only to Eastonville Road and the initial segment of Rex Road east of Eastonville.

A list of other traffic studies in the area of study completed within the past five years (that LSC is aware of) is attached for reference. This study accounts for the land use, trip generation, and the roadway network included in these studies. The older previous area studies generally assumed Rex Road would not extend from Eastonville Road to US Hwy 24 in the 20-year horizon as is now planned. The older previous studies also assumed fewer dwelling units on this site.

A traffic report, entitled Eastonville Road Project Conceptual Design Report was also recently completed for Eastonville Road by Wilson & Company (for El Paso County).

LAND USE AND ACCESS

Site Plan

Figure 2 shows the proposed site plan for Phase 1 of Grandview Reserve. The initial phase is planned to contain 568 lots for single-family homes and an 11.2-acre church site. The Phase 1 plan is consistent with the land uses assumed for this same area in the Master TIS.

Site Access

Two public street connections are proposed to Eastonville Road and one full-movement access point is proposed to an extension of Rex Road as part of Phase 1. The intersections with Eastonville and Rex are proposed as full-movement intersections.

The proposed public street access to Rex Road is proposed as a “T” intersection. The intention is that this intersection would remain a “T” in perpetuity. If future access is needed for the parcels north of Rex Road, it was assumed this access would occur via a second (offset) “T” intersection east of this currently-proposed Phase 1 access intersection.

The proposed public street access points to Eastonville Road could potentially align with future access points to either the Meridian Ranch school site located north of Meridian High School or future park facilities development within the Falcon Regional Park. However, as future plans for these parcels have not been determined, it was assumed that the Eastonville access points will also operate as “T” intersections. Figure 2 shows the proposed spacing of the access points.

Based on the criteria contained in the El Paso County *Engineering Criteria Manual (ECM)*, the required intersection spacing for Minor Arterial roadways is $\frac{1}{4}$ mile (1,320 feet). Both proposed public street access points to Eastonville Road meet the intersection spacing criteria. However, the access to Rex Road is proposed to be located about 575 feet east of Eastonville Road. This access will require a deviation to the *ECM* criteria.

Deviation Request

This report accompanies a deviation request for the proposed full-movement intersection on Rex Road 575 feet east of Eastonville Road (centerline spacing). The proposed plan for Grandview Reserve Phase 1 is to extend a public street south from Rex Road at this location to serve as one of the access points to this relatively large development. Given this proposed spacing and limited distance for future back-to-back left-turn lanes between this proposed intersection and the Eastonville/Rex intersection, the intent would be that this intersection would be a T intersection with a street on the south side only. Please refer to the associated deviation request form for additional detail.

Pedestrian and Bicycle Accommodations

There are two existing school sites located within two miles of the site, Falcon High School and Meridian Ranch Elementary. A future K-8 school is planned just north of Falcon High School. These schools are located north of Londonderry Drive and west of Eastonville Road. There is also a regional park located just west of the site.

The likely pedestrian path to the school and park sites is Eastonville Road to Londonderry Drive. There are currently sidewalks and school crossings on Londonderry Drive. There are currently no sidewalks on Eastonville Road. However, the 2016 *Major Transportation Corridors Plan (MTCP)* shows a proposed primary regional trail along this corridor. Figure 2 shows the proposed trails within the Grandview Reserve development. All of the internal streets within the Phase 1 area will have sidewalks.

The Rock Island Regional Trail extends southwest to northeast along the US Hwy 24 site frontage (on the north side of the highway).

Sight Distance Analysis

Figure 3a shows a sight distance analysis at the proposed future intersection with Rex Road just east of Eastonville Road. Figures 3b and 3c show the sight distance analysis at the future site access points to Eastonville Road. Based on a design speed of 40 miles per hour (mph) and the criteria contained in Table 2-21 of the *ECM*, the required intersection sight distance at these access points 445 feet. Based on the criteria contained in Table 2-17 of the *ECM*, the required stopping sight distance approaching this intersection is 305 feet. As shown in Figures 3a, 3b, and 3c, the *ECM* criteria can be met at all three of the intersections analyzed.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The major roadways in the site's vicinity are shown in Figure 1 and are described below. Copies of the 2016 *El Paso County Major Transportation Corridors Plan (MTCP) 2040 Roadway Plan*, and 2016 *MTCP 2060 Corridor Preservation Plan (CPP)* with the site location identified on them have been attached to this report.

Eastonville Road extends northeast from Meridian Road to past Hodgen Road. It is shown as a two-lane Minor Arterial on the *El Paso County Major Transportation Corridors Plan* and the *Preserved Corridor Network Plan*. Eastonville Road has a three-lane cross-section (one through lane in each direction plus a center two-way, left-turn lane) from Woodmen Hills Drive to Snaffle Bit Road (approximately midway between Judge Orr Road and Stapleton Road). Eastonville Road is a two-lane roadway north and south of this section. Eastonville Road is currently unpaved north of Londonderry Drive. Pikes Peak Rural Transportation Authority (PPRTA)-funded improvements are anticipated in the future at the intersection of Eastonville Road and Stapleton Drive that would likely add northbound and southbound left-turn lanes. The posted speed limit north of Stapleton Drive is 35 mph.

Rex Road extends east from Goodson Road to Pyramid Peak Drive within the Meridian Ranch development. The posted speed limit on Rex Road is 45 mph between Meridian Road and Mt. Gateway Drive and 35 mph east of Mt. Gateway Drive. The future section of Rex Road between Eastonville Road and US Hwy 24 is shown as a 4-Lane Minor Arterial roadway on the *2016 MTCP 2060 Corridor Preservation Plan (CPP)*. The CPP shows Rex Road extending east from Eastonville Road along the north boundary of the site and terminating at Elbert Road just north of US Hwy 24. **However**, as part of the Grandview Reserve Sketch Plan, coordination with El Paso County, the Colorado Department of Transportation (CDOT), and other local agencies, and associated applications to CDOT, Rex Road is planned to be constructed southeast through Grandview Reserve and will intersect US Hwy 24 (with future phases beyond Phase 1) about 4,255 feet south of Elbert Road and 6,407 feet north of Stapleton Drive. This is shown in Figure 2. The access permit is currently being prepared.

US Highway 24 (US Hwy 24) is generally a two-lane State Highway extending east/west across Colorado connecting the Buena Vista, Colorado Springs, and Limon areas. US Hwy 24 is planned to be widened to four lanes through the Falcon area. The US Hwy 24 PEL identifies this widening as a high priority with a timeline of less than 10 years. US Hwy 24 in the vicinity is classified as an EX – Expressway/Major Bypass by the Colorado Department of Transportation (CDOT). US Hwy 24 is shown as a four-lane Principal Arterial on the *MTCP* and the *Preserved Corridor Network Plan*. The posted speed limit on US Hwy 24 adjacent to the site is 65 miles per hour (mph).

Stapleton Drive is shown as an Urban four-lane Principal Arterial on the El Paso County *Major Transportation Corridors Plan* and El Paso County *Corridor Preservation Plan (CPP)*. Stapleton Drive extends east from Towner Drive to US Hwy 24. Stapleton continues southeast, then south as Curtis Road. It is planned to be ultimately extended west to connect with the Briargate Parkway extension. Stapleton Drive currently is a half-section of a four-lane Principal Arterial street (one through lane in each direction) between Meridian Road and US Hwy 24. The posted speed limit between Eastonville Road and US Hwy 24 is 45 mph.

Existing (2018) Traffic Volumes

Figure 4a shows the existing morning and afternoon peak-hour traffic volumes at the intersections of Stapleton/Eastonville and Londonderry/Eastonville. The morning peak hour was assumed to occur for one hour between 6:30 a.m. and 8:30 a.m. The afternoon peak hour was assumed to occur for one hour between 4:00 p.m. and 6:00 p.m. These volumes are based on manual intersection turning-movement counts conducted by LSC in April 2021. The count-data sheets are attached for reference.

Existing Levels of Service

Level of service (LOS) is a quantitative measure of the level of 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 1 shows the level of service delay ranges.

Table 1: 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) ⁽¹⁾
A	10 sec or less	10 sec or less
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	80 sec or more	50 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.		

Figure 4b presents the results of the existing intersection level of service analysis based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The peak-hour factors used for each approach are based on the traffic volumes for the peak fifteen minutes of the entire intersection. If the peak 15 minutes

for an approach occurs during an interval other than the peak 15 minutes of the entire intersection, the suggested peak-hour value based on the total approach volume from Table 9-1 of the Synchro Studio 10 User Guide was used instead. The level of service reports are attached.

The eastbound approach and the westbound left-turn and through lane at the two-way, stop-sign-controlled intersection of Stapleton/Eastonville are currently operating at LOS C during the morning peak hour and LOS B during the afternoon peak hour.

The eastbound left-turn movement at the two-way, stop-sign-controlled intersection of Eastonville/Londonderry is currently operating at a LOS D during the morning peak hour.

SHORT-TERM (YEAR 2026) BACKGROUND TRAFFIC

Background traffic is the traffic estimated to be on the adjacent roadways and at adjacent intersections without the proposed development's trip generation of site-generated traffic volumes. Background traffic includes the through traffic and the traffic generated by nearby developments but assumes zero traffic generated by the site. Figure 5a shows the projected short-term (Year 2026) background traffic volumes.

The addition of new roadways, notably the future completion of Rex Road east to Eastonville Road, will greatly affect the existing traffic patterns. In lieu of a general/"blanket" growth rate, LSC has developed small-area traffic models for Meridian Ranch, Waterbury, and the Latigo Trails as part of previous work completed in the area. The results of these modeling efforts have been combined to estimate the background traffic volumes. These background traffic volumes have been based on the existing traffic volumes (from Figure 4a) plus increases in traffic due to regional growth, including buildout of the following subdivisions in the vicinity of the site:

- The existing and currently proposed subdivisions within Waterbury (located just south of the Grandview Reserve);
- Meridian Ranch Filings 1-3 and Filings 6-8;
- Meridian Ranch Estates Filings 2-3;
- Meridian Ranch Filing 11;
- Stonebridge at Meridian Ranch Filings 1, 2, and 3;
- Meridian Ranch Filing 9;
- The Vistas at Meridian Ranch Filing 1;
- WindingWalk at Meridian Ranch Filing 1;
- The Enclave at Stonebridge at Meridian Ranch;
- The Estates at Rolling Hills Ranch Filing Nos. 1 and 2;
- The Rolling Hills Ranch at Meridian Ranch PUD;
- The areas included in the Meridian Ranch 2021 Sketch Plan Amendment; and
- Latigo Trails Filing Nos. 1 and 2.

The **short-term** background traffic volumes assume Rex Road extended from its existing terminus in Meridian Ranch, across Eastonville to the first Grandview Reserve access east of Eastonville

Road but **not** further east. Essentially, there would be no short-term background traffic use of this initial segment east of Eastonville – only site traffic.

Figure 5b shows the lane geometry, traffic control, and level of service at the key area intersections, based on the short-term background volumes.

2041 BACKGROUND TRAFFIC

Figure 6a shows the projected 2041 background-traffic volumes. The 2041 background traffic volumes assume buildout of the Meridian Ranch development, buildout of Grandview Reserve (except trips to be generated by land uses within the Phase 1 area, as these trips are included in the “site-generated traffic.”), buildout of the Waterbury developments, buildout of Latigo Trails and buildout of the area generally north of Rex Road between Eastonville Road and US Hwy 24 with 2 ½ acre residential lots. The 2041 background-traffic scenario assumes Stapleton Drive extended west to connect with the Briargate Parkway extension and Rex Road extended east through the future phases of Grandview Reserve to US Hwy 24.

Figure 6b shows the projected 2041-background average weekday-traffic volumes on key internal street segments within Phase 1 due to the development of Phase 1 land uses plus future Grandview Reserve phases.

Figure 6c shows the lane geometry, traffic control, and level of service at the key area intersections, based on the 2041 background volumes.

TRIP GENERATION

The site-generated vehicle trips were estimated using the nationally-published trip-generation rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Table 3 shows the trip-generation estimates.

Following Phase 1, Grandview Reserve is expected to generate about 5,458 vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 112 vehicles would enter and 313 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 349 vehicles would enter and 211 vehicles would exit the site.

DIRECTIONAL DISTRIBUTION AND ASSIGNMENT

The directional distribution of the site-generated traffic volumes on the area roadways is an important factor in determining the site’s traffic impacts. Figures 7 and 8 show the short-term and long-term directional-distribution estimates for the site-generated traffic volumes, respectively. The estimates have been based on the following factors: the recent traffic-count data; the Pikes

Peak Area Council of Governments' (PPACG) 2040 traffic projections, the site's location with respect to the nearby employment, commercial, and activity centers, and the balance of the Falcon and Colorado Springs metropolitan areas; the site's proposed land use; the site's proposed access points; and the phasing of the existing and future roadway system serving the site.

The short-term directional-distribution estimate assumes Rex Road has been extended from its existing terminus to the first Grandview Reserve access east of Eastonville Road but not further east. The long-term directional distribution assumes buildout of the area street network including the extension of Rex Road east to US Hwy 24 and Stapleton Drive/Briargate Parkway west to Black Forest Road.

When the distribution percentages (from Figures 7 and 8) were applied to the trip-generation estimates (from Table 3), the short-term site-generated traffic volumes on the area roadways were determined. Figure 9b shows the short-term average weekday site-generated traffic volumes on key internal street segments. Figure 10a shows the long-term site-generated traffic volumes. Figure 10b shows the long-term average weekday site-generated traffic volumes on key internal street segments.

TOTAL TRAFFIC

Figures 11a shows the projected short-term (Year 2026) total-traffic volumes. The short-term total-traffic volumes are the sum of the short-term background-traffic volumes (from Figure 5a) plus the short-term site-generated traffic volumes (from Figure 9a).

Figures 11b and 11c show the lane geometry, traffic control, and level of service at the key area intersections, based on the short-term (Year 2026) total volumes.

Figures 12a and 12b shows the projected 2041 total-traffic volumes. The 2041 total-traffic volumes are the sum of the 2041 background-traffic volumes (from Figures 6a and 6b) plus the long-term site-generated traffic volumes (from Figures 10a and 10b).

Figures 12c-12e show the lane geometry, traffic control, and level of service at the key area intersections, based on the 2041 total volumes.

PROJECTED LEVELS OF SERVICE

The key area intersections and site-access points have been analyzed to determine the projected future levels of service based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board and Synchro signalized intersection procedures. Based on the criteria contained in the *ECM*, a peak-hour factor of 0.85 was used for the short-term (Year 2026) analysis, except for those intersections whose existing peak-hour factor calculated from traffic counts conducted by LSC was higher than 0.85. In those cases, the existing peak-hour factor was used. A peak-hour factor of 0.95 was used

for the long-term (Year 2041). The results of the analysis are contained in Figures 5b, 6b, 9b, 9c, and 12c-12e. The level of service reports are attached.

Rex/Eastonville

The short term assumes Rex Road completed between Sunrise Ridge Drive and Eastonville Road, as well as the initial segment of Rex east of Eastonville (with this development) to the first Grandview Reserve access point east of Eastonville Road. The future four-leg intersection of Rex/Eastonville is projected to operate at LOS D or better for all movements during the peak hours as a two-way, stop-sign-controlled (TWSC) intersection, based on the projected short-term total-traffic volumes.

By 2041, it was assumed that Rex Road would be completed through the remainder of Grandview Reserve to US Highway 24. Based on the projected 2041 total-traffic volumes, the intersection of Rex/Meridian is projected to operate at LOS F for some of the minor approaches and turning movements, assuming stop-sign control. If this intersection is constructed as a one-lane modern roundabout or assuming it is eventually traffic-signal controlled, all movements are projected to operate at LOS D or better during the peak hours.

Rex Road Site Access Point

The first Grandview Reserve access point to Rex Road east of Eastonville Road planned as part of Phase 1 is projected to operate at LOS C or better for all movements as a two-way, stop-sign-controlled "T" intersection. As discussed on page 2, this access to Rex Road is intended to remain a "T" intersection in perpetuity. If future access is needed for the parcels north of Rex Road it was assumed this access would occur via a second "T" intersection east of the currently-proposed access.

Eastonville Site Access Points

The two site-access points to Eastonville Road are projected to operate at LOS C or better for all movements during the peak hours as a stop-sign-controlled "T" intersections, based on the short-term (Year 2026) and 2041-total traffic volumes. These intersections are also projected to operate at a satisfactory level of service as one-lane modern roundabouts.

Londonderry/Eastonville

The eastbound left-turn movement at the stop-sign-controlled intersection of Londonderry/Eastonville is projected to operate at LOS E during the afternoon peak hour, based on the projected short-term (Year 2026) total traffic volumes. By 2041 the eastbound left-turn movement is projected to operate at LOS E during the morning peak hour and LOS F during the afternoon peak hour. All movements at this intersection are projected to operate at a satisfactory level of service, assuming modern roundabout or traffic-signal control.

Stapleton/Eastonville

The eastbound approach and the westbound left-turn and through lane at the intersection of Stapleton/Eastonville are projected to LOS F during the morning and afternoon peak hours based on the projected short-term (Year 2026) background and short-term (Year 2026) total traffic volumes. A PPRTA project is currently planned to improve Eastonville Road in the vicinity of the site. However, the timing of this project is unknown. To maintain an acceptable level of service, these PPRTA improvements will need to be completed and the intersection will need to be converted to traffic-signal control.

By 2041, it was assumed that Stapleton Drive would be constructed to its full Principal Arterial cross section. Based on the lane geometry shown in Figure 11e this intersection is projected to operate at LOS D or better for all movements as a signal-controlled intersection.

US 24 Intersections

Please refer to the master traffic report (the December 15, 2020 *Grandview Reserve Updated Master Traffic Impact Analysis* PCD No. SKP-20-001) for the long-term peak-hour traffic-volume projections and level of service analysis for the US Hwy 24 intersections. The land uses within the currently-proposed Phase 1 are consistent with the land uses assumed for the same area in the master traffic report.

QUEUING ANALYSIS

A queuing analysis was performed using Synchro/SimTraffic for Rex Road between Eastonville and a potential future access point for Four-Way Ranch. The 2041-total morning and afternoon peak-hour traffic volumes were entered into the Synchro model. Each simulation was run five times and the results were averaged. The SimTraffic queuing reports are attached.

The projected maximum westbound left-turn queue on Rex Road approaching Eastonville Road is 208 feet during the morning peak hour and 140 feet during the afternoon peak hour. As shown in Figure 2, the proposed spacing between Eastonville Road and the first Grandview Reserve access point is 576 feet (centerline to centerline). This access point is intended to remain a "T" intersection in perpetuity. If future access is needed for the parcels north of Rex Road it was assumed this access would occur via a second "T" intersection east of the currently-proposed access.

The projected maximum westbound left-turn lane queue on Rex Road approaching the first Grandview Reserve access point is about 40 feet during the afternoon peak hour and about 87 feet during the afternoon peak hour. The projected maximum eastbound left-turn lane queue on Rex Road approaching the potential future access point for Four Way Ranch is about 6 feet during the afternoon peak hour and about 24 feet during the afternoon peak hour.

FUNCTIONAL CLASSIFICATIONS AND LANEAGE

Figure 12 shows the recommended functional classifications for internal streets within Phase 1 and for the roadways in the vicinity of the site. The functional classifications for the major transportation corridors in the vicinity and number of through lanes are consistent with the current El Paso County *MTCP* and the Grandview Reserve Sketch Plan TIS report.

MULTI-MODAL AND PEDESTRIAN/BIKE TRANSPORTATION

- A park n' ride facility is planned for a site near Meridian Road and US Hwy 24.
- The Rock Island Regional Trail passes adjacent to the site.
- Many of the area County roads have been or will be upgraded to provide paved shoulders for cyclists. Stapleton and Elbert Road are shown as future "bike routes."
- The *MTCP* shows a future primary regional trail along Eastonville Road. Another future primary regional trail is shown extending west from Eastonville Road through Meridian Ranch.
- The US Hwy 24 PEL study also includes multi-modal elements.

TRANSPORTATION IMPROVEMENT FEE PROGRAM

This project will be required to participate in the El Paso County Road Improvement Fee Program. Grandview Reserve will join the ten-mil PID. The ten-mil PID building-permit fee portion associated with this option is \$1,221 per single-family dwelling unit. The total building-permit fee would be \$693,528 for the 568 lots within Phase 1. It is likely that this amount would be paid incrementally with building permits associated with several individual final plat applications.

ROADWAY IMPROVEMENTS

Table 3 presents the Phase 1 recommended roadway improvements.

- Based on the short-term (Year 2041) total-traffic volumes shown in Figure 10a and the criteria contained in the El Paso County *Engineering Criteria Manual (ECM)*, a westbound left-turn lane will be required on Rex Road approaching Eastonville Road. This lane should be 350 feet long plus a 100-foot taper.
- Based on the 2041 total-traffic volumes shown in Figure 11a and the criteria contained in the *ECM*, a westbound right-turn deceleration lane will be required on Rex Road approaching Eastonville Road. Based on the *ECM* criteria, this lane should be 155 feet long plus a 160-foot taper.
- Based on the short-term (Year 2041) total-traffic volumes shown in Figure 10a and the criteria contained in the *ECM*, a westbound right-turn deceleration lane will be required on Rex Road approaching the first Grandview Reserve intersection. Based on the *ECM* criteria, this lane should be 155 feet long plus a 160-foot taper.

- Based on the short-term (Year 2026) total traffic volumes shown in Figure 10a and the criteria contained in the *ECM*, southbound left-turn lanes will be required on Eastonville Road approaching both proposed site access points. This section of Eastonville Road was included in the *Eastonville Road Project Conceptual Design Report* by Wilson & Company, dated April 2021. The proposed cross section includes a left-turn lane in the center median.
- Based on the short-term (Year 2026) total traffic volumes shown in Figure 10a and the criteria contained in the *ECM*, northbound right-turn deceleration lanes will be required on Eastonville Road approaching both site access points. Based on the *ECM* criteria, these lanes should be 155 feet long plus a 160-foot taper.

* * * * *

Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E.
Principal

JCH:KDF:jas

Enclosures: Tables 2 and 3
Figures 1-13
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MTCP Maps
Map 15 Bicycle and Pedestrian Network Improvements
Traffic Count Reports
Level of Service Reports
Queuing Reports

Tables 2 and 3

Table 2
Trip Generation Estimate
Grandview Reserve Phase 1 Preliminary Plan

			Trip Generation Rates ⁽¹⁾					Total Trips Generated				
Land Use Code	Land Use Description	Trip Generation Units	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
560	Church	49 KSF	6.49	0.21	0.14	0.20	0.25	318	10	7	10	12
210	Single-Family Detached Housing	568 DU ⁽²⁾	9.05	0.18	0.54	0.60	0.35	5,140	102	306	339	199
								5,458	112	313	349	211
Notes:												
(1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE).												
The trip generation rates shown were calculated using on the fitted curve equations.												
(2) DU = dwelling unit												
Source: LSC Transportation Consultants, Inc.												Aug-21

<div>Table 3</div> <div>Grandview Reserve Phase 1</div> <div>Roadway Improvements</div>				
Item #	Improvement	Trigger	Timing	Responsibility
Roadway Segment Improvements				
1	Eastonville - Stapleton to Latigo final grading and paving	dependent on PPRTA funding priorities	TBD by EPC; PPRTA "A-List" Project	PPRTA
2	Eastonville - Stapleton to Londonderry upgrade to Rural Minor Arterial (per MUTCD)	average daily traffic > 6,000 vehicles per day	dependent on PPRTA funding priorities	PPRTA
3	Eastonville - Londonderry to Latigo upgrade from unimproved roadway to Rural Minor Arterial (per MUTCD)	average daily traffic > 300 vehicles per day	With Grandview Reserve Phase 1	PPRTA
4	Eastonville - Stapleton to Grandview Reserve south boundary upgrade to 4-Lane Rural Minor Arterial (per MUTCD)	average daily traffic > 20,000 vehicles per day	dependent on PPRTA funding priorities	PPRTA
5	Construct Rex from Eastonville to first access point east of Eastonville Road	With Grandview Reserve development	With Grandview Reserve Phase 1	Grandview Reserve
6	Construct Rex from first access point east of Eastonville Road to US Hwy 24 Adequate right-of-way should be reserved to allow for the construction of left-turn and right-turn deceleration lanes at all potential future access points	With Grandview Reserve development	With future Grandview Reserve filings	Grandview Reserve
7	Construct Rex from Sunrise Ridge to Eastonville	With adjacent Meridian Ranch development	With future Meridian Ranch filings	Meridian Ranch
8	Stapleton Drive - US Hwy 24 to Eastonville Road complete southern (eastbound) half	average daily traffic > 18,000 vehicles per day	Shown in 2040 MTCP	El Paso County west of Eastonville Road; Waterbury Metro District east of Eastonville Road.
Eastonville/Stapleton				
9	Construct northbound and southbound left-turn lanes on Eastonville Rd. approaching Stapleton Dr.	- - -	Short-Term	PPRTA/El Paso County ⁽¹⁾
10	Signalization of the intersection of Stapleton/Eastonville.	Once warrants are met. The decision on timing of traffic signal installation rests with El Paso County Public Works.	anticipated in the short-term	eligible intersection under the free impact program
Eastonville/Rex Intersection				
11	Construct a northbound right-turn deceleration lane on Eastonville approaching Rex Road (not needed if constructed as a modern roundabout)	northbound right-turn volume > 50 vph	With Grandview Reserve Phase 1	Grandview Reserve
12	Construct a southbound left-turn deceleration lane on Eastonville approaching Rex Road (not needed if constructed as a modern roundabout)	southbound left-turn volume > 25 vph	With future Grandview Reserve Filings or once Eastonville Road is constructed to the west by Meridian Ranch to match a northbound left-turn lane that will be required with that improvement	Potentially included as part of the PPRTA design of Eastonville Road OR Grandview Reserve
13	Construct a westbound left-turn deceleration lane on Rex Road approaching Eastonville Road (not needed if constructed as a modern roundabout)	westbound left-turn volume > 25 vph	With future Grandview Reserve Filings	Grandview Reserve
14	Construct a westbound right-turn deceleration lane on Rex Road approaching Eastonville Road (not needed if constructed as a modern roundabout)	westbound right-turn volume > 50 vph	With future Grandview Reserve Filings	Grandview Reserve
15	Convert to traffic signal control (not needed if constructed as a modern roundabout)	Once warrants are met. The decision on timing of traffic signal installation rests with El Paso County Public Works.	With future Grandview Reserve Filings	likely to be considered an "eligible intersection" under the roadway improvement fee program
Rex/Grandview Phase 1 Intersection				
16	Construct an eastbound right-turn deceleration lane on Rex Road approaching the Phase 1 Grandview Reserve intersection	eastbound right-turn volume > 50 vph	With the future extension of Rex Road east of this intersection	Grandview Reserve
17	Construct a westbound left-turn deceleration lane on Rex Road approaching the Phase 1 Grandview Reserve intersection	westbound left-turn volume > 25 vph	With the future extension of Rex Road east of this intersection	Grandview Reserve
Eastonville/North Site Access Intersection				
18	Construct a northbound right-turn deceleration lane on Eastonville approaching the north site access (not needed if constructed as a modern roundabout)	northbound right-turn volume > 50 vph	With Grandview Reserve Phase 1	Grandview Reserve
19	Construct a southbound left-turn deceleration lane on Eastonville approaching the north site access (not needed if constructed as a modern roundabout)	southbound left-turn volume > 25 vph	With Grandview Reserve Phase 1	Potentially included as part of the PPRTA design of Eastonville Road OR Grandview Reserve
Eastonville/South Site Access Intersection				
20	Construct a northbound right-turn deceleration lane on Eastonville approaching the south site access (not needed if constructed as a modern roundabout)	northbound right-turn volume > 50 vph	With Grandview Reserve Phase 1	Grandview Reserve
21	Construct a southbound left-turn deceleration lane on Eastonville approaching the south site access (not needed if constructed as a modern roundabout)	southbound left-turn volume > 25 vph	With Grandview Reserve Phase 1	Potentially included as part of the PPRTA design of Eastonville Road OR Grandview Reserve
Notes:				
(1) The design of Eastonville Road will be performed by the Meridian Ranch developer. LSC anticipates that these turn lanes will be included in the project design. The project will be constructed by El Paso County as PPRTA project.				
Source: LSC Transportation Consultants, Inc. (July 2021)				

Figures 1-13





Approximate Scale
Scale: 1" = 4,000'

Figure 1
**Vicinity
Map**

Grandview Reserve Phase 1 (LSC #S214240)

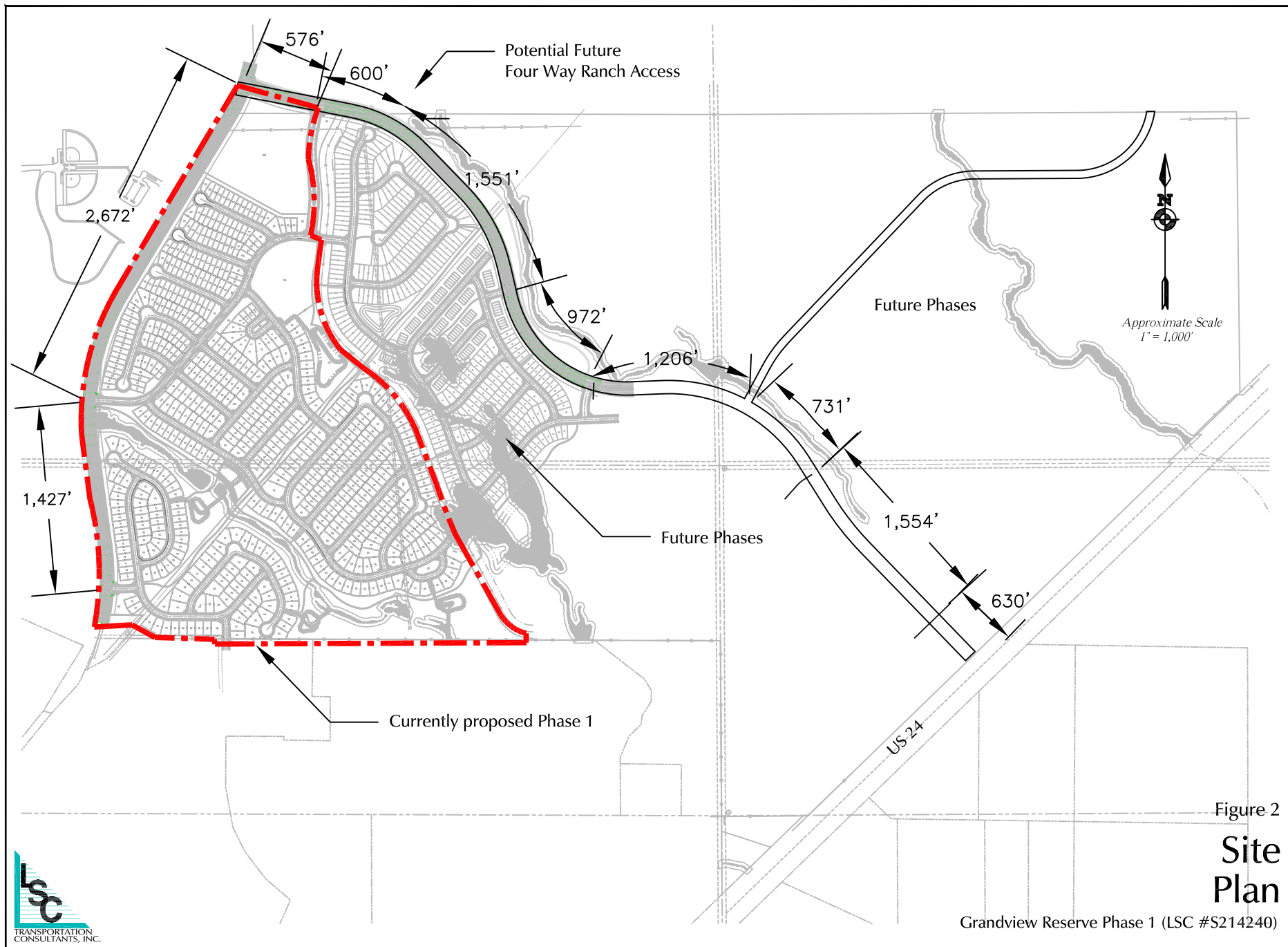


Figure 2

Site Plan

Grandview Reserve Phase 1 (LSC #S214240)

- ECM Required Intersection Sight Distance (445' based on a design speed of 40 mph (from table 2-21))
- ECM Required Stopping Sight Distance (305' based on a design speed of 40mph (from table 2-17))



Approximate Scale
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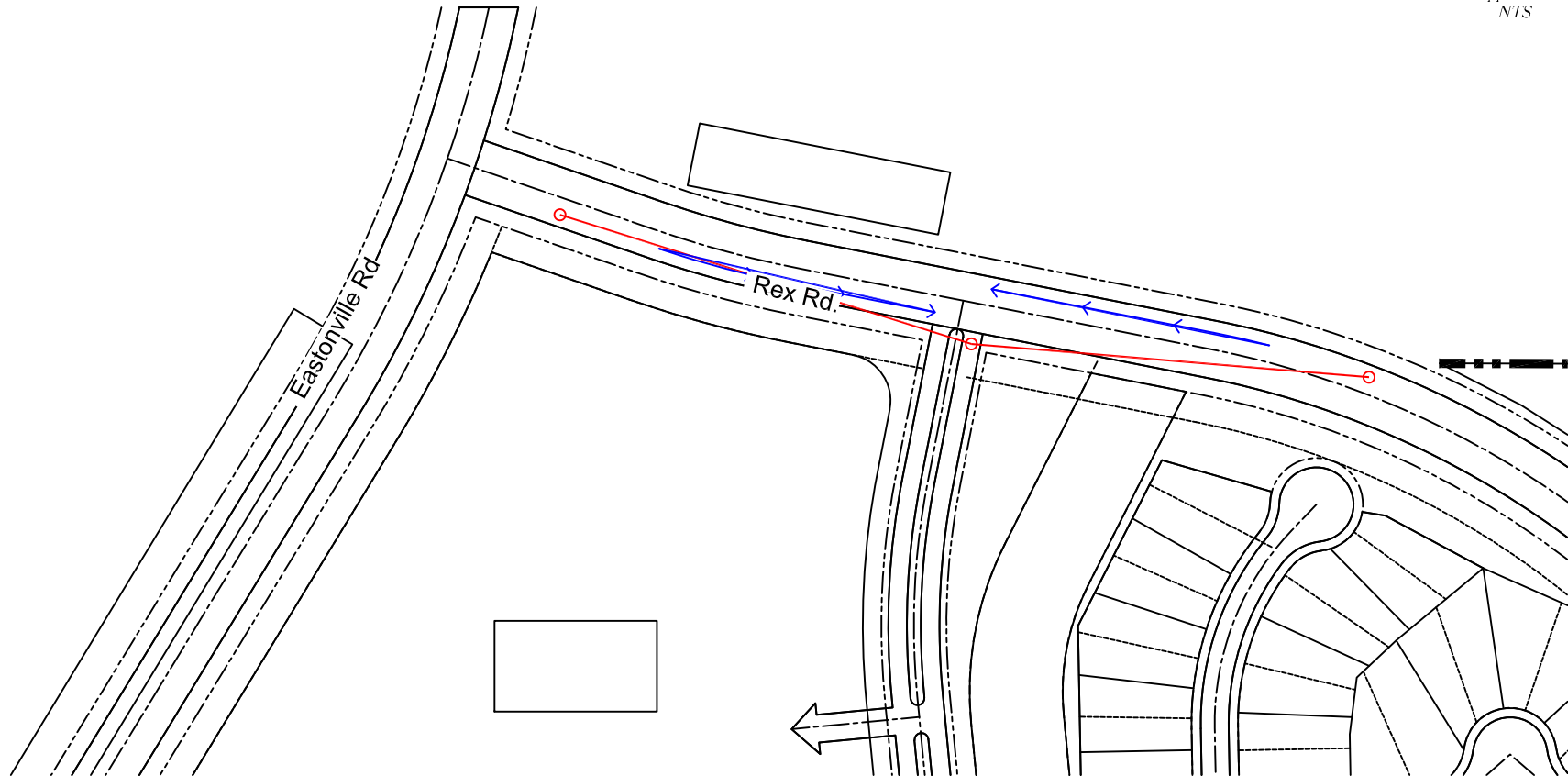
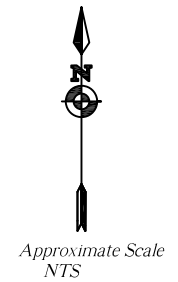
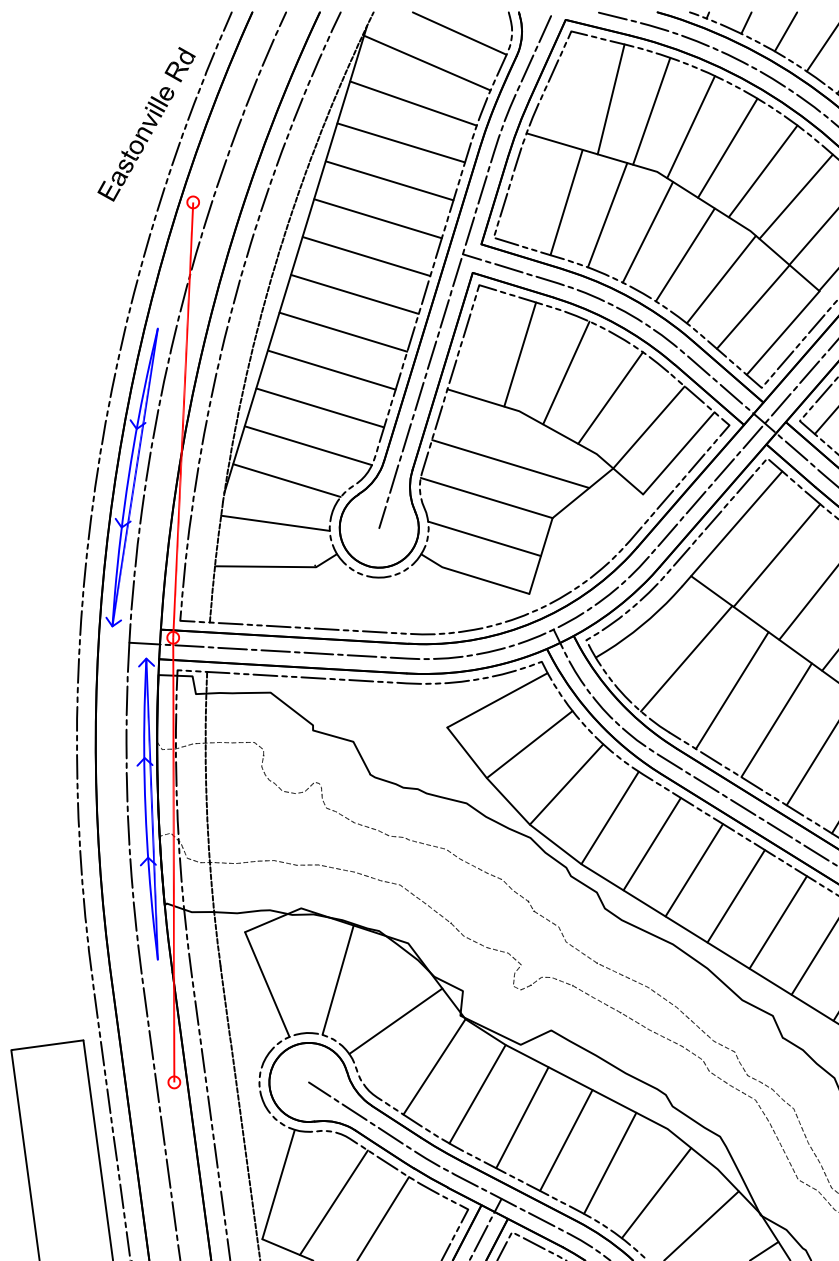


Figure 3a

Sight Distance Analysis Rex Rd. Access

Grandview Reserve Phase 1 (LSC #S214240)



- ECM Required Intersection Sight Distance
(445' based on a design speed of 40 mph (from table 2-21))
- ECM Required Stopping Sight Distance
(305' based on a design speed of 40mph (from table 2-17))

Figure 3b

Sight Distance Analysis North Eastonville Access

Grandview Reserve Phase 1 (LSC #S214240)

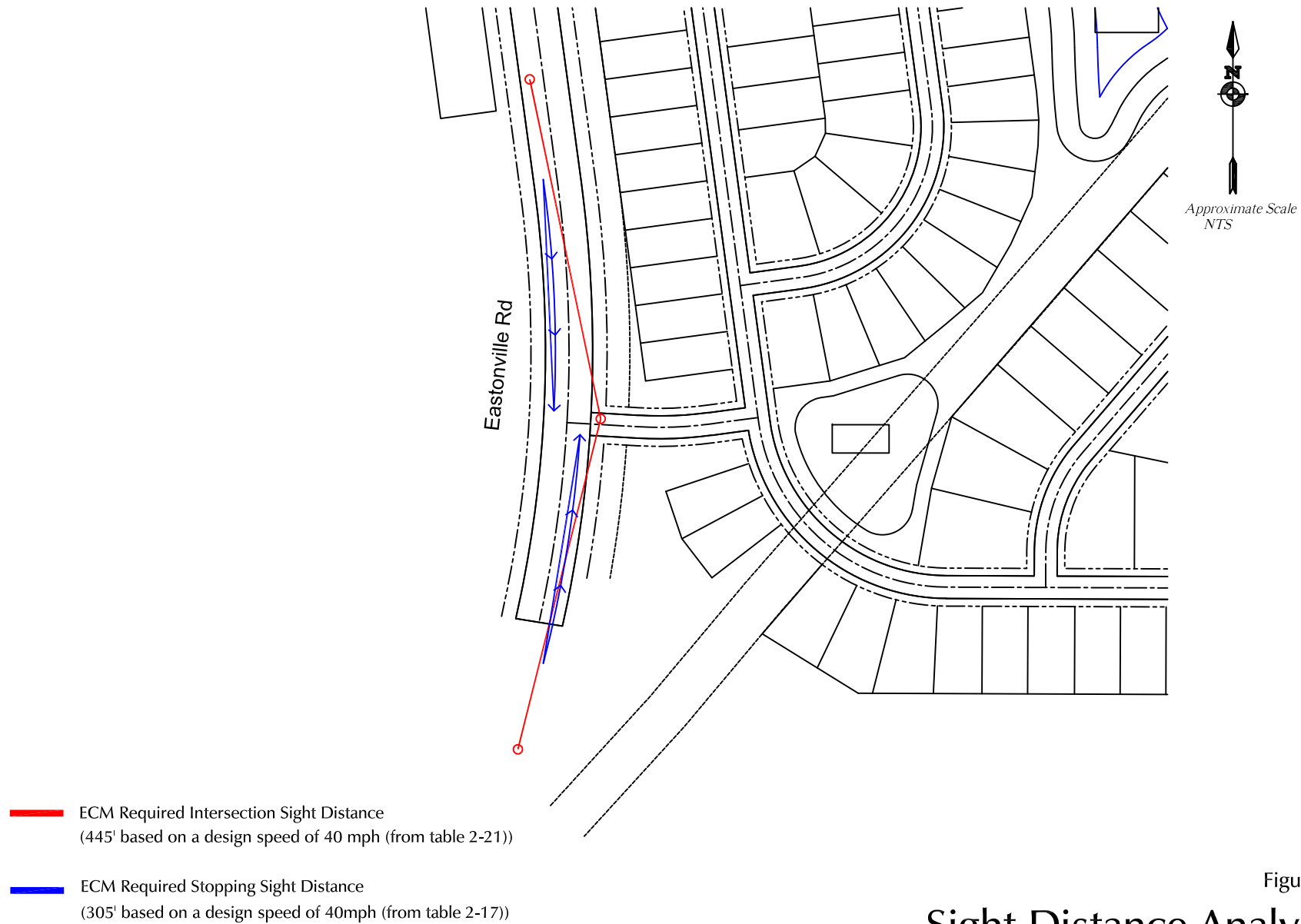
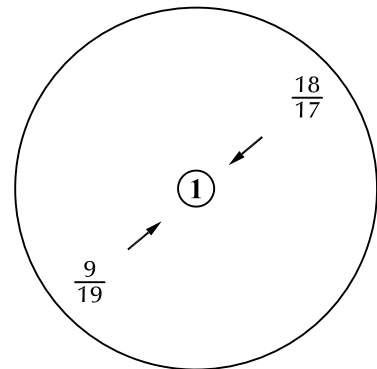


Figure 3c

Sight Distance Analysis South Eastonville Access

Grandview Reserve Phase 1 (LSC #S214240)



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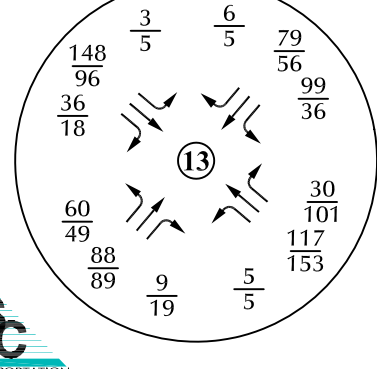
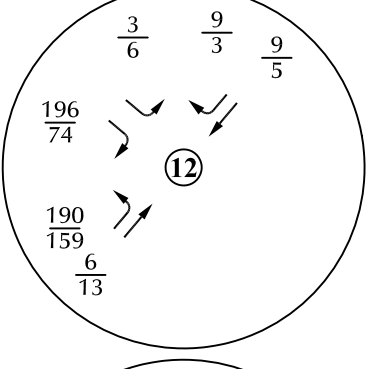
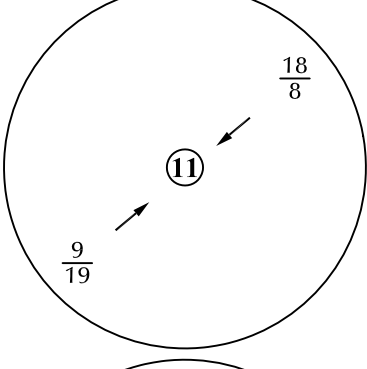
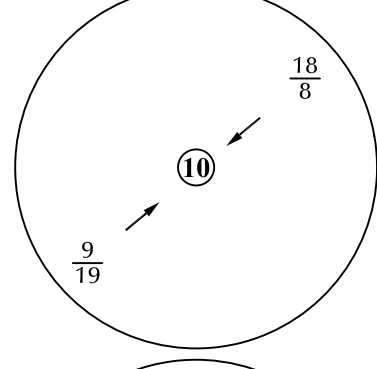
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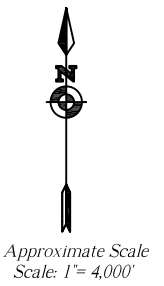


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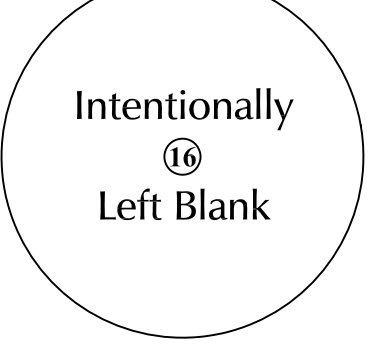
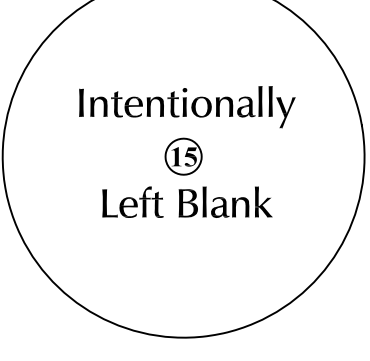
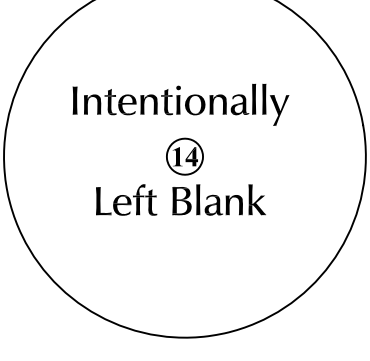
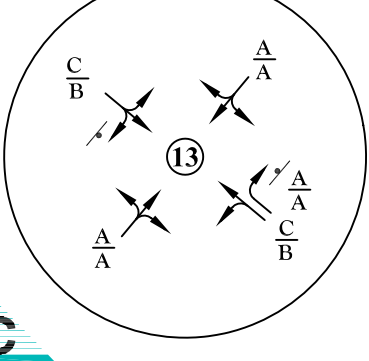
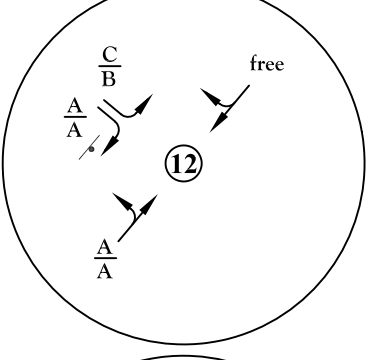
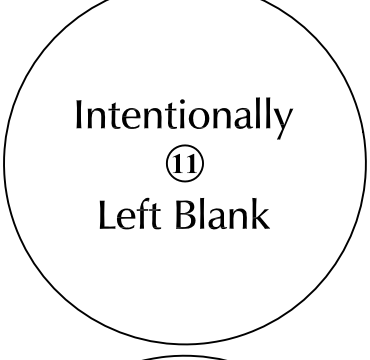
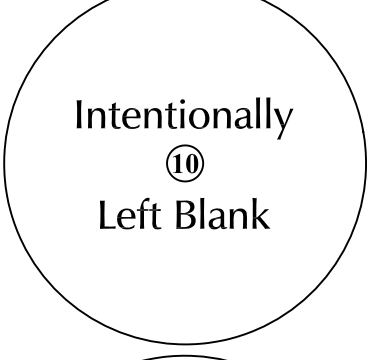
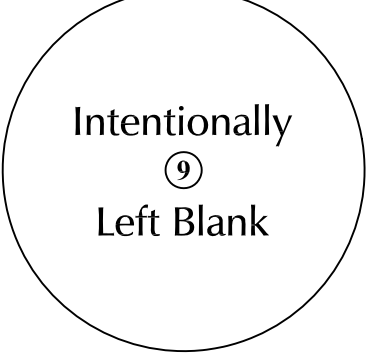
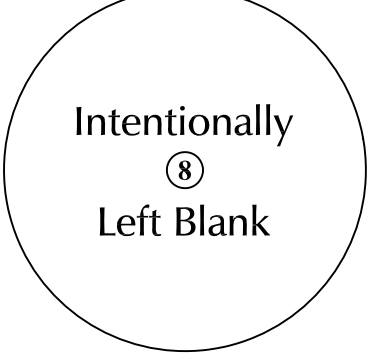
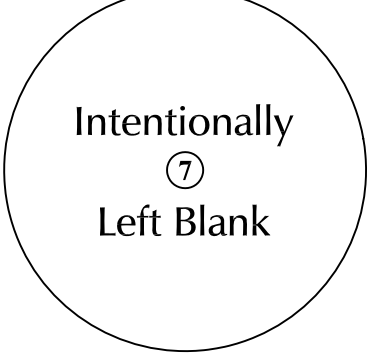
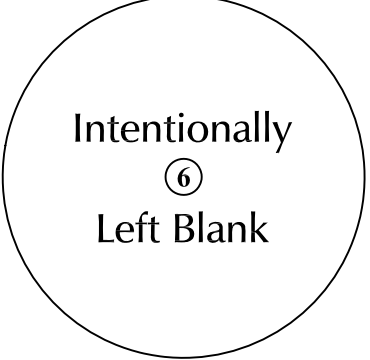
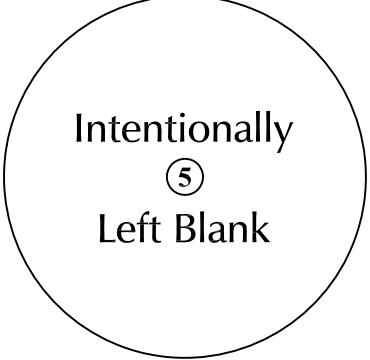
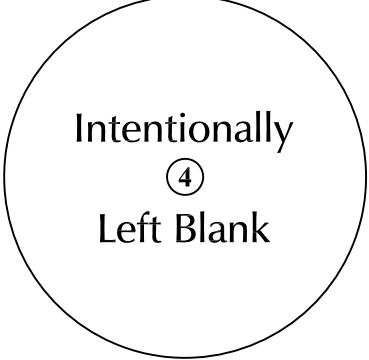
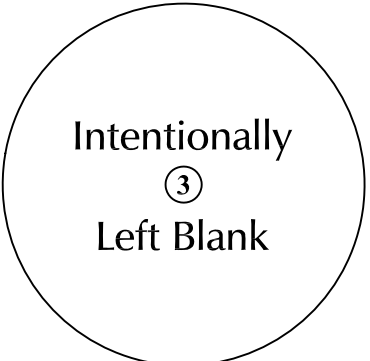
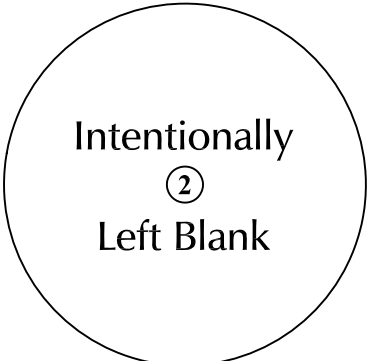
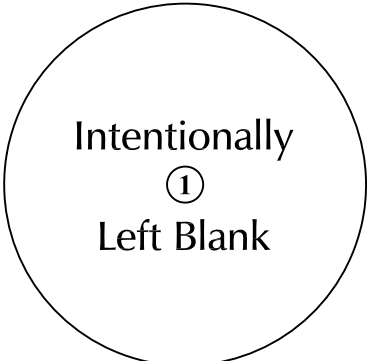
LEGEND:
 $\frac{XX}{XX} = \frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$
 X,XXX= Annual Average Daily Traffic (vehicles per day)



* Estimate by LSC
 ** CDOT 2018 Average Annual Daily Traffic
 ++ Traffic counts may have been impacted by COVID-19 restrictions
 + Please refer to count data sheets (attached) for specific intersection turning movement traffic count dates.

Figure 4a
**Existing (2017-2021)⁺
 Traffic**
 Grandview Reserve Phase 1 (LSC #S214240)



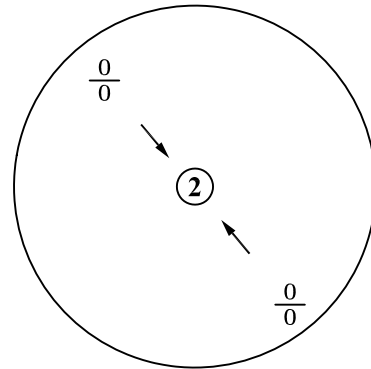
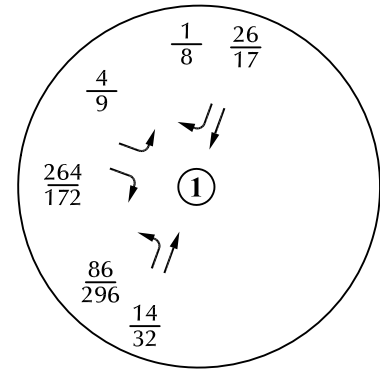


LEGEND:
Traffic Control Used in the Analysis:
= Stop Sign
= Traffic Signal
LOS Analysis Results:
 $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
 $\frac{C}{B}$ = PM Individual Movement Peak-Hour Level of Service
 $\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service
 $\frac{C}{C}$ = PM Entire Intersection Peak-Hour Level of Service

Approximate Scale
Scale: 1"= 4,000'



Figure 4b
Existing Lane Geometry,
Traffic Control and Level of Service
Grandview Reserve Phase 1 (LSC #S214240)



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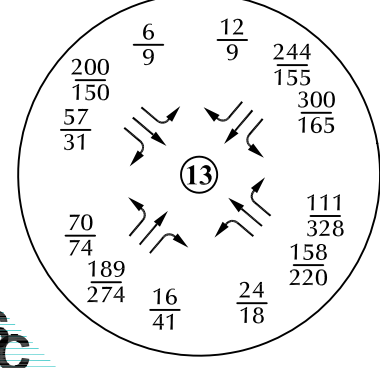
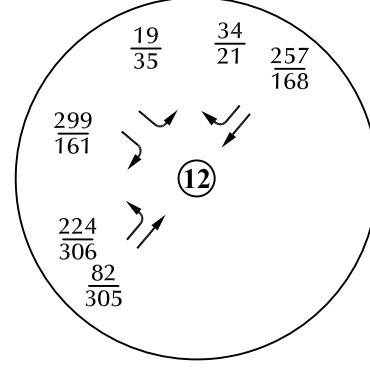
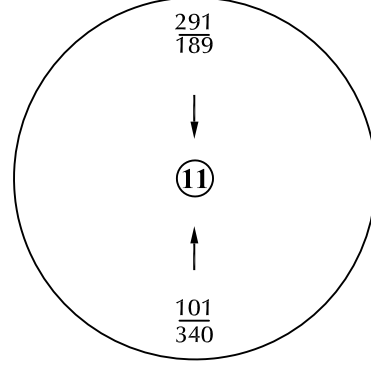
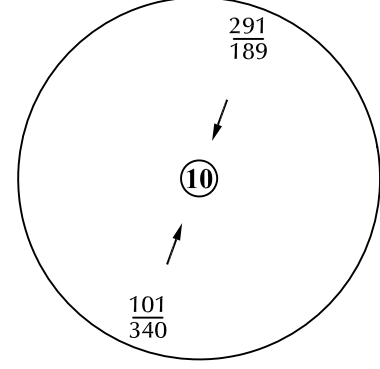
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LEGEND:
 $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 PM Weekday Peak-Hour Traffic (vehicles per hour)
 X,XXX = Annual Average Daily Traffic (vehicles per day)

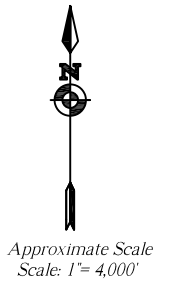
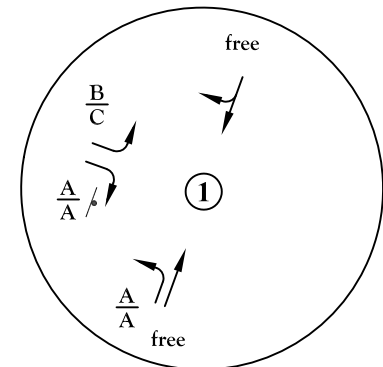


Figure 5a
 Year 2026
 Background Traffic
 Grandview Reserve Phase 1 (LSC #S214240)



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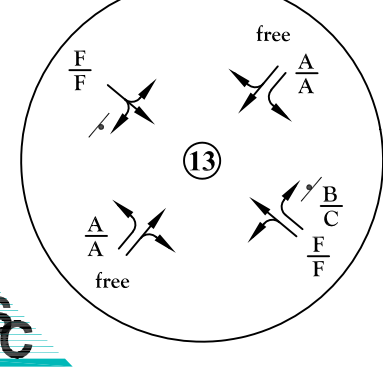
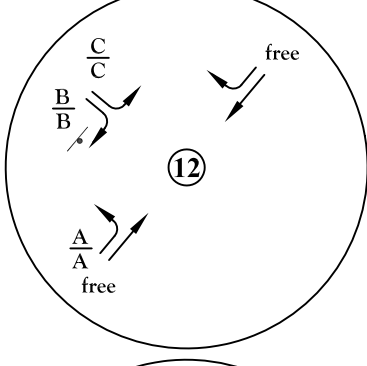
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LEGEND:
Traffic Control Used in the Analysis:
⬮ = Stop Sign
⬮⬮⬮ = Traffic Signal
LOS Analysis Results:
 $\frac{A}{A}$ = AM Individual Movement Peak-Hour Level of Service
 $\frac{B}{B}$ = PM Individual Movement Peak-Hour Level of Service
 $\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service
 $\frac{C}{C}$ = PM Entire Intersection Peak-Hour Level of Service

Approximate Scale
Scale: 1"= 4,000'



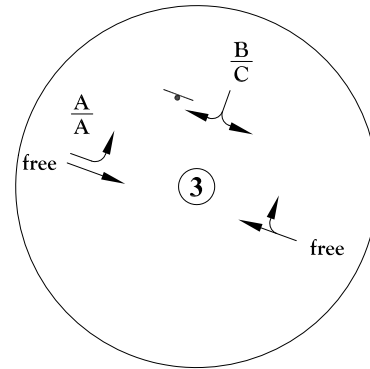
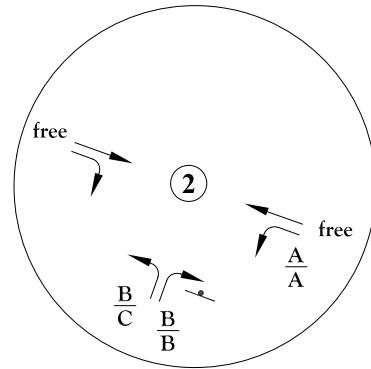
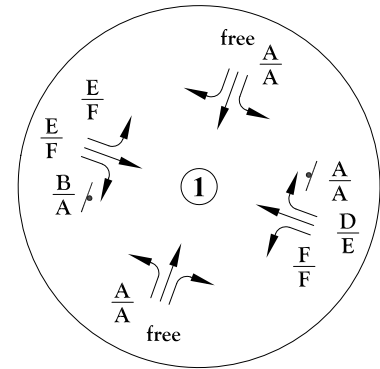
Figure 5b
Year 2026 Background Lane Geometry,
Traffic Control and Levels of Service
Grandview Reserve Phase 1 (LSC #S214240)



X,XXX= Annual Average Daily Traffic (vehicles per day)

Figure 6b
**2041 Background
 Traffic on Internal Streets**

Grandview Reserve Phase 1 (LSC #S214240)



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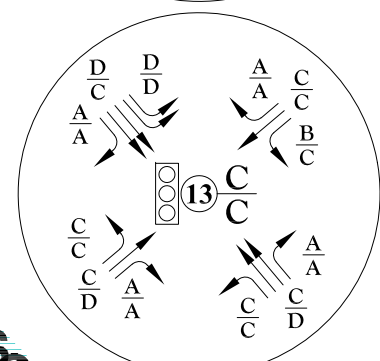
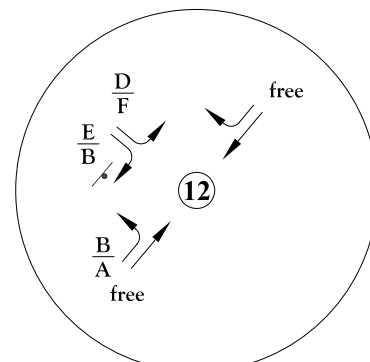
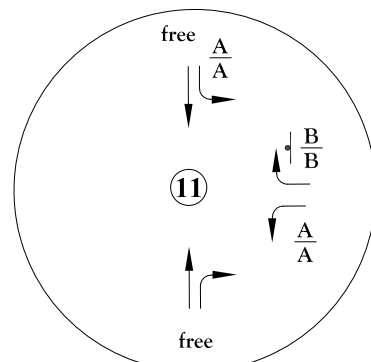
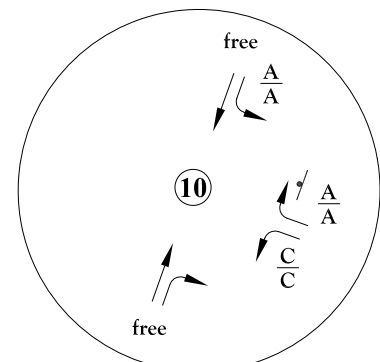
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LEGEND:

Traffic Control Used in the Analysis:

⬇ = Stop Sign

⬆⬆⬆ = Traffic Signal

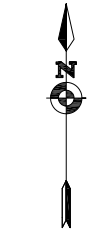
LOS Analysis Results:

A = AM Individual Movement Peak-Hour Level of Service

B = PM Individual Movement Peak-Hour Level of Service

C = AM Entire Intersection Peak-Hour Level of Service

C = PM Entire Intersection Peak-Hour Level of Service



Approximate Scale
Scale: 1" = 4,000'



Figure 6c

Year 2041 Background Lane Geometry, Traffic Control and Levels of Service With Two-Way, Stop-Sign and Signal Control

Grandview Reserve Phase 1 (LSC #S214240)



Approximate Scale
Scale: 1" = 4,000'

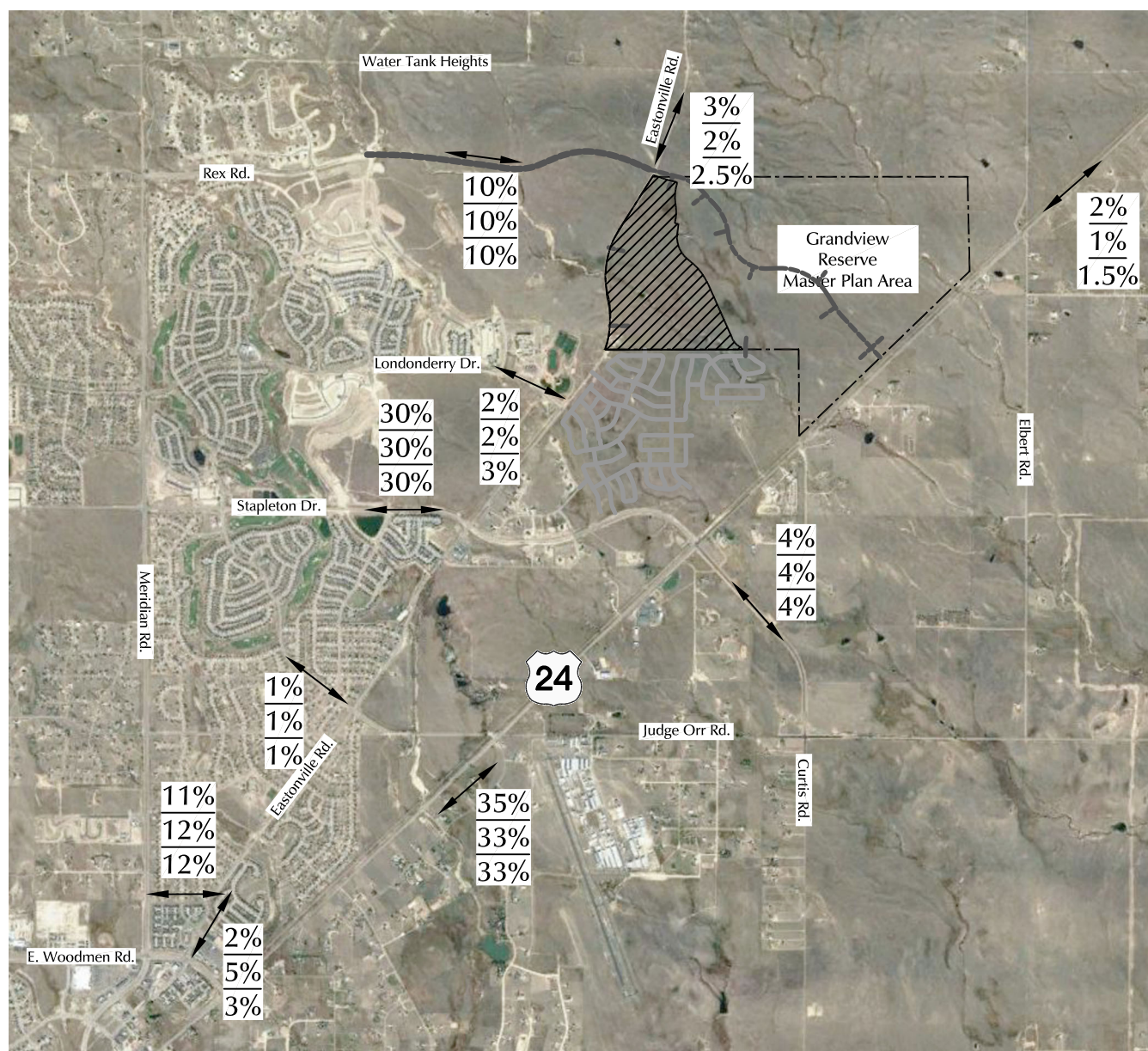


Figure 7

Short-Term Directional Distribution of Site-Generated Traffic

Grandview Reserve Phase 1 (LSC #S214240)

LEGEND:

XX%
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XX%

AM Percent Directional Distribution
PM Percent Directional Distribution
Daily Percent Directional Distribution





Approximate Scale
Scale: 1" = 4,000'

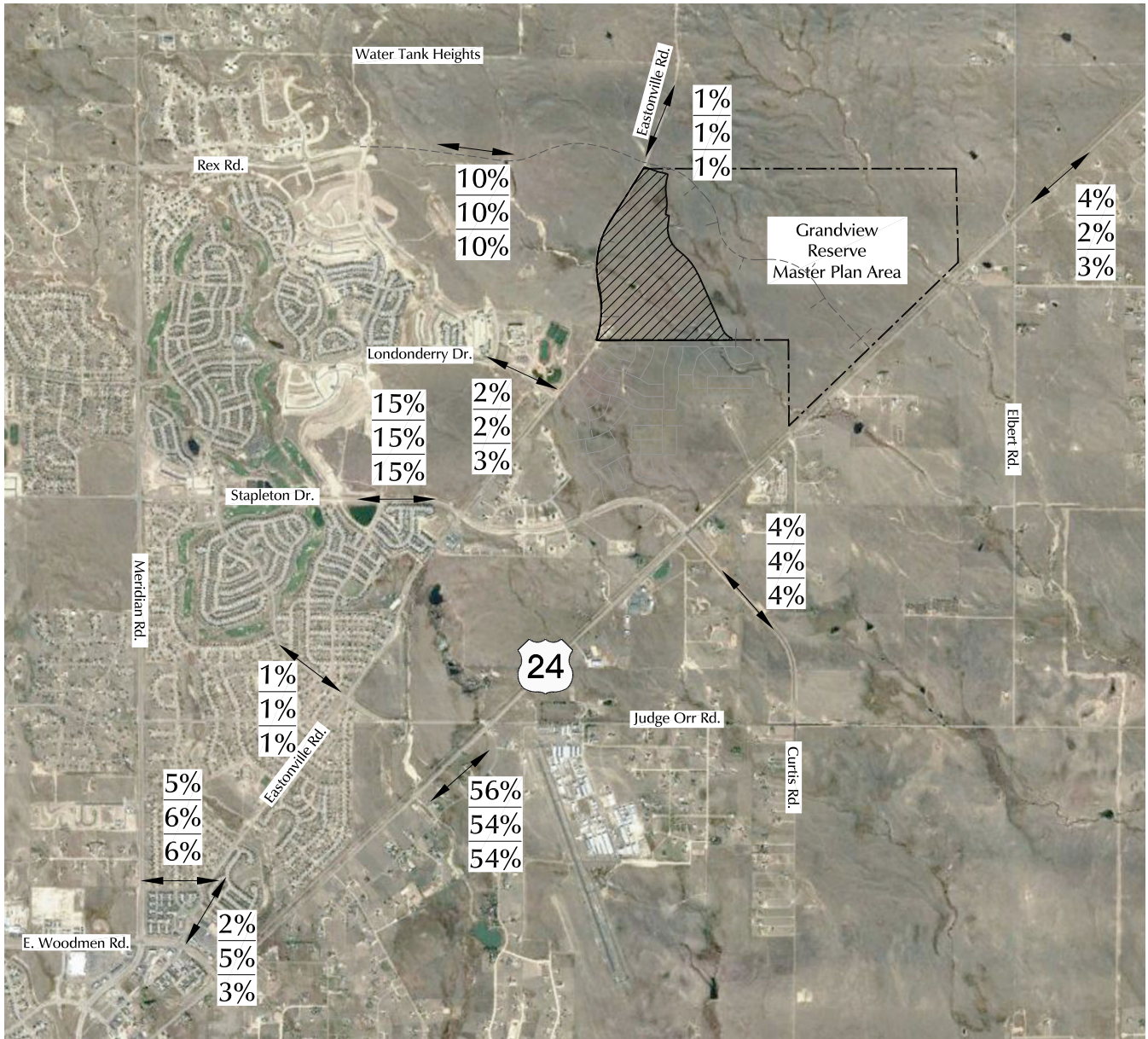


Figure 8

Long-Term Directional Distribution of Site-Generated Traffic

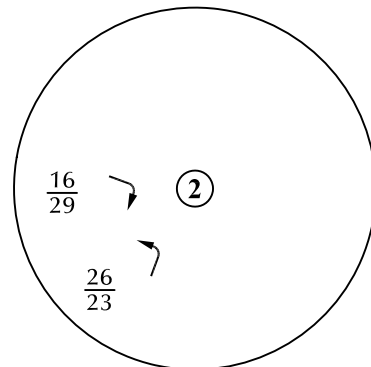
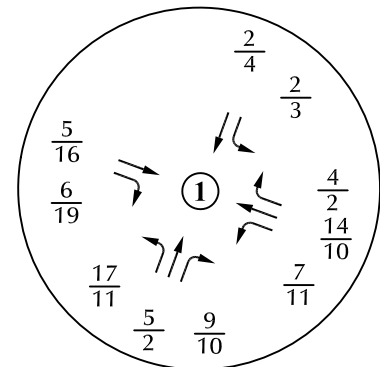
Grandview Reserve Phase 1 (LSC #5214240)

LEGEND:

XX%
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AM Percent Directional Distribution
PM Percent Directional Distribution
Daily Percent Directional Distribution





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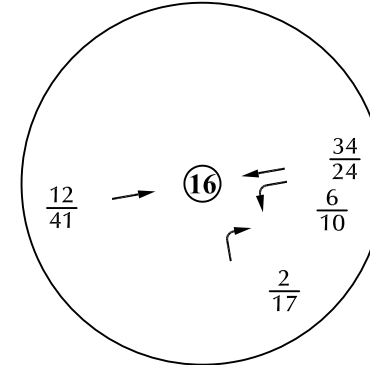
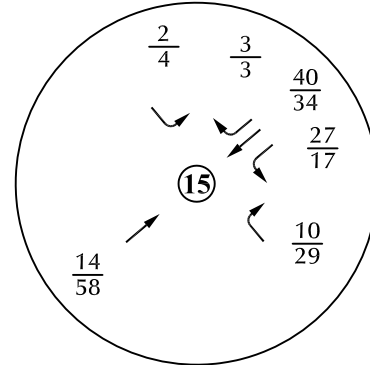
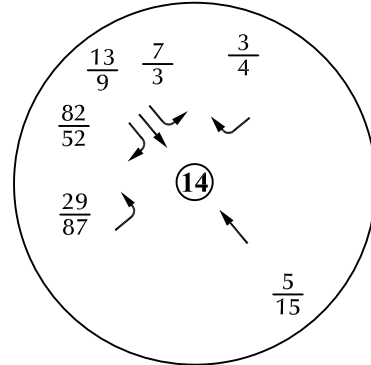
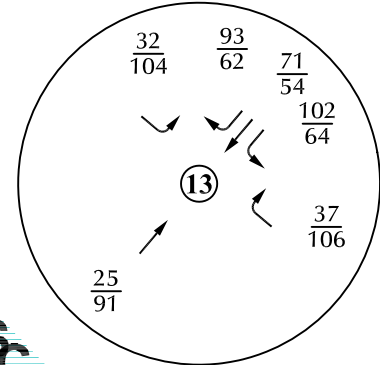
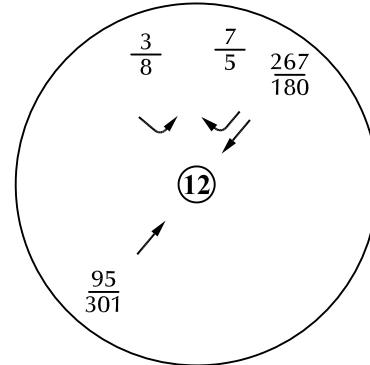
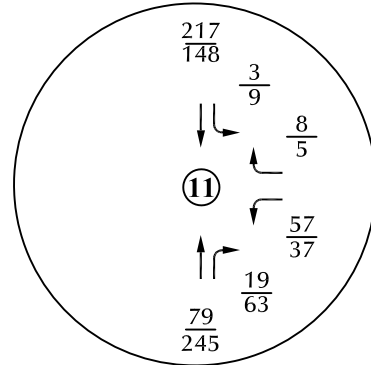
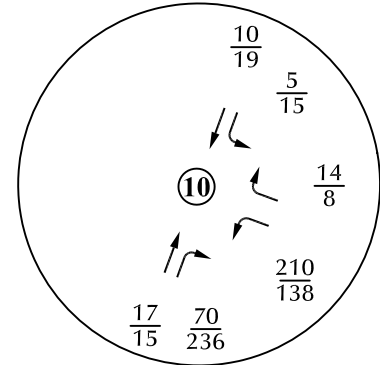
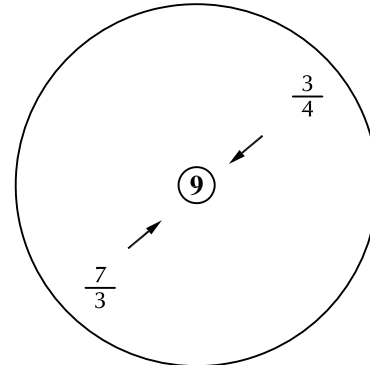
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LEGEND:

$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$
X,XXX= Annual Average Daily Traffic (vehicles per day)

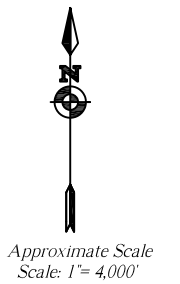
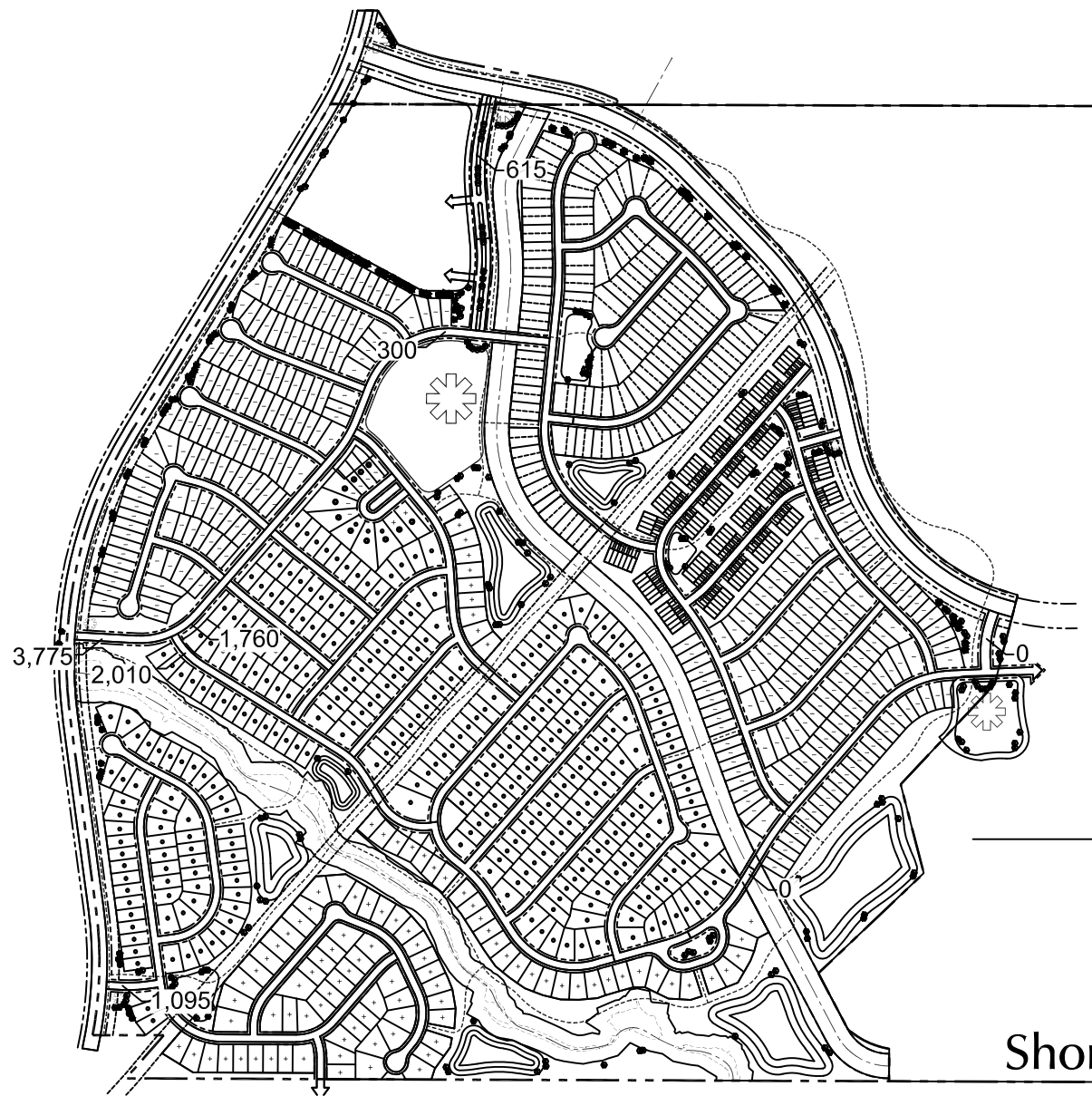


Figure 9a

Assignment of Phase 1 Short-Term Site-Generated Traffic


Grandview Reserve Phase 1 (LSC #S214240)



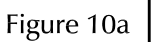
X,XXX= Annual Average Daily Traffic (vehicles per day)

Figure 9b
Short-Term Site-Generated
Traffic on Internal Streets

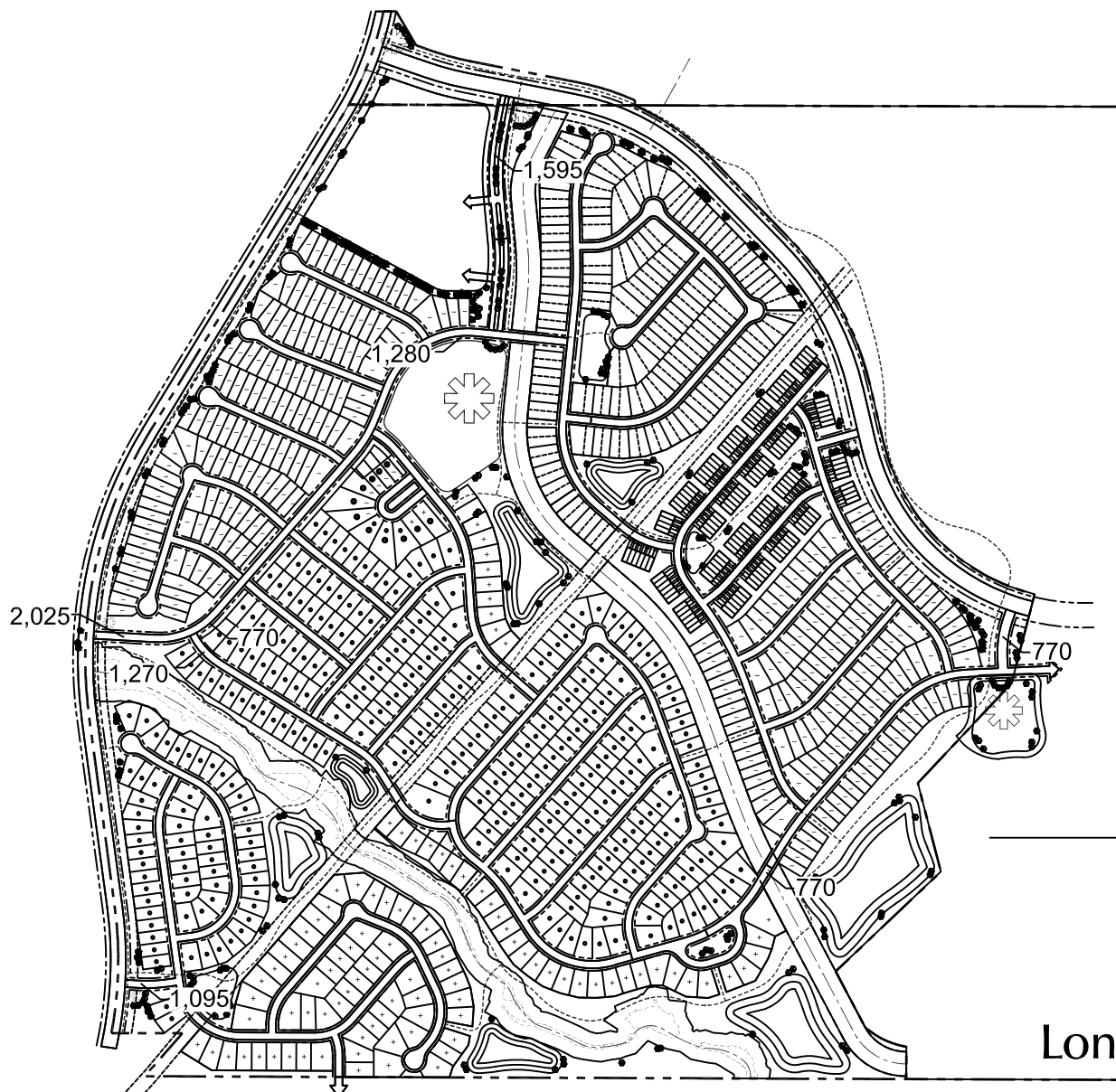
Grandview Reserve Phase 1 (LSC #S214240)



Approximate Scale
Scale: 1" = 4,000'



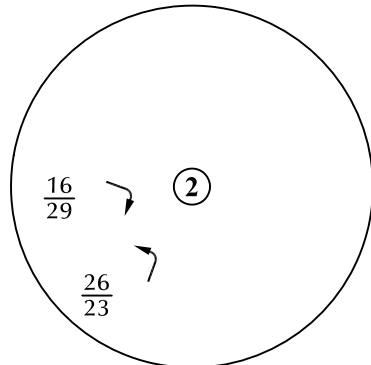
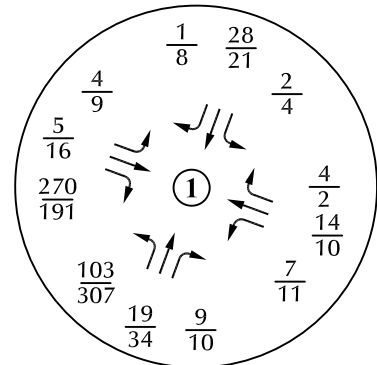
Grandview Reserve Phase 1 (LSC #S214240)



X,XXX= Annual Average Daily Traffic (vehicles per day)

Figure 10b
Long-Term Site-Generated
Traffic on Internal Streets

Grandview Reserve Phase 1 (LSC #S214240)



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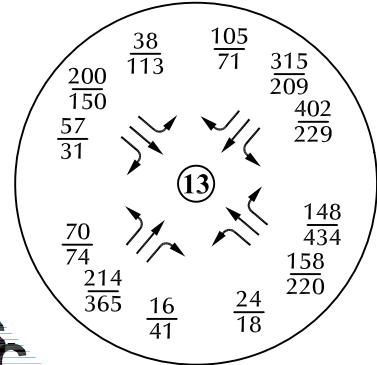
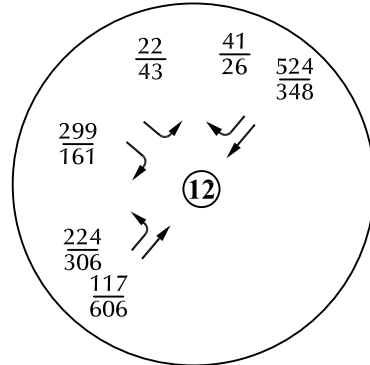
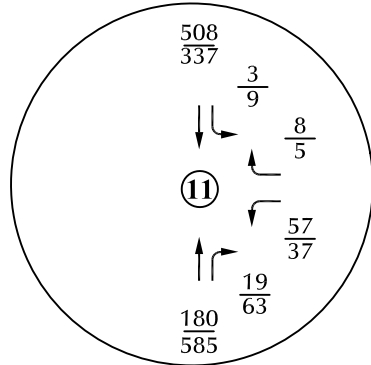
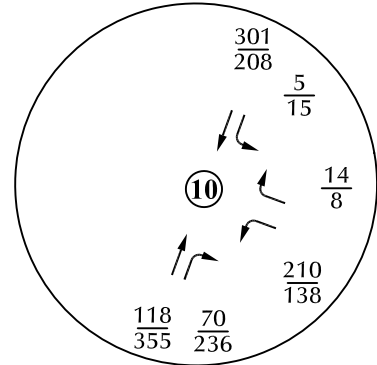
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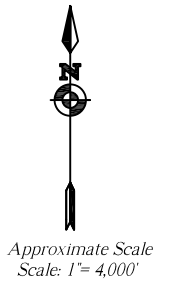


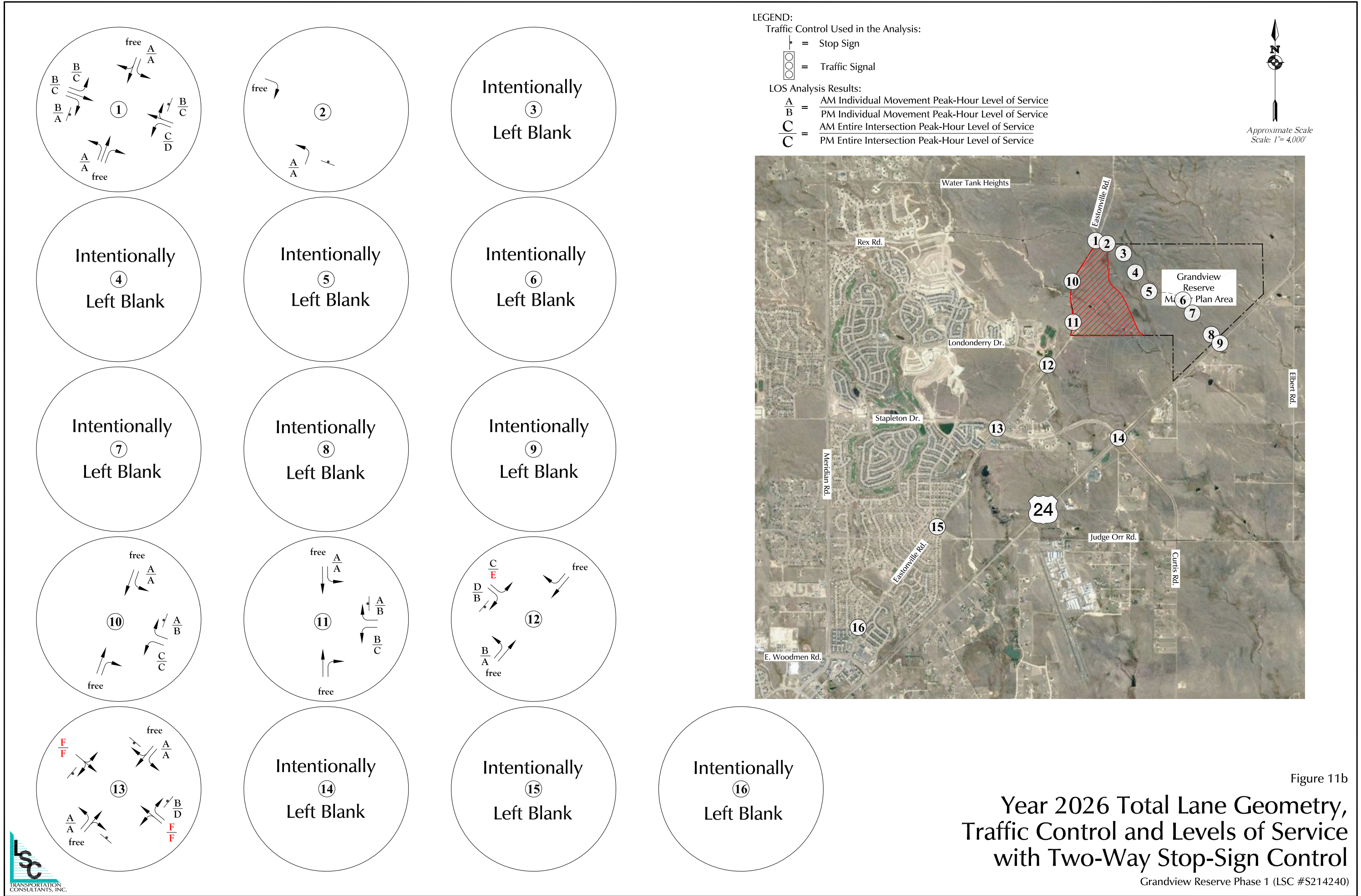
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LEGEND:
 $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
 X,XXX = Annual Average Daily Traffic (vehicles per day)





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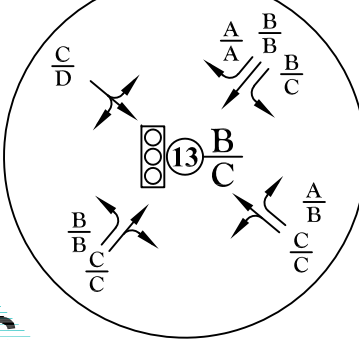
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LEGEND:
Traffic Control Used in the Analysis:
= Stop Sign
= Traffic Signal
LOS Analysis Results:
A/B = AM Individual Movement Peak-Hour Level of Service
B/B = PM Individual Movement Peak-Hour Level of Service
C/C = AM Entire Intersection Peak-Hour Level of Service
C/C = PM Entire Intersection Peak-Hour Level of Service

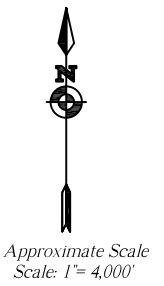
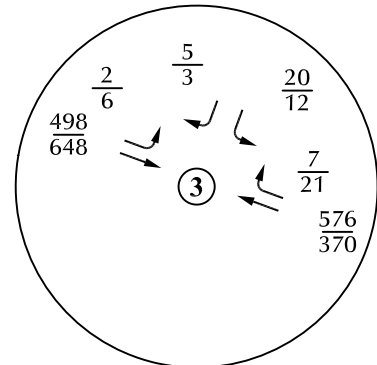
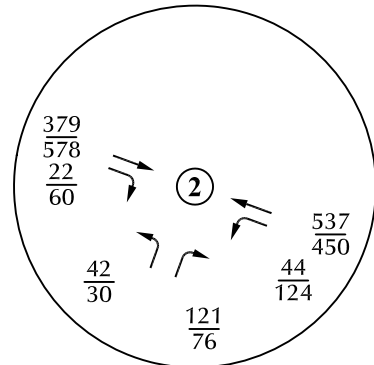
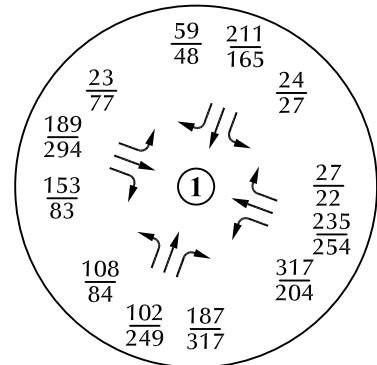


Figure 11c

Year 2026 Total Lane Geometry, Traffic Control and Levels of Service with Traffic Signal Control





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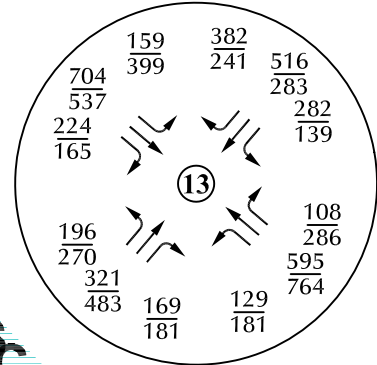
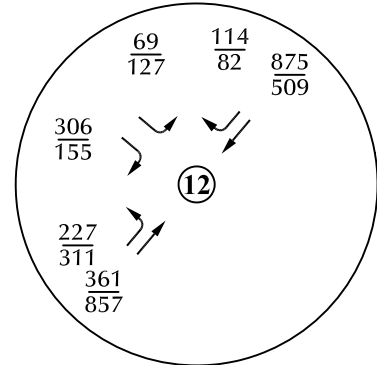
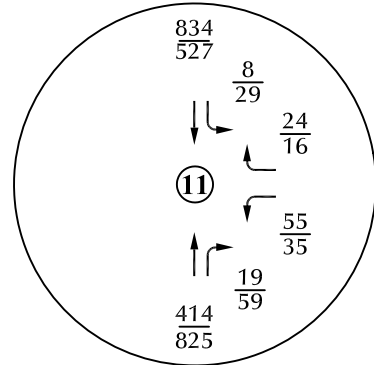
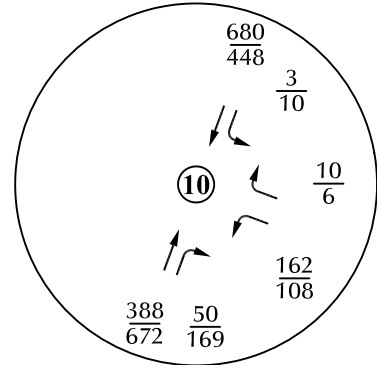
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LEGEND:
 $\frac{XX}{XX} = \frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$
 X,XXX= Annual Average Daily Traffic (vehicles per day)

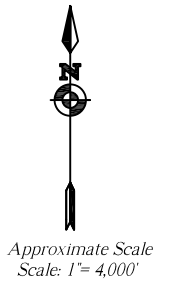
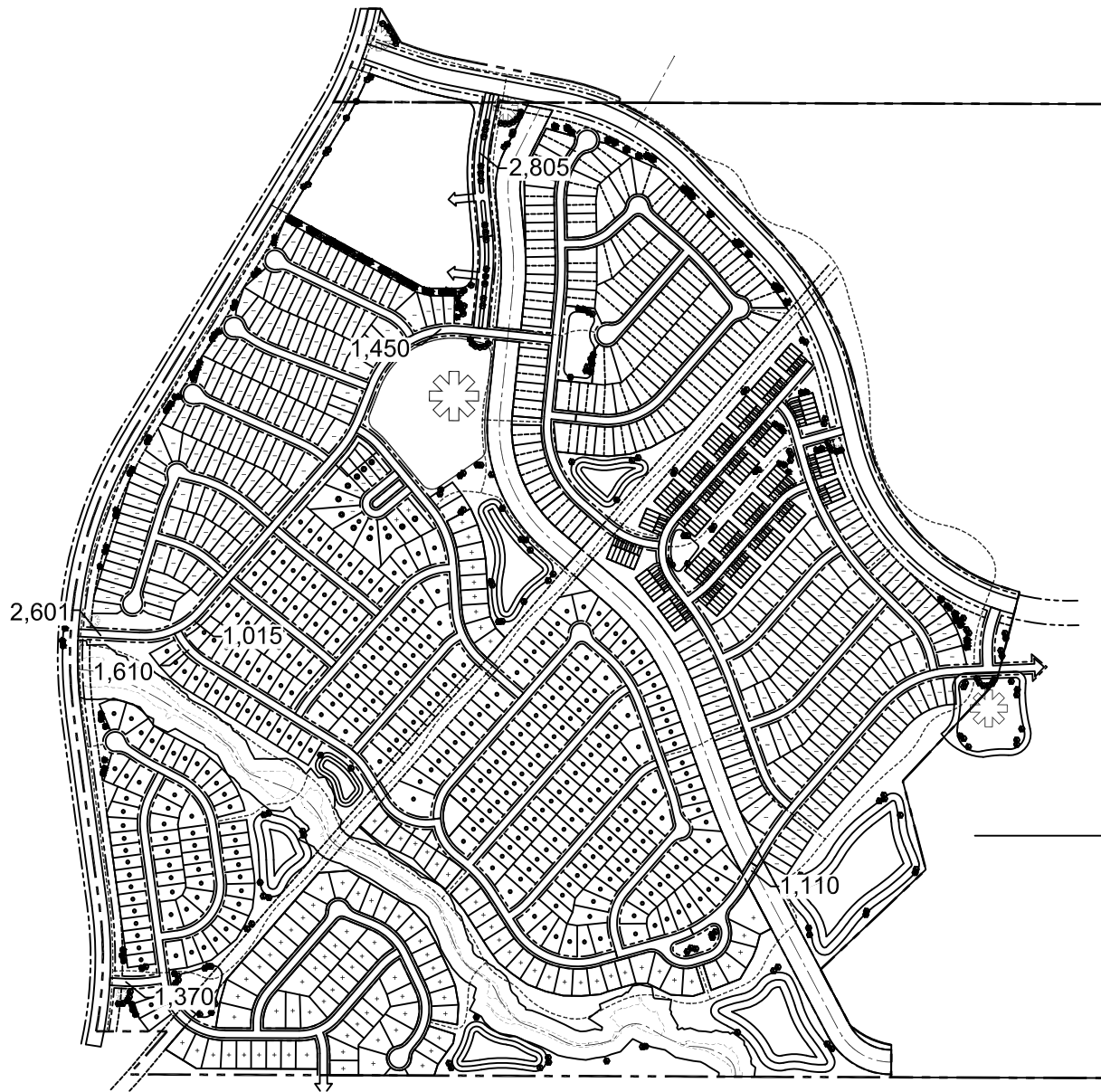


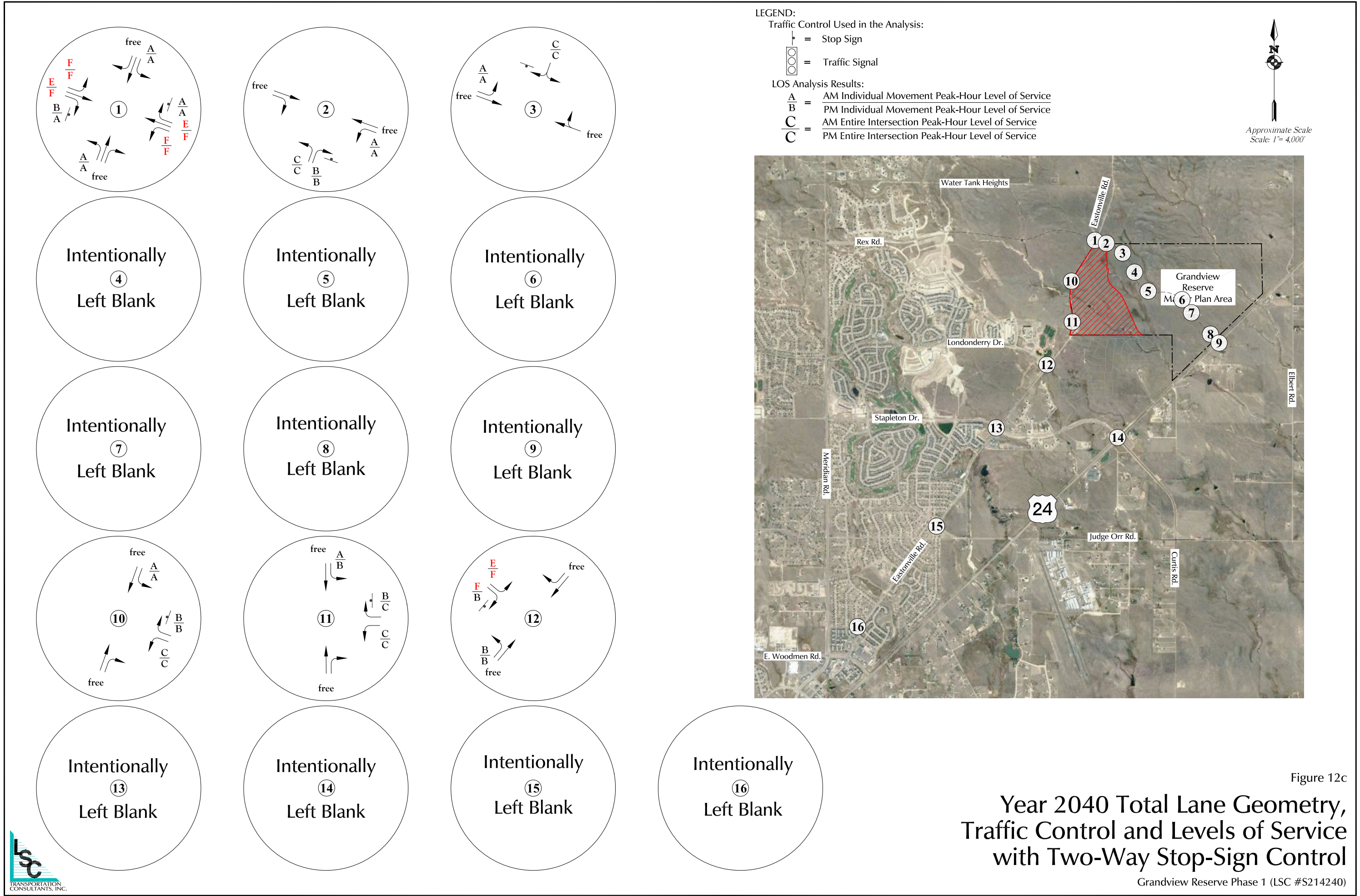
Figure 12a
Year 2041
Total Traffic

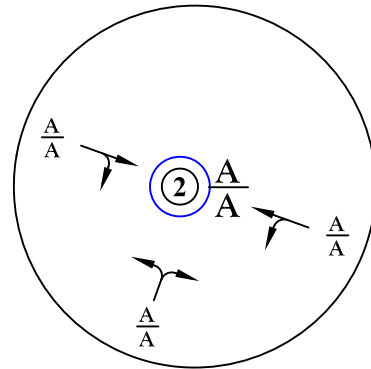
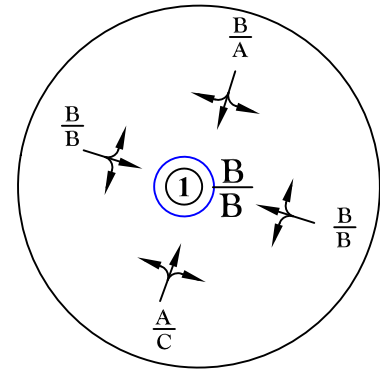


X,XXX= Annual Average Daily Traffic (vehicles per day)

Figure 12b
2041 Total
Traffic on Internal Streets

Grandview Reserve Phase 1 (LSC #S214240)





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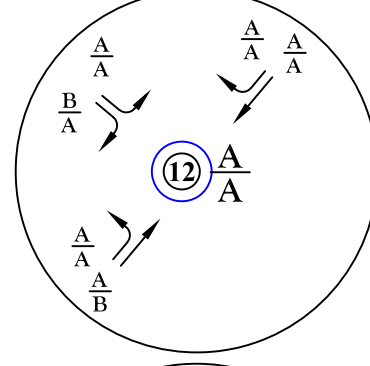
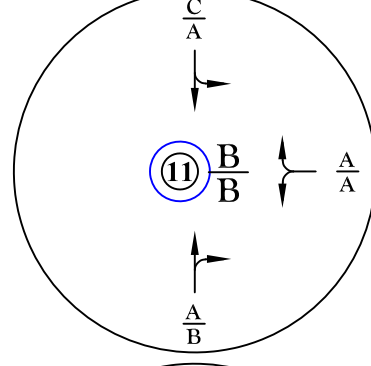
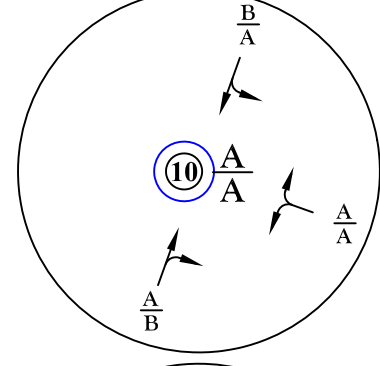
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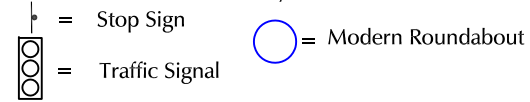
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LEGEND:

Traffic Control Used in the Analysis:



LOS Analysis Results:

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

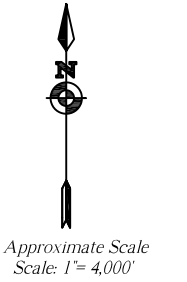
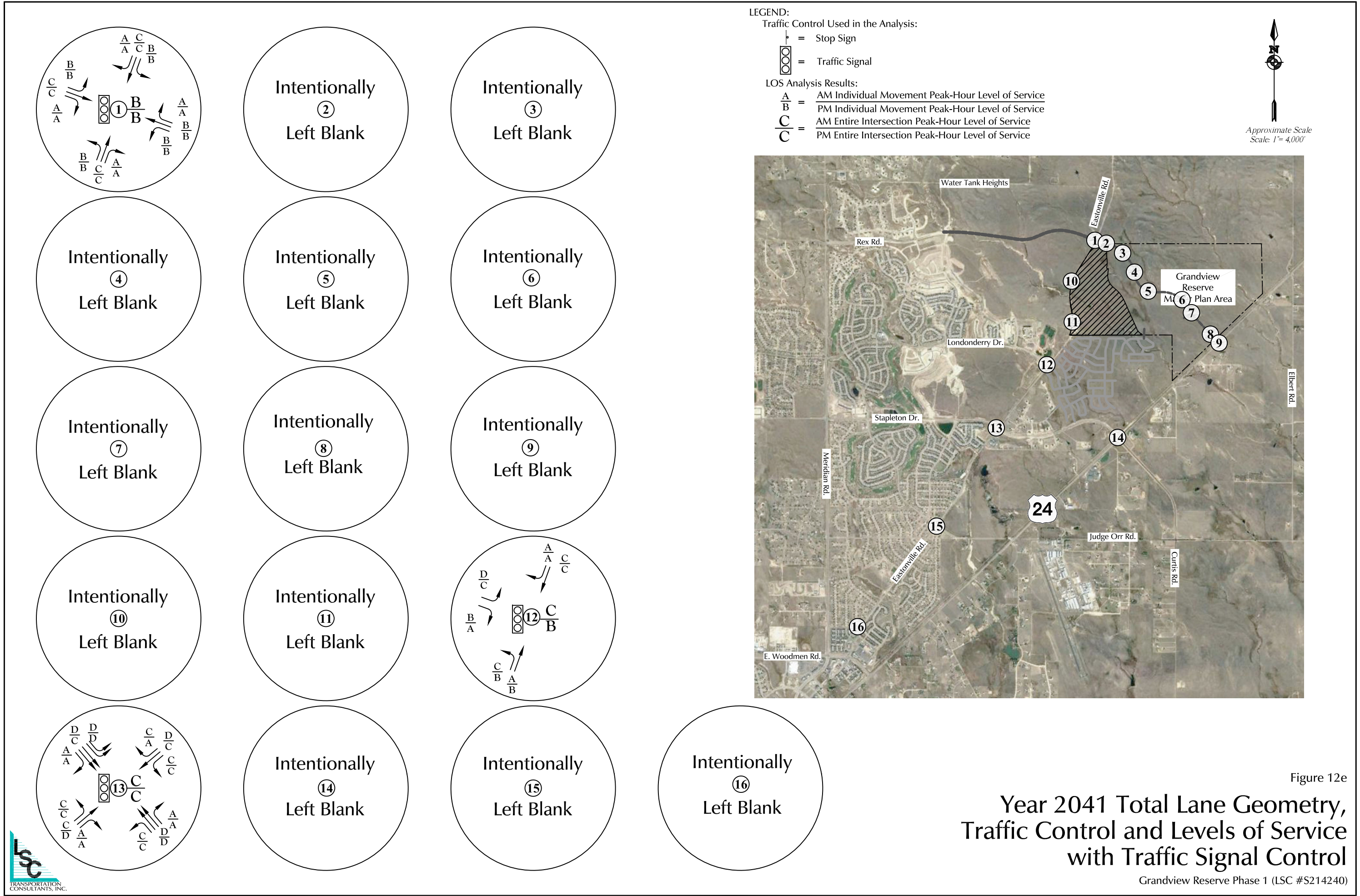
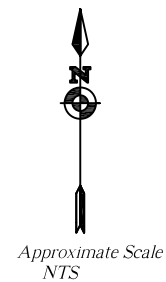
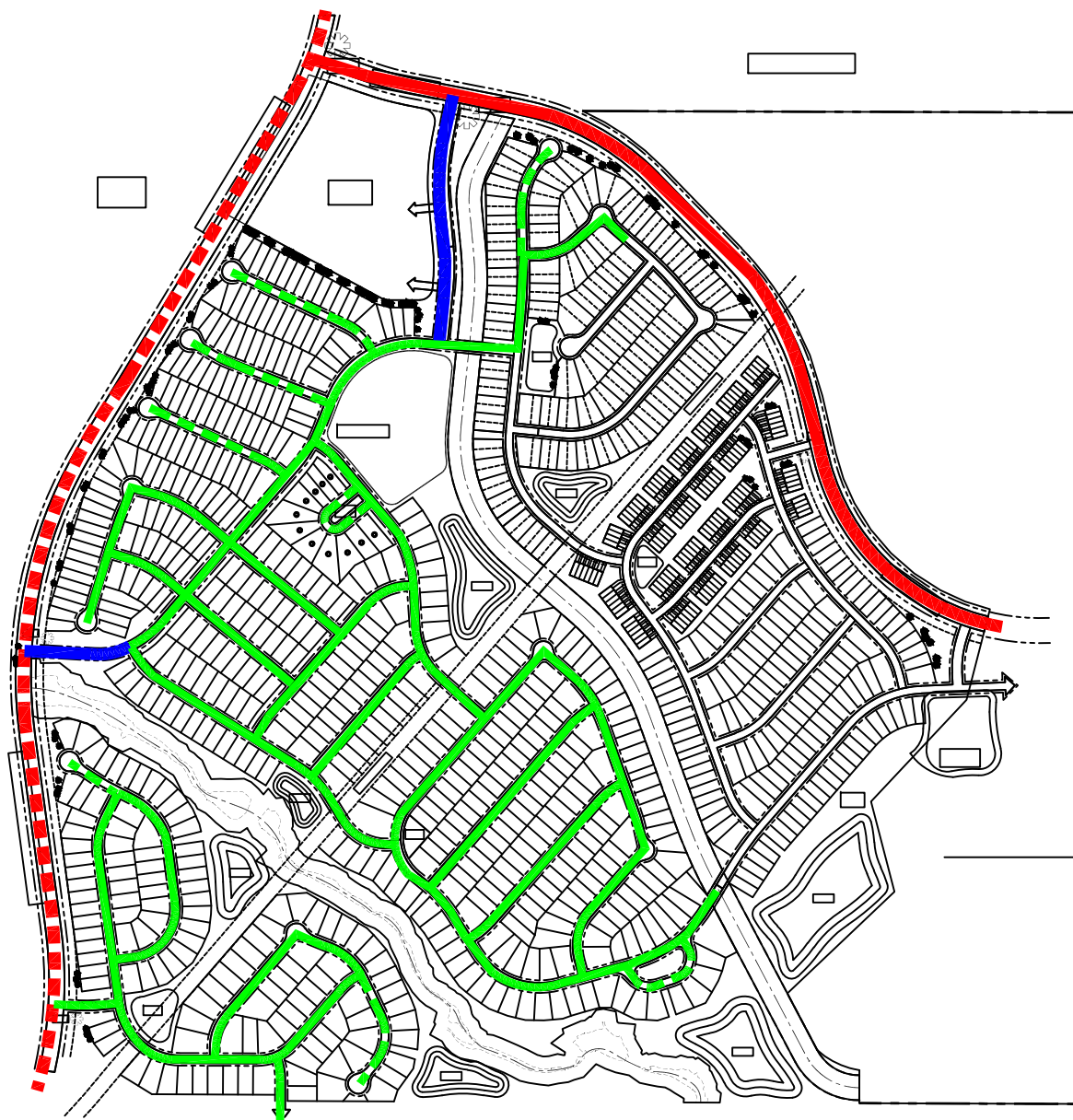


Figure 12d

Year 2041 Total Lane Geometry, Traffic Control and Levels of Service with Modern Roundabouts

Grandview Reserve Phase 1 (LSC #S214240)





- Urban Minor Arterial (2 lane)
- - - Rural Minor Arterial (2 lane)
- Urban Residential Collector
- Urban Local
- - - Urban Local (low volume)

Figure 13

Recommended Street Classification

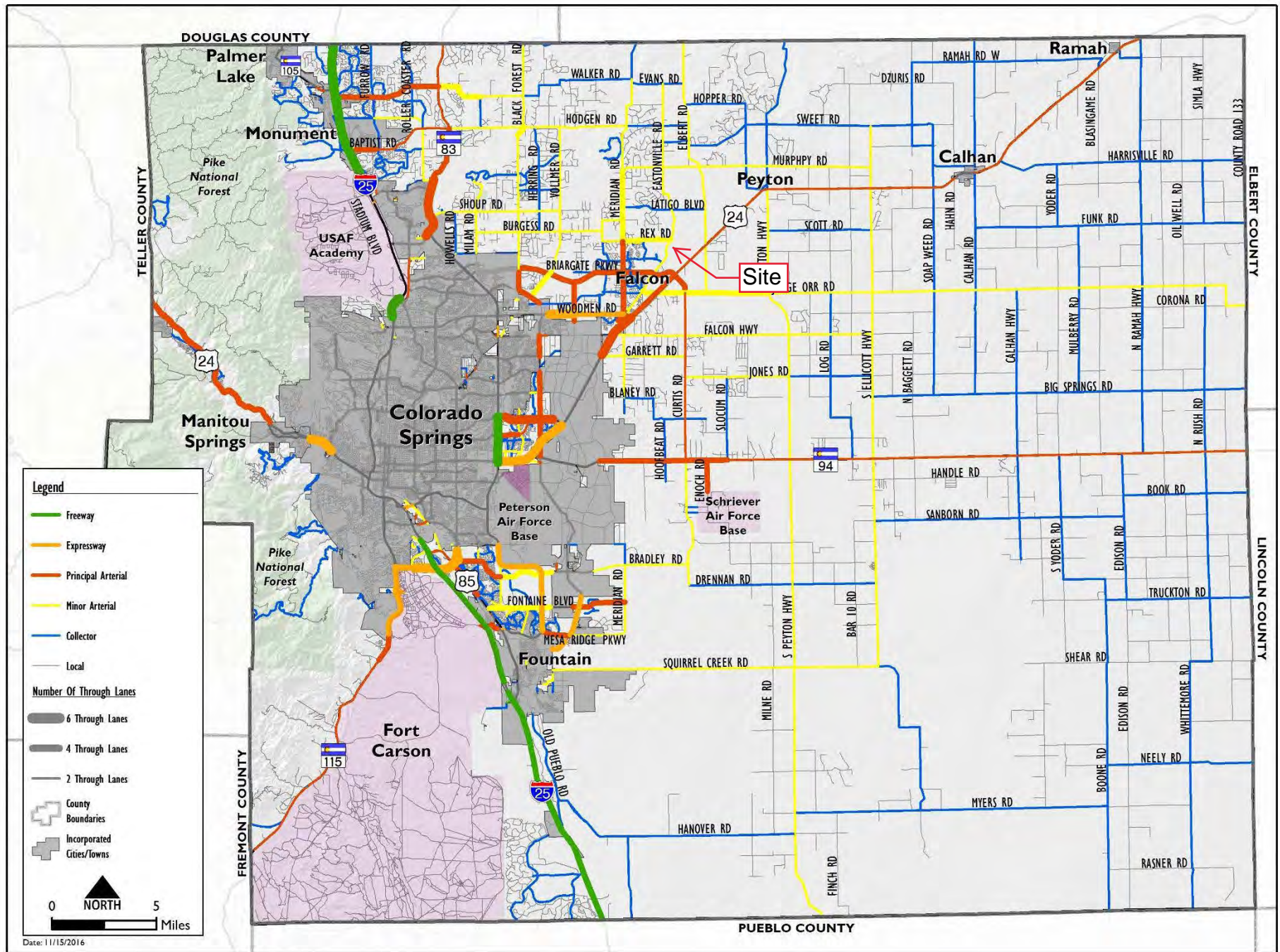
Grandview Reserve Phase 1 (LSC #S214240)

Appendix Table 1

Appendix Table 1
Area Traffic Impact Studies by LSC
Grandview Reserve Phase 1

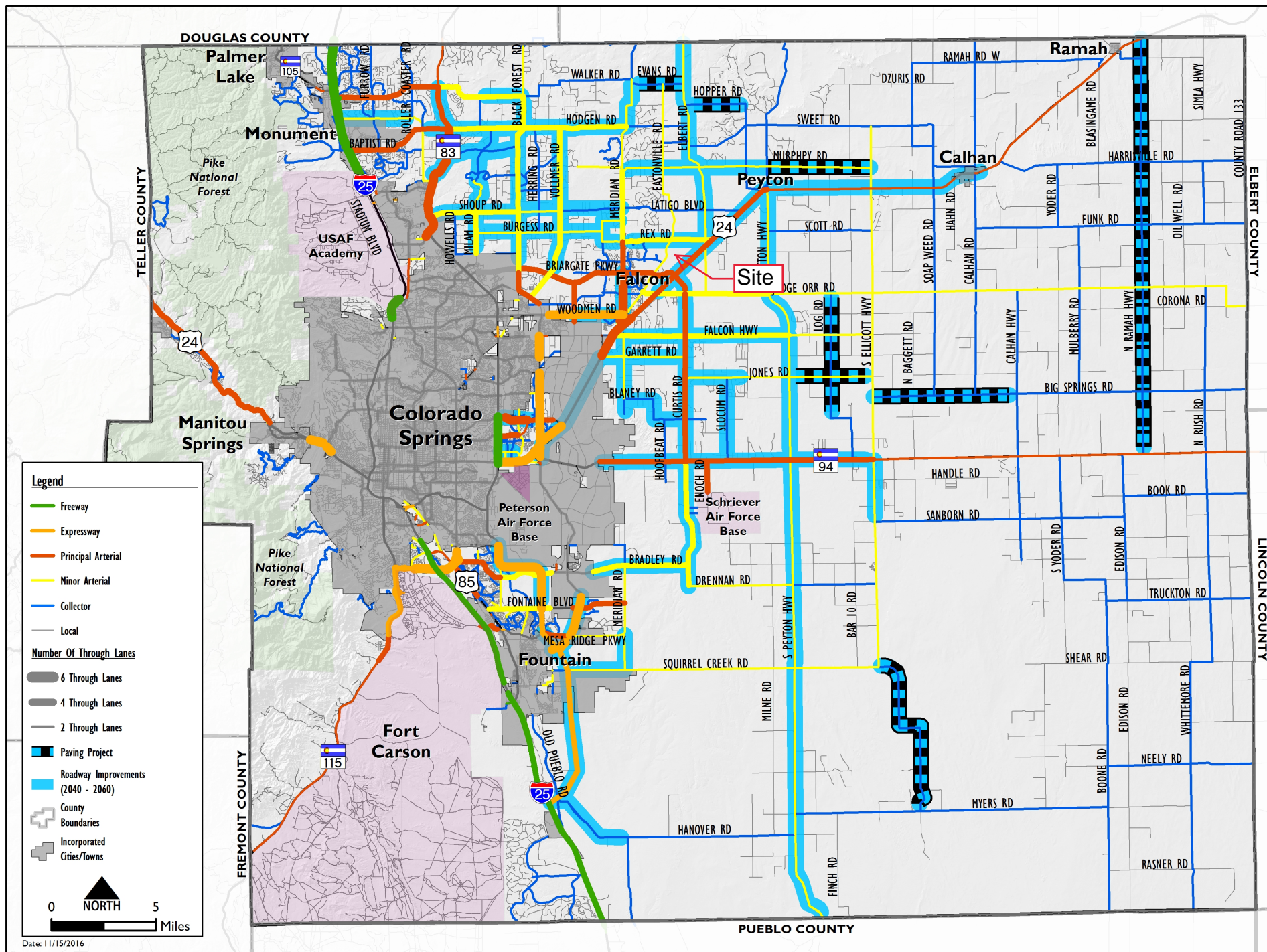
Study	Date
Meridian Ranch	
Meridian Ranch Sketch Plan TIA	April 11, 2011
Meridian Ranch Filing 11 Updated TIA	November 26, 2013
Stonebridge at Meridian Ranch Filing No. 1 Updated TIA	April 23, 2014
Stonebridge at Meridian Ranch Transportation Memorandum	July 28, 2015
Meridian Ranch Filing 8 Updated TIA	December 23, 2014
Meridian Ranch Filing 9 Updated TIA	May 21, 2015
Meridian Ranch Sketch Plan 2015 Amendment TIA	July 30, 2015
The Vistas at Meridian Ranch TIA	March 24, 2016
Meridian Ranch Estates Filing No. 2 Transportation Memorandum	August 27, 2015
The Vistas at Meridian Ranch Updated Transportation Memorandum	June 20, 2017
Londonderry Drive Pedestrian Operations and Safety Study	February 8, 2017
Stonebridge Filing 3 at Meridian Ranch Updated TIA	March 20, 2017
Meridian Ranch Sketch Plan 2017 Amendment TIA	October 3, 2017
WindingWalk at Meridian Ranch and The Enclave at Stonebridge at Meridian Ranch Updated Traffic Impact Analysis	May 10, 2018
Rolling Hills Ranch at Meridian Ranch PUDSP Traffic Impact Analysis	June 29, 2020
The Estates at Rolling Hills Ranch Filing No. 1 Traffic Impact Analysis	May 13, 2020
Rolling Hills Ranch at Meridian Ranch Filing No. 1 Traffic Impact Analysis	July 14, 2020
The Estates at Rolling Hills Ranch Filing No. 2 Traffic Impact Study	October 8, 2020
Rolling Hills Ranch at Meridian Ranch Filing No. 2 Transportation Memorandum	December 29, 2020
Rolling Hills Ranch at Meridian Ranch Filing No. 3 Transportation Memorandum	June 29, 2021
Meridian Ranch 2021 Sketch Plan Amendment Traffic Impact Study	June 25, 2021
Grandview Reserve	
Grandview Reserve Updated Master TIA	December 5, 2020
Waterbury/4-Way Ranch	
Waterbury PUD Development Plan Updated TIA	January 10, 2013
Waterbury Filing Nos. 1 and 2 TIA	December 18, 2020
Meadowlake Ranch	
Meadowlake Ranch Traffic Impact Analysis	May 29, 2019
Trails	
Trails Filing Nos. 9, 10 and 11	February 12, 2007
<i>Source: LSC Transportation Consultants, Inc. (July 2021)</i>	

MTCP Maps



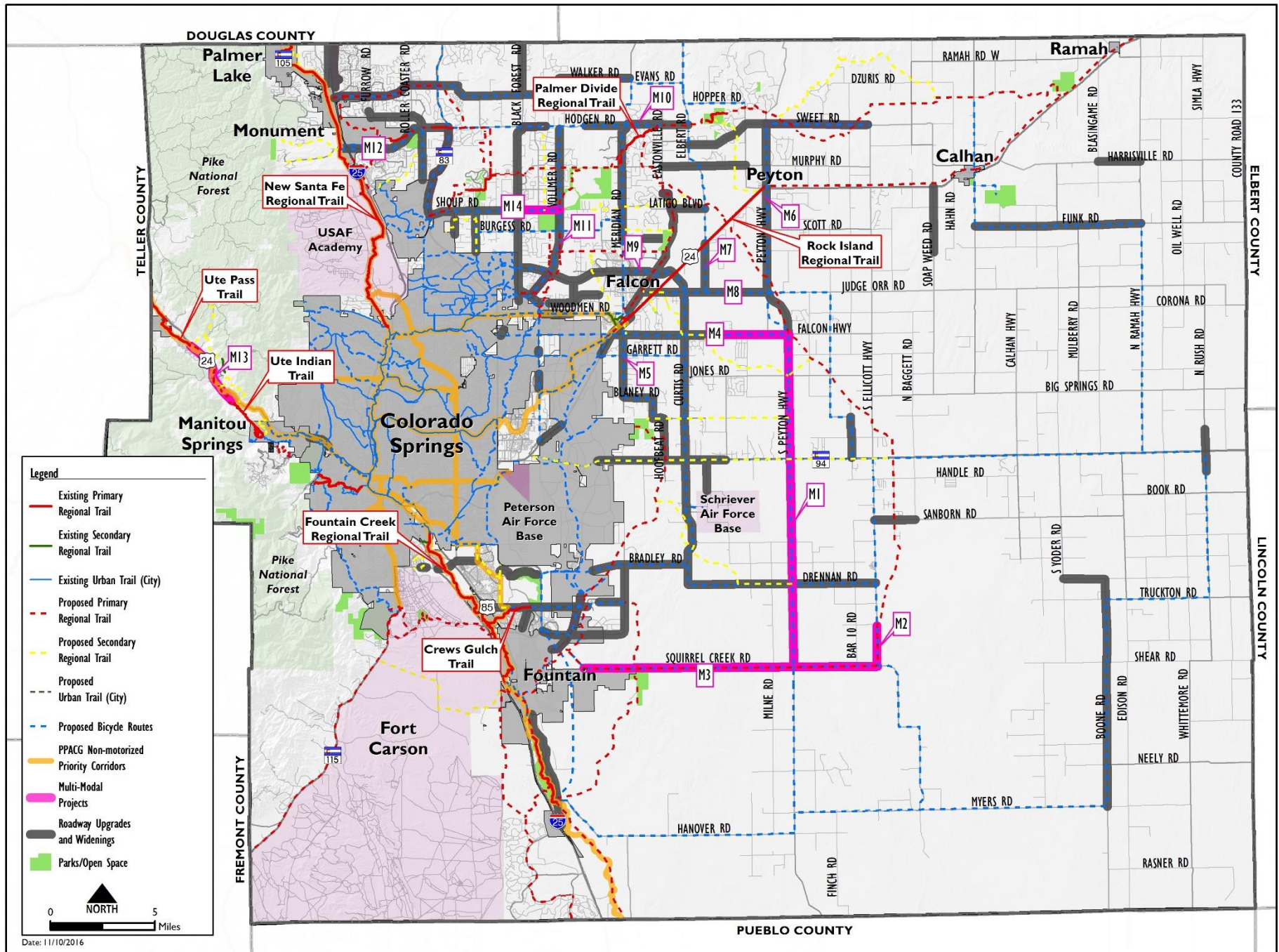
Map 14: 2040 Roadway Plan (Classification and Lanes)

Map 17: 2060 Corridor Preservation



Map 15 Bicycle and Pedestrian Network Improvements





Map 15: Bicycle and Pedestrian Network and Improvements

Traffic Counts

LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Eastonville Rd -Londonderry Dr AM
Site Code : S214250
Start Date : 4/15/2021
Page No : 1

Groups Printed- Unshifted

Start Time	Eastonville Rd Southbound					Westbound					Eastonville Rd Northbound					Londonderry Dr Eastbound					Int. Total
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07:15 AM	0	2	3	0	5	0	0	0	0	0	96	1	0	0	97	0	0	74	0	74	176
07:30 AM	0	2	2	0	4	0	0	0	0	0	22	2	0	0	24	0	0	54	0	54	82
07:45 AM	0	3	2	0	5	0	0	0	0	0	28	1	0	0	29	3	0	37	1	41	75
Total	0	9	9	0	18	0	0	0	0	0	190	6	0	0	196	3	0	196	1	200	414
08:00 AM	0	1	5	0	6	0	0	0	0	0	24	1	0	0	25	0	0	18	0	18	49
08:15 AM	0	0	2	0	2	0	0	0	0	0	24	2	0	0	26	2	0	37	1	40	68
08:30 AM	0	1	0	0	1	0	0	0	0	0	13	1	0	0	14	2	0	23	0	25	40
08:45 AM	0	7	2	0	9	0	0	0	0	0	13	5	0	0	18	0	0	12	0	12	39
Total	0	9	9	0	18	0	0	0	0	0	74	9	0	0	83	4	0	90	1	95	196
Grand Total	0	18	18	0	36	0	0	0	0	0	264	15	0	0	279	7	0	286	2	295	610
Apprch %	0	50	50	0		0	0	0	0		94.6	5.4	0	0		2.4	0	96.9	0.7		
Total %	0	3	3	0	5.9	0	0	0	0	0	43.3	2.5	0	0	45.7	1.1	0	46.9	0.3	48.4	

LSC Transportation Consultants, Inc.

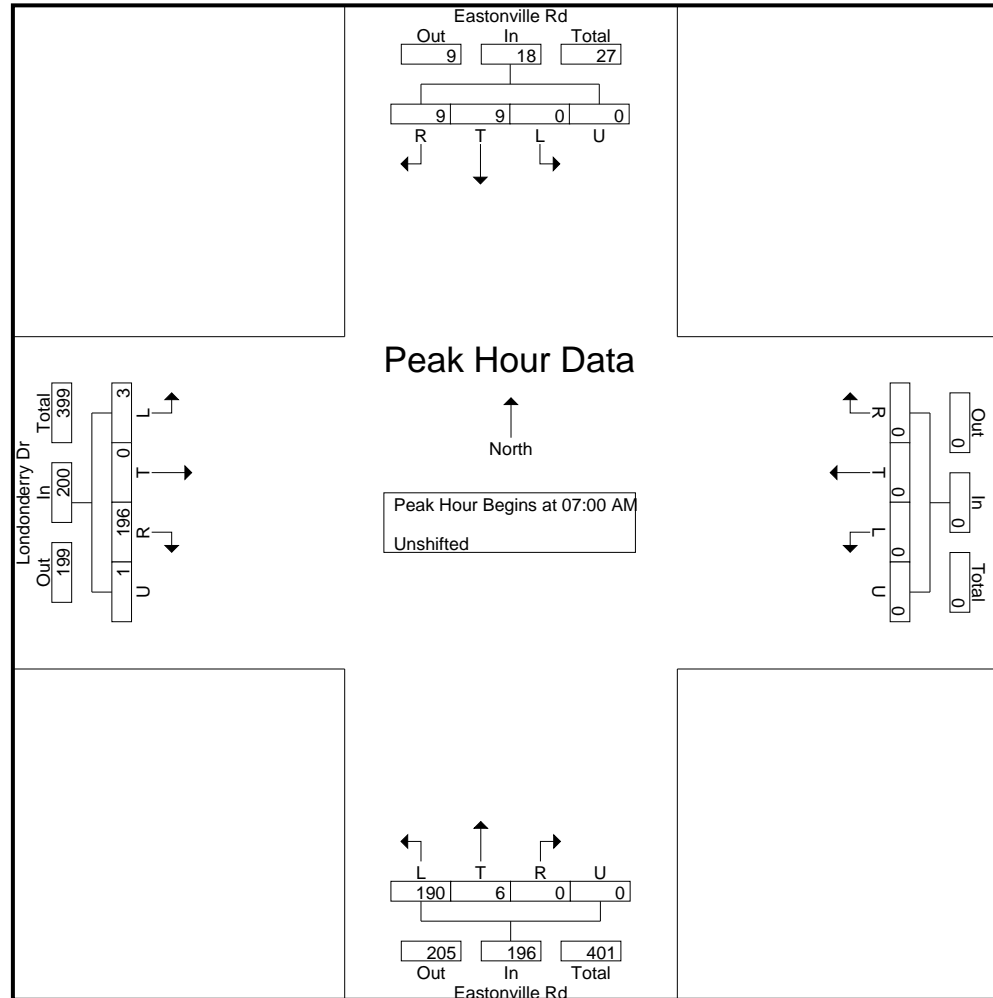
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Eastonville Rd -Londonderry Dr AM

Site Code : S214250

Start Date : 4/15/2021

Page No : 3



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Site Code : S214250
Start Date : 4/15/2021
Page No : 1

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04:15 PM	0	1	0	0	1	0	0	0	0	0	36	3	0	0	39	2	0	19	0	21	61
04:30 PM	0	1	1	0	2	0	0	0	0	0	40	2	0	0	42	0	0	15	0	15	59
04:45 PM	0	1	1	0	2	0	0	0	0	0	36	7	0	0	43	2	0	13	0	15	60
Total	0	5	3	0	8	0	0	0	0	0	159	13	0	0	172	6	0	74	0	80	260
05:00 PM	0	2	2	0	4	0	0	0	0	0	36	1	0	0	37	0	0	12	0	12	53
05:15 PM	0	4	0	0	4	0	0	0	0	0	31	1	0	0	32	1	0	8	0	9	45
05:30 PM	0	1	0	0	1	0	0	0	0	0	35	3	0	1	39	0	0	7	0	7	47
05:45 PM	0	2	0	0	2	0	0	0	0	0	24	2	0	0	26	0	0	15	0	15	43
Total	0	9	2	0	11	0	0	0	0	0	126	7	0	1	134	1	0	42	0	43	188
Grand Total	0	14	5	0	19	0	0	0	0	0	285	20	0	1	306	7	0	116	0	123	448
Apprch %	0	73.7	26.3	0		0	0	0	0		93.1	6.5	0	0.3		5.7	0	94.3	0		
Total %	0	3.1	1.1	0	4.2	0	0	0	0	0	63.6	4.5	0	0.2	68.3	1.6	0	25.9	0	27.5	

LSC Transportation Consultants, Inc.

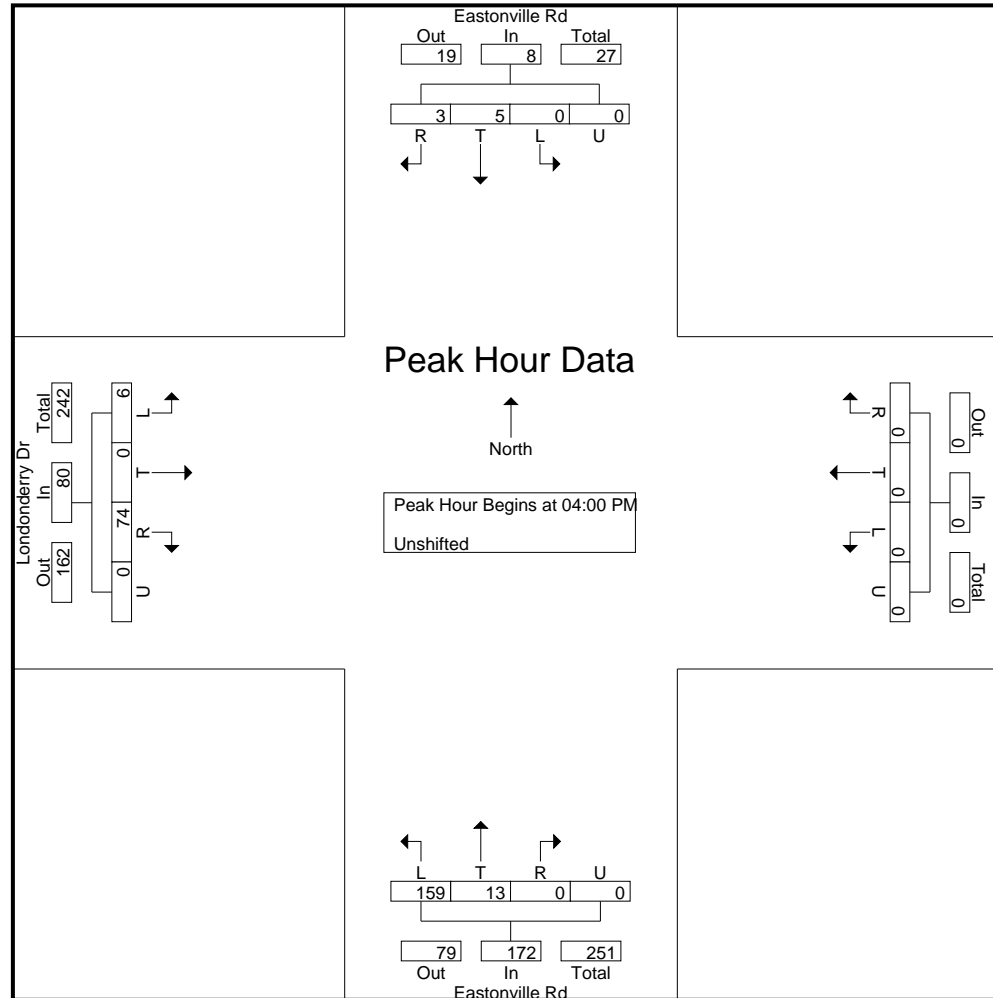
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Eastonville Rd -Londonderry Dr PM

Site Code : S214250

Start Date : 4/15/2021

Page No : 3



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File Name : Eastonville Rd -Stapleton Dr AM
Site Code : S214250
Start Date : 4/14/2021
Page No : 1

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07:30 AM	33	29	2	0	64	0	49	4	0	53	20	22	4	0	46	2	48	11	0	61	224
07:45 AM	19	21	0	0	40	3	19	9	0	31	17	25	1	0	43	0	30	13	0	43	157
Total	99	79	6	0	184	5	117	30	0	152	60	88	9	0	157	3	148	36	0	187	680
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08:15 AM	16	12	0	0	28	0	21	11	0	32	6	7	2	0	15	0	24	6	0	30	105
08:30 AM	16	5	1	0	22	1	17	4	0	22	4	13	1	0	18	1	16	1	0	18	80
08:45 AM	8	0	1	0	9	0	20	6	0	26	1	7	0	0	8	0	15	2	0	17	60
Total	58	27	4	0	89	1	77	35	0	113	17	37	4	0	58	3	77	15	0	95	355
Grand Total	157	106	10	0	273	6	194	65	0	265	77	125	13	0	215	6	225	51	0	282	1035
Apprch %	57.5	38.8	3.7	0		2.3	73.2	24.5	0		35.8	58.1	6	0		2.1	79.8	18.1	0		
Total %	15.2	10.2	1	0	26.4	0.6	18.7	6.3	0	25.6	7.4	12.1	1.3	0	20.8	0.6	21.7	4.9	0	27.2	

LSC Transportation Consultants, Inc.

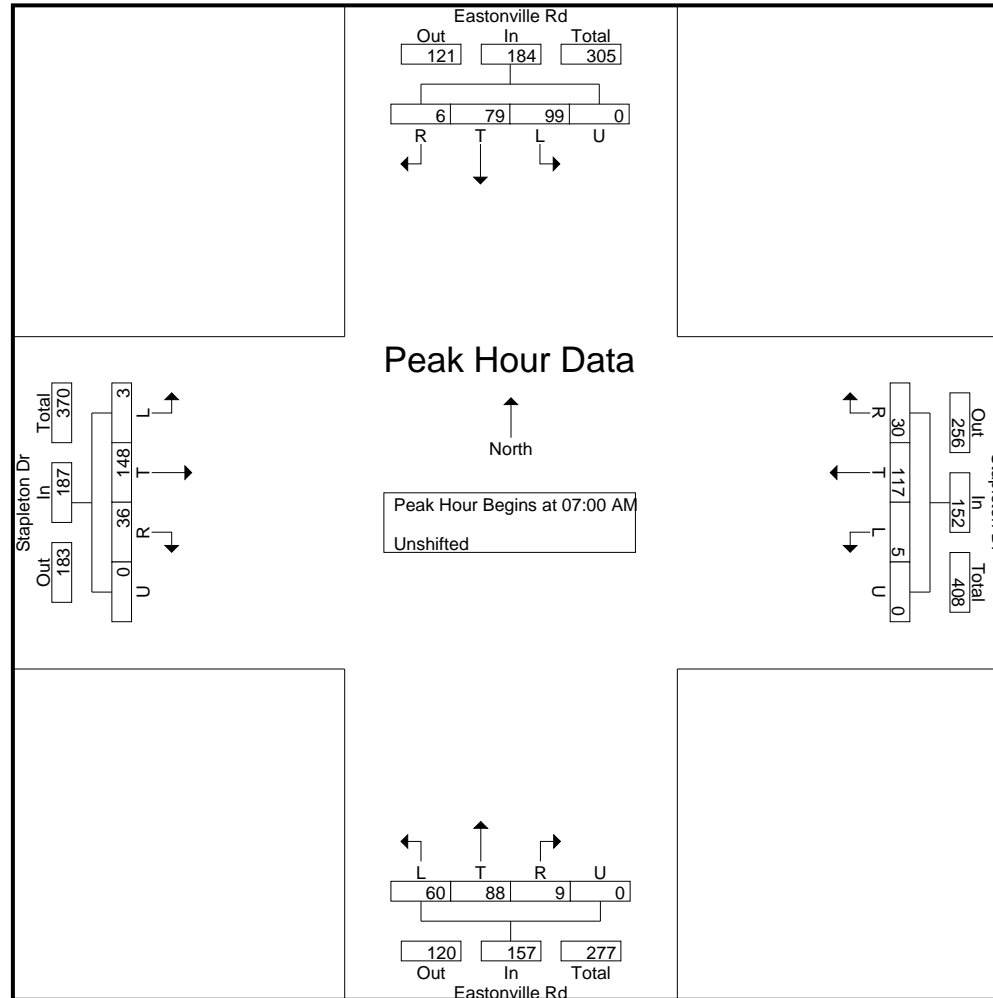
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Eastonville Rd -Stapleton Dr AM

Site Code : S214250

Start Date : 4/14/2021

Page No : 3



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545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

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04:15 PM	8	5	0	0	13	1	38	27	0	66	11	27	4	0	42	0	24	5	0	29	150
04:30 PM	7	14	2	0	23	0	39	26	0	65	14	18	6	0	38	1	29	1	0	31	157
04:45 PM	10	24	2	0	36	0	43	22	0	65	10	31	5	0	46	3	24	8	0	35	182
Total	37	56	6	0	99	3	148	89	0	240	40	99	15	0	154	6	96	19	0	121	614
05:00 PM	11	11	1	0	23	4	33	26	0	63	14	13	4	0	31	1	19	4	0	24	141
05:15 PM	11	16	0	0	27	0	32	22	0	54	15	22	2	0	39	0	20	6	0	26	146
05:30 PM	12	5	1	0	18	1	27	29	0	57	10	16	0	0	26	0	25	8	0	33	134
05:45 PM	4	10	1	0	15	2	32	23	0	57	4	21	1	0	26	1	12	1	0	14	112
Total	38	42	3	0	83	7	124	100	0	231	43	72	7	0	122	2	76	19	0	97	533
Grand Total	75	98	9	0	182	10	272	189	0	471	83	171	22	0	276	8	172	38	0	218	1147
Apprch %	41.2	53.8	4.9	0		2.1	57.7	40.1	0		30.1	62	8	0		3.7	78.9	17.4	0		
Total %	6.5	8.5	0.8	0	15.9	0.9	23.7	16.5	0	41.1	7.2	14.9	1.9	0	24.1	0.7	15	3.3	0	19	

LSC Transportation Consultants, Inc.

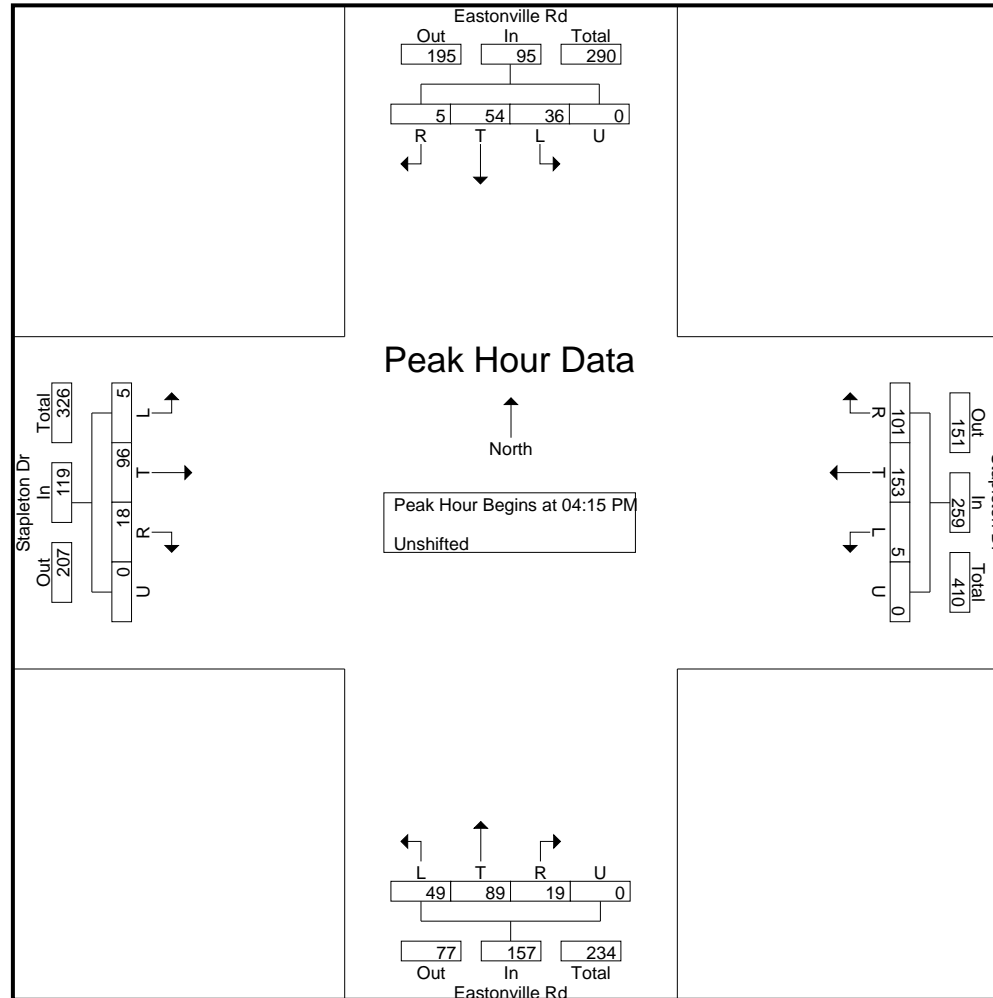
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Eastonville Rd -Stapleton Dr PM

Site Code : S214250

Start Date : 4/13/2021





Page No : 3



Levels of Service

HCM 6th TWSC
12: Eastonville Rd & Londonderry Dr

Existing Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	8.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	196	190	6	9	9
Future Vol, veh/h	3	196	190	6	9	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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	51	51	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	293	373	12	10	10
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	773	15	20	0	-	0
Stage 1	15	-	-	-	-	-
Stage 2	758	-	-	-	-	-
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	367	1065	1596	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	281	1065	1596	-	-	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.8	7.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1596	-	281	1065	-	-
HCM Lane V/C Ratio	0.233	-	0.016	0.275	-	-
HCM Control Delay (s)	7.9	0	18	9.7	-	-
HCM Lane LOS	A	A	C	A	-	-
HCM 95th %tile Q(veh)	0.9	-	0	1.1	-	-

HCM 6th TWSC
13: Eastonville Rd & Stapleton Dr

Existing Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	11.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	3	148	36	5	117	30	60	88	9	99	79	6
Future Vol, veh/h	3	148	36	5	117	30	60	88	9	99	79	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	83	83	83	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	154	38	6	141	36	69	101	10	114	91	7





Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	656	572	95	663	570	106	98	0	0	111	0	0
Stage 1	323	323	-	244	244	-	-	-	-	-	-	-
Stage 2	333	249	-	419	326	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	379	430	962	375	431	948	1495	-	-	1479	-	-
Stage 1	689	650	-	760	704	-	-	-	-	-	-	-
Stage 2	681	701	-	612	648	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	235	375	962	223	376	948	1495	-	-	1479	-	-
Mov Cap-2 Maneuver	235	375	-	223	376	-	-	-	-	-	-	-
Stage 1	655	597	-	723	670	-	-	-	-	-	-	-
Stage 2	492	667	-	400	595	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.8		18.9		2.9		4.1	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1495	-	-	420 366 948	1479	-	-
HCM Lane V/C Ratio	0.046	-	-	0.464 0.402 0.038	0.077	-	-
HCM Control Delay (s)	7.5	0	-	20.8 21.3 8.9	7.6	0	-
HCM Lane LOS	A	A	-	C C A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4 1.9 0.1	0.2	-	-

HCM 6th TWSC
12: Eastonville Rd & Londonderry Dr

Existing Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	7.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	74	159	13	5	3
Future Vol, veh/h	6	74	159	13	5	3
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	90	90	67	67
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	107	177	14	7	4

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	377	9	11	0	-	0
Stage 1	9	-	-	-	-	-
Stage 2	368	-	-	-	-	-
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	625	1073	1608	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	556	1073	1608	-	-	-
Mov Cap-2 Maneuver	556	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	700	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	6.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1608	-	556	1073	-	-
HCM Lane V/C Ratio	0.11	-	0.016	0.1	-	-
HCM Control Delay (s)	7.5	0	11.6	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	0	0.3	-	-

HCM 6th TWSC
13: Eastonville Rd & Stapleton Dr







Existing Traffic
PM Peak Hour







Intersection												
Int Delay, s/veh	7.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	16	50	13	8	126	127	29	112	6	29	72	8
Future Vol, veh/h	16	50	13	8	126	127	29	112	6	29	72	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	91	91	91	88	88	88	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	61	16	9	138	140	33	127	7	35	87	10









Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	498	362	92	398	364	131	97	0	0	134	0	0
Stage 1	162	162	-	197	197	-	-	-	-	-	-	-
Stage 2	336	200	-	201	167	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	483	565	965	562	564	919	1496	-	-	1451	-	-
Stage 1	840	764	-	805	738	-	-	-	-	-	-	-
Stage 2	678	736	-	801	760	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	316	537	965	486	536	919	1496	-	-	1451	-	-
Mov Cap-2 Maneuver	316	537	-	486	536	-	-	-	-	-	-	-
Stage 1	820	744	-	786	720	-	-	-	-	-	-	-
Stage 2	453	718	-	704	740	-	-	-	-	-	-	-







Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.9		12		1.5		2	
HCM LOS	B		B					







Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1496	-	-	502 533 919	1451	-	-
HCM Lane V/C Ratio	0.022	-	-	0.192 0.276 0.152	0.024	-	-
HCM Control Delay (s)	7.5	0	-	13.9 14.3 9.6	7.5	0	-
HCM Lane LOS	A	A	-	B B A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7 1.1 0.5	0.1	-	-

Intersection						
Int Delay, s/veh	8.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	264	86	14	26	1
Future Vol, veh/h	4	264	86	14	26	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	300	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	311	101	16	31	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	250	32	32	0	-	0
Stage 1	32	-	-	-	-	-
Stage 2	218	-	-	-	-	-
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	739	1042	1580	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	692	1042	1580	-	-	-
Mov Cap-2 Maneuver	692	-	-	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.9	6.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1580	-	692	1042	-	-
HCM Lane V/C Ratio	0.064	-	0.007	0.298	-	-
HCM Control Delay (s)	7.4	-	10.2	9.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0	1.3	-	-

Intersection						
Int Delay, s/veh	7.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	299	224	82	257	34
Future Vol, veh/h	19	299	224	82	257	34
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	0	250	-	-	205
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	352	264	96	302	40
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	926	302	342	0	-	0
Stage 1	302	-	-	-	-	-
Stage 2	624	-	-	-	-	-
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	298	738	1217	-	-	-
Stage 1	750	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	233	738	1217	-	-	-
Mov Cap-2 Maneuver	361	-	-	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.3	6.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1217	-	361	738	-	-
HCM Lane V/C Ratio	0.217	-	0.062	0.477	-	-
HCM Control Delay (s)	8.8	-	15.6	14.2	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.8	-	0.2	2.6	-	-

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	200	57	24	158	111	70	189	16	300	244	12
Future Vol, veh/h	6	200	57	24	158	111	70	189	16	300	244	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	200	0	-	-	250	-	205
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	235	67	28	186	131	82	222	19	353	287	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1547	1398	287	1547	1403	232	301	0	0	241	0	0
Stage 1	993	993	-	396	396	-	-	-	-	-	-	-
Stage 2	554	405	-	1151	1007	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	93 ~ 141	752	93 ~ 140	807	1260	-	-	1326	-	-	-	-
Stage 1	296	323	-	629	604	-	-	-	-	-	-	-
Stage 2	517	598	-	241	319	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	- ~ 97	752	- ~ 96	807	1260	-	-	1326	-	-	-	-
Mov Cap-2 Maneuver	- ~ 97	-	- ~ 96	-	-	-	-	-	-	-	-	-
Stage 1	277	237	-	588	565	-	-	-	-	-	-	-
Stage 2	272	559	- ~ 1	234	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s					2.1		4.7					
HCM LOS	-		-									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR					
Capacity (veh/h)	1260	-	-	-	-	807	1326	-	-			
HCM Lane V/C Ratio	0.065	-	-	-	-	0.162	0.266	-	-			
HCM Control Delay (s)	8.1	-	-	-	-	10.3	8.7	-	-			
HCM Lane LOS	A	-	-	-	-	B	A	-	-			
HCM 95th %tile Q(veh)	0.2	-	-	-	-	0.6	1.1	-	-			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Intersection						
Int Delay, s/veh	7.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	172	296	32	17	8
Future Vol, veh/h	9	172	296	32	17	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	300	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	202	348	38	20	9
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	759	25	29	0	-	0
Stage 1	25	-	-	-	-	-
Stage 2	734	-	-	-	-	-
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	374	1051	1584	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	292	1051	1584	-	-	-
Mov Cap-2 Maneuver	292	-	-	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.6	7.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1584	-	292	1051	-	-
HCM Lane V/C Ratio	0.22	-	0.036	0.193	-	-
HCM Control Delay (s)	7.9	-	17.8	9.2	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.8	-	0.1	0.7	-	-

Intersection						
Int Delay, s/veh	5.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	161	306	305	168	21
Future Vol, veh/h	35	161	306	305	168	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	250	-	-	205
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	189	360	359	198	25
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1277	198	223	0	-	0
Stage 1	198	-	-	-	-	-
Stage 2	1079	-	-	-	-	-
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	184	843	1346	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	135	843	1346	-	-	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.6	4.3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1346	-	248	843	-	-
HCM Lane V/C Ratio	0.267	-	0.166	0.225	-	-
HCM Control Delay (s)	8.6	-	22.4	10.5	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	1.1	-	0.6	0.9	-	-

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕		↕	↕	↕
Traffic Vol, veh/h	9	150	31	18	220	328	74	274	41	165	155	9
Future Vol, veh/h	9	150	31	18	220	328	74	274	41	165	155	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	200	0	-	-	250	-	205
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	176	36	21	259	386	87	322	48	194	182	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1413	1114	182	1202	1101	346	193	0	0	370	0	0
Stage 1	570	570	-	520	520	-	-	-	-	-	-	-
Stage 2	843	544	-	682	581	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	115	208	861	161	~ 212	697	1380	-	-	1189	-	-
Stage 1	506	505	-	539	532	-	-	-	-	-	-	-
Stage 2	358	519	-	440	500	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	- ~ 163	861	- ~ 166	697	1380	-	-	1189	-	-	-	-
Mov Cap-2 Maneuver	- ~ 163	-	- ~ 166	-	-	-	-	-	-	-	-	-
Stage 1	474	423	-	505	498	-	-	-	-	-	-	-
Stage 2	72	486	-	206	419	-	-	-	-	-	-	-












Approach	EB	WB	NB	SB
HCM Control Delay, s			1.5	4.3
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1380	-	-	-	697	1189	-
HCM Lane V/C Ratio	0.063	-	-	-	0.554	0.163	-
HCM Control Delay (s)	7.8	-	-	-	16.4	8.6	-
HCM Lane LOS	A	-	-	-	C	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	3.4	0.6	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 6th TWSC
1: Eastonville Rd & Rex Road

2026 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	8.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	5	270	7	14	4	103	19	9	2	28	1
Future Vol, veh/h	4	5	270	7	14	4	103	19	9	2	28	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	205	200	-	-	250	-	205	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	6	318	8	16	5	121	22	11	2	33	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	318	313	34	464	302	22	34	0	0	33	0	0
Stage 1	38	38	-	264	264	-	-	-	-	-	-	-
Stage 2	280	275	-	200	38	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	635	602	1039	508	611	1055	1578	-	-	1579	-	-
Stage 1	977	863	-	741	690	-	-	-	-	-	-	-
Stage 2	727	683	-	802	863	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	582	555	1039	329	563	1055	1578	-	-	1579	-	-
Mov Cap-2 Maneuver	582	555	-	329	563	-	-	-	-	-	-	-
Stage 1	902	862	-	684	637	-	-	-	-	-	-	-
Stage 2	651	630	-	552	862	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	12.4	5.9	0.5
HCM LOS	B	B		






Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1578	-	-	582	555	1039	329	628	1579	-	-
HCM Lane V/C Ratio	0.077	-	-	0.008	0.011	0.306	0.025	0.034	0.001	-	-
HCM Control Delay (s)	7.5	-	-	11.2	11.6	10	16.2	10.9	7.3	-	-
HCM Lane LOS	A	-	-	B	B	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0	0	1.3	0.1	0.1	0	-	-

HCM 6th TWSC
2: Parcel A & B & Rex Rd

2026 Total Traffic
AM Peak Hour

Intersection







Int Delay, s/veh 5.4







Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	16	0	0	26	0
Future Vol, veh/h	0	16	0	0	26	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	-	-	205	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	19	0	0	31	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	19
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	-	-	1597
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1597
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	924	-	-	-	1597	-
HCM Lane V/C Ratio	0.033	-	-	-	-	-
HCM Control Delay (s)	9	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	-	0	-

Intersection						
Int Delay, s/veh	4.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	210	14	118	70	5	301
Future Vol, veh/h	210	14	118	70	5	301
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	0	-	155	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	247	16	139	82	6	354
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	505	139	0	0	221	0
Stage 1	139	-	-	-	-	-
Stage 2	366	-	-	-	-	-
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	527	909	-	-	1348	-
Stage 1	888	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	525	909	-	-	1348	-
Mov Cap-2 Maneuver	587	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	15.1	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 587 909	1348	-		
HCM Lane V/C Ratio	-	- 0.421 0.018	0.004	-		
HCM Control Delay (s)	-	- 15.5 9	7.7	-		
HCM Lane LOS	-	- C A	A	-		
HCM 95th %tile Q(veh)	-	- 2.1 0.1	0	-		







Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	8	180	19	3	508
Future Vol, veh/h	57	8	180	19	3	508
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	115	-	155	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	9	212	22	4	598
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	818	212	0	0	234	0
Stage 1	212	-	-	-	-	-
Stage 2	606	-	-	-	-	-
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	346	828	-	-	1333	-
Stage 1	823	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	345	828	-	-	1333	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	823	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	14	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 443 828	1333	-		
HCM Lane V/C Ratio	-	- 0.151 0.011	0.003	-		
HCM Control Delay (s)	-	- 14.6 9.4	7.7	-		
HCM Lane LOS	-	- B A	A	-		
HCM 95th %tile Q(veh)	-	- 0.5 0	0	-		

HCM 6th TWSC
12: Eastonville Rd & Londonderry Dr

2026 Total Traffic
AM Peak Hour

Intersection

Int Delay, s/veh 8.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	299	224	177	524	41
Future Vol, veh/h	22	299	224	177	524	41
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	0	250	-	-	205
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	352	264	208	616	48









Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1352	616	664
Stage 1	616	-	-
Stage 2	736	-	-
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	165	491	925
Stage 1	539	-	-
Stage 2	474	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	118	491	925
Mov Cap-2 Maneuver	247	-	-
Stage 1	385	-	-
Stage 2	474	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.2	5.8	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	925	-	247	491	-	-
HCM Lane V/C Ratio	0.285	-	0.105	0.716	-	-
HCM Control Delay (s)	10.4	-	21.3	28.7	-	-
HCM Lane LOS	B	-	C	D	-	-
HCM 95th %tile Q(veh)	1.2	-	0.3	5.7	-	-



















HCM 6th TWSC
13: Eastonville Rd & Stapleton Dr

2026 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	200	57	24	158	148	70	214	16	402	315	105
Future Vol, veh/h	38	200	57	24	158	148	70	214	16	402	315	105
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	200	0	-	-	250	-	205
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	235	67	28	186	174	82	252	19	473	371	124
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1923	1752	371	1956	1867	262	495	0	0	271	0	0
Stage 1	1317	1317	-	426	426	-	-	-	-	-	-	-
Stage 2	606	435	-	1530	1441	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	51	~ 85	675	48	~ 73	777	1069	-	-	1292	-	-
Stage 1	194	~ 227	-	606	586	-	-	-	-	-	-	-
Stage 2	484	580	-	146	198	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 50	675	-	~ 43	777	1069	-	-	1292	-	-
Mov Cap-2 Maneuver	-	~ 50	-	-	~ 43	-	-	-	-	-	-	-
Stage 1	179	~ 144	-	559	541	-	-	-	-	-	-	-
Stage 2	228	535	-	-	~ 126	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s					2		4.6					
HCM LOS	-		-									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR					
Capacity (veh/h)	1069	-	-	-	-	777	1292	-	-			
HCM Lane V/C Ratio	0.077	-	-	-	-	0.224	0.366	-	-			
HCM Control Delay (s)	8.6	-	-	-	-	11	9.4	-	-			
HCM Lane LOS	A	-	-	-	-	B	A	-	-			
HCM 95th %tile Q(veh)	0.2	-	-	-	-	0.9	1.7	-	-			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Timings
13: Eastonville Rd & Stapleton Dr

2026 Total Traffic
AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	38	200	24	158	148	70	214	402	315	105
Future Volume (vph)	38	200	24	158	148	70	214	402	315	105
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		2		6		3	8	7	4	
Permitted Phases	2		6		6	8		4		4
Detector Phase	2	2	6	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
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	9.0	21.0	9.0	21.0	21.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0	10.0	25.0	20.0	35.0	35.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	11.1%	27.8%	22.2%	38.9%	38.9%
Yellow Time (s)	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
Lost Time Adjust (s)		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
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)		17.7		17.7	17.7	19.2	14.0	34.5	26.8	26.8
Actuated g/C Ratio		0.28		0.28	0.28	0.31	0.22	0.55	0.43	0.43
v/c Ratio		0.71		0.44	0.30	0.22	0.65	0.75	0.46	0.17
Control Delay		28.0		21.7	4.8	11.2	30.4	19.8	17.3	3.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		28.0		21.7	4.8	11.2	30.4	19.8	17.3	3.9
LOS		C		C	A	B	C	B	B	A
Approach Delay		28.0		14.1			26.0		16.8	
Approach LOS		C		B			C		B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 62.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 19.7

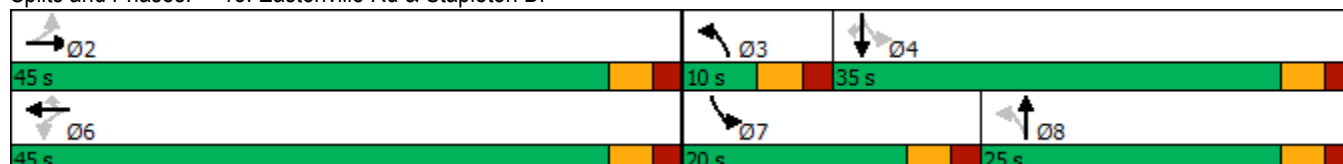
Intersection LOS: B













Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 13: Eastonville Rd & Stapleton Dr



Intersection												
Int Delay, s/veh	8.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	16	191	11	10	2	307	34	10	3	21	8
Future Vol, veh/h	9	16	191	11	10	2	307	34	10	3	21	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	205	200	-	-	250	-	205	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	19	225	13	12	2	361	40	12	4	25	9






Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	813	812	30	922	804	40	34	0	0	52	0	0
Stage 1	38	38	-	762	762	-	-	-	-	-	-	-
Stage 2	775	774	-	160	42	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	297	313	1044	251	316	1031	1578	-	-	1554	-	-
Stage 1	977	863	-	397	414	-	-	-	-	-	-	-
Stage 2	391	408	-	842	860	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	235	241	1044	153	243	1031	1578	-	-	1554	-	-
Mov Cap-2 Maneuver	235	241	-	153	243	-	-	-	-	-	-	-
Stage 1	753	860	-	306	319	-	-	-	-	-	-	-
Stage 2	290	315	-	645	857	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.8		24.4		7		0.7	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1578	-	-	235	241	1044	153	278	1554	-	-
HCM Lane V/C Ratio	0.229	-	-	0.045	0.078	0.215	0.085	0.051	0.002	-	-
HCM Control Delay (s)	8	-	-	21	21.2	9.4	30.7	18.6	7.3	-	-
HCM Lane LOS	A	-	-	C	C	A	D	C	A	-	-
HCM 95th %tile Q(veh)	0.9	-	-	0.1	0.3	0.8	0.3	0.2	0	-	-

Intersection

Int Delay, s/veh 3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	29	0	0	23	0
Future Vol, veh/h	0	29	0	0	23	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	-	-	205	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	0	0	27	0







Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	34
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	-	-	1578
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1578
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	917	-	-	-	1578	-
HCM Lane V/C Ratio	0.03	-	-	-	-	-
HCM Control Delay (s)	9	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	-	0	-

Intersection







Int Delay, s/veh 2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	138	8	355	236	15	208
Future Vol, veh/h	138	8	355	236	15	208
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	0	-	155	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	162	9	418	278	18	245

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	699	418	0
Stage 1	418	-	-
Stage 2	281	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	406	635	-
Stage 1	664	-	-
Stage 2	767	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	398	635	-
Mov Cap-2 Maneuver	502	-	-
Stage 1	664	-	-
Stage 2	752	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 502 635	900	-
HCM Lane V/C Ratio	-	- 0.323 0.015	0.02	-
HCM Control Delay (s)	-	- 15.6 10.8	9.1	-
HCM Lane LOS	-	- C B	A	-
HCM 95th %tile Q(veh)	-	- 1.4 0	0.1	-







Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	5	585	63	9	337
Future Vol, veh/h	37	5	585	63	9	337
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	115	-	155	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	6	688	74	11	396
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1106	688	0	0	762	0
Stage 1	688	-	-	-	-	-
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	233	446	-	-	850	-
Stage 1	499	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	230	446	-	-	850	-
Mov Cap-2 Maneuver	360	-	-	-	-	-
Stage 1	499	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	16	0	0.2			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 360 446	850	-		
HCM Lane V/C Ratio	-	- 0.121 0.013	0.012	-		
HCM Control Delay (s)	-	- 16.4 13.2	9.3	-		
HCM Lane LOS	-	- C B	A	-		
HCM 95th %tile Q(veh)	-	- 0.4 0	0	-		

HCM 6th TWSC
12: Eastonville Rd & Londonderry Dr

2026 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	161	306	606	348	26
Future Vol, veh/h	43	161	306	606	348	26
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	0	250	-	-	205
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	189	360	713	409	31

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1842	409	440
Stage 1	409	-	-
Stage 2	1433	-	-
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	83	642	1120
Stage 1	671	-	-
Stage 2	220	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	56	642	1120
Mov Cap-2 Maneuver	157	-	-
Stage 1	456	-	-
Stage 2	220	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.3	3.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1120	-	157	642	-	-
HCM Lane V/C Ratio	0.321	-	0.322	0.295	-	-
HCM Control Delay (s)	9.7	-	38.5	12.9	-	-
HCM Lane LOS	A	-	E	B	-	-
HCM 95th %tile Q(veh)	1.4	-	1.3	1.2	-	-

HCM 6th TWSC
13: Eastonville Rd & Stapleton Dr

2026 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕	↕↕	↕↕	↕↕		↕↕	↕↕	↕↕
Traffic Vol, veh/h	113	150	31	18	220	434	74	365	41	229	209	70
Future Vol, veh/h	113	150	31	18	220	434	74	365	41	229	209	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	200	0	-	-	250	-	205
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	133	176	36	21	259	511	87	429	48	269	246	82

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1796	1435	246	1558	1493	453	328	0	0	477	0	0
Stage 1	784	784	-	627	627	-	-	-	-	-	-	-
Stage 2	1012	651	-	931	866	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 62	~ 134	793	91	~ 123	607	1232	-	-	1085	-	-
Stage 1	386	404	-	471	476	-	-	-	-	-	-	-
Stage 2	288	465	-	320	370	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	~ 94	793	-	~ 86	607	1232	-	-	1085	-	-
Mov Cap-2 Maneuver	-	~ 94	-	-	~ 86	-	-	-	-	-	-	-
Stage 1	359	304	-	438	442	-	-	-	-	-	-	-
Stage 2	~ 18	432	-	96	278	-	-	-	-	-	-	-



















Approach	EB	WB	NB	SB
HCM Control Delay, s			1.3	4.2
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1232	-	-	-	607	1085	-
HCM Lane V/C Ratio	0.071	-	-	-	0.841	0.248	-
HCM Control Delay (s)	8.1	-	-	-	34.5	9.4	-
HCM Lane LOS	A	-	-	-	D	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	9.1	1	-

Notes			
~: Volume exceeds capacity	\$. Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Timings
13: Eastonville Rd & Stapleton Dr

2026 Total Traffic
PM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	113	150	18	220	434	74	365	229	209	70
Future Volume (vph)	113	150	18	220	434	74	365	229	209	70
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		2		6		3	8	7	4	
Permitted Phases	2		6		6	8		4		4
Detector Phase	2	2	6	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
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	9.0	21.0	9.0	21.0	21.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0	10.0	33.0	12.0	35.0	35.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	11.1%	36.7%	13.3%	38.9%	38.9%
Yellow Time (s)	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
Lost Time Adjust (s)		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
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)		23.5		23.5	23.5	27.5	22.3	32.5	27.2	27.2
Actuated g/C Ratio		0.34		0.34	0.34	0.40	0.32	0.47	0.40	0.40
v/c Ratio		0.84		0.46	0.68	0.17	0.80	0.80	0.33	0.12
Control Delay		40.2		20.4	12.3	12.2	33.8	34.6	19.1	5.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.2		20.4	12.3	12.2	33.8	34.6	19.1	5.0
LOS		D		C	B	B	C	C	B	A
Approach Delay		40.2		15.2			30.4		24.2	
Approach LOS		D		B			C		C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 68.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 25.0

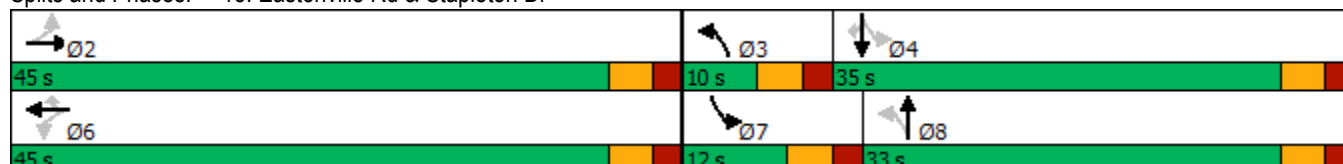
Intersection LOS: C

Intersection Capacity Utilization 79.7%

ICU Level of Service D













Analysis Period (min) 15

Splits and Phases: 13: Eastonville Rd & Stapleton Dr



HCM 6th TWSC
1: Eastonville Rd & Rex Rd

2040 Background Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	192.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	183	148	314	218	25	93	100	181	24	210	59
Future Vol, veh/h	23	183	148	314	218	25	93	100	181	24	210	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	155	350	-	155	315	-	155	205	-	155
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	24	193	156	331	229	26	98	105	191	25	221	62





Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	795	763	221	778	634	105	283	0	0	296	0	0
Stage 1	271	271	-	301	301	-	-	-	-	-	-	-
Stage 2	524	492	-	477	333	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	305	334	819	~ 314	397	949	1279	-	-	1265	-	-
Stage 1	735	685	-	708	665	-	-	-	-	-	-	-
Stage 2	537	548	-	569	644	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	135	302	819	~ 116	359	949	1279	-	-	1265	-	-
Mov Cap-2 Maneuver	135	302	-	~ 116	359	-	-	-	-	-	-	-
Stage 1	678	671	-	653	614	-	-	-	-	-	-	-
Stage 2	302	506	-	~ 322	631	-	-	-	-	-	-	-







Approach	EB	WB	NB	SB
HCM Control Delay, s	25.2	\$ 527.6	2	0.6
HCM LOS	D	F		







Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1279	-	-	135	302	819	116	359	949	1265	-	-
HCM Lane V/C Ratio	0.077	-	-	0.179	0.638	0.19	2.849	0.639	0.028	0.02	-	-
HCM Control Delay (s)	8	-	-	37.4	35.7	10.4	\$ 913.6	31.2	8.9	7.9	-	-
HCM Lane LOS	A	-	-	E	E	B	F	D	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	4.1	0.7	30.8	4.2	0.1	0.1	-	-







Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined							*: All major volume in platoon			

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Vol, veh/h	377	11	19	536	21	55
Future Vol, veh/h	377	11	19	536	21	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	155	230	-	0	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	397	12	20	564	22	58
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	409	0	1001	397
Stage 1	-	-	-	-	397	-
Stage 2	-	-	-	-	604	-
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	-	-	1150	-	269	652
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	546	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1150	-	264	652
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	537	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		12.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	391	652	-	-	1150	-
HCM Lane V/C Ratio	0.057	0.089	-	-	0.017	-
HCM Control Delay (s)	14.8	11.1	-	-	8.2	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	430	550	7	20	5
Future Vol, veh/h	2	430	550	7	20	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	255	-	-	-	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	2	467	598	8	22	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	606	0	-	0	1073	602
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	471	-
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	972	-	-	-	244	500
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	972	-	-	-	244	500
Mov Cap-2 Maneuver	-	-	-	-	377	-
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	628	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		14.7		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	972	-	-	-	397	
HCM Lane V/C Ratio	0.002	-	-	-	0.068	
HCM Control Delay (s)	8.7	-	-	-	14.7	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	





























Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	0	375	9	0	675
Future Vol, veh/h	40	0	375	9	0	675
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	0	-	155	205	-
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	42	0	395	9	0	711
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1106	395	0	0	404	0
Stage 1	395	-	-	-	-	-
Stage 2	711	-	-	-	-	-
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	233	654	-	-	1155	-
Stage 1	681	-	-	-	-	-
Stage 2	487	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	233	654	-	-	1155	-
Mov Cap-2 Maneuver	361	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	487	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	16.3	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 361	-	1155	-	
HCM Lane V/C Ratio	-	- 0.117	-	-	-	
HCM Control Delay (s)	-	- 16.3	0	0	-	
HCM Lane LOS	-	- C	A	A	-	
HCM 95th %tile Q(veh)	-	- 0.4	-	0	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	14	370	0	5	710
Future Vol, veh/h	0	14	370	0	5	710
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	115	-	155	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	435	0	6	835
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1282	435	0	0	435	0
Stage 1	435	-	-	-	-	-
Stage 2	847	-	-	-	-	-
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	182	621	-	-	1125	-
Stage 1	653	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	181	621	-	-	1125	-
Mov Cap-2 Maneuver	309	-	-	-	-	-
Stage 1	653	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11	0	0.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	621	1125	-	
HCM Lane V/C Ratio	-	-	0.027	0.005	-	
HCM Control Delay (s)	-	-	0	11	8.2	
HCM Lane LOS	-	-	A	B	A	
HCM 95th %tile Q(veh)	-	-	-	0.1	0	

Intersection						
Int Delay, s/veh	9.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	306	227	301	702	108
Future Vol, veh/h	66	306	227	301	702	108
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	0	0	-	-	155
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	69	322	239	317	739	114
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1534	739	853	0	-	0
Stage 1	739	-	-	-	-	-
Stage 2	795	-	-	-	-	-
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	128	417	786	-	-	-
Stage 1	472	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	89	417	786	-	-	-
Mov Cap-2 Maneuver	212	-	-	-	-	-
Stage 1	329	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	36.1	5		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	786	-	212	417	-	-
HCM Lane V/C Ratio	0.304	-	0.328	0.772	-	-
HCM Control Delay (s)	11.6	-	30	37.4	-	-
HCM Lane LOS	B	-	D	E	-	-
HCM 95th %tile Q(veh)	1.3	-	1.4	6.6	-	-

Timings 13: Eastonville Rd & Stapleton Dr

2040 Background Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 					 		
Traffic Volume (vph)	142	704	224	129	595	84	196	303	169	209	464	335
Future Volume (vph)	142	704	224	129	595	84	196	303	169	209	464	335
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	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	4.0
Minimum Split (s)	8.0	21.0	21.0	8.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	12.0	29.0	29.0	12.0	29.0	29.0	13.0	45.0	45.0	14.0	46.0	46.0
Total Split (%)	12.0%	29.0%	29.0%	12.0%	29.0%	29.0%	13.0%	45.0%	45.0%	14.0%	46.0%	46.0%
Yellow Time (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.5	2.0	2.0	0.5	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	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	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	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	7.8	22.4	22.4	31.2	22.4	22.4	36.7	28.6	28.6	38.5	29.6	29.6
Actuated g/C Ratio	0.09	0.26	0.26	0.36	0.26	0.26	0.42	0.33	0.33	0.44	0.34	0.34
v/c Ratio	0.49	0.82	0.41	0.55	0.69	0.18	0.68	0.52	0.28	0.50	0.77	0.49
Control Delay	46.2	40.1	6.5	28.3	34.9	3.6	26.4	26.8	4.4	17.5	34.7	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	40.1	6.5	28.3	34.9	3.6	26.4	26.8	4.4	17.5	34.7	7.3
LOS	D	D	A	C	C	A	C	C	A	B	C	A
Approach Delay		33.9			30.6			21.0			22.0	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 87.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 27.4









Intersection LOS: C

Intersection Capacity Utilization 77.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 13: Eastonville Rd & Stapleton Dr

 Ø1	 Ø2	 Ø3	 Ø4
12 s	29 s	13 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
12 s	29 s	14 s	45 s

Intersection												
Int Delay, s/veh	38.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Vol, veh/h	77	277	67	195	243	21	75	248	310	25	163	48
Future Vol, veh/h	77	277	67	195	243	21	75	248	310	25	163	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	155	350	-	155	315	-	155	205	-	155
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	81	292	71	205	256	22	79	261	326	26	172	51

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	945	969	172	850	694	261	223	0	0	587	0	0
Stage 1	224	224	-	419	419	-	-	-	-	-	-	-
Stage 2	721	745	-	431	275	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	242	~ 254	872	280	366	778	1346	-	-	988	-	-
Stage 1	779	718	-	612	590	-	-	-	-	-	-	-
Stage 2	419	421	-	603	683	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	83	~ 233	872	-	336	778	1346	-	-	988	-	-
Mov Cap-2 Maneuver	83	~ 233	-	-	336	-	-	-	-	-	-	-
Stage 1	733	699	-	576	555	-	-	-	-	-	-	-
Stage 2	207	396	-	315	665	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	157.1		0.9	0.9
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1346	-	-	83	233	872	-	336	778	988	-	-
HCM Lane V/C Ratio	0.059	-	-	0.977	1.251	0.081	-	0.761	0.028	0.027	-	-
HCM Control Delay (s)	7.8	-	-	181.3	186.1	9.5	-	43	9.8	8.7	-	-
HCM Lane LOS	A	-	-	F	F	A	-	E	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	5.4	14.7	0.3	-	6	0.1	0.1	-	-

Notes												
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon			

Intersection

Int Delay, s/veh 1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	575	37	54	445	14	32
Future Vol, veh/h	575	37	54	445	14	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	155	230	-	0	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	605	39	57	468	15	34





Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	644
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	-	-	941
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	941
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-







Approach	EB	WB	NB
HCM Control Delay, s	0	1	13.9
HCM LOS			B







Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	333	498	-	-	941	-
HCM Lane V/C Ratio	0.044	0.068	-	-	0.06	-
HCM Control Delay (s)	16.3	12.8	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.2	-







HCM 6th TWSC
3: Rex Rd & Future Four-Way Ranch Access

2040 Background Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	601	495	21	12	3
Future Vol, veh/h	6	601	495	21	12	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	255	-	-	-	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	7	653	538	23	13	3
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	561	0	-	0	1217	550
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	667	-
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	1010	-	-	-	200	535
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	510	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1010	-	-	-	199	535
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	510	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		15.4		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1010	-	-	-	364	
HCM Lane V/C Ratio	0.006	-	-	-	0.045	
HCM Control Delay (s)	8.6	-	-	-	15.4	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

























Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	0	661	34	0	431
Future Vol, veh/h	28	0	661	34	0	431
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	0	-	155	205	-
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	29	0	696	36	0	454
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1150	696	0	0	732	0
Stage 1	696	-	-	-	-	-
Stage 2	454	-	-	-	-	-
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	219	442	-	-	873	-
Stage 1	495	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	219	442	-	-	873	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	495	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	16.2	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 352	-	873	-	
HCM Lane V/C Ratio	-	- 0.084	-	-	-	
HCM Control Delay (s)	-	- 16.2	0	0	-	
HCM Lane LOS	-	- C	A	A	-	
HCM 95th %tile Q(veh)	-	- 0.3	-	0	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	9	686	0	16	443
Future Vol, veh/h	0	9	686	0	16	443
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	115	-	155	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	807	0	19	521
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1366	807	0	0	807	0
Stage 1	807	-	-	-	-	-
Stage 2	559	-	-	-	-	-
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	162	381	-	-	818	-
Stage 1	439	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	158	381	-	-	818	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	439	-	-	-	-	-
Stage 2	559	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	14.7	0	0.3			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	381	818	-	
HCM Lane V/C Ratio	-	-	0.028	0.023	-	
HCM Control Delay (s)	-	-	0	14.7	9.5	-
HCM Lane LOS	-	-	A	B	A	-
HCM 95th %tile Q(veh)	-	-	-	0.1	0.1	-

Intersection						
Int Delay, s/veh	7.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	120	155	311	667	395	77
Future Vol, veh/h	120	155	311	667	395	77
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	0	0	-	-	155
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	126	163	327	702	416	81
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1772	416	497	0	-	0
Stage 1	416	-	-	-	-	-
Stage 2	1356	-	-	-	-	-
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	~ 91	637	1067	-	-	-
Stage 1	666	-	-	-	-	-
Stage 2	240	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 63	637	1067	-	-	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	462	-	-	-	-	-
Stage 2	240	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	38.3	3.1		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1067	-	169	637	-	-
HCM Lane V/C Ratio	0.307	-	0.747	0.256	-	-
HCM Control Delay (s)	9.9	-	71.4	12.6	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	1.3	-	4.7	1	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Timings
13: Eastonville Rd & Stapleton Dr

2040 Background Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	537	165	181	764	212	270	417	181	95	244	211
Future Volume (vph)	349	537	165	181	764	212	270	417	181	95	244	211
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	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	4.0
Minimum Split (s)	8.0	21.0	21.0	8.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	19.0	38.0	38.0	12.0	31.0	31.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	19.0%	38.0%	38.0%	12.0%	31.0%	31.0%	14.0%	36.0%	36.0%	14.0%	36.0%	36.0%
Yellow Time (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.5	2.0	2.0	0.5	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	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	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	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	13.6	29.9	29.9	33.3	24.3	24.3	34.9	28.2	28.2	32.3	24.1	24.1
Actuated g/C Ratio	0.15	0.33	0.33	0.37	0.27	0.27	0.38	0.31	0.31	0.36	0.27	0.27
v/c Ratio	0.71	0.48	0.27	0.52	0.85	0.38	0.71	0.76	0.31	0.35	0.52	0.38
Control Delay	46.8	26.7	5.1	22.6	42.6	6.3	31.2	39.9	5.4	20.0	32.3	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	26.7	5.1	22.6	42.6	6.3	31.2	39.9	5.4	20.0	32.3	5.7
LOS	D	C	A	C	D	A	C	D	A	C	C	A
Approach Delay		30.0			32.8			30.0			20.0	
Approach LOS		C			C			C			B	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 90.7

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 29.4

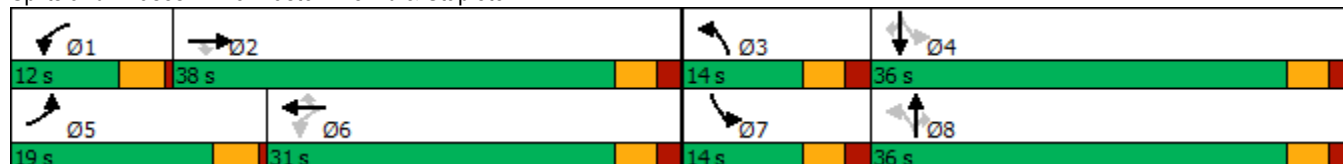
Intersection LOS: C

Intersection Capacity Utilization 74.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 13: Eastonville Rd & Stapleton Dr



HCM 6th TWSC
1: Eastonville Rd & Rex Rd

2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	254											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Vol, veh/h	23	189	153	317	235	27	108	102	187	24	211	59
Future Vol, veh/h	23	189	153	317	235	27	108	102	187	24	211	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	155	350	-	155	315	-	155	205	-	155
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	24	199	161	334	247	28	114	107	197	25	222	62

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	843	804	222	818	669	107	284	0	0	304	0	0
Stage 1	272	272	-	335	335	-	-	-	-	-	-	-
Stage 2	571	532	-	483	334	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	284	316	818	~ 295	379	947	1278	-	-	1257	-	-
Stage 1	734	685	-	679	643	-	-	-	-	-	-	-
Stage 2	506	526	-	565	643	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	103	282	818	~ 94	338	947	1278	-	-	1257	-	-
Mov Cap-2 Maneuver	103	282	-	~ 94	338	-	-	-	-	-	-	-
Stage 1	669	671	-	619	586	-	-	-	-	-	-	-
Stage 2	258	479	-	~ 313	630	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.1	\$ 696.5	2.2	0.6
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1278	-	-	103	282	818	94	338	947	1257	-	-
HCM Lane V/C Ratio	0.089	-	-	0.235	0.705	0.197	3.55	0.732	0.03	0.02	-	-
HCM Control Delay (s)	8.1	-	-	50.4	43.4	10.5	1241.8	39.9	8.9	7.9	-	-
HCM Lane LOS	A	-	-	F	E	B	F	E	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.8	4.9	0.7	33.7	5.5	0.1	0.1	-	-

Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined							*: All major volume in platoon			

HCM 6th Roundabout
1: Eastonville Rd & Rex Rd

2040 Total Traffic
AM Peak Hour

























Intersection				
Intersection Delay, s/veh	10.8			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	384	609	418	309
Demand Flow Rate, veh/h	391	622	426	315
Vehicles Circulating, veh/h	592	249	252	709
Vehicles Exiting, veh/h	431	429	731	162
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.6	11.0	7.7	12.6
Approach LOS	B	B	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	391	622	426	315
Cap Entry Lane, veh/h	754	1070	1067	670
Entry HV Adj Factor	0.982	0.979	0.981	0.980
Flow Entry, veh/h	384	609	418	309
Cap Entry, veh/h	741	1048	1047	656
V/C Ratio	0.518	0.581	0.399	0.470
Control Delay, s/veh	12.6	11.0	7.7	12.6
LOS	B	B	A	B
95th %tile Queue, veh	3	4	2	3

Timings

1: Eastonville Rd & Rex Rd

2040 Total Traffic

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	189	153	317	235	27	108	102	187	24	211	59
Future Volume (vph)	23	189	153	317	235	27	108	102	187	24	211	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	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	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	10.0	30.0	30.0	25.0	45.0	45.0	15.0	35.0	35.0	10.0	30.0	30.0
Total Split (%)	10.0%	30.0%	30.0%	25.0%	45.0%	45.0%	15.0%	35.0%	35.0%	10.0%	30.0%	30.0%
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	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	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	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	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	19.1	13.6	13.6	33.9	30.7	30.7	24.6	21.4	21.4	18.1	14.4	14.4
Actuated g/C Ratio	0.28	0.20	0.20	0.49	0.44	0.44	0.35	0.31	0.31	0.26	0.21	0.21
v/c Ratio	0.07	0.54	0.35	0.56	0.30	0.04	0.30	0.19	0.32	0.07	0.57	0.13
Control Delay	13.8	34.3	5.8	16.8	17.3	0.1	18.2	21.6	5.6	16.8	34.2	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	34.3	5.8	16.8	17.3	0.1	18.2	21.6	5.6	16.8	34.2	0.6
LOS	B	C	A	B	B	A	B	C	A	B	C	A
Approach Delay		21.1			16.2			13.2			26.0	
Approach LOS		C			B			B			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 69.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 18.3

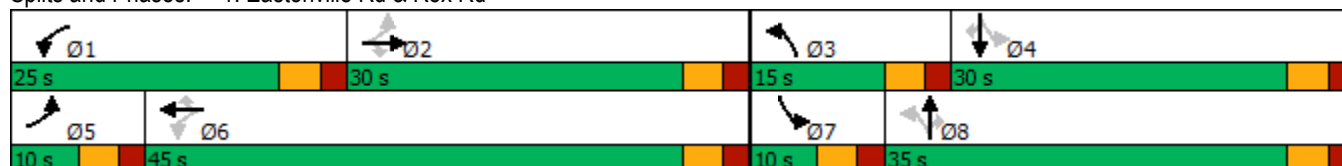
Intersection LOS: B

Intersection Capacity Utilization 61.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Eastonville Rd & Rex Rd



HCM 6th TWSC
2: Parcel A & B & Rex Rd

2040 Total Traffic
AM Peak Hour

Intersection

Int Delay, s/veh 2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	379	22	44	537	42	121
Future Vol, veh/h	379	22	44	537	42	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	155	230	-	0	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	399	23	46	565	44	127

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	422
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	-	-	1137
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1137
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	366	651	-	-	1137	-
HCM Lane V/C Ratio	0.121	0.196	-	-	0.041	-
HCM Control Delay (s)	16.2	11.9	-	-	8.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.7	-	-	0.1	-





HCM 6th Roundabout
2: Parcels A & B & Rex Rd







2040 Total Traffic
AM Peak Hour

Intersection			
Intersection Delay, s/veh	6.7		
Intersection LOS	A		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	422	611	171
Demand Flow Rate, veh/h	430	623	175
Vehicles Circulating, veh/h	47	45	407
Vehicles Exiting, veh/h	621	537	70
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.8	7.6	6.0
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	430	623	175
Cap Entry Lane, veh/h	1315	1318	911
Entry HV Adj Factor	0.981	0.980	0.977
Flow Entry, veh/h	422	611	171
Cap Entry, veh/h	1291	1292	890
V/C Ratio	0.327	0.473	0.192
Control Delay, s/veh	5.8	7.6	6.0
LOS	A	A	A
95th %tile Queue, veh	1	3	1

HCM 6th TWSC
3: Rex Rd & Future Four-Way Ranch Access

2040 Total Traffic
AM Peak Hour







Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	498	576	7	20	5
Future Vol, veh/h	2	498	576	7	20	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	255	-	-	-	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	2	541	626	8	22	5
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	634	0	-	0	1175	630
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	545	-
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	949	-	-	-	212	482
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	581	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	949	-	-	-	212	482
Mov Cap-2 Maneuver	-	-	-	-	349	-
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	581	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		15.5		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	949	-	-	-	369	
HCM Lane V/C Ratio	0.002	-	-	-	0.074	
HCM Control Delay (s)	8.8	-	-	-	15.5	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection						
Int Delay, s/veh	3.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	162	10	388	50	3	680
Future Vol, veh/h	162	10	388	50	3	680
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	0	-	155	205	-
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	171	11	408	53	3	716
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1130	408	0	0	461	0
Stage 1	408	-	-	-	-	-
Stage 2	722	-	-	-	-	-
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	225	643	-	-	1100	-
Stage 1	671	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	224	643	-	-	1100	-
Mov Cap-2 Maneuver	353	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	23.6	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 353 643 1100	-	-		
HCM Lane V/C Ratio	-	- 0.483 0.016 0.003	-	-		
HCM Control Delay (s)	-	- 24.4 10.7 8.3	-	-		
HCM Lane LOS	-	- C B A	-	-		
HCM 95th %tile Q(veh)	-	- 2.5 0.1 0	-	-		

Intersection			
Intersection Delay, s/veh	8.1		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	182	461	719
Demand Flow Rate, veh/h	185	470	733
Vehicles Circulating, veh/h	416	3	174
Vehicles Exiting, veh/h	57	904	427
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.4	5.5	10.4
Approach LOS	A	A	B
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.535	2.535	2.535
Critical Headway, s	4.328	4.328	4.328
Entry Flow, veh/h	185	470	733
Cap Entry Lane, veh/h	997	1417	1225
Entry HV Adj Factor	0.984	0.981	0.980
Flow Entry, veh/h	182	461	719
Cap Entry, veh/h	981	1389	1201
V/C Ratio	0.186	0.332	0.598
Control Delay, s/veh	5.4	5.5	10.4
LOS	A	A	B
95th %tile Queue, veh	1	1	4

HCM 6th TWSC
11: Eastonville Rd & Parcels E & F







2040 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	24	414	19	8	834
Future Vol, veh/h	55	24	414	19	8	834
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	115	-	155	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	28	487	22	9	981
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1486	487	0	0	509	0
Stage 1	487	-	-	-	-	-
Stage 2	999	-	-	-	-	-
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	137	581	-	-	1056	-
Stage 1	618	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	136	581	-	-	1056	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	618	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	19.7	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 261 581 1056		-		
HCM Lane V/C Ratio	-	- 0.248 0.049 0.009		-		
HCM Control Delay (s)	-	- 23.3 11.5 8.4		-		
HCM Lane LOS	-	- C B A		-		
HCM 95th %tile Q(veh)	-	- 1 0.2 0		-		

Intersection			
Intersection Delay, s/veh	12.3		
Intersection LOS	B		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	93	509	990
Demand Flow Rate, veh/h	95	519	1010
Vehicles Circulating, veh/h	497	9	66
Vehicles Exiting, veh/h	31	1067	526
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.6	6.2	16.1
Approach LOS	A	A	C
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	95	519	1010
Cap Entry Lane, veh/h	831	1367	1290
Entry HV Adj Factor	0.979	0.981	0.981
Flow Entry, veh/h	93	509	990
Cap Entry, veh/h	814	1342	1265
V/C Ratio	0.114	0.380	0.783
Control Delay, s/veh	5.6	6.2	16.1
LOS	A	A	C
95th %tile Queue, veh	0	2	9

HCM 6th TWSC
12: Eastonville Rd & Londonderry Dr

2040 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	15.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	69	306	227	361	875	114
Future Vol, veh/h	69	306	227	361	875	114
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	0	0	-	-	155
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	73	322	239	380	921	120
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1779	921	1041	0	-	0
Stage 1	921	-	-	-	-	-
Stage 2	858	-	-	-	-	-
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	90	328	668	-	-	-
Stage 1	388	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 58	328	668	-	-	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	74.4	5.2		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	668	-	167	328	-	-
HCM Lane V/C Ratio	0.358	-	0.435	0.982	-	-
HCM Control Delay (s)	13.4	-	42.2	81.7	-	-
HCM Lane LOS	B	-	E	F	-	-
HCM 95th %tile Q(veh)	1.6	-	2	10.6	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						













HCM 6th Roundabout
12: Eastonville Rd & Londonderry Dr

2040 Total Traffic
AM Peak Hour

Intersection						
Intersection Delay, s/veh	8.4					
Intersection LOS	A					
Approach	EB		NB		SB	
Entry Lanes	2		2		2	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	395		619		1041	
Demand Flow Rate, veh/h	402		632		1061	
Vehicles Circulating, veh/h	939		74		244	
Vehicles Exiting, veh/h	366		1267		462	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	13.1		5.0		8.6	
Approach LOS	B		A		A	
Lane	Left	Right	Left	Right	Left	Right
Designated Moves	L	TR	L	TR	LT	TR
Assumed Moves	L	TR	L	TR	LT	TR
RT Channelized						
Lane Util	0.184	0.816	0.386	0.614	0.470	0.530
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	74	328	244	388	499	562
Cap Entry Lane, veh/h	569	639	1261	1334	1078	1154
Entry HV Adj Factor	0.986	0.982	0.980	0.980	0.980	0.981
Flow Entry, veh/h	73	322	239	380	489	552
Cap Entry, veh/h	561	628	1235	1307	1057	1133
V/C Ratio	0.130	0.513	0.193	0.291	0.463	0.487
Control Delay, s/veh	8.0	14.2	4.6	5.3	8.6	8.6
LOS	A	B	A	A	A	A
95th %tile Queue, veh	0	3	1	1	2	3

Timings 12: Eastonville Rd & Londonderry Dr

2040 Total Traffic
AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	69	306	227	361	875	114
Future Volume (vph)	69	306	227	361	875	114
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	9.0	21.0	21.0	21.0
Total Split (s)	25.0	25.0	20.0	75.0	55.0	55.0
Total Split (%)	25.0%	25.0%	20.0%	75.0%	55.0%	55.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	9.5	9.5	67.6	67.6	48.5	48.5
Actuated g/C Ratio	0.11	0.11	0.78	0.78	0.56	0.56
v/c Ratio	0.38	0.70	0.64	0.26	0.89	0.13
Control Delay	42.7	13.4	25.1	3.6	30.5	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	13.4	25.1	3.6	30.5	5.5
LOS	D	B	C	A	C	A
Approach Delay	18.8			11.9	27.6	
Approach LOS	B			B	C	

Intersection Summary

























Cycle Length: 100
 Actuated Cycle Length: 87.2
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 21.2
 Intersection LOS: C
 Intersection Capacity Utilization 75.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 12: Eastonville Rd & Londonderry Dr



Timings
13: Eastonville Rd & Stapleton Dr

2040 Total Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	704	224	129	595	108	196	321	169	282	516	382
Future Volume (vph)	159	704	224	129	595	108	196	321	169	282	516	382
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	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	4.0
Minimum Split (s)	8.0	21.0	21.0	8.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	12.0	29.0	29.0	12.0	29.0	29.0	13.0	45.0	45.0	14.0	46.0	46.0
Total Split (%)	12.0%	29.0%	29.0%	12.0%	29.0%	29.0%	13.0%	45.0%	45.0%	14.0%	46.0%	46.0%
Yellow Time (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.5	2.0	2.0	0.5	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	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	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	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	7.8	22.6	22.6	31.4	22.6	22.6	39.7	31.6	31.6	41.9	32.7	32.7
Actuated g/C Ratio	0.09	0.25	0.25	0.35	0.25	0.25	0.44	0.35	0.35	0.46	0.36	0.36
v/c Ratio	0.56	0.84	0.41	0.57	0.71	0.24	0.74	0.52	0.27	0.67	0.81	0.54
Control Delay	49.9	43.1	6.7	30.6	37.1	6.8	31.0	26.3	4.2	22.6	36.2	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	43.1	6.7	30.6	37.1	6.8	31.0	26.3	4.2	22.6	36.2	9.6
LOS	D	D	A	C	D	A	C	C	A	C	D	A
Approach Delay		36.6			32.2			22.2			24.4	
Approach LOS		D			C			C			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 90.5

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 29.2









Intersection LOS: C

Intersection Capacity Utilization 80.5%

ICU Level of Service D













Analysis Period (min) 15

Splits and Phases: 13: Eastonville Rd & Stapleton Dr

			
Ø1	Ø2	Ø3	Ø4
12 s	29 s	13 s	46 s
			
Ø5	Ø6	Ø7	Ø8
12 s	29 s	14 s	45 s

HCM 6th TWSC
1: Eastonville Rd & Rex Rd

2040 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	54.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	294	83	204	254	22	84	249	317	27	165	48
Future Vol, veh/h	77	294	83	204	254	22	84	249	317	27	165	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	155	350	-	155	315	-	155	205	-	155
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	81	309	87	215	267	23	88	262	334	28	174	51

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	980	1002	174	892	719	262	225	0	0	596	0	0
Stage 1	230	230	-	438	438	-	-	-	-	-	-	-
Stage 2	750	772	-	454	281	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	229	~ 242	869	263	354	777	1344	-	-	980	-	-
Stage 1	773	714	-	597	579	-	-	-	-	-	-	-
Stage 2	403	409	-	586	678	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 63	~ 220	869	-	321	777	1344	-	-	980	-	-
Mov Cap-2 Maneuver	~ 63	~ 220	-	-	321	-	-	-	-	-	-	-
Stage 1	723	693	-	558	541	-	-	-	-	-	-	-
Stage 2	185	382	-	283	658	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	217.7		1	1
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1344	-	-	63	220	869	-	321	777	980	-	-
HCM Lane V/C Ratio	0.066	-	-	1.287	1.407	0.101	-	0.833	0.03	0.029	-	-
HCM Control Delay (s)	7.9	-	-	\$ 319.6	249.7	9.6	-	53.6	9.8	8.8	-	-
HCM Lane LOS	A	-	-	F	F	A	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	6.8	17.7	0.3	-	7.2	0.1	0.1	-	-

Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

HCM 6th Roundabout
1: Eastonville Rd & Rex Rd

2040 Total Traffic
PM Peak Hour

























Intersection				
Intersection Delay, s/veh	14.9			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	477	505	684	253
Demand Flow Rate, veh/h	487	514	698	258
Vehicles Circulating, veh/h	425	440	427	581
Vehicles Exiting, veh/h	414	685	485	373
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.6	12.7	21.1	9.0
Approach LOS	B	B	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	487	514	698	258
Cap Entry Lane, veh/h	895	881	893	763
Entry HV Adj Factor	0.979	0.982	0.980	0.979
Flow Entry, veh/h	477	505	684	253
Cap Entry, veh/h	876	865	874	747
V/C Ratio	0.544	0.583	0.782	0.338
Control Delay, s/veh	11.6	12.7	21.1	9.0
LOS	B	B	C	A
95th %tile Queue, veh	3	4	8	1

Timings

1: Eastonville Rd & Rex Rd

2040 Total Traffic

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	294	83	204	254	22	84	249	317	27	165	48
Future Volume (vph)	77	294	83	204	254	22	84	249	317	27	165	48
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	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	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	10.0	40.0	40.0	15.0	45.0	45.0	10.0	35.0	35.0	10.0	35.0	35.0
Total Split (%)	10.0%	40.0%	40.0%	15.0%	45.0%	45.0%	10.0%	35.0%	35.0%	10.0%	35.0%	35.0%
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	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	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	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	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	22.0	16.6	16.6	31.0	23.8	23.8	19.9	18.3	18.3	17.7	14.0	14.0
Actuated g/C Ratio	0.35	0.26	0.26	0.49	0.37	0.37	0.31	0.29	0.29	0.28	0.22	0.22
v/c Ratio	0.18	0.63	0.17	0.46	0.38	0.03	0.23	0.49	0.48	0.08	0.43	0.11
Control Delay	12.3	29.0	2.4	14.6	19.7	0.1	16.8	24.7	5.7	15.5	26.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	29.0	2.4	14.6	19.7	0.1	16.8	24.7	5.7	15.5	26.8	0.5
LOS	B	C	A	B	B	A	B	C	A	B	C	A
Approach Delay		21.3			16.6			14.4			20.3	
Approach LOS		C			B			B			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 63.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 17.5

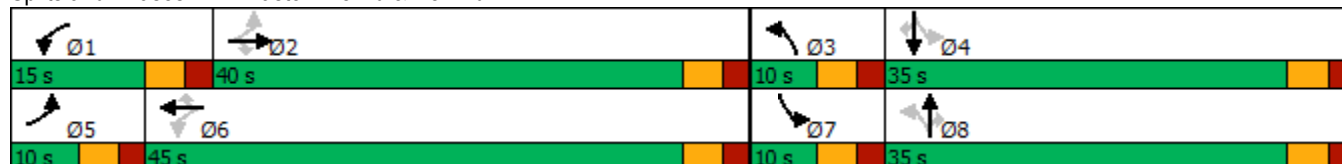
Intersection LOS: B

Intersection Capacity Utilization 59.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Eastonville Rd & Rex Rd



HCM 6th TWSC
2: Parcel A & B & Rex Rd

2040 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	578	60	124	450	30	76
Future Vol, veh/h	578	60	124	450	30	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	155	230	-	0	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	608	63	131	474	32	80

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	671
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	-	-	919
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	919
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	275	496	-	-	919	-
HCM Lane V/C Ratio	0.115	0.161	-	-	0.142	-
HCM Control Delay (s)	19.8	13.6	-	-	9.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.6	-	-	0.5	-





HCM 6th Roundabout
2: Parcels A & B & Rex Rd

2040 Total Traffic
PM Peak Hour

Intersection			
Intersection Delay, s/veh	8.5		
Intersection LOS	A		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	671	605	112
Demand Flow Rate, veh/h	684	617	115
Vehicles Circulating, veh/h	134	33	620
Vehicles Exiting, veh/h	516	702	198
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	9.8	7.4	6.8
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	684	617	115
Cap Entry Lane, veh/h	1204	1334	733
Entry HV Adj Factor	0.981	0.980	0.974
Flow Entry, veh/h	671	605	112
Cap Entry, veh/h	1180	1307	714
V/C Ratio	0.568	0.462	0.157
Control Delay, s/veh	9.8	7.4	6.8
LOS	A	A	A
95th %tile Queue, veh	4	3	1







HCM 6th TWSC
3: Rex Rd & Future Four-Way Ranch Access

2040 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	648	570	21	12	3
Future Vol, veh/h	6	648	570	21	12	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	255	-	-	-	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	7	704	620	23	13	3
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	643	0	-	0	1350	632
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	718	-
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	942	-	-	-	166	480
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	483	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	942	-	-	-	165	480
Mov Cap-2 Maneuver	-	-	-	-	305	-
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	483	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		16.5		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	942	-	-	-	329	
HCM Lane V/C Ratio	0.007	-	-	-	0.05	
HCM Control Delay (s)	8.8	-	-	-	16.5	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	108	6	672	169	10	448
Future Vol, veh/h	108	6	672	169	10	448
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	0	-	155	205	-
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	114	6	707	178	11	472

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1201	707	0
Stage 1	707	-	-
Stage 2	494	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	204	435	-
Stage 1	489	-	-
Stage 2	613	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	201	435	-
Mov Cap-2 Maneuver	337	-	-
Stage 1	489	-	-
Stage 2	604	-	-







Approach	WB	NB	SB
HCM Control Delay, s	20.6	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 337 435	765	-
HCM Lane V/C Ratio	-	- 0.337 0.015	0.014	-
HCM Control Delay (s)	-	- 21 13.4	9.8	-
HCM Lane LOS	-	- C B	A	-
HCM 95th %tile Q(veh)	-	- 1.5 0	0	-

Intersection			
Intersection Delay, s/veh	8.8		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	120	885	483
Demand Flow Rate, veh/h	122	903	492
Vehicles Circulating, veh/h	721	11	116
Vehicles Exiting, veh/h	193	597	727
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.4	10.4	6.5
Approach LOS	A	B	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.535	2.535	2.535
Critical Headway, s	4.328	4.328	4.328
Entry Flow, veh/h	122	903	492
Cap Entry Lane, veh/h	769	1407	1287
Entry HV Adj Factor	0.984	0.980	0.981
Flow Entry, veh/h	120	885	483
Cap Entry, veh/h	757	1379	1262
V/C Ratio	0.159	0.642	0.382
Control Delay, s/veh	6.4	10.4	6.5
LOS	A	B	A
95th %tile Queue, veh	1	5	2

HCM 6th TWSC
11: Eastonville Rd & Parcels E & F

2040 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	16	825	59	29	527
Future Vol, veh/h	35	16	825	59	29	527
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	115	-	155	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	19	971	69	34	620
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1659	971	0	0	1040	0
Stage 1	971	-	-	-	-	-
Stage 2	688	-	-	-	-	-
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	107	307	-	-	669	-
Stage 1	367	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	102	307	-	-	669	-
Mov Cap-2 Maneuver	234	-	-	-	-	-
Stage 1	367	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	21.7	0	0.6			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 234 307	669	-		
HCM Lane V/C Ratio	-	- 0.176 0.061	0.051	-		
HCM Control Delay (s)	-	- 23.6 17.5	10.7	-		
HCM Lane LOS	-	- C C	B	-		
HCM 95th %tile Q(veh)	-	- 0.6 0.2	0.2	-		







Intersection			
Intersection Delay, s/veh	10.5		
Intersection LOS	B		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	54	930	586
Demand Flow Rate, veh/h	55	948	598
Vehicles Circulating, veh/h	885	32	38
Vehicles Exiting, veh/h	95	604	902
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.8	12.7	7.3
Approach LOS	A	B	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	55	948	598
Cap Entry Lane, veh/h	560	1336	1327
Entry HV Adj Factor	0.982	0.981	0.980
Flow Entry, veh/h	54	930	586
Cap Entry, veh/h	549	1310	1301
V/C Ratio	0.098	0.710	0.451
Control Delay, s/veh	7.8	12.7	7.3
LOS	A	B	A
95th %tile Queue, veh	0	6	2

HCM 6th TWSC
12: Eastonville Rd & Londonderry Dr

2040 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 11.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	127	155	311	857	509	82
Future Vol, veh/h	127	155	311	857	509	82
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	0	0	-	-	155
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	134	163	327	902	536	86

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2092	536	622
Stage 1	536	-	-
Stage 2	1556	-	-
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	~ 58	545	959
Stage 1	587	-	-
Stage 2	191	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 38	545	959
Mov Cap-2 Maneuver	~ 132	-	-
Stage 1	387	-	-
Stage 2	191	-	-

Approach	EB	NB	SB
HCM Control Delay, s	74	2.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	959	-	132	545	-	-
HCM Lane V/C Ratio	0.341	-	1.013	0.299	-	-
HCM Control Delay (s)	10.7	-	146.7	14.4	-	-
HCM Lane LOS	B	-	F	B	-	-
HCM 95th %tile Q(veh)	1.5	-	7.2	1.2	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon













HCM 6th Roundabout
12: Eastonville Rd & Londonderry Dr

2040 Total Traffic
PM Peak Hour

Intersection						
Intersection Delay, s/veh	9.5					
Intersection LOS	A					
Approach	EB		NB		SB	
Entry Lanes	2		2		2	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	297		1229		622	
Demand Flow Rate, veh/h	303		1254		635	
Vehicles Circulating, veh/h	547		137		334	
Vehicles Exiting, veh/h	422		713		1057	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	6.1		11.7		6.7	
Approach LOS	A		B		A	
Lane	Left	Right	Left	Right	Left	Right
Designated Moves	L	TR	L	TR	LT	TR
Assumed Moves	L	TR	L	TR	LT	TR
RT Channelized						
Lane Util	0.452	0.548	0.266	0.734	0.469	0.531
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	137	166	334	920	298	337
Cap Entry Lane, veh/h	816	892	1190	1264	993	1069
Entry HV Adj Factor	0.978	0.982	0.979	0.980	0.981	0.979
Flow Entry, veh/h	134	163	327	902	292	330
Cap Entry, veh/h	798	876	1165	1239	974	1046
V/C Ratio	0.168	0.186	0.281	0.728	0.300	0.315
Control Delay, s/veh	6.3	6.0	5.7	13.9	6.8	6.6
LOS	A	A	A	B	A	A
95th %tile Queue, veh	1	1	1	7	1	1

Timings
12: Eastonville Rd & Londonderry Dr

2040 Total Traffic
PM Peak Hour

												
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations												
Traffic Volume (vph)	127	155	311	857	509	82						
Future Volume (vph)	127	155	311	857	509	82						
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm						
Protected Phases	4		5	2	6							
Permitted Phases		4	2			6						
Detector Phase	4	4	5	2	6	6						
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0						
Minimum Split (s)	21.0	21.0	9.0	21.0	21.0	21.0						
Total Split (s)	25.0	25.0	20.0	75.0	55.0	55.0						
Total Split (%)	25.0%	25.0%	20.0%	75.0%	55.0%	55.0%						
Yellow Time (s)	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						
Lost Time Adjust (s)	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						
Lead/Lag			Lead		Lag	Lag						
Lead-Lag Optimize?			Yes		Yes	Yes						
Recall Mode	None	None	None	None	None	None						
Act Effect Green (s)	10.5	10.5	42.2	42.2	23.9	23.9						
Actuated g/C Ratio	0.17	0.17	0.67	0.67	0.38	0.38						
v/c Ratio	0.46	0.41	0.61	0.73	0.76	0.13						
Control Delay	32.2	8.8	11.5	11.0	25.2	4.2						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0						
Total Delay	32.2	8.8	11.5	11.0	25.2	4.2						
LOS	C	A	B	B	C	A						
Approach Delay	19.4			11.2	22.3							
Approach LOS	B			B	C							

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 63.2
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 15.5
 Intersection Capacity Utilization 63.6%
 Analysis Period (min) 15

























Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 12: Eastonville Rd & Londonderry Dr



Timings
13: Eastonville Rd & Stapleton Dr

2040 Total Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	399	537	165	181	764	286	270	483	181	139	283	241
Future Volume (vph)	399	537	165	181	764	286	270	483	181	139	283	241
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	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	4.0
Minimum Split (s)	8.0	21.0	21.0	8.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	19.0	38.0	38.0	12.0	31.0	31.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	19.0%	38.0%	38.0%	12.0%	31.0%	31.0%	14.0%	36.0%	36.0%	14.0%	36.0%	36.0%
Yellow Time (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.5	2.0	2.0	0.5	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	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	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	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	14.4	31.5	31.5	34.0	25.0	25.0	38.1	29.1	29.1	37.3	28.7	28.7
Actuated g/C Ratio	0.15	0.33	0.33	0.35	0.26	0.26	0.40	0.30	0.30	0.39	0.30	0.30
v/c Ratio	0.82	0.49	0.27	0.54	0.87	0.49	0.72	0.90	0.31	0.62	0.54	0.39
Control Delay	54.5	28.0	5.0	24.0	46.5	8.2	32.0	54.1	5.4	29.5	32.6	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	28.0	5.0	24.0	46.5	8.2	32.0	54.1	5.4	29.5	32.6	5.3
LOS	D	C	A	C	D	A	C	D	A	C	C	A
Approach Delay		34.1			34.3			38.3			22.0	
Approach LOS		C			C			D			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 96.3

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 33.1

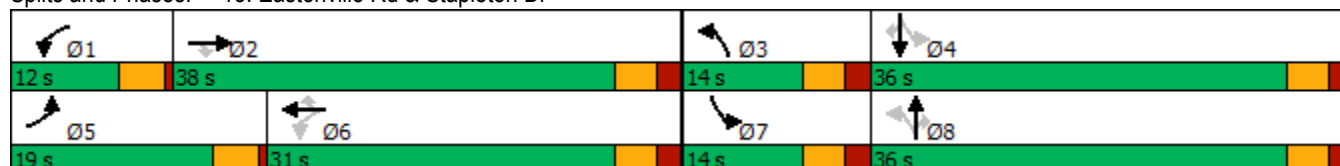
Intersection LOS: C

Intersection Capacity Utilization 81.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 13: Eastonville Rd & Stapleton Dr



Queuing Reports

Queuing and Blocking Report

Intersection: 1: Eastonville Rd & Rex Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	44	167	98	208	135	23	102	104	93	44	191	46
Average Queue (ft)	14	76	40	94	57	6	46	33	40	13	84	19
95th Queue (ft)	38	137	78	168	111	21	85	75	78	37	150	40
Link Distance (ft)		719			498			879			1170	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	205		155	350		155	315		155	205		155
Storage Blk Time (%)		1			0						1	
Queuing Penalty (veh)		1			1						1	

Intersection: 2: Parcel A & B & Rex Rd

Movement	WB	NB	NB
Directions Served	L	L	R
Maximum Queue (ft)	40	54	73
Average Queue (ft)	12	25	40
95th Queue (ft)	38	51	63
Link Distance (ft)		705	705
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	155		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Rex Rd & Future Access

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	6	54
Average Queue (ft)	0	16
95th Queue (ft)	5	42
Link Distance (ft)		330
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Intersection: 1: Eastonville Rd & Rex Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	66	245	102	140	149	25	94	169	128	61	134	42
Average Queue (ft)	29	104	25	62	59	5	40	73	60	20	59	13
95th Queue (ft)	56	180	66	111	118	19	80	138	104	45	114	32
Link Distance (ft)		719			498			879			1170	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	205		155	350		155	315		155	205		155
Storage Blk Time (%)		2			0			0	0		0	
Queuing Penalty (veh)		3			1			2	0		0	

Intersection: 2: Parcel A & B & Rex Rd

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	23	87	56	89
Average Queue (ft)	1	35	20	36
95th Queue (ft)	11	71	49	69
Link Distance (ft)	498		705	705
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		155		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Rex Rd & Future Access

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	24	32
Average Queue (ft)	1	11
95th Queue (ft)	11	33
Link Distance (ft)		330
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)		
Queuing Penalty (veh)		