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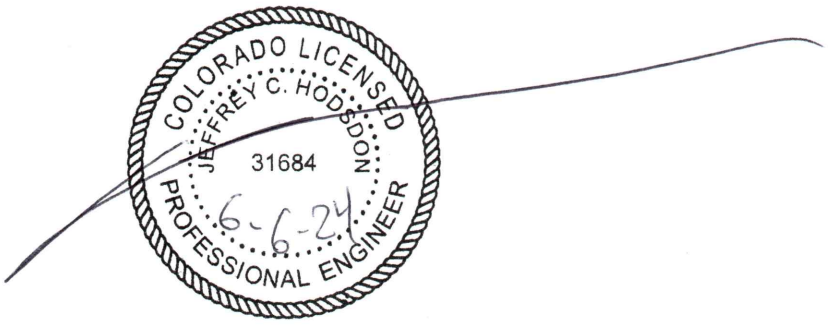
Grandview Reserve Filing No. 1
Traffic Impact Study
(LSC #S244090)
June 6, 2024

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.

_____ _____
Date

Grandview Reserve Filing No. 1

Traffic Impact Analysis

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

JUNE 6, 2024

LSC Transportation Consultants, Inc.

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

LSC # S244090

CONTENTS

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June 6, 2024

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

RE: Grandview Reserve Filing No. 1
El Paso County, Colorado
Traffic Impact Analysis
LSC # S244090

Dear Phil:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for Filing No. 1 of the Grandview Reserve development in El Paso County, Colorado. As shown in Figure 1, the Filing No. 1 area is located just east of Eastonville Road.

REPORT CONTENTS

This report is being submitted as part of a Preliminary Plan/PUD submittal for Phases 2 and 3.

The report contains the following:

- The traffic count data and street conditions;
- Short-term and 2045 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 (SKP201). 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, Phase 1 (approved) and Phase 2 (currently under review), has since been

shown to occur on the west side of the master plan area with access only to Eastonville Road and the initial segment of Rex Road east of Eastonville (i.e., the road connection to US Highway 24 will be implemented later with future phases beyond Phase 3). LSC also completed a traffic impact study for the first phase of the Grandview Reserve (PUDSP2110), dated May 9, 2022.

Appendix Table 1 contains 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 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 completed in April of 2021 for Eastonville Road by Wilson & Company (for El Paso County).

LAND USE AND ACCESS

Land Use

Grandview Reserve Filing No. 1 is planned to include 119 lots for single-family homes. This filing was included as part of the approved Preliminary Plan and PUD for Phase 1 of Grandview Reserve and the land use is consistent with the land use shown in those plans. Figure 2 shows site plan for Phases 1 through 3 of Grandview Reserve and the location of the currently proposed Filing No. 1.

Site Access

A full-movement public-street connection, Brixham Drive, is proposed to Eastonville Road to provide access to the Filing No. 1 subdivision. Based on the criteria contained in the El Paso County *Engineering Criteria Manual* (*ECM*), the required intersection spacing for Minor Arterial roadways is ¼ mile (1,320 feet). The location of Brixham Drive meets the intersection spacing criteria. This street-connection intersection spacing along Eastonville Road is in conformance with the *Grandview Reserve Phase 1 Updated Traffic Impact Analysis* (PUDSP2110) and the approved Filing No. 1 PUD/Preliminary Plan.

Pedestrian and Bicycle Destinations and Routes within Two Miles of Schools

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 route to the schools is Eastonville Road to Londonderry Drive. Figure 5 within the TIS report for PUDSP235 shows pedestrian routes west of Eastonville, within Meridian Ranch. 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. The cross section for Eastonville Road north of Stapleton Drive recommended in the *Eastonville Road Conceptual Design* Report dated April 2021 includes an 8-foot detached meandering sidewalk on both sides of the roadway. The current plans for Eastonville Road improvements show pedestrian infrastructure and crossing locations at the Eastonville roundabouts north and south of the site. A sidewalk is planned along the south side of Rex Road west of the planned Eastonville/Rex roundabout. The Grandview Reserve site plan includes a trail located outside of the Eastonville right-of-way but within their 30-foot landscape buffer to meet the regional trail requirement. Figure 2 shows the location of the proposed regional trail and other proposed trails within the Grandview Reserve development. All of the internal streets within the Filing No. 1 area will have sidewalks.

Sight Distance Analysis

Figure 3 shows sight-distance analysis at the proposed Filing No. 1 intersections with Rex Road (#11 Eastonville/Brixham).

Intersection Sight Distance

Based on the planned design speed of 40 miles per hour (mph) for Rex Road and the criteria contained in Table 2-21 of the *ECM*, the required intersection sight distance at the Eastonville/Brixham is 445 feet. As shown in Figure 3, the *ECM* criteria can be met at this intersection.

Stopping Sight Distance at Intersections

Based on the criteria contained in Table 2-17 of the *ECM*, the required stopping sight distance approaching the intersection of Eastonville/Brixham is 305 feet (for grades less than three percent). As shown in Figure 3, the *ECM* criteria can be met at this.

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 Estate Ridge Drive within the Meridian Ranch development. Rex Road is classified as an Urban Minor Arterial in the *2016 El Paso County Major Transportation Corridors Plan* (*MTCP*) 2040 Roadway Plan. The posted speed limit on Rex Road is 45 mph between Meridian Road and Mount Gateway Drive and 35 mph east of Mount Gateway Drive. Rex Road is currently being constructed as a 2-lane Urban Minor Arterial from its existing terminus at Estate Ridge Drive to Eastonville Road.

A short section is also proposed to be constructed east of Eastonville Road in the short-term future as part of a future phase of the approved Grandview Reserve Phase 1 development. A roundabout is constructed as part of a future phase of the Grandview Reserve Phase 1 development. The master-planned, Rex Road connection to US Highway 24 will be completed later with future phases (beyond Phase 1).

This ultimate, master-planned, Rex Road connection and an associated new intersection with US Highway 24 has been approved and "Access-Permitted" by CDOT in coordination with El Paso County, the Colorado Department of Transportation (CDOT), and other local agencies. The CDOT access permit notice-to-proceed (NTP) has not yet been requested by the applicant and has not been issued. The permit will likely need to be extended (per CDOT requirements) given the proposed phasing of this Preliminary Plan/PUD.

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 ultimately be 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 Traffic Volumes

Figure 4 shows the existing morning and afternoon peak-hour traffic volumes at the intersections of Stapleton/US Hwy 24, Stapleton/Eastonville, and Londonderry/Eastonville. These volumes are based on manual intersection turning-movement counts conducted by LSC in April 2021 (Eastonville/Londonderry), October 2021 (Stapleton/Eastonville), and January 2023 (Stapleton/US Hwy 24).

The morning peak hour at the intersection of Stapleton/US Hwy 24 and Stapleton/Eastonville occurred from 6:45 a.m. to 7:40 a.m. The morning peak hour at the intersection of Eastonville/Londonderry occurred from 7:00 a.m. to 8:00 a.m. The afternoon peak hour at all three intersections occurred from 4:00 p.m. to 5:00 p.m. The northbound left-turn and eastbound right-turn volume at the intersection of Eastonville/Londonderry were adjusted (increased) to account for the minor differences due to seasonal variations and/or the difference in the peak hour. 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

	Signalized Intersections	Unsignalized Intersections
Level of Service	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 4 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 and westbound left-turn and through lanes at the two-way, stop-sign-controlled intersection of US Hwy 24/Stapleton are currently operating at LOS E or LOS F during the peak hours.

The eastbound approach at the two-way, stop-sign-controlled intersection of Stapleton/Eastonville is currently operating at LOS F during the morning peak hour and LOS C 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 and LOS B during the afternoon peak hour.

Safety Analysis

The Colorado State Patrol provided LSC with three years of vehicle-crash data for Eastonville Road between Stapleton Drive and Latigo Boulevard.

There were eight reported crashes at the intersection of Eastonville/Stapleton in the past three years: three in 2021, three in 2022, and two in 2023. All of these crashes are likely susceptible to correction by a traffic-control signal. In order to meet a traffic-signal warrant based on crash experience, there needs to be at least five crashes susceptible to correction within a 12-month period. However, there was no 12-month period in the past three years with more than four crashes reported, therefore this intersection does not currently meet this warrant.

One additional crash was reported along this corridor. The location of the accident is not clear. However, as the road surface code was reported as “dirt” it was assumed to have occurred at a location north of Londonderry Drive. This crash was a single-vehicle crash that lost control while traveling northbound.

It should be noted that the short-term improvements to Eastonville Road, currently in the planning and preliminary design stage, will likely improve the safety of the entire corridor.

The intersection sight distance analysis included within this report is also a component of the overall traffic-safety analysis. Please refer to the sight-distance analysis section for details.

2045 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 5 shows the projected 2045 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 4) 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;
- Sanctuary at Meridian Ranch;
- Rolling Hills Ranch North;
- Latigo Trails Filing Nos. 1 and 2;
- The Meridian Ranch development including buildout of the proposed school site located north of Falcon High School;
- Latigo Trails and estimated buildout trips that may be generated by future development of the area generally north of Rex Road between Eastonville Road and US Hwy 24. This analysis assumes trip generation based on future development of 2 ½-acre residential lots.
- Grandview Reserve (except for trips to be generated by land uses within the currently proposed Filing No. 1).

The 2045 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 5 also shows the lane geometry, traffic control, and level of service at the key area intersections, based on the 2045 background volumes, and laneage/traffic control needed to accommodate background traffic.

TRIP GENERATION

The Filing No. 1 site-generated vehicle trips were estimated using the nationally-published, trip-generation rates from *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE). Table 2 (attached) shows the trip-generation estimates. The trip-generation estimate is consistent with estimates assumed for the same area in the Phase 1 TIS and the Phases 2 and 3 TIS. Studies.

Grandview Reserve Filing No. 1 is expected to generate about 1,122 new external 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 of the adjacent street traffic, which occurs between 6:45 and 7:45 a.m., about 21 vehicles would enter and 62 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic, which occurs between 4:00 and 5:00 p.m., about 70 vehicles would enter and 41 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 6a and 6b 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: distribution estimates from the Master Study and the Phase 1 study (with adjustments, as needed), the recent traffic-count data; the site's proposed land use; the site's proposed access points; the phased interim and buildout Grandview internal street network; and the phasing of the existing and future area Collector and Arterial public roadway system serving the site.

The short-term directional-distribution estimate assumes Rex Road has **not** been extended to Eastonville Road. 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 6a and 6b) were applied to the trip-generation estimates (from Table 2), the short-term and long-term site-generated traffic volumes on the area roadways were determined. Figure 7a shows the short-term, Filing-No.-1-generated traffic volumes. Figure 7b shows the long-term, Filing-No.-1-generated traffic volumes.

TOTAL TRAFFIC

Existing Plus Short-Term Site-Generated Traffic

Figure 8a shows the sum of the existing traffic volumes (from Figure 4) plus the short-term, Filing-No.-1-generated traffic volumes (from Figure 7a).

Figure 8a also shows the lane geometry, traffic control, and level of service at the key area intersections assuming no improvements are made at the intersections of Londonderry/Eastonville, Stapleton/Eastonville and Stapleton/US Hwy 24.

Figure 8b shows the lane geometry, traffic control, and level of service assuming the intersections of Londonderry/Eastonville and Stapleton/Eastonville are reconstructed as modern roundabouts and the intersection of Stapleton/US Hwy 24 is converted to traffic-signal control. The Eastonville Road intersections are currently under design as part of the Eastonville-PPRTA Phase 1 project and it is our understanding that Stapleton/US Hwy 24 is on the CDOT list of intersections planned for signalization in the short term.

Long Term (Year 2045)

Figure 9 shows the projected 2045 total-traffic volumes. The 2045 total-traffic volumes are the sum of the 2045 background-traffic volumes (from Figures 5) plus the long-term Filing No. 1 generated traffic volumes (from Figure 7b).

Figure 9 also shows the lane geometry, traffic control, and level of service at the key area intersections, based on the 2045 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 existing plus site-generated 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 2045). Two-percent heavy vehicles were assumed for the existing plus site-generated and Year 2045 analysis. The results of the analysis are contained in Figures 5, 8a, 8b, and 9. The level of service reports are attached.

Rex Road/Eastonville Road (Intersection #1)

The intersection of Rex/Eastonville Road is planned to be constructed as a modern one-lane roundabout as part of a **future** phase of the approved Grandview Reserve Phase 1 development. All approaches at this intersection are projected to operate at LOS D or better through 2045.

Eastonville Road/Brixham Drive (Intersection #11)

The future stop-sign-controlled intersection of Eastonville Road/Brixham Drive is projected to operate at LOS A for all movements during the peak hours as a stop-sign-controlled "T" intersection, based on the existing plus site-generated traffic volumes. By 2045, the westbound left-turn movement is projected to operate at LOS D during the peak hours.

Londonderry Drive/Eastonville Road (Intersection #12)

The westbound left-turn movement at the intersection of Londonderry/Eastonville is currently operating at LOS D during the morning peak hour and is projected to operate at LOS E with the addition of site-generated traffic, if it remains stop-sign controlled. It is our understanding that this intersection is planned to be reconstructed as a modern roundabout as part of a PPRTA project. The intersection is projected to operate at LOS D or better for all approaches through 2045 as a modern roundabout.

Stapleton Drive/Eastonville Road (Intersection #13)

The eastbound approach at the intersection of Stapleton/Eastonville is currently operating at LOS F during the morning peak hour. Improvements to Eastonville from Snaffle Bit north to Rex Road in the vicinity of the site are under design as part of the PPRTA Eastonville Phase 1 project. It is our understanding that the intersection is planned to be converted to a modern one-lane roundabout in the short term. All approaches are projected to operate at LOS A, based on the projected existing plus site-generated traffic volumes.

By 2045, it was assumed that Stapleton Drive would be constructed to its full Principal Arterial cross section and that the roundabout at the intersection of Stapleton/Eastonville would be expanded to two lanes. Based on the estimated roundabout lane geometry and projected volumes, all approaches are projected to operate at LOS D or better through 2045.

US Highway 24/Stapleton Drive (Intersection #14)

The intersection of US Hwy 24/Stapleton is currently stop-sign controlled. The northbound and southbound left-turn movements and the northbound through movements are currently operating at LOS F during the peak hours. This intersection is planned to be signalized in the (potentially near-term) future. Once signalized, all movements are projected to operate at LOS D or better during the peak hours, based on the projected existing plus site-generated and 2045 total traffic volumes.

QUEUING ANALYSIS

A queuing analysis was performed using Synchro/SimTraffic at the proposed Filing No. 1 access (Eastonville/Brixham) to determine the projected queue lengths, based on the 2045 total traffic volumes. The simulation was run five times. The queuing reports are attached. These queuing results have been used to develop auxiliary turn-lane recommendations.

The projected maximum southbound left-turn queue on Eastonville Road is 48 feet approaching Brixham Drive.

FUNCTIONAL CLASSIFICATIONS AND LANEAGE

Figure10 shows the recommended functional classifications for internal streets within Filing No. 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* (SKP201) report.

The projected average daily traffic volumes on Brixham Drive just east of Eastonville Road 1,395 vpd, based on the projected 2045 total traffic. The projected daily traffic volumes are below the design ADT of 3,000 vpd for an Urban Local given in Table 2-6 of the *ECM*.

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 though Meridian Ranch.
- The US Hwy 24 PEL study also includes multi-modal elements.
- All of the internal streets within Grandview Reserve Phases 1 through 3 will have sidewalks that will connect to Rex Road and/or Eastonville Road. The proposed trail system shown in Figure 2 will also connect to the future Waterbury development to the south in addition to connections to Rex Road and Eastonville Road.

DEVIATIONS TO ECM CRITERIA

No additional deviations to the criteria contained in the El Paso County *Engineering Criteria Manual* (*ECM*) have been submitted as part of this application.

TRANSPORTATION IMPROVEMENT FEE PROGRAM

Project Fees

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 is$145,299 for the 119 single-family lots within Filing No. 1. Note: The fee rate is subject to change.

Potentially Reimbursable Improvements Under the MTCP Fee Program

Nearby improvement projects potentially reimbursable under the Fee Program are (from *MTCP* Map No. 13):

- *MTCP* Project No. U19: Eastonville Road
- *MTCP* Project No. N4: Rex Road (extended between Eastonville & US Highway 24)
- *MTCP* Project No C12: Stapleton Road
- Also, potentially intersection improvements and traffic signals/roundabouts at major *MTCP* roadway intersections per fee program guidelines
- Also, potentially intersection improvements and traffic signals (**or CDOT traffic signal escrows**) at US Hwy 24 intersections with Rex Road and/or Stapleton Road per fee program guidelines. Note: This would apply if the new 2045 MTCP and Roadway Improvement Fee Study show Stapleton/US Highway 24 as an "eligible intersection." The applicant would also have the opportunity to request of the Fee Program Committee that the intersection(s) be identified as "eligible."

ROADWAY IMPROVEMENTS

The attached Table 3 presents recommended roadway improvements for the overall Grandview Reserve development. Although the currently proposed Grandview Reserve Filing No. 1 is within the approved Grandview Reserve Phase 1 (PUDSP2110) this table was taken from the *Grandview Reserve Phases 2 & 3 Preliminary Plan & PUD Traffic Impact Analysis* (PUDSP236), dated March 4, 2024 as it includes decisions and changes made since the Phase 1 TIS was approved. This Filing will likely need to contribute to the offsite intersection improvements shown in Table 3 that are the responsibility of Grandview Reserve. The improvements needed with the currently-proposed Filing No. 1 have been highlighted and are listed below.

- A southbound left-turn lane will be required on Eastonville Road approaching Brixham. The proposed Eastonville Road cross section includes a left-turn lane in the center median. Based on the *ECM* criteria, this lane should be 205 feet long plus a 160-foot taper.
- A northbound right-turn deceleration lane will be required on Eastonville Road approaching Brixham Drive. Based on the *ECM* criteria, these lanes should be 155 feet long plus a 160-foot taper.

CDOT PROCESS AND REQUIREMENTS

- CDOT has indicated in a review letter dated April 2, 2024 that the currently-proposed Grandview Reserve Filing No. 1 will be required to escrow funds toward a future signal at the intersection of US Hwy 24/Stapleton. CDOT has recently required other area developments that are anticipated to add traffic to this intersection to escrow funds based on a formula related to the trips that directly impact the Four-Hour Vehicular-Volume Traffic-Signal Warrant.
- Table 4 presents an escrow analysis based on this formula which is the average of the morning and afternoon peak-hour contribution to the key minor-street approach volume (northbound through traffic) divided by 60 vehicles per hour, which is the lower threshold volume for a minor-street approach with one lane. Based on this formula and a total signal cost of $650,000, the escrow amount for the currently proposed Grandview Reserve Filing No. 1 would be $27,083.33. As this formula uses a denominator of 60, it does not account for trips exceeding 60 (baseline trips, trips from future development, or a combination of both). As such, the relative percentage impact due to Filing No. 1 will be reduced over time as other area projects add traffic to this intersection **and** as the trip impact of this Filing No. 1 development, relative to the signal warrants, is reduced somewhat in the future with the connection of Rex Road to US Highway.
- Table 4, therefore, also presents a percentage and estimated escrow amount based on the long-term morning and afternoon site-generated traffic volumes projected to be added to the minor-street volume in the warrant analysis for both approaches divided by the 2045 total morning and afternoon peak-hour volumes for these same movements. By 2045, the currently-proposed Filing No. 1 would contribute only 0.5% of the minor-street volumes. Based on a total signal cost of $650,000, the calculated Filing 1 amount based on this percentage would be $3,291.14.
- Note: Should the new 2045 *MTCP* and *Roadway Improvement Fee Study* show Stapleton/US Highway 24 as an "eligible intersection," the applicant could be entitled to a fee program credit (and reimbursement) for a portion of the escrow amount **upon signal installation,** based on fee program guidelines. The applicant will need to include this in a fee program credit request at the time of platting. The County's cost-recovery mechanism could potentially be used to recoup funds used to "front" the cost of signal installation through cost recovery of the portion not covered by fee program provisions through an ad-hoc arrangement, i.e., future development projects would benefit from the signal having been installed.
- CDOT has indicated in a letter dated April 2, 2024 that although a future signal at the intersection of US Hwy 24/Rex Road is the responsibility of the Grandview Reserve development, **no** escrow would be required from the currently-proposed Grandview Reserve Filing No. 1.

* * * * *

Please contact me if you have any questions regarding this report.

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

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

JCH/KDF:jas

Enclosures: Tables 2-4
Figures 1-10
Traffic Count Reports
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Table 2
Trip Generation Estimate
Grandview Reserve Filing 1

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates (1)					Total Trips Generated				
			Average Weekday	Morning Peak Hour		Afternoon Peak Hour		Average Weekday	Morning Peak Hour		Afternoon Peak Hour	
			Traffic	In	Out	In	Out	Traffic	In	Out	In	Out
210	Single-Family Detached Housing	119 DU	9.43	0.18	0.53	0.59	0.35	1,122	21	62	70	41

Notes:
(1) Source: "Trip Generation, 11th Edition, 2021" by the Institute of Transportation Engineers (ITE).
(2) DU = dwelling unit

Source: LSC Transportation Consultants, Inc. *Mar-24*

Table 3
Grandview Reserve Filing 1
Roadway Improvements

Item #	Improvement	Trigger	Timing	Responsibility
	Roadway Segment Improvements			
1	Eastonville Road: Stapleton to Londonderry final grading and paving	dependent on PPRTA funding priorities	TBD by EPC; PPRTA "A-List" Project	PPRTA
2	Eastonville Road: Londonderry to Rex final grading and paving	With Grandview Reserve development	With Grandview Reserve Filing 1	Grandview Reserve
3	Falcon Regional Trail: Construct east of Eastonville Road along the Filing 1 frontage	With Grandview Reserve development	With Grandview Reserve Filing 1	Grandview Reserve
4	Falcon Regional Trail: Construct east of Eastonville Road along the remaining Phase 1 frontage	With Grandview Reserve development	With future Grandview Reserve Phase 1 filings	Grandview Reserve
4	Eastonville: Road Rex to Latigo initial grading and paving	Average Daily Traffic > 200 vehicles per day (ECM); Average Daily Traffic > 300 vehicles per day (fee study trigger)	Existing Deficiency; TBD by EPC; PPRTA list shows as an "A-List" project, however, this segment is shown as a future "Phase II" in the Wilson Eastonville Study	PPRTA and/or with funds from developer escrows, and/or Fee Program funds or bonds
5	Eastonville Road: Rex to Latigo upgrade to an Urban Minor Arterial (per MTCP) (note: 2016 MTCP shows "Rural") Future phase of the PPRTA project	Average Daily Traffic > 600 vehicles per day(1)	TBD by EPC; PPRTA Phase II (Per Wilson Study)	PPRTA and/or with funds from developer escrows, and/or Fee Program funds or bonds
6	Eastonville Road: Stapleton to Grandview Reserve south boundary upgrade to 4-Lane Rural Minor Arterial (per MTCP) (Project plan shows a three-lane cross section)	average daily traffic > 20,000 vehicles per day	dependent on PPRTA funding priorities	PPRTA
7	Rex Road: Construct-new road segment from Eastonville to first access point east of Eastonville Road (Ivybridge Boulevard)	With Grandview Reserve development	With future Grandview Reserve Phase 1 filings	Grandview Reserve
8	Rex Road: Construct new road segment from Eastonville to first access point Ivybridge Drive to Phase 3 access (Intersection #6)	With Grandview Reserve development	With Grandview Reserve Phases 2 and 3	Grandview Reserve
8	Rex Road: Construct new road segment from Intersection #6 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 beyond Phases 2 and 3	Grandview Reserve
9	Rex Road: Construct new segment from Estate Ridge to Eastonville	With adjacent Meridian Ranch development	Will be completed late 2023 and open to traffic by spring 2024	Meridian Ranch
10	Stapleton Drive: Meridian Road to Eastonville Road complete southern (eastbound) half	average daily traffic > 18,000 vehicles per day	Shown in 2040 MTCP	El Paso County
11	Stapleton Drive: Eastonville Road to US 24 complete southern (eastbound) half	average daily traffic > 18,000 vehicles per day	Shown in 2040 MTCP	Waterbury Metro District
	Intersections Improvements			
	Intersection #1 Eastonville Road/Rex Road			
12	Construct as modern one-lane roundabout	With Grandview Reserve Phase 1	With future Grandview Reserve Phase 1 filings	PPRTA/El Paso County(1)
	Intersection #2 Rex Road/Ivybridge Boulevard			
13	Construct an eastbound right-turn deceleration lane on Rex Road approaching Ivybridge	eastbound right-turn volume > 50 vph	With future Grandview Reserve Phase 1 filings	Grandview Reserve
14	Stripe the planned center median on Rex Road for a westbound left-turn deceleration lane-approaching Ivybridge	westbound left-turn volume > 25 vph	With future Grandview Reserve Phase 1 filings	Grandview Reserve
	Intersection #4 Rex Road/Edenvale Place			
15	Stripe the planned center median on Rex Road for a westbound left-turn deceleration lane-approaching Edenvale Place	westbound left-turn volume > 25 vph	With Grandview Reserve Phase 2	Grandview Reserve
	Intersection #5 Rex Road/Grange Trail			
16	Stripe the planned center median on Rex Road for a westbound left-turn deceleration lane on Rex Road approaching Grange Trail	westbound left-turn volume > 25 vph	With Grandview Reserve Phase 2	Grandview Reserve
	Intersection #6 Rex Road/Wishaw Place			
17	Construct as a modern one-lane roundabout	With the construction of Rex Road to the Grandview Reserve Phase 3 access	With Grandview Reserve Phase 3	Grandview Reserve
	Intersection #9 US Hwy 24/Rex Road Intersection (Per CDOT Access Permit No. 221088)			
18	Construct the intersection of US Hwy 24 as a channelized-T type intersection with a northeastbound left-turn deceleration lane and a northeastbound left-turn acceleration lane on US Hwy 24	With the opening of the access	With future Grandview Reserve filings beyond Phases 2 and 3	Grandview Reserve
19	Construct a second northeastbound left-turn deceleration lane on US Hwy 24 approaching Rex	Once the intersection is traffic signal controlled and level of service and/or queueing issues arrise	With future Grandview Reserve filings beyond Phases 2 and 3	Grandview Reserve
20	Construct a southwestbound right-turn deceleration lane on US Hwy 24 approaching Rex	southwestbound right-turn volume > 10 vph	With future Grandview Reserve filings beyond Phases 2 and 3	Grandview Reserve
21	Construct a southwestbound right-turn acceleration lane on US Hwy 24 at Rex	southeastbound right-turn volume >10 vph	With future Grandview Reserve filings beyond Phases 2 and 3	Grandview Reserve
22	Signalization of the intersection of US Hwy 24/Rex. The channelized-T configuration shall be retailed and the siganl would be a "directional signal"(2)	When Traffic Signal Warrant(s) are met. The decision on timing of traffic signal installation rests with the Colorado Department of Transportation	Long-Term Future (to be evaluated with each filing)	Grandview Reserve
	Intersection #10 Eastonville Road/Dawlish Drive			
23	Construct as a modern one-lane roundabout	With Grandview Reserve Phase 1	With future Grandview Reserve Phase 1 filings	Grandview Reserve
	Intersection #11 Eastonville Road/Brixham Drive			
24	Construct a northbound right-turn deceleration lane on Eastonville approaching Brixham	northbound right-turn volume > 50 vph	With Grandview Reserve Filing 1	Grandview Reserve Filing No. 1
25	Construct a southbound left-turn deceleration lane on Eastonville approaching Brixham	southbound left-turn volume > 25 vph	With Grandview Reserve Filing 1	Grandview Reserve Filing No. 1
	Intersection #12 Eastonville Road/Londonderry Drive			
26	Reconstruct as modern one-lane roundabout	Short-Term (under design as part of the Eastonville PPRTA Phase 1 project)		PPRTA Eastonville Phase 1 Project/El Paso County
	Intersection #13 Eastonville Road/Stapleton Drive			
27	Reconstruct as modern one-lane (expandable) roundabout	Short-Term (under design as part of the Eastonville PPRTA Phase 1 project)		PPRTA Eastonville Phase 1 Project/El Paso County
28	Expand to multi-lane modern roundabout	With Improvement #11: Stapleton Drive - US Hwy 24 to Eastonville Road complete southern (eastbound) half		El Paso County
	Intersection #14 Stapleton Drive/US Hwy 24 Intersection			
29	Convert from Two-Way, Stop-Sign Control to Signal Control	When Traffic Signal Warrant(s) are met. The decision on timing of traffic signal installation rests with the Colorado Department of Transportation	Anticipated in the short-term. It is our understanding that this is on the CDOT list of intersections planned for signalization.	CDOT; along with any available escrow collected from area developments through the access permitting process **Filing No. 1** will be required to escrow funds to CDOT for a portion of the total cost of this signal. Please refer to the report narrative for details and potential provisions for future Fee Program credit and/or cost recovery for a portion of the amount escrowed to CDOT.
30	Add northeast-bound dual left-turn lane	As needed with future developments (Will require Stapleton Drive to be widened to two westbound through lanes between US Hwy 24 and Dumont Dr)	Anticipated in the short-term	Area developments as required or potentially escrow participation toward future improvements.
31	Add other dual left-turn lanes	As needed with future developments (Will require Items Stapleton and US Hwy 24 widened to two through lanes in all directions)	Future	Area developments as required
32	Potential long-term capacity upgrades (jughandle, a Jr Interchange, etc.)	When level of service degrades below acceptable levels	Shown in US Highway 24 PEL Study;	CDOT; along with any available escrow collected from area developments-through the access permitting process.

Notes:
(1) These thresholds are utilized in the Fee Study for determination of inclusion of improvements in the Fee Program costs.
(2) Signal escrow amounts may be required in leu of signal installation with future residential filings and/or commercial development applications- this will determined by future TIS Reports and CDOT requirements from review of those future TIS reports.

Source: LSC Transportation Consultants, Inc. (March 2024; **Rev. June 6, 2024**)

Table 4
Signal Escrow Analysis
US 24/Stapleton Drive
Grandview Reserve Filing 1

Traffic Volumes That Contribute to the Four-Hour Vehicular Volume Traffic Signal Warrant Minor Street Volume (vehicles per hour)

	AM Peak Hour					PM Peak Hour					AM & PM Averaged (NB Appr. Only)	CDOT Threshold*	AM & PM Averaged (Both Approaches)		Portion of total cost estimate of
	SB LT	SB TH	NB LT	NB TH	Total	SB LT	SB TH	NB LT	NB TH	Total	veh/hr		veh/hr	%*	$650,000
CDOT-Required															
Short-Term Site-Generated	1	2	0	**1**	4	1	2	0	**3**	6	**2.5**	**60**		4.2%	$27,083.33
Long-Term Impact															
2045 Background Traffic	136	370	75	198	779	142	216	125	310	793			786		
Long-Term Site-Generated	0	2	0	1	3	0	2	0	3	5			4	0.5%	$3,291.14
Total	**136**	**372**	**75**	**199**	**782**	**184**	**111**	**149**	**172**	**798**			**790**		

Notes:

*Please refer to the report narrative for details and potential provisions for future Fee Program credit and/or cost recovery for a portion of the amount escrowed to CDOT.

Source: LSC Transportation Consultants, Inc. *Jun-24*

Figures 1-10

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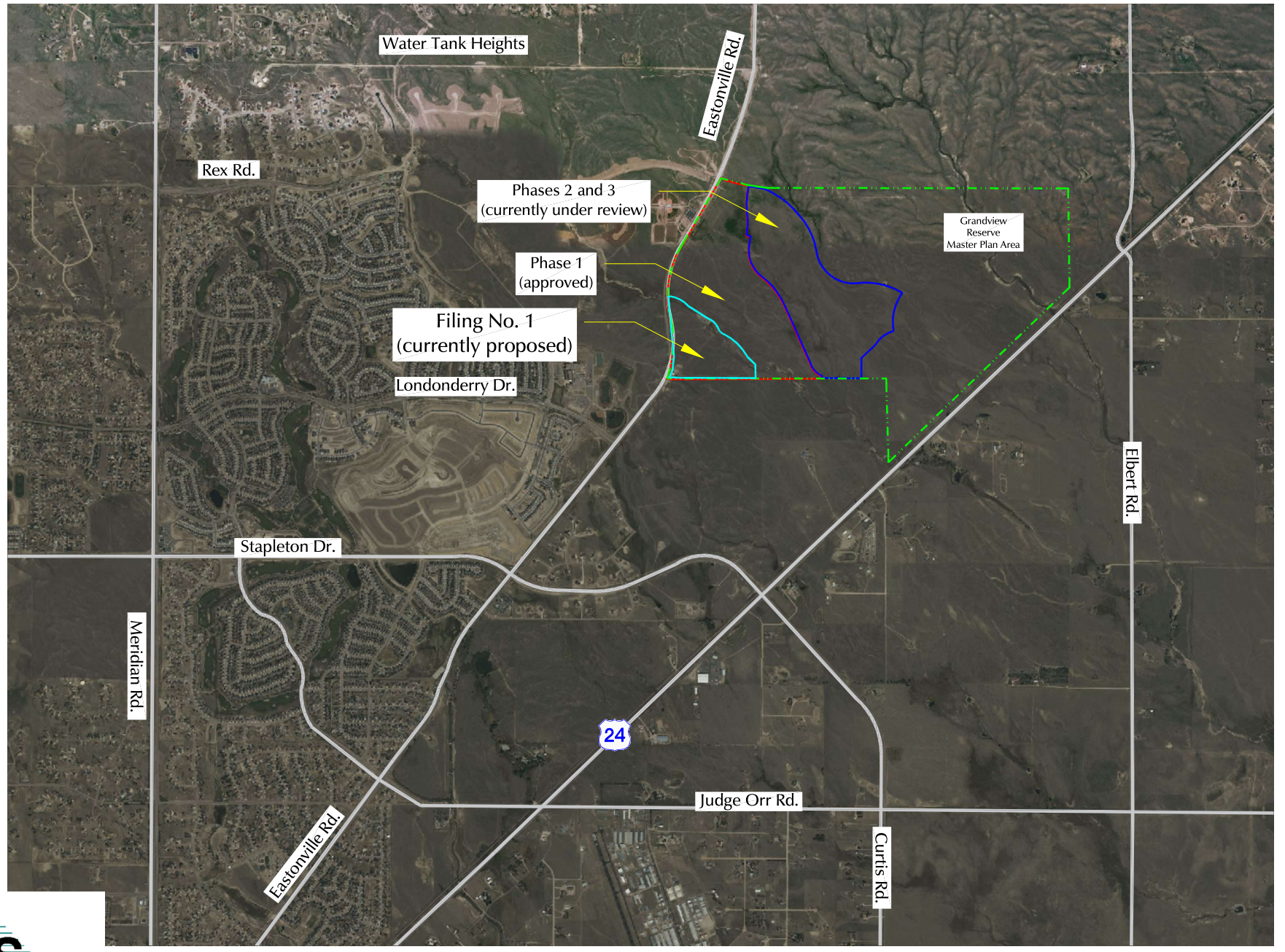


TRANSPORTATION CONSULTANTS, INC.

Figure 1

Vicinity Map

Grandview Reserve Filing No. 1 (LSC # S244090)

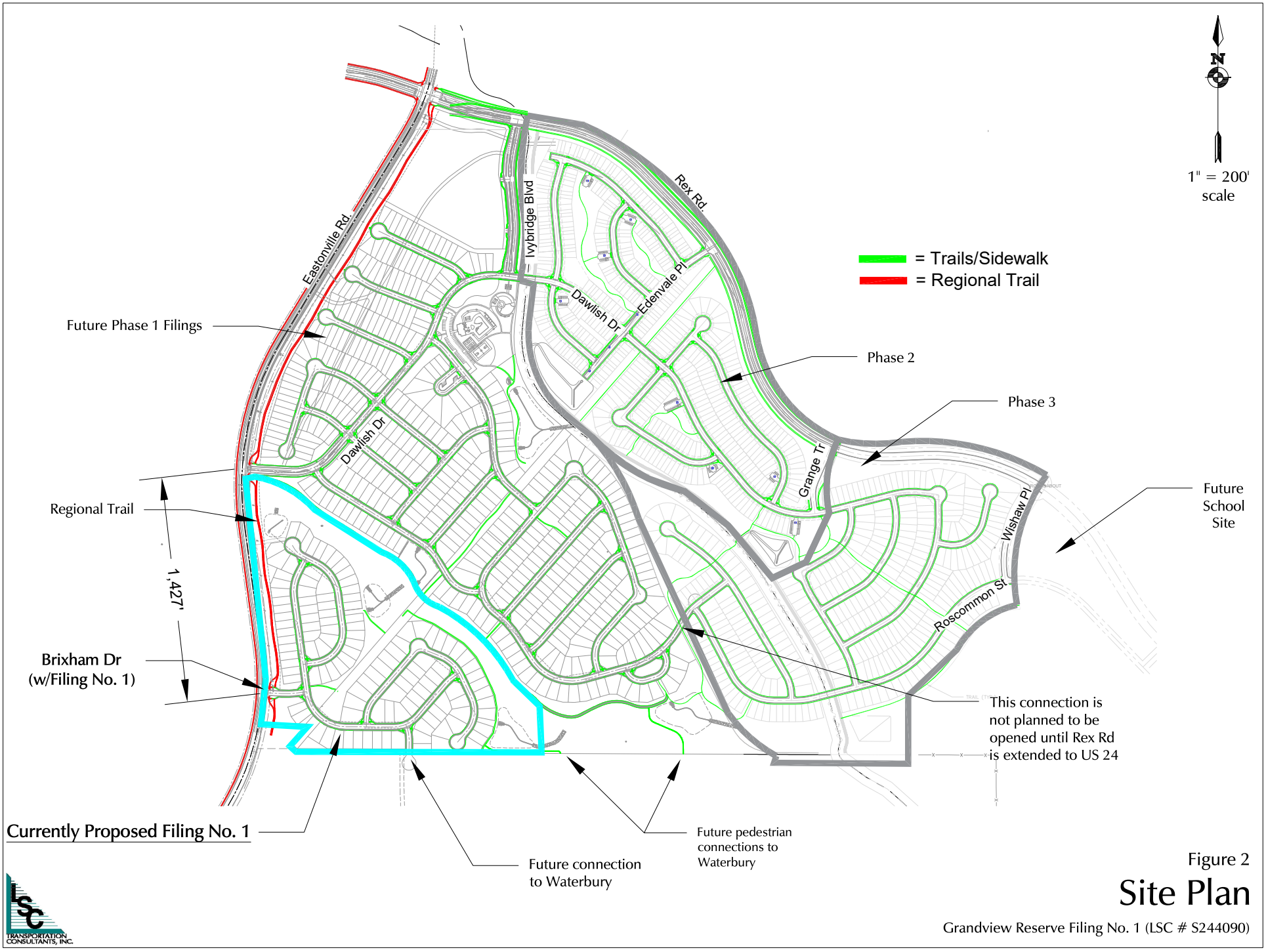
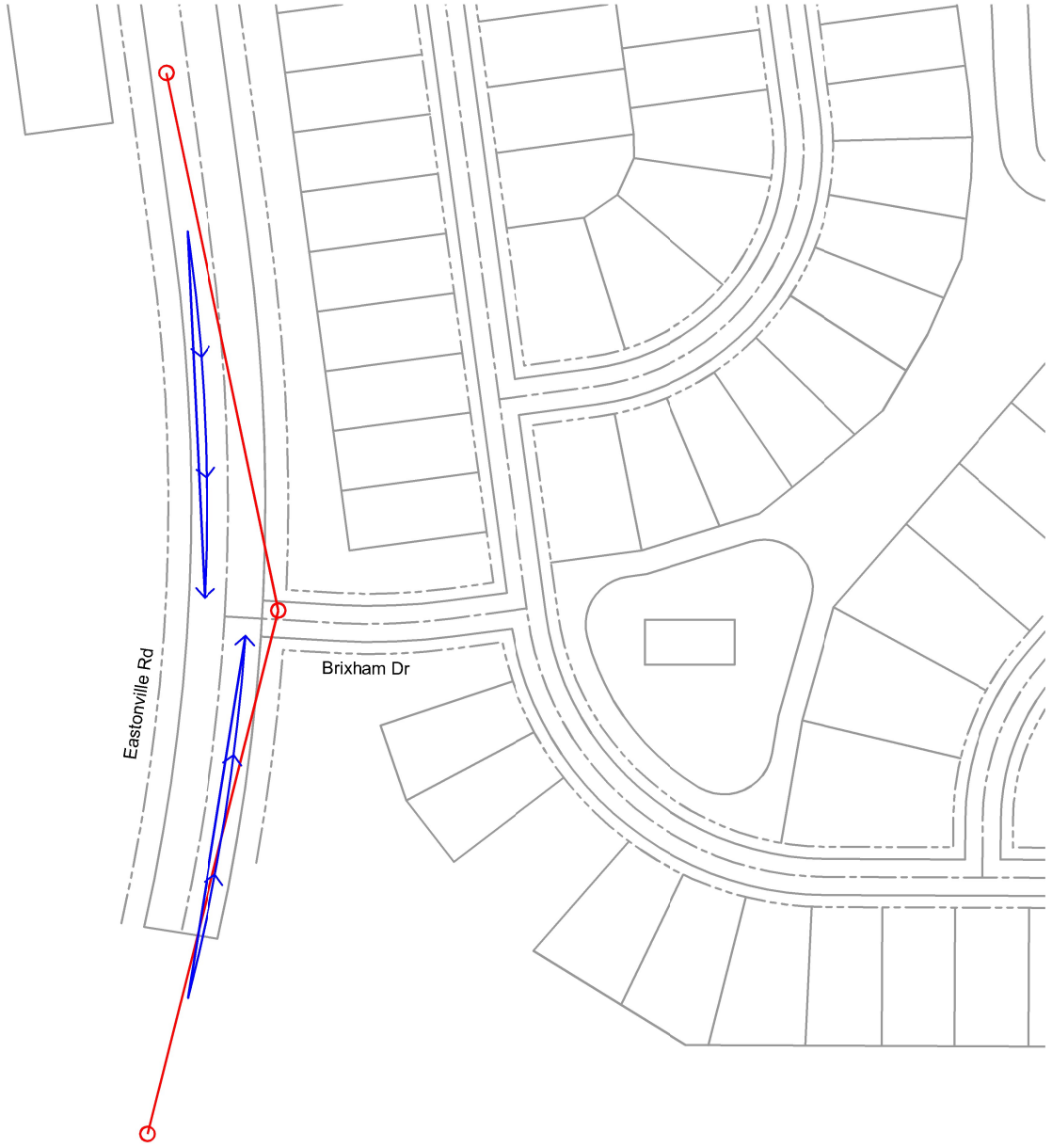


Figure 2

Site Plan

Grandview Reserve Filing No. 1 (LSC # S244090)



N

1" = 150'
scale

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 3

Sight Distance Analysis
Brixham Dr/Eastonville Rd

Grandview Reserve Filing No. 1 (LSC # S244090)

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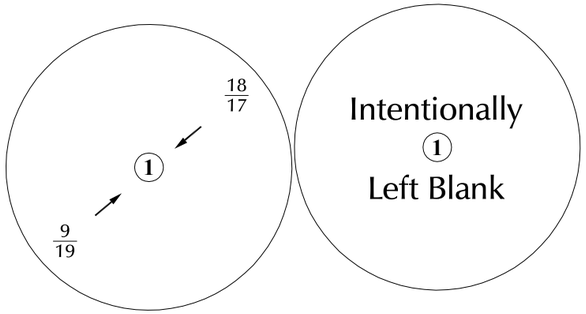

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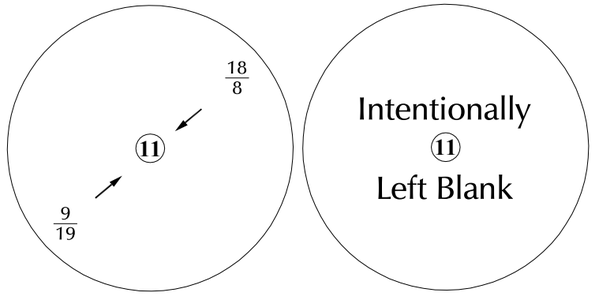

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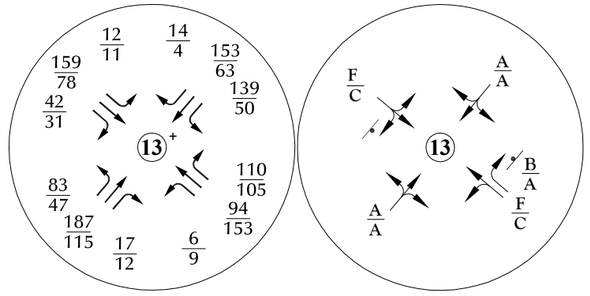

Intentionally
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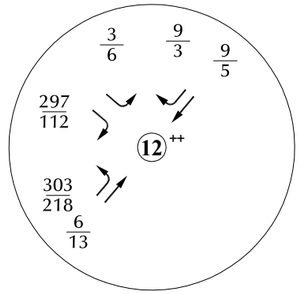
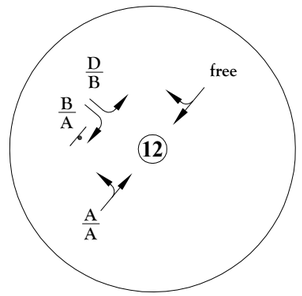
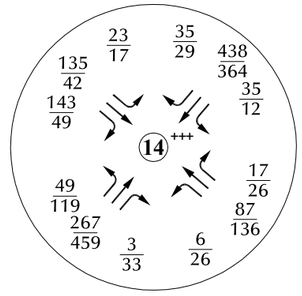
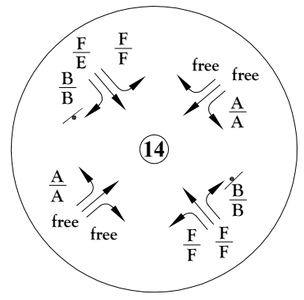








LEGEND:

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)

Traffic Control Used in the Analysis:

= Stop Sign

= Traffic Signal

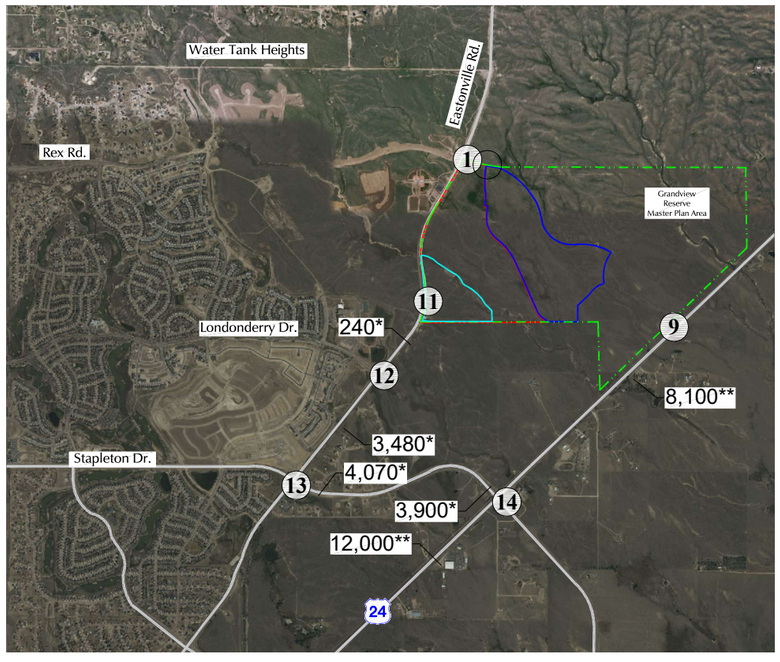
LOS Analysis Results:

A/B = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

C/C = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

N

NTS



* Estimate by LSC

** CDOT 2022 Average Annual Daily Traffic

+ Based on counts by LSC October 2021

++Based on counts by LSC April 2021. The northbound left-turn and eastbound right-turn volumes have been adjusted based on the more recent counts at Stapleton/Eastonville.

+++ Based on counts by LSC January 2023

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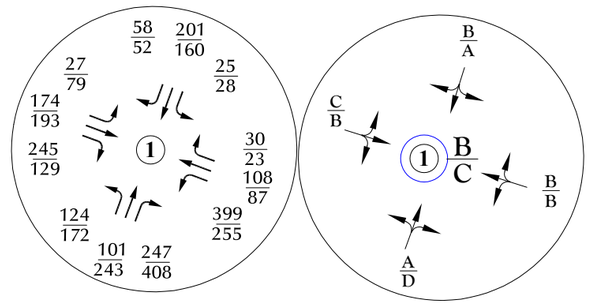
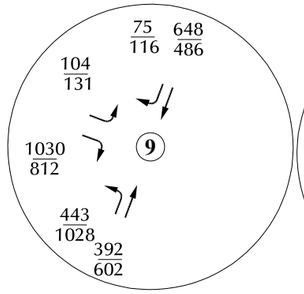
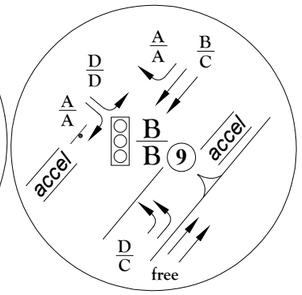
Figure 4

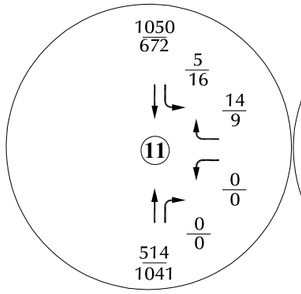
Existing Traffic

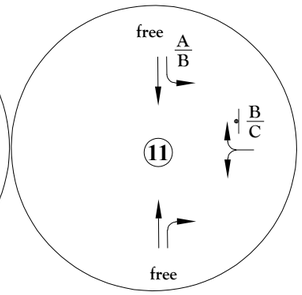
Grandview Reserve Filing No. 1 (LSC # S244090)

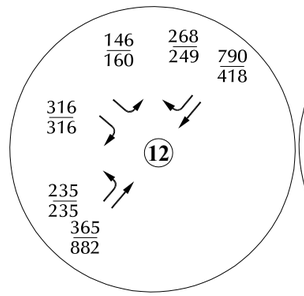


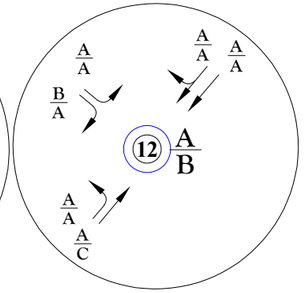


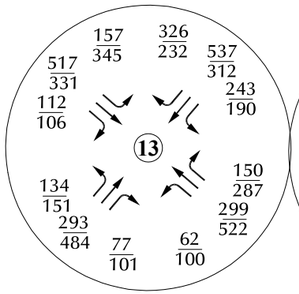


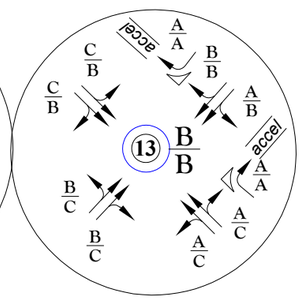


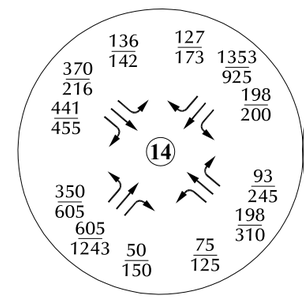


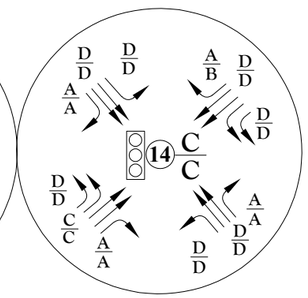












LEGEND:

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)

Traffic Control Used in the Analysis:

= Stop Sign

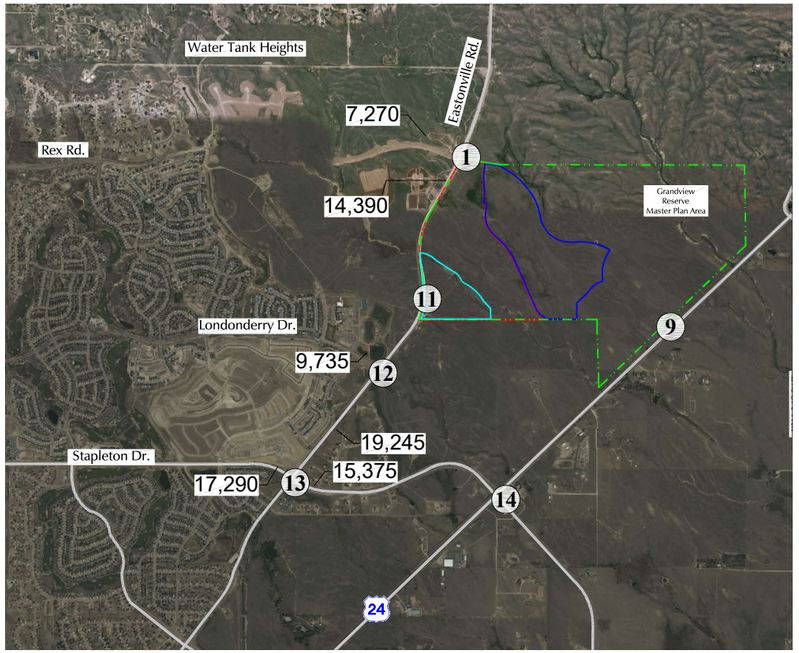
= Traffic Signal

LOS Analysis Results:

A/B = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

C/C = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

= Modern Roundabout



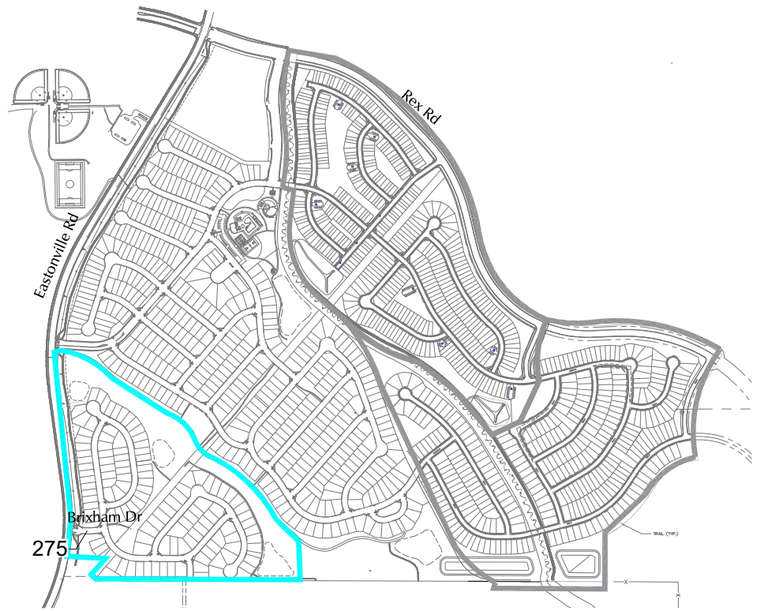
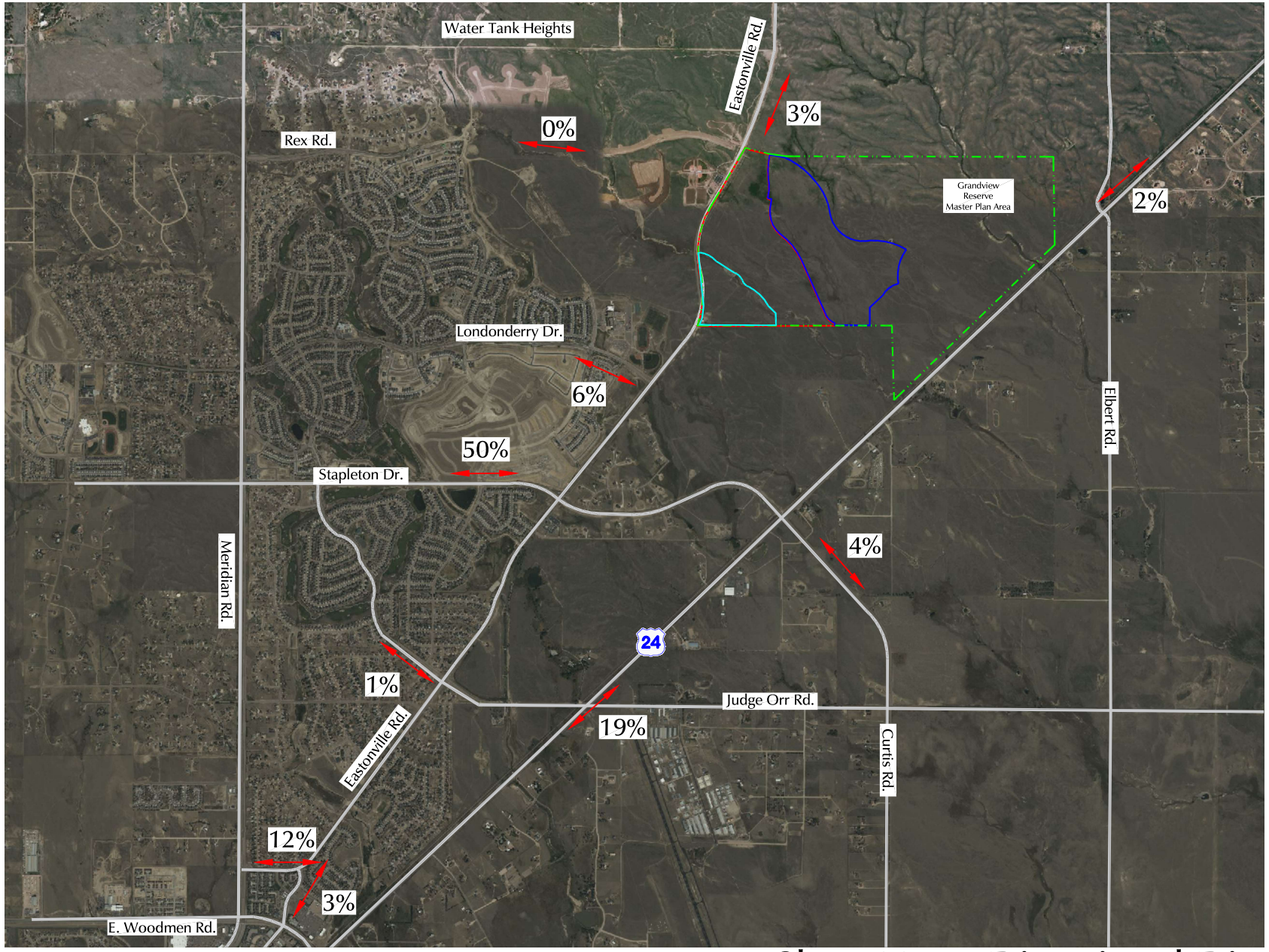


Figure 5

Year 2045 Background Traffic

Grandview Reserve Filing No. 1 (LSC # S244090)

TRANSPORTATION CONSULTANTS, INC.



NTS

Figure 6a

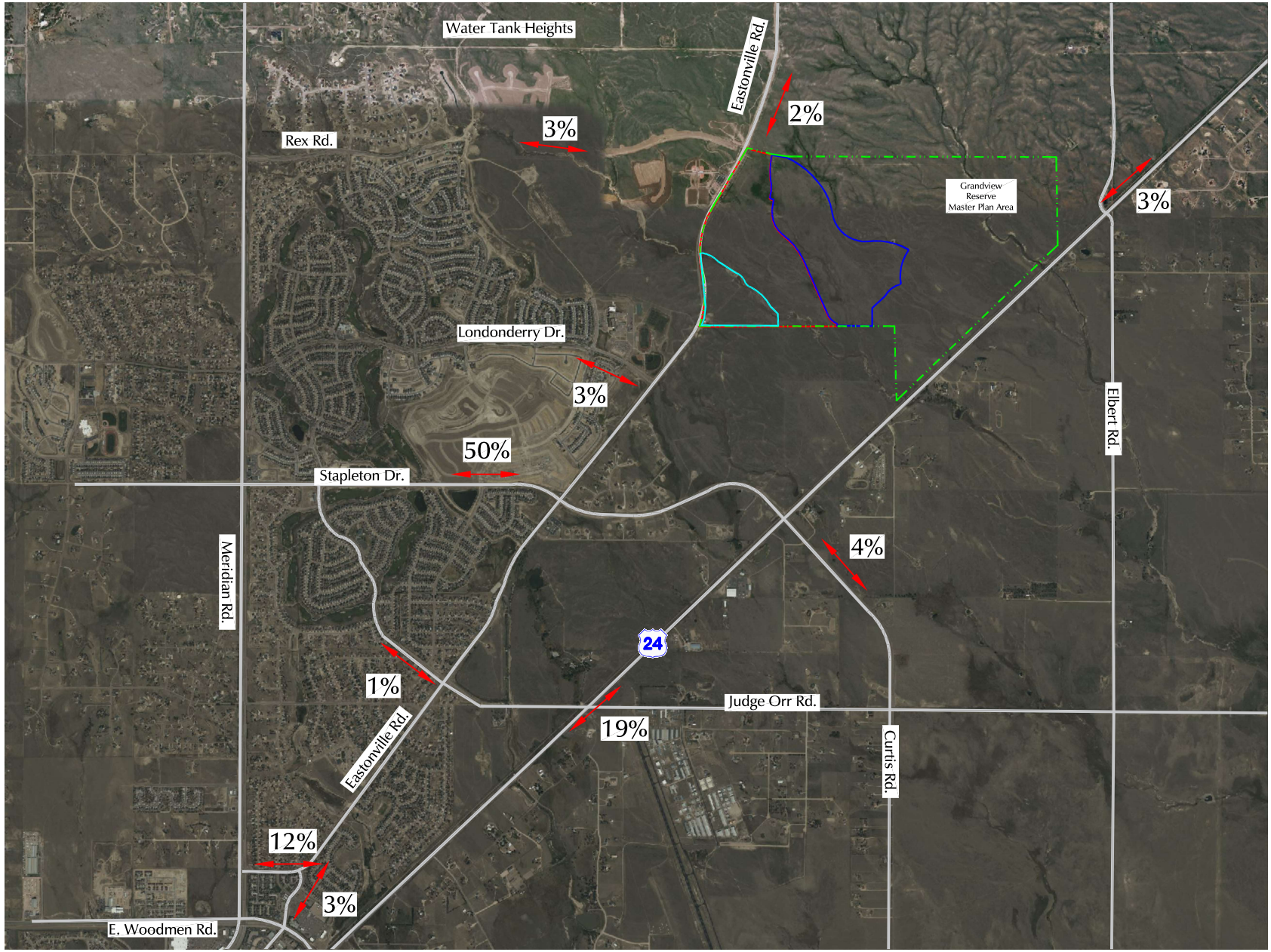
Short-Term Directional Distribution of Site-Generated Traffic

Grandview Reserve Filing No. 1 (LSC # S244090)

LEGEND:

XX% Percent Directional Distribution

LSC TRANSPORTATION CONSULTANTS, INC.



NTS

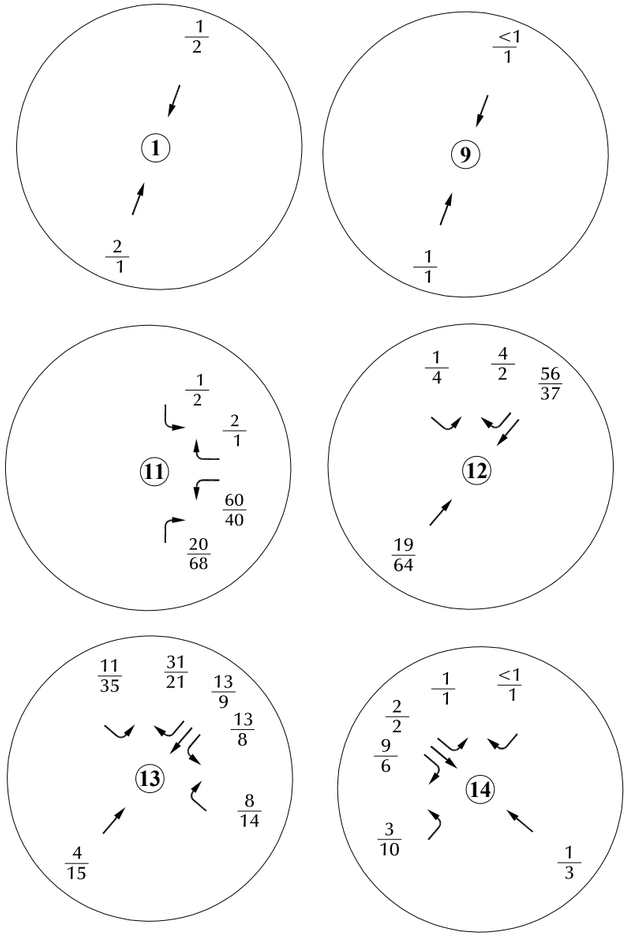
Figure 6b

Long-Term Directional Distribution of Site-Generated Traffic

Grandview Reserve Filing No. 1 (LSC # S244090)

LEGEND:

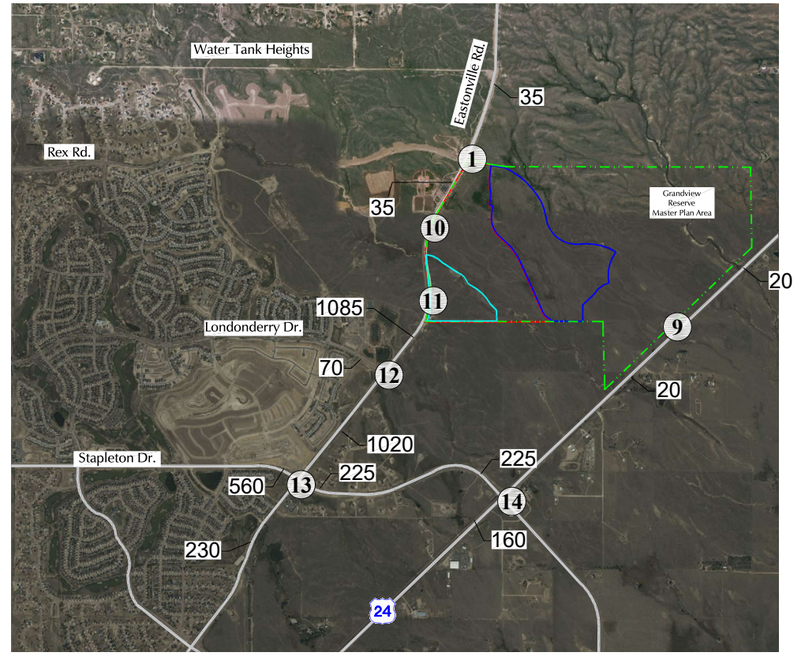
XX% Percent Directional Distribution

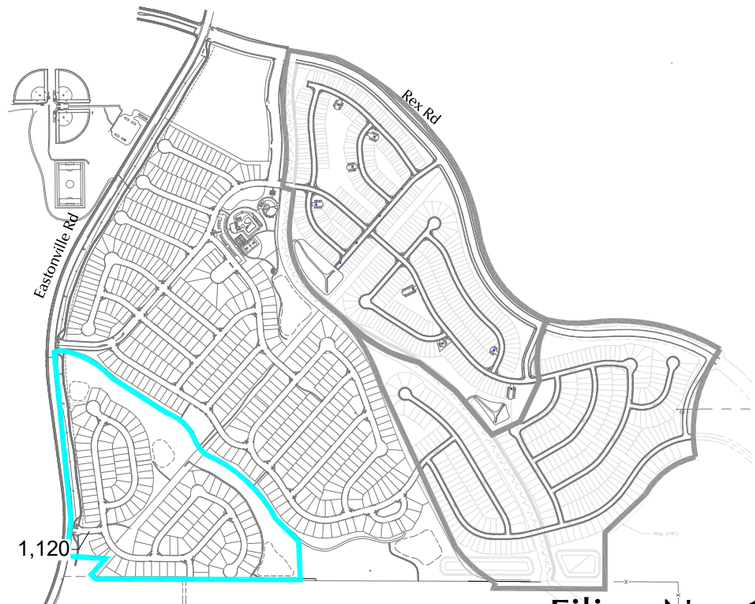


LEGEND:

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)





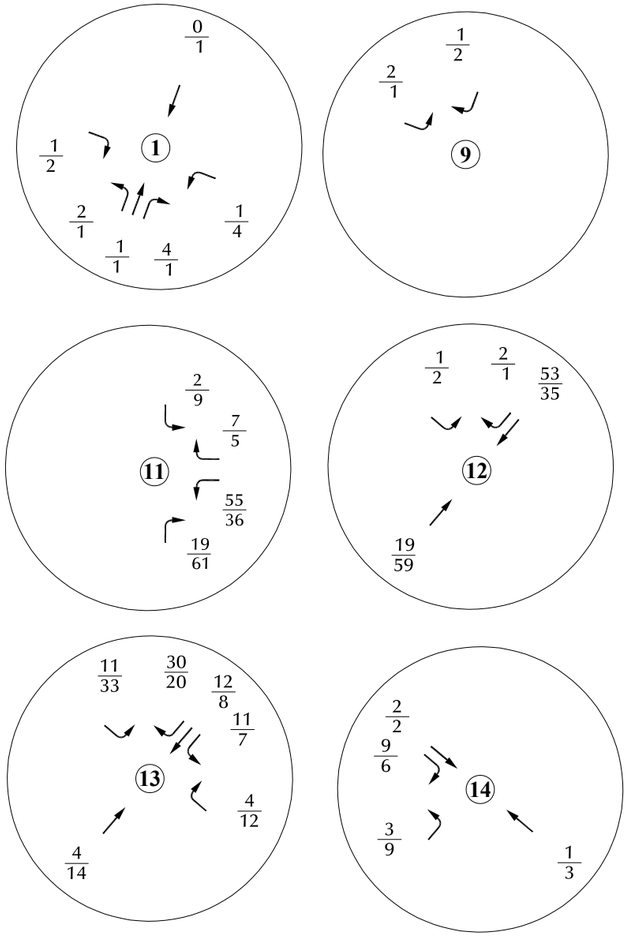
NTS

Figure 7a

Filing No. 1 Short-Term Site-Generated Traffic

Grandview Reserve Filing No. 1 (LSC # S244090)

TRANSPORTATION CONSULTANTS, INC.

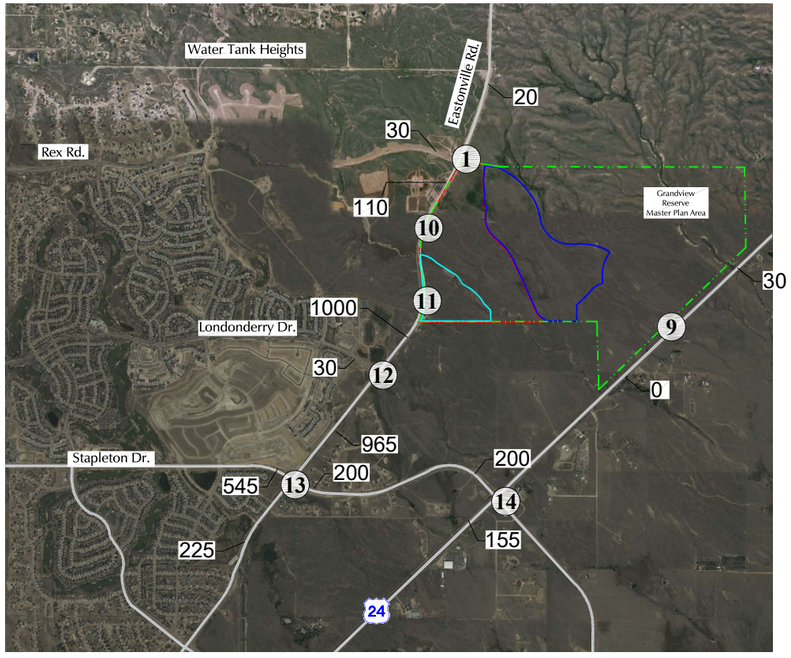


LEGEND:

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)

NTS



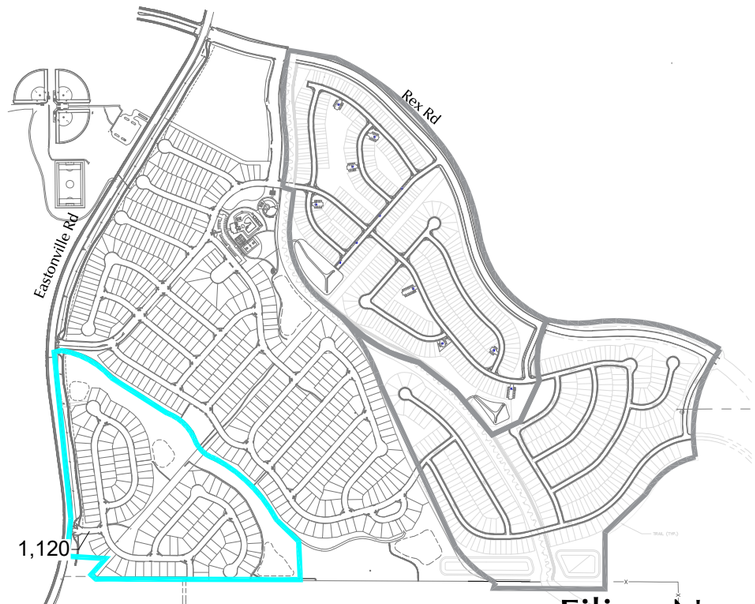


Figure 7b

Filing No. 1 Long-Term Site-Generated Traffic

Grandview Reserve Filing No. 1 (LSC # S244090)

TRANSPORTATION CONSULTANTS, INC.

Intentionally
(1)
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(1)
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(9)
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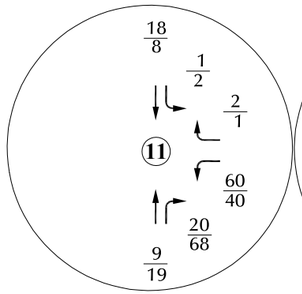

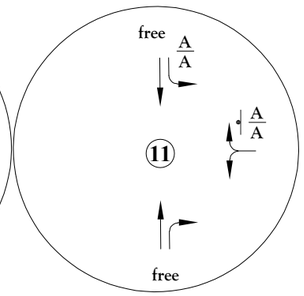

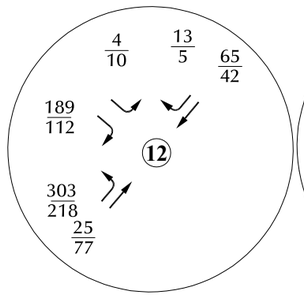

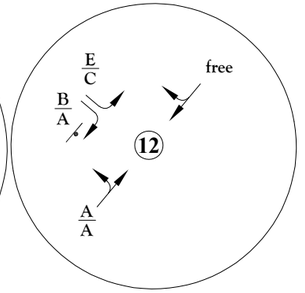

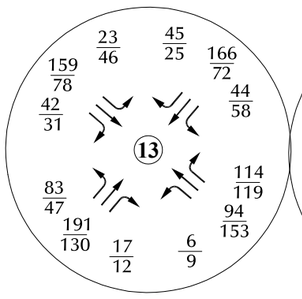

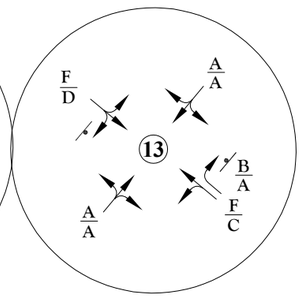

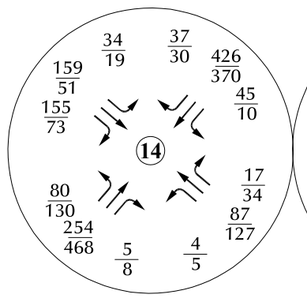

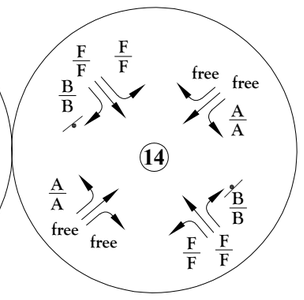

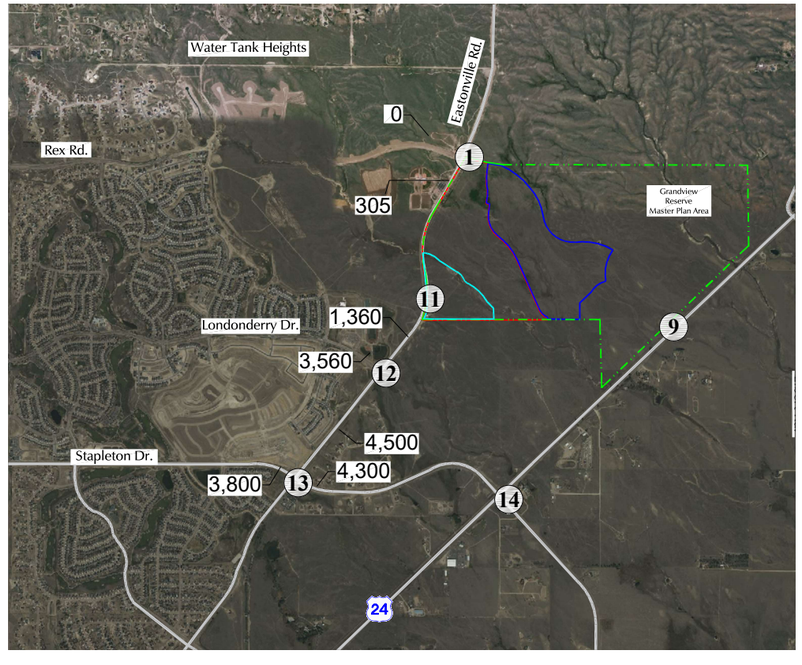

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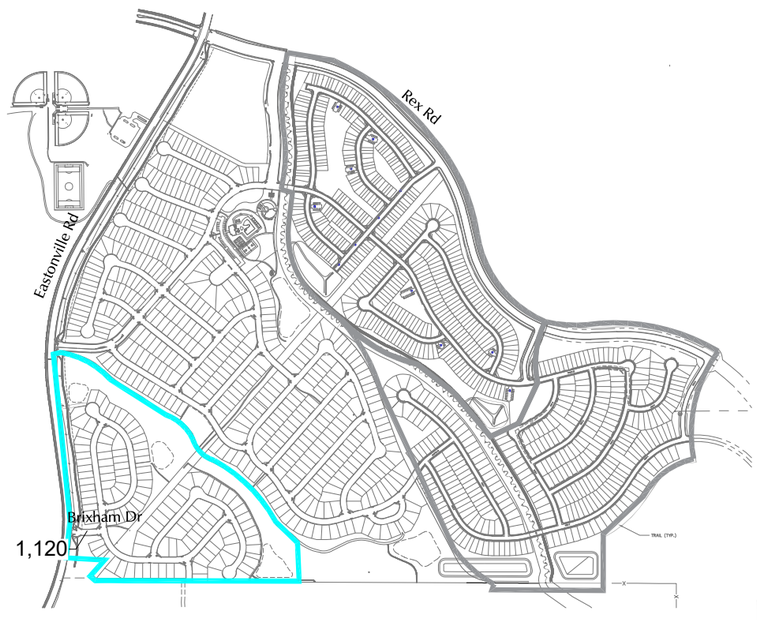


LEGEND:

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)

Traffic Control Used in the Analysis:

= Stop Sign

= Traffic Signal

LOS Analysis Results:

A/A = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

C/C = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

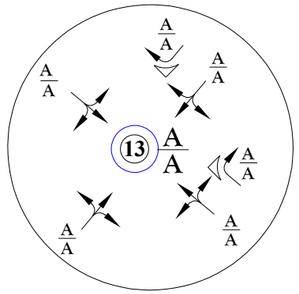
= Modern Roundabout

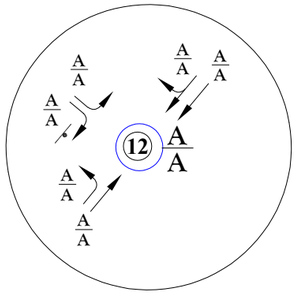
LSC TRANSPORTATION CONSULTANTS, INC.

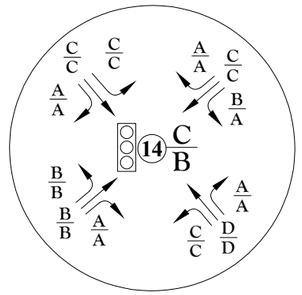
Figure 8a

Existing plus Site-Generated Traffic

Grandview Reserve Filing No. 1 (LSC # S244090)







LEGEND:

Traffic Control Used in the Analysis:

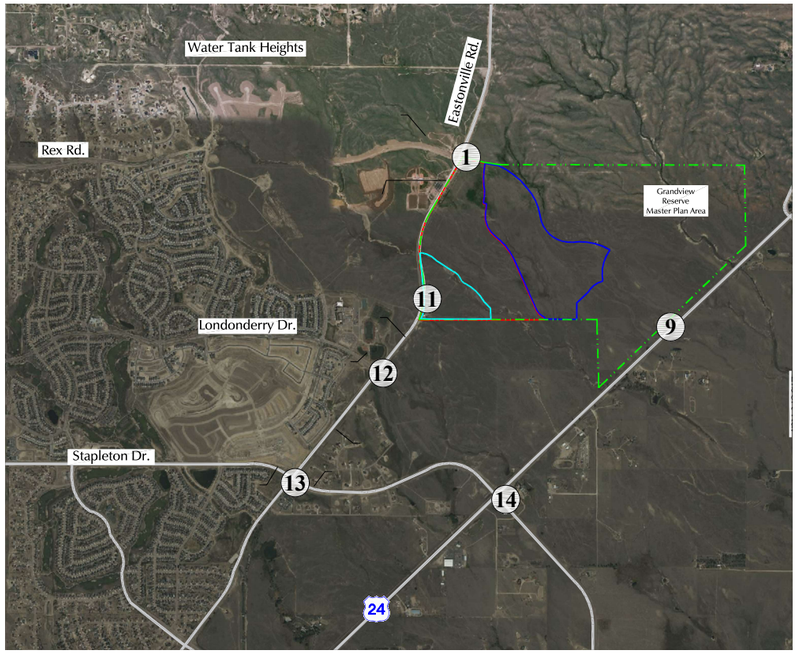
= Traffic Signal

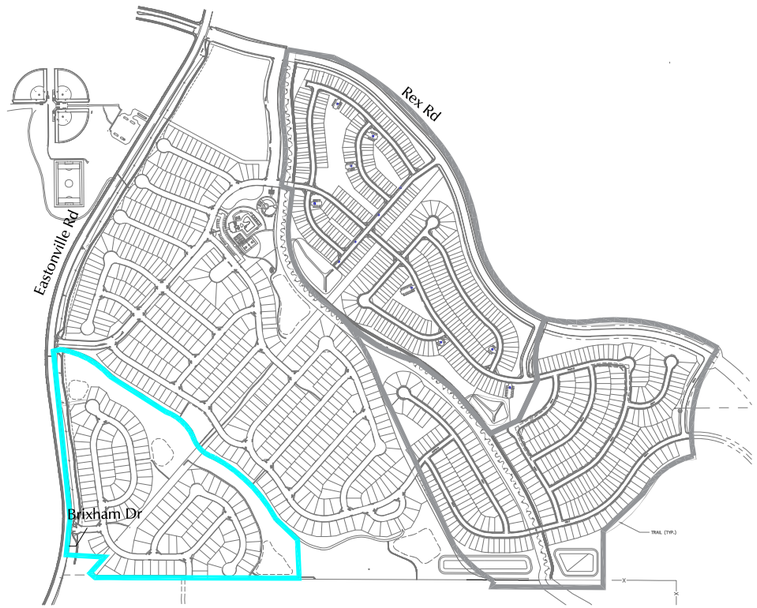
= Modern Roundabout

LOS Analysis Results:

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

$\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service





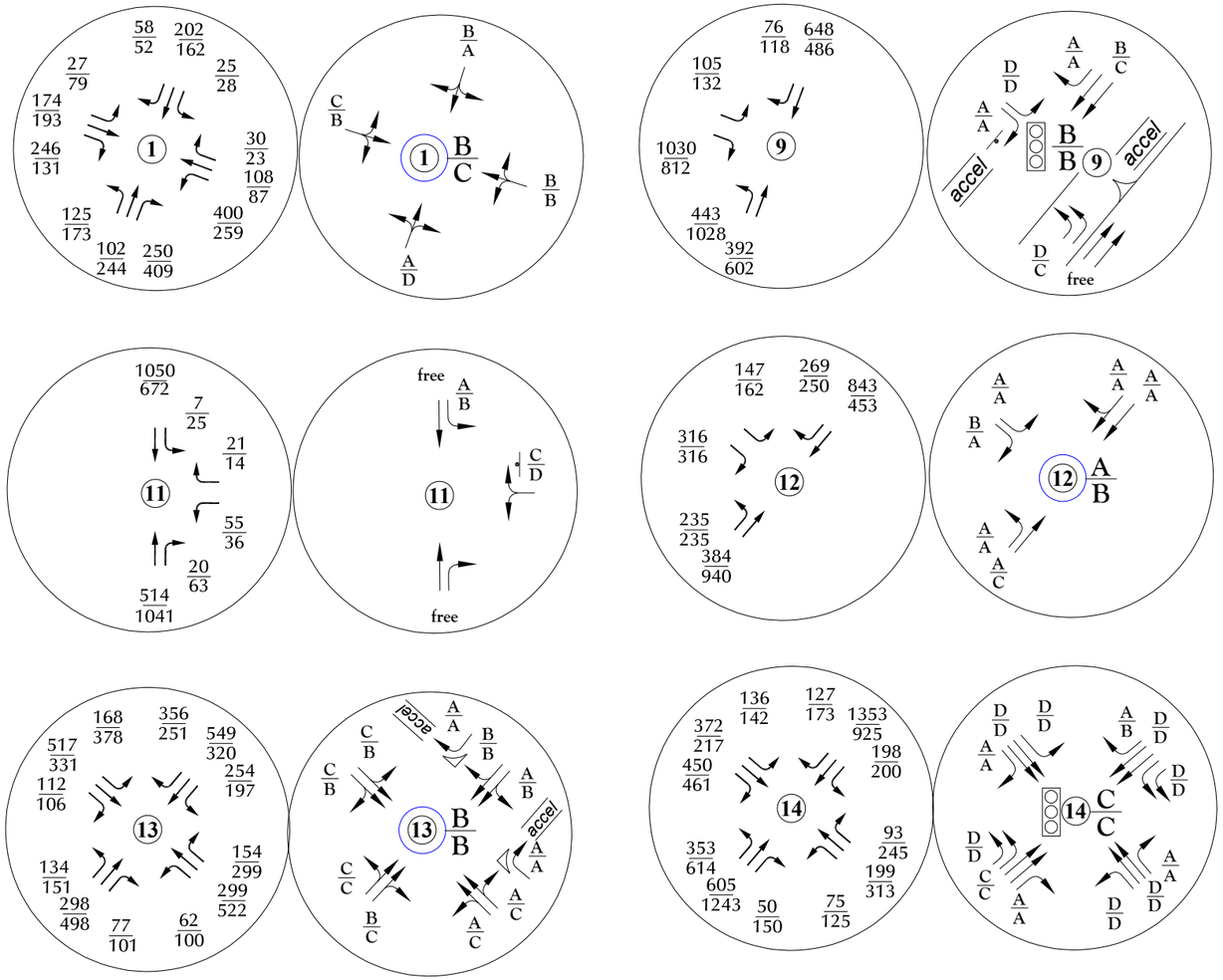
NTS

Figure 8b

Existing plus Site-Generated Traffic with Alternate Traffic Control

Grandview Reserve Filing No. 1 (LSC # S244090)

LSC TRANSPORTATION CONSULTANTS, INC.



LEGEND:

XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)

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

Traffic Control Used in the Analysis:

= Stop Sign

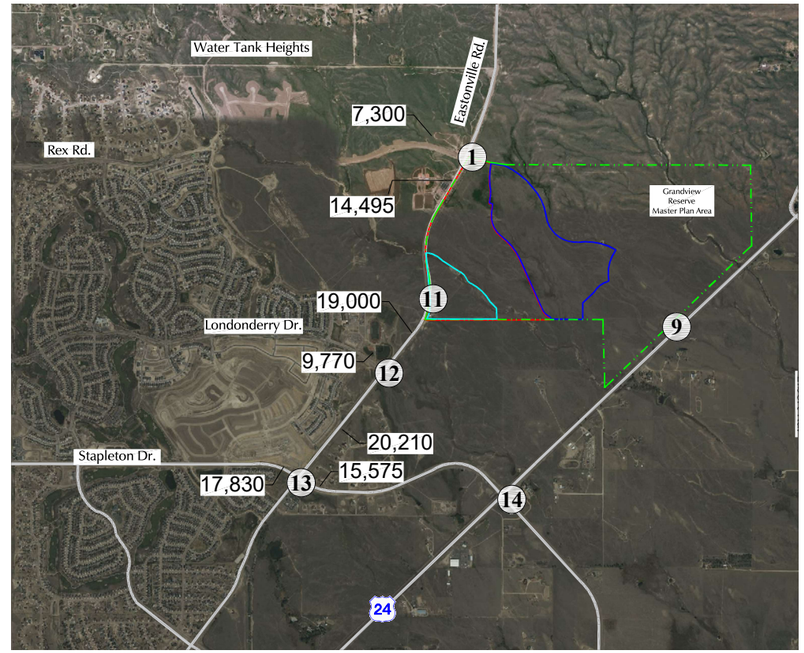
= Traffic Signal

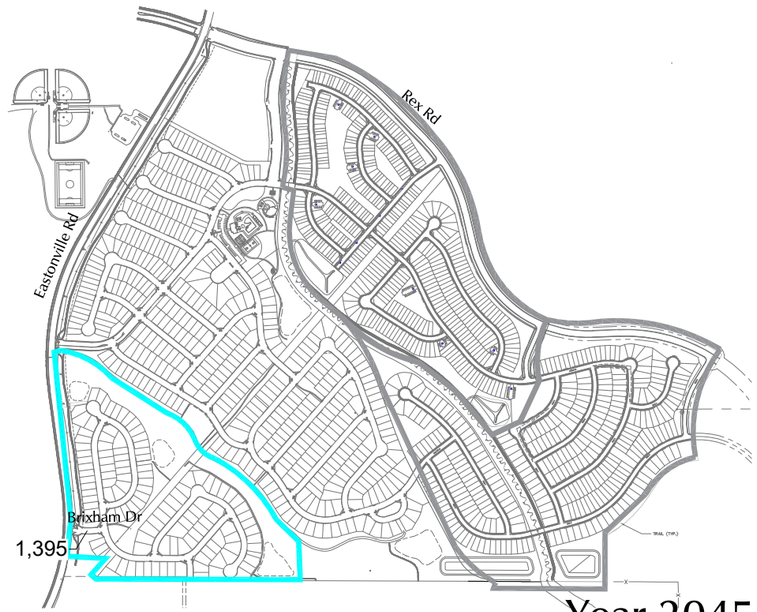
LOS Analysis Results:

A/A = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

C/C = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

= Modern Roundabout





NTS

Figure 9

Year 2045 Total Traffic Conditions

Grandview Reserve Filing No. 1 (LSC # S244090)

LSC TRANSPORTATION CONSULTANTS, INC.

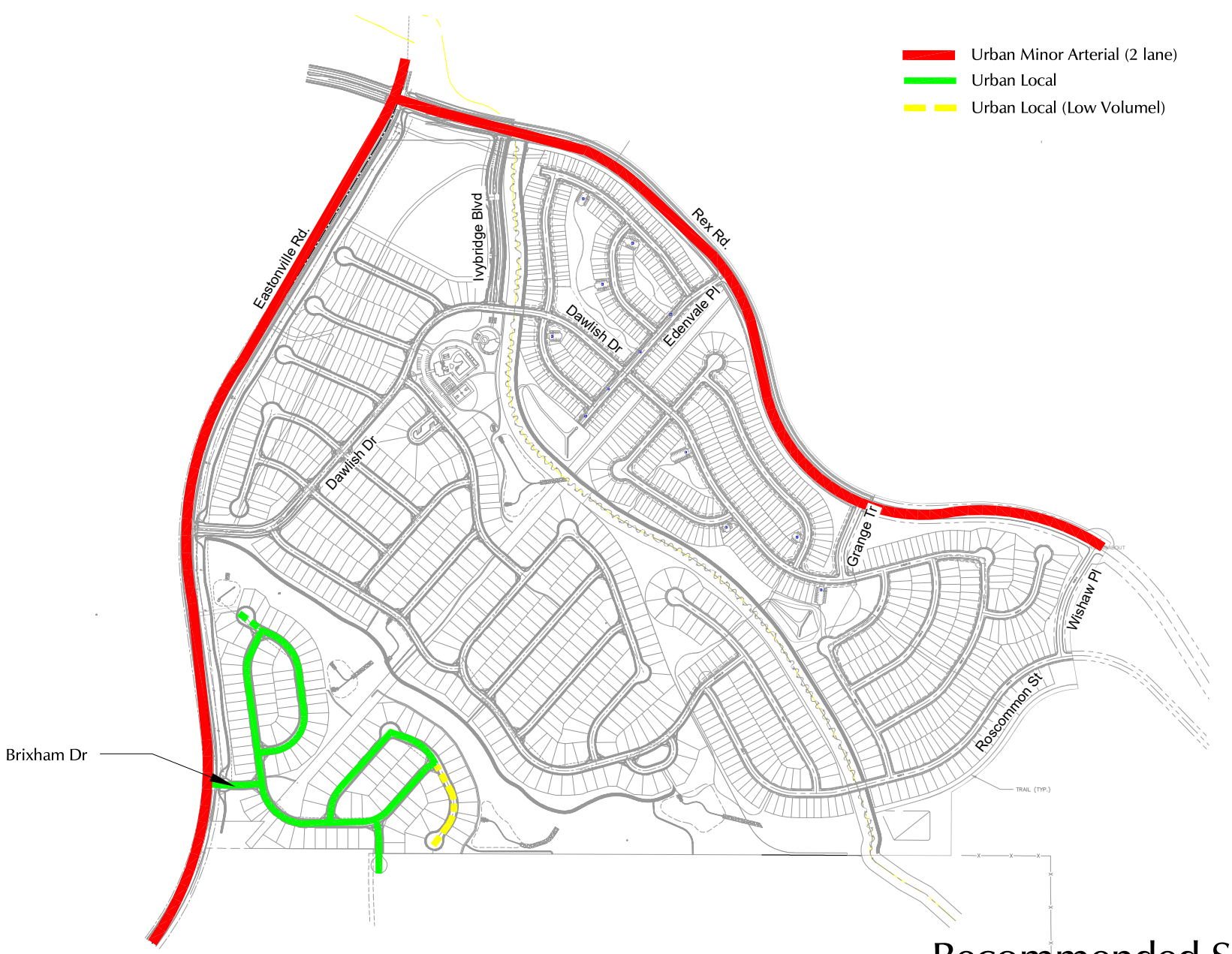


Figure 10

Recommended Street Classification

Grandview Reserve Filing No. 1 (LSC # S244090)

LSC TRANSPORTATION CONSULTANTS, INC.

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

LSC Transportation Consultants, Inc.

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

File Name : Hwy 24 - Stapleton Dr AM PM
Site Code : S224640
Start Date : 1/10/2023

Groups Printed- Unshifted

	Hwy 24 Southbound					Stapleton Dr Westbound					Hwy 24 Northbound					Stapleton Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30	1	29	1	0	31	0	1	1	0	2	1	7	1	0	9	20	11	1	0	32	74
06:35	0	33	0	0	33	1	4	0	0	5	0	12	0	0	12	11	11	2	0	24	74
06:40	0	35	2	0	37	1	0	0	0	1	0	13	2	0	15	16	8	2	0	26	79
06:45	3	41	3	0	47	1	6	3	0	10	1	22	4	0	27	13	9	2	0	24	108
06:50	3	32	1	0	36	1	3	0	0	4	1	15	7	0	23	14	7	1	0	22	85
06:55	2	22	1	0	25	2	8	0	0	10	0	24	6	0	30	16	13	0	0	29	94
Total	9	192	8	0	209	6	22	4	0	32	3	93	20	0	116	90	59	8	0	157	514
07:00	4	35	3	0	42	2	6	0	0	8	0	29	2	0	31	7	13	1	0	21	102
07:05	4	33	4	0	41	1	10	0	0	11	0	22	4	0	26	7	11	6	0	24	102
07:10	0	33	3	0	36	4	11	1	0	16	0	30	5	0	35	15	12	2	0	29	116
07:15	2	36	2	0	40	4	14	1	0	19	0	29	7	0	36	13	15	3	0	31	126
07:20	4	46	1	0	51	1	6	0	0	7	0	30	4	0	34	11	13	1	0	25	117
07:25	5	51	8	0	64	0	7	0	0	7	0	28	0	0	28	10	7	1	0	18	117
07:30	2	34	2	0	38	0	7	0	0	7	1	16	6	0	23	9	20	2	0	31	99
07:35	6	40	5	0	51	0	9	1	0	10	0	9	2	0	11	12	7	2	0	21	93
07:40	4	31	1	0	36	0	7	2	0	9	0	9	3	0	12	5	9	0	0	14	71
07:45	1	31	1	0	33	2	5	1	0	8	0	13	6	0	19	6	17	2	0	25	85
07:50	3	21	4	0	28	0	5	0	0	5	1	18	1	0	20	10	15	2	0	27	80
07:55	2	15	3	0	20	1	1	0	0	2	0	16	4	0	20	8	5	1	0	14	56
Total	37	406	37	0	480	15	88	6	0	109	2	249	44	0	295	113	144	23	0	280	1164
08:00	3	39	2	0	44	0	6	0	0	6	0	10	5	0	15	4	10	2	0	16	81
08:05	1	30	0	0	31	1	2	1	0	4	2	19	5	0	26	4	6	4	0	14	75
08:10	2	27	2	0	31	2	2	1	0	5	0	13	4	0	17	5	6	0	0	11	64
08:15	4	31	0	0	35	5	1	2	0	8	0	7	5	0	12	8	5	2	0	15	70
08:20	5	22	3	0	30	1	7	0	0	8	0	3	3	0	6	7	4	1	0	12	56
08:25	4	34	1	0	39	0	2	0	0	2	1	14	0	0	15	4	7	5	0	16	72
*** BREAK ***																					
Total	19	183	8	0	210	9	20	4	0	33	3	66	22	0	91	32	38	14	0	84	418
*** BREAK ***																					
16:00	2	26	0	0	28	3	7	1	0	11	0	41	13	0	54	3	3	4	0	10	103
16:05	3	25	0	0	28	4	6	0	0	10	0	46	15	0	61	1	2	5	0	8	107
16:10	3	32	0	0	35	2	8	0	0	10	3	35	15	0	53	6	4	2	0	12	110
16:15	3	36	1	0	40	3	9	1	0	13	4	45	7	0	56	4	1	2	0	7	116
16:20	0	31	3	0	34	1	7	1	0	9	2	46	15	0	63	4	2	1	0	7	113
16:25	1	24	1	0	26	2	11	0	0	13	3	47	8	0	58	5	10	3	0	18	115
16:30	1	23	0	0	24	0	10	2	0	12	1	42	7	0	50	5	3	2	0	10	96
16:35	2	32	1	0	35	1	5	1	0	7	4	34	4	0	42	2	1	1	0	4	88
16:40	5	29	1	0	35	2	13	0	0	15	1	29	7	0	37	4	9	1	0	14	101
16:45	3	31	2	0	36	5	10	3	0	18	2	31	13	0	46	3	2	2	0	7	107
16:50	1	32	1	0	34	2	11	0	0	13	4	39	7	0	50	6	4	2	0	12	109

LSC Transportation Consultants, Inc.

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

File Name : Hwy 24 - Stapleton Dr AM PM
Site Code : S224640
Start Date : 1/10/2023

Groups Printed- Unshifted

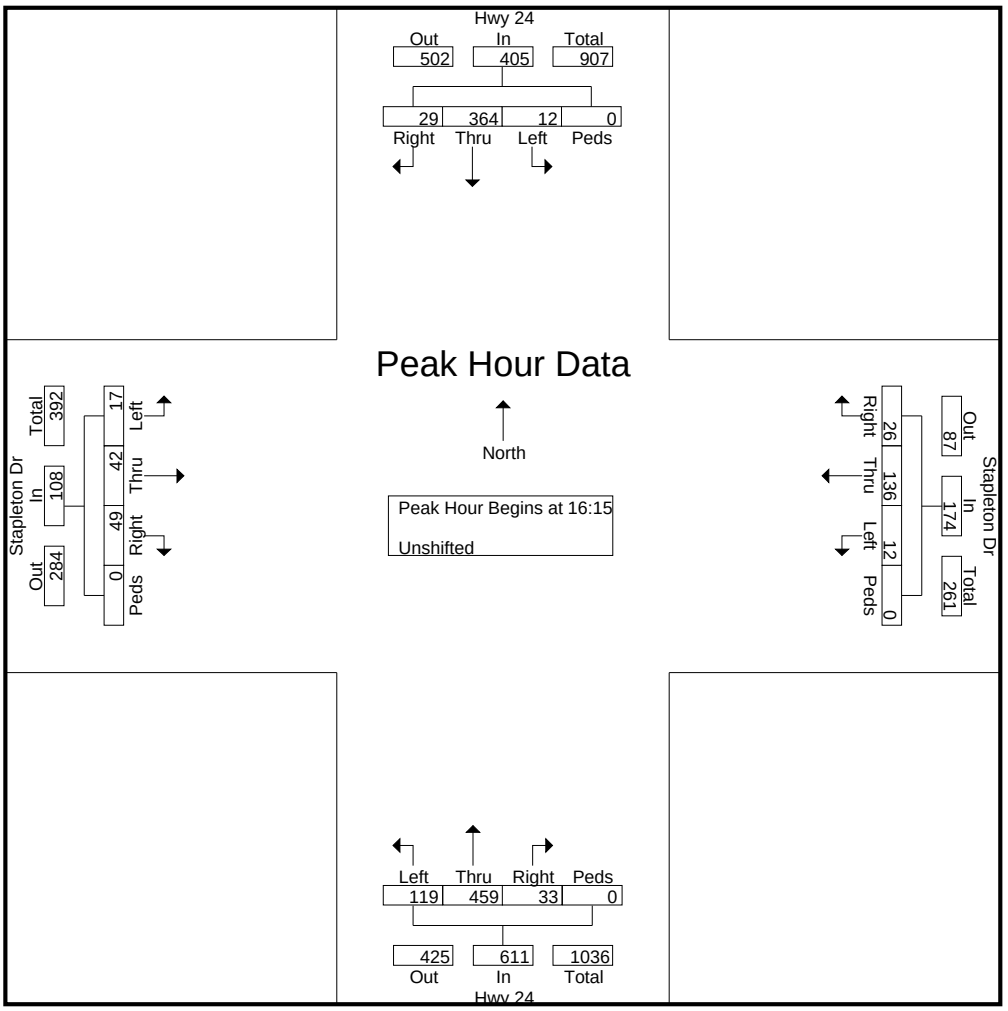
	Hwy 24 Southbound					Stapleton Dr Westbound					Hwy 24 Northbound					Stapleton Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
16:55	5	29	1	0	35	3	15	2	0	20	3	31	15	0	49	2	4	2	0	8	112
Total	29	350	11	0	390	28	112	11	0	151	27	466	126	0	619	45	45	27	0	117	1277
17:00	3	22	0	0	25	0	20	0	0	20	1	37	13	0	51	8	1	0	0	9	105
17:05	2	30	0	0	32	4	6	1	0	11	7	47	14	0	68	2	4	0	0	6	117
17:10	3	45	1	0	49	3	19	1	0	23	1	31	9	0	41	4	1	1	0	6	119
17:15	3	29	1	0	33	1	4	1	0	6	0	46	7	0	53	3	1	1	0	5	97
17:20	3	27	1	0	31	4	11	1	0	16	3	34	8	0	45	3	5	2	0	10	102
17:25	3	21	0	0	24	3	2	0	0	5	0	30	11	0	41	2	4	2	0	8	78
17:30	3	18	0	0	21	5	8	0	0	13	2	43	8	0	53	1	3	0	0	4	91
17:35	3	17	0	0	20	2	6	0	0	8	0	33	14	0	47	2	1	3	0	6	81
17:40	1	18	0	0	19	2	6	2	0	10	1	32	6	0	39	0	1	3	0	4	72
17:45	4	24	1	0	29	2	4	1	0	7	1	51	7	0	59	3	2	1	0	6	101
17:50	1	13	0	0	14	1	6	1	0	8	0	48	13	0	61	2	5	3	0	10	93
17:55	3	18	0	0	21	3	7	0	0	10	1	23	9	0	33	4	7	2	0	13	77
Total	32	282	4	0	318	30	99	8	0	137	17	455	119	0	591	34	35	18	0	87	1133
Grand Total	126	1413	68	0	1607	88	341	33	0	462	52	1329	331	0	1712	314	321	90	0	725	4506
Apprch %	7.8	87.9	4.2	0		19	73.8	7.1	0		3	77.6	19.3	0		43.3	44.3	12.4	0		
Total %	2.8	31.4	1.5	0	35.7	2	7.6	0.7	0	10.3	1.2	29.5	7.3	0	38	7	7.1	2	0	16.1	

LSC Transportation Consultants, Inc.

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

File Name : Hwy 24 - Stapleton Dr AM PM
Site Code : S224640
Start Date : 1/10/2023
Page No : 3

	Hwy 24 Southbound					Stapleton Dr Westbound					Hwy 24 Northbound					Stapleton Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 17:55 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	3	36	1	0	40	3	9	1	0	13	4	45	7	0	56	4	1	2	0	7	116
16:20	0	31	**3**	0	34	1	7	1	0	9	2	46	**15**	0	63	4	2	1	0	7	113
16:25	1	24	1	0	26	2	11	0	0	13	3	**47**	8	0	58	5	**10**	**3**	0	**18**	115
16:30	1	23	0	0	24	0	10	2	0	12	1	42	7	0	50	5	3	2	0	10	96
16:35	2	32	1	0	35	1	5	1	0	7	4	34	4	0	42	2	1	1	0	4	88
16:40	**5**	29	1	0	35	2	13	0	0	15	1	29	7	0	37	4	9	1	0	14	101
16:45	3	31	2	0	36	**5**	10	**3**	0	18	2	31	13	0	46	3	2	2	0	7	107
16:50	1	32	1	0	34	2	11	0	0	13	4	39	7	0	50	6	4	2	0	12	109
16:55	5	29	1	0	35	3	15	2	0	20	3	31	15	0	49	2	4	2	0	8	112
17:00	3	22	0	0	25	0	**20**	0	0	20	1	37	13	0	51	**8**	1	0	0	9	105
17:05	2	30	0	0	32	4	6	1	0	11	**7**	47	14	0	**68**	2	4	0	0	6	117
17:10	3	**45**	1	0	**49**	3	19	1	0	**23**	1	31	9	0	41	4	1	1	0	6	**119**
Total Volume	29	364	12	0	405	26	136	12	0	174	33	459	119	0	611	49	42	17	0	108	1298
% App. Total	7.2	89.9	3	0		14.9	78.2	6.9	0		5.4	75.1	19.5	0		45.4	38.9	15.7	0		
PHF	.483	.674	.333	.000	.689	.433	.567	.333	.000	.630	.393	.814	.661	.000	.749	.510	.350	.472	.000	.500	.909



LSC Transportation Consultants, Inc.

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

File Name : Eastonville Rd - Stapleton Dr AM
Site Code : S214870
Start Date : 10/7/2021
Page No : 1

Groups Printed- Unshifted

	Eastonville Rd Southbound					Stapleton Dr Westbound					Eastonville Rd Northbound					Stapleton Dr Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
06:30 AM	29	8	0	0	37	0	18	8	0	26	2	14	0	0	16	3	32	2	0	37	116
06:45 AM	36	19	2	0	57	0	11	20	0	31	5	18	1	0	24	5	51	8	0	64	176
Total	65	27	2	0	94	0	29	28	0	57	7	32	1	0	40	8	83	10	0	101	292
07:00 AM	31	36	6	0	73	0	16	43	0	59	13	76	2	0	91	2	27	6	0	35	258
07:15 AM	48	67	4	0	119	3	25	34	0	62	33	69	3	0	105	3	36	13	0	52	338
07:30 AM	24	31	2	0	57	3	42	13	0	58	32	24	11	0	67	2	45	15	0	62	244
07:45 AM	15	17	0	0	32	0	20	8	0	28	16	14	1	1	32	0	36	15	0	51	143
Total	118	151	12	0	281	6	103	98	0	207	94	183	17	1	295	7	144	49	0	200	983
08:00 AM	11	14	1	1	27	2	20	11	0	33	8	10	1	0	19	1	24	12	0	37	116
08:15 AM	23	10	0	1	34	1	18	12	0	31	18	9	0	0	27	2	12	11	0	25	117
08:30 AM	12	8	2	0	22	0	18	6	0	24	4	6	2	0	12	3	21	3	0	27	85
Grand Total	229	210	17	2	458	9	188	155	0	352	131	240	21	1	393	21	284	85	0	390	1593
Apprch %	50	45.9	3.7	0.4		2.6	53.4	44	0		33.3	61.1	5.3	0.3		5.4	72.8	21.8	0		
Total %	14.4	13.2	1.1	0.1	28.8	0.6	11.8	9.7	0	22.1	8.2	15.1	1.3	0.1	24.7	1.3	17.8	5.3	0	24.5	

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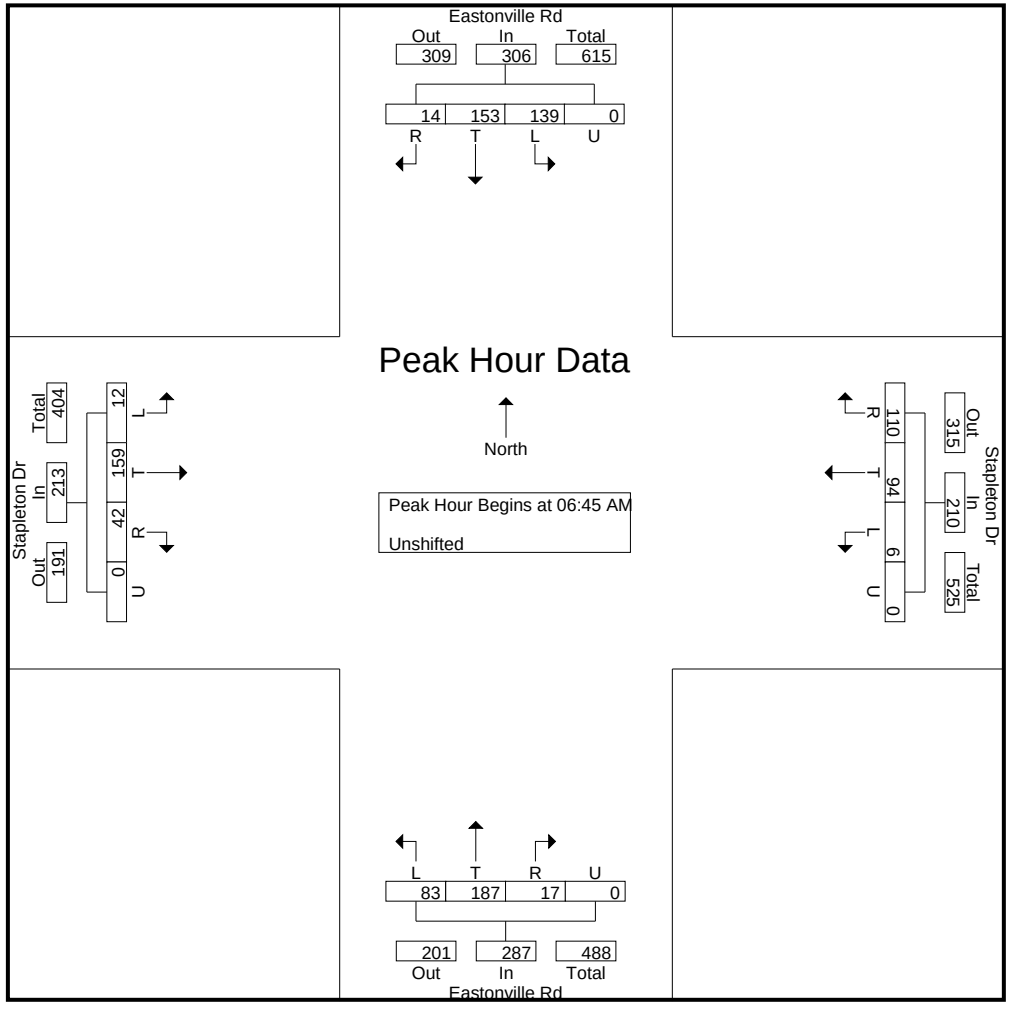
719-633-2868

File Name : Eastonville Rd - Stapleton Dr AM
Site Code : S214870
Start Date : 10/7/2021
Page No : 3



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

File Name : Eastonville Rd - Stapleton Dr PM
Site Code : S214870
Start Date : 10/7/2021
Page No : 1

Groups Printed- Unshifted

	Eastonville Rd Southbound					Stapleton Dr Westbound					Eastonville Rd Northbound					Stapleton Dr Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
04:00 PM	9	15	2	0	26	1	42	25	0	68	11	23	3	0	37	1	25	8	0	34	165
04:15 PM	9	20	0	2	31	6	38	27	0	71	6	25	5	0	36	3	23	9	0	35	173
04:30 PM	11	12	0	0	23	1	39	31	0	71	17	40	2	1	60	2	16	8	0	26	180
04:45 PM	21	16	2	0	39	1	34	22	0	57	13	27	2	0	42	5	14	6	0	25	163
Total	50	63	4	2	119	9	153	105	0	267	47	115	12	1	175	11	78	31	0	120	681
05:00 PM	13	27	2	0	42	3	40	18	0	61	5	24	4	0	33	4	18	3	0	25	161
05:15 PM	11	27	2	0	40	2	28	29	0	59	11	25	2	0	38	2	21	3	0	26	163
05:30 PM	14	19	2	0	35	4	30	15	0	49	11	30	2	0	43	0	26	8	0	34	161
05:45 PM	14	15	1	0	30	3	32	13	0	48	10	32	0	0	42	3	26	5	0	34	154
Total	52	88	7	0	147	12	130	75	0	217	37	111	8	0	156	9	91	19	0	119	639
06:00 PM	12	23	5	0	40	2	31	19	0	52	9	22	3	0	34	5	15	1	0	21	147
Grand Total	114	174	16	2	306	23	314	199	0	536	93	248	23	1	365	25	184	51	0	260	1467
Apprch %	37.3	56.9	5.2	0.7		4.3	58.6	37.1	0		25.5	67.9	6.3	0.3		9.6	70.8	19.6	0		
Total %	7.8	11.9	1.1	0.1	20.9	1.6	21.4	13.6	0	36.5	6.3	16.9	1.6	0.1	24.9	1.7	12.5	3.5	0	17.7	

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719-633-2868

File Name : Eastonville Rd - Stapleton Dr PM
Site Code : S214870
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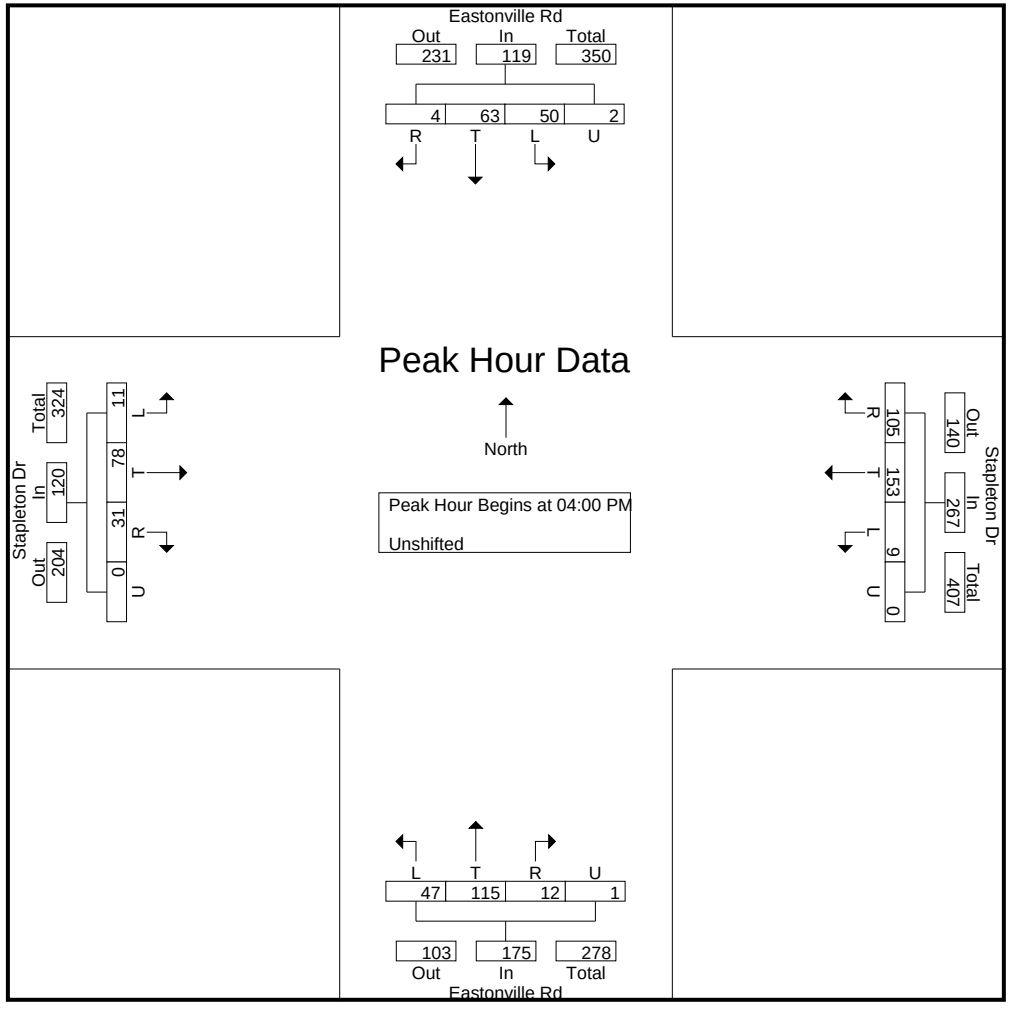

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2504 E. Pikes Peak Ave, Suite 304
Colorado Springs, CO 80909
719-633-2868

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

Groups Printed- Unshifted

	Eastonville Rd Southbound					Westbound					Eastonville Rd Northbound					Londonderry Dr Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
07:00 AM	0	2	2	0	4	0	0	0	0	0	44	2	0	0	46	0	0	31	0	31	81
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	

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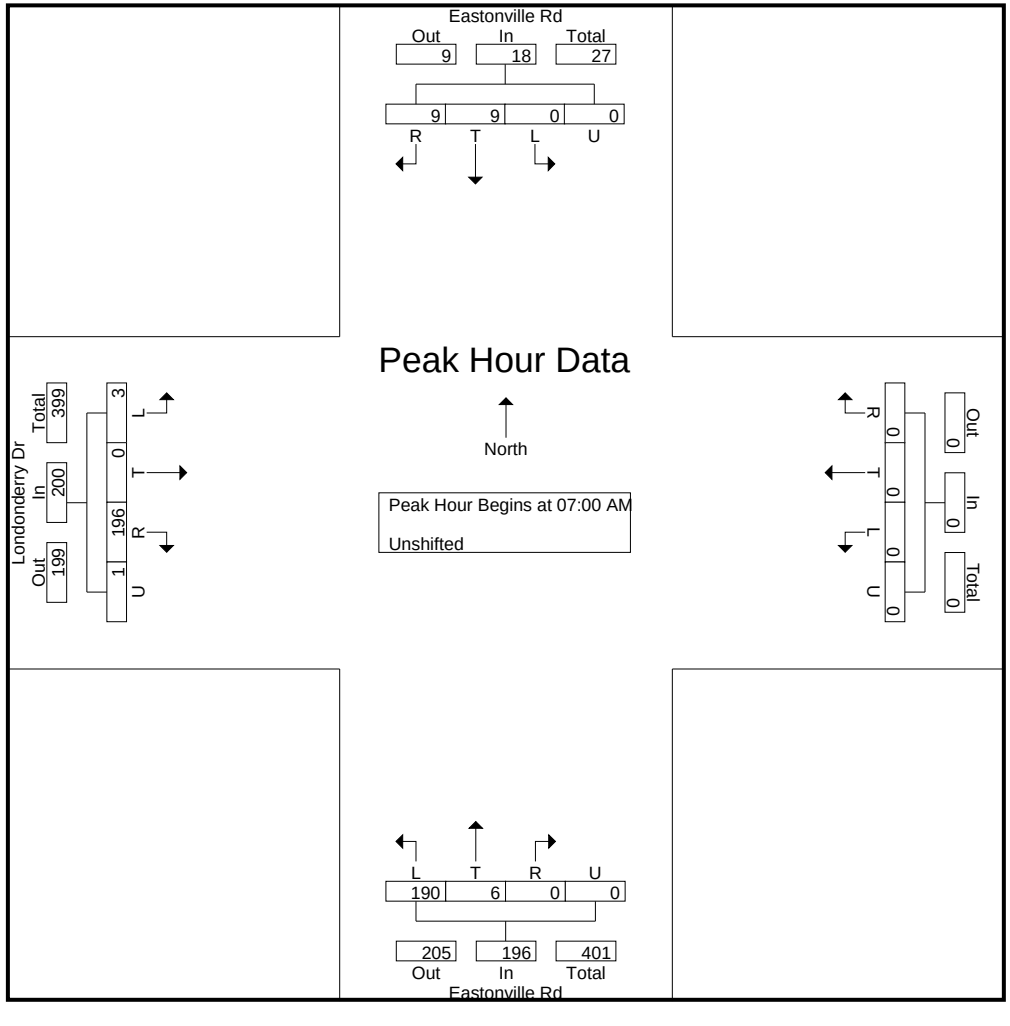

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719-633-2868

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

Groups Printed- Unshifted

	Eastonville Rd Southbound					Westbound					Eastonville Rd Northbound					Londonderry Dr Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
04:00 PM	0	2	1	0	3	0	0	0	0	0	47	1	0	0	48	2	0	27	0	29	80
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	

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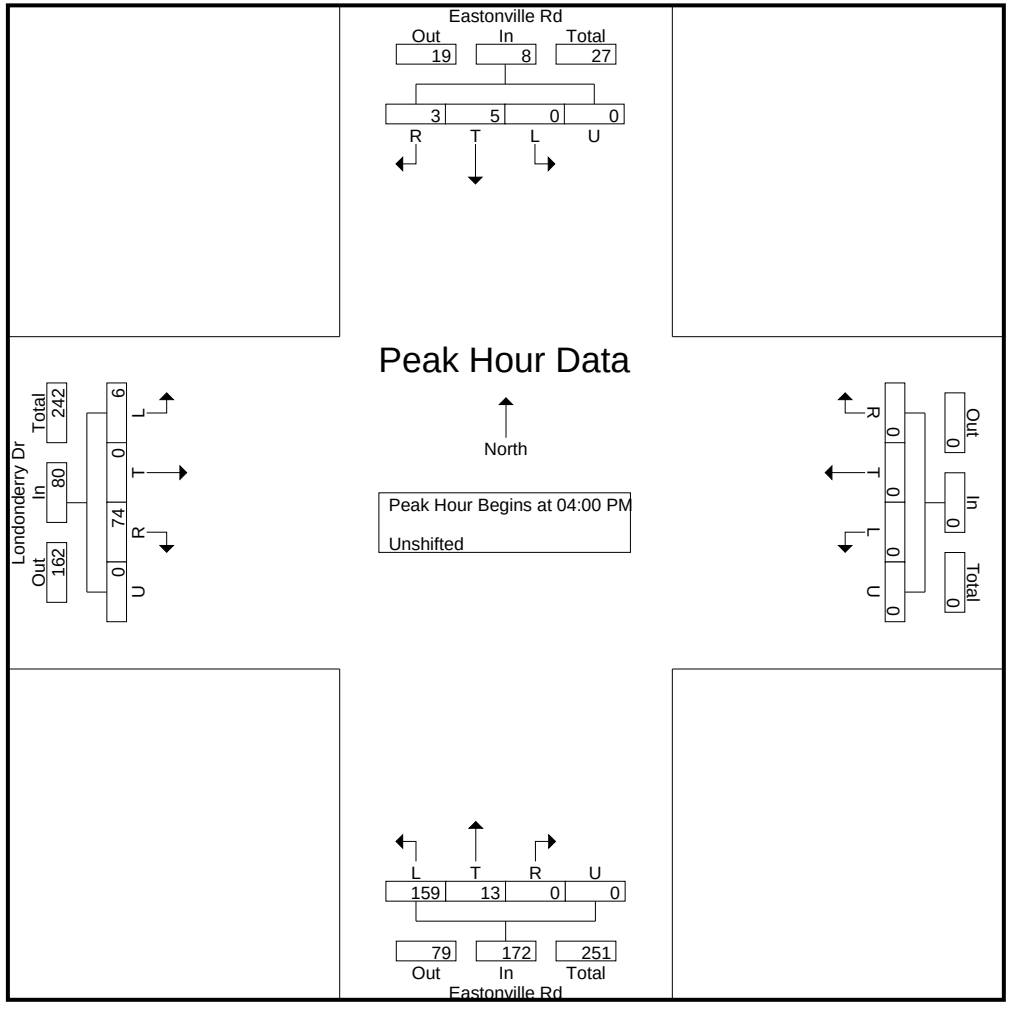


Level of Service Reports

Intersection	
Int Delay, s/veh	9.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	297	303	6	9	9
Future Vol, veh/h	3	297	303	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	443	594	12	10	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1215	15	20	0	-	0
Stage 1	15	-	-	-	-	-
Stage 2	1200	-	-	-	-	-
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	200	1065	1596	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	125	1065	1596	-	-	-
Mov Cap-2 Maneuver	125	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	285	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	8.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1596	-	125	1065	-	-
HCM Lane V/C Ratio	0.372	-	0.036	0.416	-	-
HCM Control Delay (s)	8.6	0	34.9	10.8	-	-
HCM Lane LOS	A	A	D	B	-	-
HCM 95th %tile Q(veh)	1.8	-	0.1	2.1	-	-

Intersection	
Int Delay, s/veh	108.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↗		↕			↕	
Traffic Vol, veh/h	12	159	42	6	94	110	83	187	17	139	153	14
Future Vol, veh/h	12	159	42	6	94	110	83	187	17	139	153	14
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	87	87	87	85	85	85	68	68	68	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	183	48	7	111	129	122	275	25	217	239	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1336	1228	250	1332	1227	288	261	0	0	300	0	0
Stage 1	684	684	-	532	532	-	-	-	-	-	-	-
Stage 2	652	544	-	800	695	-	-	-	-	-	-	-
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	130	~ 178	789	131	178	751	1303	-	-	1261	-	-
Stage 1	439	449	-	531	526	-	-	-	-	-	-	-
Stage 2	457	519	-	379	444	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	22	~ 126	789	-	126	751	1303	-	-	1261	-	-
Mov Cap-2 Maneuver	22	~ 126	-	-	126	-	-	-	-	-	-	-
Stage 1	389	358	-	471	467	-	-	-	-	-	-	-
Stage 2	256	460	-	139	354	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 606.5		2.3	3.8
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1303	-	-	114	-	751	1261	-	-
HCM Lane V/C Ratio	0.094	-	-	2.148	-	0.172	0.172	-	-
HCM Control Delay (s)	8	0	-	$ 606.5	-	10.8	8.4	0	-
HCM Lane LOS	A	A	-	F	-	B	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	20.8	-	0.6	0.6	-	-

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

Intersection	
Int Delay, s/veh	14.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	135	143	6	87	17	49	267	3	35	438	35
Future Vol, veh/h	23	135	143	6	87	17	49	267	3	35	438	35
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	185	-	325	225	-	225	1000	-	0	785	-	785
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	65	65	65	76	76	76	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	152	161	9	134	26	64	351	4	38	476	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1113	1035	476	1207	1069	351	514	0	0	355	0	0
Stage 1	552	552	-	479	479	-	-	-	-	-	-	-
Stage 2	561	483	-	728	590	-	-	-	-	-	-	-
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	186	232	589	160	221	692	1052	-	-	1204	-	-
Stage 1	518	515	-	568	555	-	-	-	-	-	-	-
Stage 2	512	553	-	415	495	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	78	211	589	45	201	692	1052	-	-	1204	-	-
Mov Cap-2 Maneuver	78	211	-	45	201	-	-	-	-	-	-	-
Stage 1	486	499	-	533	521	-	-	-	-	-	-	-
Stage 2	344	519	-	203	479	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	37.2	49	1.3	0.6
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1052	-	-	78	211	589	45	201	692	1204	-	-
HCM Lane V/C Ratio	0.061	-	-	0.331	0.719	0.273	0.205	0.666	0.038	0.032	-	-
HCM Control Delay (s)	8.6	-	-	72.5	56.4	13.4	104.6	52.7	10.4	8.1	-	-
HCM Lane LOS	A	-	-	F	F	B	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.2	4.7	1.1	0.7	4	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	112	218	13	5	3
Future Vol, veh/h	6	112	218	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	83	83	79	79	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	135	276	16	6	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	576	8	10	0	-	0
Stage 1	8	-	-	-	-	-
Stage 2	568	-	-	-	-	-
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	479	1074	1610	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	567	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	396	1074	1610	-	-	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1610	-	396	1074	-	-
HCM Lane V/C Ratio	0.171	-	0.018	0.126	-	-
HCM Control Delay (s)	7.7	0	14.3	8.8	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.6	-	0.1	0.4	-	-

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↗		↕			↕	
Traffic Vol, veh/h	11	78	31	9	153	105	47	115	12	50	63	4
Future Vol, veh/h	11	78	31	9	153	105	47	115	12	50	63	4
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	83	83	83	94	94	94	74	74	74	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	94	37	10	163	112	64	155	16	60	76	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	628	498	79	555	492	163	81	0	0	171	0	0
Stage 1	199	199	-	291	291	-	-	-	-	-	-	-
Stage 2	429	299	-	264	201	-	-	-	-	-	-	-
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	395	474	981	442	478	882	1517	-	-	1406	-	-
Stage 1	803	736	-	717	672	-	-	-	-	-	-	-
Stage 2	604	666	-	741	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	229	431	981	330	435	882	1517	-	-	1406	-	-
Mov Cap-2 Maneuver	229	431	-	330	435	-	-	-	-	-	-	-
Stage 1	765	703	-	683	640	-	-	-	-	-	-	-
Stage 2	375	635	-	590	702	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.4	15.3	2	3.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1517	-	-	460	427	882	1406	-	-
HCM Lane V/C Ratio	0.042	-	-	0.314	0.404	0.127	0.043	-	-
HCM Control Delay (s)	7.5	0	-	16.4	19	9.7	7.7	0	-
HCM Lane LOS	A	A	-	C	C	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	1.9	0.4	0.1	-	-

Intersection	
Int Delay, s/veh	22.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	42	49	26	136	26	119	459	33	12	364	29
Future Vol, veh/h	17	42	49	26	136	26	119	459	33	12	364	29
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	185	-	325	225	-	225	1000	-	0	785	-	785
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	83	83	83	86	86	86	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	50	58	31	164	31	138	534	38	14	418	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1373	1294	418	1327	1289	534	451	0	0	572	0	0
Stage 1	446	446	-	810	810	-	-	-	-	-	-	-
Stage 2	927	848	-	517	479	-	-	-	-	-	-	-
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	123	163	635	132	164	546	1109	-	-	1001	-	-
Stage 1	591	574	-	374	393	-	-	-	-	-	-	-
Stage 2	322	378	-	541	555	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	141	635	78	~ 142	546	1109	-	-	1001	-	-
Mov Cap-2 Maneuver	-	141	-	78	~ 142	-	-	-	-	-	-	-
Stage 1	518	566	-	328	344	-	-	-	-	-	-	-
Stage 2	139	331	-	442	547	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		146.3	1.7	0.3
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1109	-	-	-	141	635	78	142	546	1001	-	-
HCM Lane V/C Ratio	0.125	-	-	-	0.355	0.092	0.402	1.154	0.057	0.014	-	-
HCM Control Delay (s)	8.7	-	-	-	43.9	11.2	79.2	184.8	12	8.6	-	-
HCM Lane LOS	A	-	-	-	E	B	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-	1.5	0.3	1.6	9.3	0.2	0	-	-

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

Intersection	
Intersection Delay, s/veh	12.5
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	469	566	497	299
Demand Flow Rate, veh/h	479	577	507	305
Vehicles Circulating, veh/h	671	271	243	678
Vehicles Exiting, veh/h	312	479	907	170
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	19.5	10.5	8.8	11.7
Approach LOS	C	B	A	B

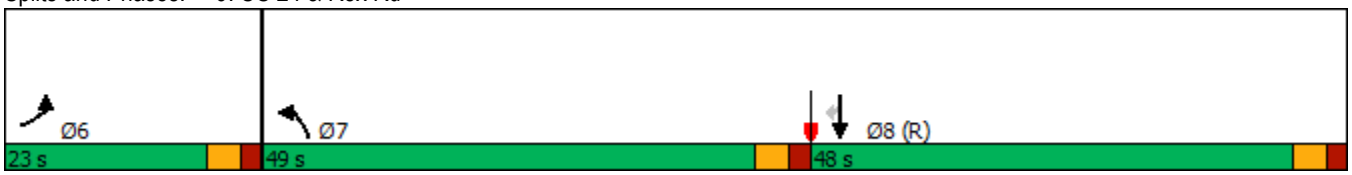
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	479	577	507	305
Cap Entry Lane, veh/h	696	1047	1077	691
Entry HV Adj Factor	0.980	0.980	0.980	0.980
Flow Entry, veh/h	469	566	497	299
Cap Entry, veh/h	682	1026	1055	677
V/C Ratio	0.688	0.551	0.471	0.441
Control Delay, s/veh	19.5	10.5	8.8	11.7
LOS	C	B	A	B
95th %tile Queue, veh	5	3	3	2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	104	1030	443	392	648	75
Future Volume (vph)	104	1030	443	392	648	75
Turn Type	Prot	Free	Prot	NA	NA	Perm
Protected Phases	6!		7	Free!	8	
Permitted Phases		Free				8
Detector Phase	6		7		8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	20.0		10.0		20.0	20.0
Total Split (s)	23.0		49.0		48.0	48.0
Total Split (%)	19.2%		40.8%		40.0%	40.0%
Yellow Time (s)	3.0		3.0		3.0	3.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	Max		None		C-Max	C-Max
Act Effct Green (s)	18.0	120.0	21.9	120.0	65.1	65.1
Actuated g/C Ratio	0.15	1.00	0.18	1.00	0.54	0.54
v/c Ratio	0.41	0.68	0.74	0.11	0.36	0.09
Control Delay	51.5	2.4	53.8	0.1	16.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	2.4	53.8	0.1	16.8	3.6
LOS	D	A	D	A	B	A
Approach Delay	6.9			29.0	15.4	
Approach LOS	A			C	B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 50 (42%), Referenced to phase 8:SBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

! Phase conflict between lane groups.

Splits and Phases: 9: US 24 & Rex Rd



Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	14	514	0	5	1050
Future Vol, veh/h	0	14	514	0	5	1050
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	-	-	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	0	15	541	0	5	1105

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1656	541	0	0	541	0
Stage 1	541	-	-	-	-	-
Stage 2	1115	-	-	-	-	-
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	108	541	-	-	1028	-
Stage 1	583	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	107	541	-	-	1028	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	312	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	541	1028	-
HCM Lane V/C Ratio	-	-	0.027	0.005	-
HCM Control Delay (s)	-	-	11.8	8.5	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	487	631	1114
Demand Flow Rate, veh/h	497	644	1137
Vehicles Circulating, veh/h	849	157	252
Vehicles Exiting, veh/h	540	1189	549
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	11.7	5.6	9.3
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	0.316	0.684	0.391	0.609	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	157	340	252	392	534	603
Cap Entry Lane, veh/h	618	690	1168	1243	1071	1146
Entry HV Adj Factor	0.981	0.979	0.980	0.980	0.981	0.979
Flow Entry, veh/h	154	333	247	384	524	591
Cap Entry, veh/h	606	676	1145	1218	1050	1123
V/C Ratio	0.254	0.493	0.216	0.315	0.499	0.526
Control Delay, s/veh	9.2	12.9	5.1	5.9	9.3	9.3
LOS	A	B	A	A	A	A
95th %tile Queue, veh	1	3	1	1	3	3

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

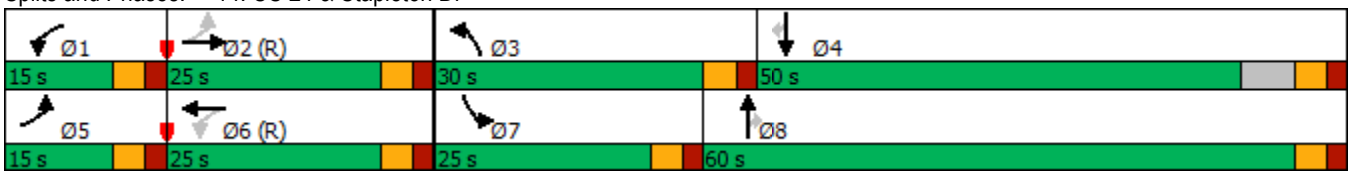
Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	827	538	530	1164
Demand Flow Rate, veh/h	843	548	541	1187
Vehicles Circulating, veh/h	903	626	984	531
Vehicles Exiting, veh/h	465	899	762	482
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	20.6	5.1	14.1	8.6
Approach LOS	C	A	B	A

Lane	Left	Right	Left	Right	Bypass	Left	Right	Left	Right	Bypass
Designated Moves	LT	TR	LT	TR	R	LT	TR	L	LTR	R
Assumed Moves	LT	TR	LT	TR	R	LT	TR	L	TR	R
RT Channelized					Free					Free
Lane Util	0.470	0.530	0.470	0.530		0.470	0.530	0.312	0.688	
Follow-Up Headway, s	2.667	2.535	2.667	2.535		2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	161	4.645	4.328	4.645	4.328	350
Entry Flow, veh/h	396	447	182	205	1938	254	287	261	576	1938
Cap Entry Lane, veh/h	588	659	759	834	0.980	546	615	828	904	0.980
Entry HV Adj Factor	0.982	0.981	0.981	0.982	158	0.980	0.978	0.981	0.980	343
Flow Entry, veh/h	389	438	178	201	1900	249	281	256	565	1900
Cap Entry, veh/h	577	646	744	819	0.083	535	602	812	886	0.181
V/C Ratio	0.673	0.678	0.240	0.246	0.0	0.465	0.467	0.315	0.637	0.0
Control Delay, s/veh	21.5	19.9	7.6	7.1	A	14.8	13.4	8.0	14.1	A
LOS	C	C	A	A	0	B	B	A	B	1
95th %tile Queue, veh	5	5	1	1		2	2	1	5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	370	441	75	198	93	350	605	50	198	1353	127
Future Volume (vph)	136	370	441	75	198	93	350	605	50	198	1353	127
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6		Free			8			4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0		8.0	5.0		20.0	5.0	5.0	20.0	15.0	15.0
Minimum Split (s)	10.0	15.0		13.0	10.0		25.0	10.0	10.0	25.0	20.0	20.0
Total Split (s)	15.0	25.0		15.0	25.0		30.0	60.0	60.0	25.0	50.0	50.0
Total Split (%)	12.0%	20.0%		12.0%	20.0%		24.0%	48.0%	48.0%	20.0%	40.0%	40.0%
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	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
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effct Green (s)	31.4	23.4	125.0	29.5	20.3	125.0	20.8	55.0	55.0	20.0	54.2	54.2
Actuated g/C Ratio	0.25	0.19	1.00	0.24	0.16	1.00	0.17	0.44	0.44	0.16	0.43	0.43
v/c Ratio	0.47	0.59	0.29	0.33	0.36	0.06	0.65	0.41	0.07	0.38	0.90	0.18
Control Delay	41.5	51.8	0.5	38.1	48.8	0.1	54.4	24.9	0.2	49.3	42.2	4.2
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	41.5	51.8	0.5	38.1	48.8	0.1	54.4	24.9	0.2	49.3	42.2	4.2
LOS	D	D	A	D	D	A	D	C	A	D	D	A
Approach Delay		26.4			34.2			33.9			40.1	
Approach LOS		C			C			C			D	

Intersection Summary	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 64 (51%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 34.7	Intersection LOS: C
Intersection Capacity Utilization 86.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 14: US 24 & Stapleton Dr



Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	422	384	866	252
Demand Flow Rate, veh/h	431	391	884	257
Vehicles Circulating, veh/h	474	531	322	552
Vehicles Exiting, veh/h	335	675	583	370
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.2	11.3	29.1	8.6
Approach LOS	B	B	D	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	431	391	884	257
Cap Entry Lane, veh/h	851	803	994	786
Entry HV Adj Factor	0.979	0.982	0.980	0.979
Flow Entry, veh/h	422	384	866	252
Cap Entry, veh/h	833	789	973	769
V/C Ratio	0.507	0.487	0.890	0.327
Control Delay, s/veh	11.2	11.3	29.1	8.6
LOS	B	B	D	A
95th %tile Queue, veh	3	3	13	1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	131	812	1028	602	486	116
Future Volume (vph)	131	812	1028	602	486	116
Turn Type	Prot	Free	Prot	NA	NA	Perm
Protected Phases	6!		7	Free!	8	
Permitted Phases		Free				8
Detector Phase	6		7		8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	20.0		10.0		20.0	20.0
Total Split (s)	24.0		52.0		44.0	44.0
Total Split (%)	20.0%		43.3%		36.7%	36.7%
Yellow Time (s)	3.0		3.0		3.0	3.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	Max		None		C-Max	C-Max
Act Effct Green (s)	19.0	120.0	43.1	120.0	42.9	42.9
Actuated g/C Ratio	0.16	1.00	0.36	1.00	0.36	0.36
v/c Ratio	0.49	0.54	0.88	0.17	0.40	0.19
Control Delay	52.9	1.3	30.9	0.1	30.9	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	1.3	30.9	0.1	30.9	5.8
LOS	D	A	C	A	C	A
Approach Delay	8.5			19.7	26.1	
Approach LOS	A			B	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 50 (42%), Referenced to phase 8:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 61.7%	ICU Level of Service B
Analysis Period (min) 15	

! Phase conflict between lane groups.

Splits and Phases: 9: US 24 & Rex Rd

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	9	1041	0	16	672
Future Vol, veh/h	0	9	1041	0	16	672
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	-	-	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	0	9	1096	0	17	707

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1837	1096	0	0	1096	0
Stage 1	1096	-	-	-	-	-
Stage 2	741	-	-	-	-	-
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	259	-	-	637	-
Stage 1	320	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	81	259	-	-	637	-
Mov Cap-2 Maneuver	207	-	-	-	-	-
Stage 1	320	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.4	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	259	637	-
HCM Lane V/C Ratio	-	-	0.037	0.026	-
HCM Control Delay (s)	-	-	19.4	10.8	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Approach	EB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	501	1175	702
Demand Flow Rate, veh/h	511	1199	716
Vehicles Circulating, veh/h	449	171	252
Vehicles Exiting, veh/h	519	789	1118
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.1	13.8	6.5
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	0.335	0.665	0.210	0.790	0.471	0.529
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	171	340	252	947	337	379
Cap Entry Lane, veh/h	893	970	1153	1228	1071	1146
Entry HV Adj Factor	0.982	0.979	0.980	0.980	0.979	0.982
Flow Entry, veh/h	168	333	247	928	330	372
Cap Entry, veh/h	877	950	1130	1204	1048	1126
V/C Ratio	0.191	0.351	0.218	0.771	0.315	0.331
Control Delay, s/veh	6.0	7.6	5.2	16.1	6.6	6.4
LOS	A	A	A	C	A	A
95th %tile Queue, veh	1	2	1	8	1	1

Intersection	
Intersection Delay, s/veh	13.0
Intersection LOS	B

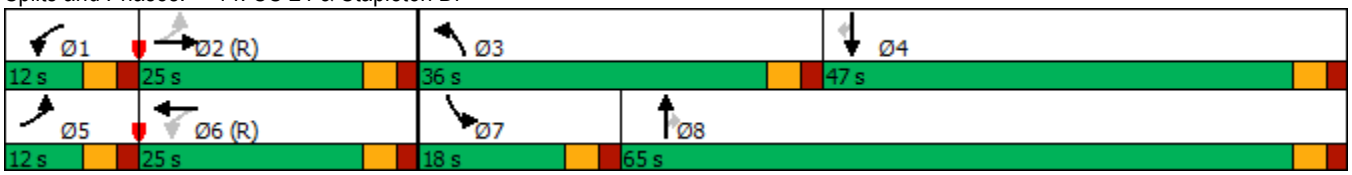
Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	812	940	774	772
Demand Flow Rate, veh/h	828	959	789	788
Vehicles Circulating, veh/h	646	1040	918	813
Vehicles Exiting, veh/h	706	667	556	878
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.5	12.7	19.2	7.7
Approach LOS	B	B	C	A

Lane	Left	Right	Left	Right	Bypass	Left	Right	Left	Right	Bypass
Designated Moves	LT	TR	LT	TR	R	LT	TR	L	LTR	R
Assumed Moves	LT	TR	LT	TR	R	LT	TR	L	TR	R
RT Channelized					Free					Free
Lane Util	0.470	0.530	0.470	0.530		0.470	0.530	0.378	0.622	
Follow-Up Headway, s	2.667	2.535	2.667	2.535		2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	308	4.645	4.328	4.645	4.328	249
Entry Flow, veh/h	389	439	306	345	1938	371	418	204	335	1938
Cap Entry Lane, veh/h	745	820	519	587	0.980	580	651	639	711	0.980
Entry HV Adj Factor	0.981	0.980	0.980	0.981	302	0.980	0.981	0.980	0.980	244
Flow Entry, veh/h	382	430	300	338	1900	364	410	200	328	1900
Cap Entry, veh/h	731	804	508	575	0.159	569	638	626	698	0.128
V/C Ratio	0.522	0.535	0.590	0.588	0.0	0.639	0.642	0.319	0.471	0.0
Control Delay, s/veh	12.8	12.2	19.7	17.7	A	20.1	18.4	10.0	12.0	A
LOS	B	B	C	C	1	C	C	B	B	0
95th %tile Queue, veh	3	3	4	4		5	5	1	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	216	455	125	310	245	605	1243	150	200	925	173
Future Volume (vph)	142	216	455	125	310	245	605	1243	150	200	925	173
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6		Free			8			4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0		4.0	5.0		8.0	5.0	5.0	10.0	15.0	15.0
Minimum Split (s)	10.0	15.0		9.0	10.0		13.0	10.0	10.0	15.0	20.0	20.0
Total Split (s)	12.0	25.0		12.0	25.0		36.0	65.0	65.0	18.0	47.0	47.0
Total Split (%)	10.0%	20.8%		10.0%	20.8%		30.0%	54.2%	54.2%	15.0%	39.2%	39.2%
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	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
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effct Green (s)	27.0	20.0	120.0	27.0	20.0	120.0	26.9	61.0	61.0	12.0	46.1	46.1
Actuated g/C Ratio	0.22	0.17	1.00	0.22	0.17	1.00	0.22	0.51	0.51	0.10	0.38	0.38
v/c Ratio	0.66	0.39	0.30	0.49	0.55	0.16	0.83	0.73	0.18	0.62	0.69	0.25
Control Delay	42.6	38.2	0.5	42.8	49.9	0.2	54.1	26.1	3.3	47.9	41.2	11.0
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	42.6	38.2	0.5	42.8	49.9	0.2	54.1	26.1	3.3	47.9	41.2	11.0
LOS	D	D	A	D	D	A	D	C	A	D	D	B
Approach Delay		17.9			30.7			32.9			38.1	
Approach LOS		B			C			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 31.4	Intersection LOS: C
Intersection Capacity Utilization 75.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 14: US 24 & Stapleton Dr



Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	2	9	20	1	18
Future Vol, veh/h	60	2	9	20	1	18
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	-	-	200	200	-
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	65	2	10	22	1	20

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	32	10	0	0	32	0
Stage 1	10	-	-	-	-	-
Stage 2	22	-	-	-	-	-
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	982	1071	-	-	1580	-
Stage 1	1013	-	-	-	-	-
Stage 2	1001	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	981	1071	-	-	1580	-
Mov Cap-2 Maneuver	981	-	-	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	1000	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	984	1580	-
HCM Lane V/C Ratio	-	-	0.068	0.001	-
HCM Control Delay (s)	-	-	8.9	7.3	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	189	303	25	65	13
Future Vol, veh/h	4	189	303	25	65	13
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	6	282	594	49	72	14

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1316	79	86	0	-	0
Stage 1	79	-	-	-	-	-
Stage 2	1237	-	-	-	-	-
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	174	981	1510	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	274	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	104	981	1510	-	-	-
Mov Cap-2 Maneuver	104	-	-	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	274	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	8.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1510	-	104	981	-	-
HCM Lane V/C Ratio	0.393	-	0.057	0.288	-	-
HCM Control Delay (s)	8.9	0	41.7	10.1	-	-
HCM Lane LOS	A	A	E	B	-	-
HCM 95th %tile Q(veh)	1.9	-	0.2	1.2	-	-

Intersection	
Int Delay, s/veh	50.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↱		↕			↕	
Traffic Vol, veh/h	23	159	42	6	94	114	83	191	17	44	166	45
Future Vol, veh/h	23	159	42	6	94	114	83	191	17	44	166	45
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	87	87	87	85	85	85	68	68	68	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	183	48	7	111	134	122	281	25	69	259	70

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1092	982	294	1086	1005	294	329	0	0	306	0	0
Stage 1	432	432	-	538	538	-	-	-	-	-	-	-
Stage 2	660	550	-	548	467	-	-	-	-	-	-	-
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	192	249	745	194	241	745	1231	-	-	1255	-	-
Stage 1	602	582	-	527	522	-	-	-	-	-	-	-
Stage 2	452	516	-	521	562	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	77	204	745	37	198	745	1231	-	-	1255	-	-
Mov Cap-2 Maneuver	77	204	-	37	198	-	-	-	-	-	-	-
Stage 1	530	542	-	464	459	-	-	-	-	-	-	-
Stage 2	248	454	-	301	524	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	216.9	41.3	2.4	1.4
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	197	157	745	1255	-	-
HCM Lane V/C Ratio	0.099	-	-	1.307	0.749	0.18	0.055	-	-
HCM Control Delay (s)	8.2	0	-	216.9	76	10.9	8	0	-
HCM Lane LOS	A	A	-	F	F	B	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	14.3	4.6	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	30.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	159	155	4	87	17	80	254	5	45	426	37
Future Vol, veh/h	34	159	155	4	87	17	80	254	5	45	426	37
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	185	-	325	225	-	225	1000	-	0	785	-	785
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	65	65	65	76	76	76	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	179	174	6	134	26	105	334	7	49	463	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1189	1112	463	1302	1145	334	503	0	0	341	0	0
Stage 1	561	561	-	544	544	-	-	-	-	-	-	-
Stage 2	628	551	-	758	601	-	-	-	-	-	-	-
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	165	209	599	138	200	708	1061	-	-	1218	-	-
Stage 1	512	510	-	523	519	-	-	-	-	-	-	-
Stage 2	471	515	-	399	489	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	53	181	599	7	173	708	1061	-	-	1218	-	-
Mov Cap-2 Maneuver	53	181	-	7	173	-	-	-	-	-	-	-
Stage 1	461	490	-	471	468	-	-	-	-	-	-	-
Stage 2	292	464	-	173	469	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	75.7	96.3	2.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1061	-	-	53	181	599	7	173	708	1218	-	-
HCM Lane V/C Ratio	0.099	-	-	0.721	0.987	0.291	0.879	0.774	0.037	0.04	-	-
HCM Control Delay (s)	8.8	-	-	171.3	116	13.5	$ 944	74.1	10.3	8.1	-	-
HCM Lane LOS	A	-	-	F	F	B	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	3	8	1.2	1.5	5	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	1	19	68	2	8
Future Vol, veh/h	40	1	19	68	2	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	200	200	-
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	43	1	21	74	2	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	34	21	0	0	95	0
Stage 1	21	-	-	-	-	-
Stage 2	13	-	-	-	-	-
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	979	1056	-	-	1499	-
Stage 1	1002	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	978	1056	-	-	1499	-
Mov Cap-2 Maneuver	978	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	1009	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	1.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	980	1499	-
HCM Lane V/C Ratio	-	-	0.045	0.001	-
HCM Control Delay (s)	-	-	8.8	7.4	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	112	218	77	42	5
Future Vol, veh/h	10	112	218	77	42	5
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	83	83	79	79	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	135	276	97	54	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	706	57	60	0	-	0
Stage 1	57	-	-	-	-	-
Stage 2	649	-	-	-	-	-
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	402	1009	1544	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	326	1009	1544	-	-	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	520	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	5.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1544	-	326	1009	-	-
HCM Lane V/C Ratio	0.179	-	0.037	0.134	-	-
HCM Control Delay (s)	7.8	0	16.5	9.1	-	-
HCM Lane LOS	A	A	C	A	-	-
HCM 95th %tile Q(veh)	0.7	-	0.1	0.5	-	-

Intersection	
Int Delay, s/veh	12.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	78	31	9	153	119	47	130	12	58	72	25
Future Vol, veh/h	46	78	31	9	153	119	47	130	12	58	72	25
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	83	83	83	94	94	94	74	74	74	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	94	37	10	163	127	64	176	16	70	87	30

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	699	562	102	620	569	184	117	0	0	192	0	0
Stage 1	242	242	-	312	312	-	-	-	-	-	-	-
Stage 2	457	320	-	308	257	-	-	-	-	-	-	-
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	354	436	953	400	432	858	1471	-	-	1381	-	-
Stage 1	762	705	-	699	658	-	-	-	-	-	-	-
Stage 2	583	652	-	702	695	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	189	392	953	290	389	858	1471	-	-	1381	-	-
Mov Cap-2 Maneuver	189	392	-	290	389	-	-	-	-	-	-	-
Stage 1	725	667	-	665	626	-	-	-	-	-	-	-
Stage 2	350	620	-	548	657	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.9	16.8	1.9	2.9
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1471	-	-	326	382	858	1381	-	-
HCM Lane V/C Ratio	0.043	-	-	0.573	0.451	0.148	0.051	-	-
HCM Control Delay (s)	7.6	0	-	29.9	21.9	9.9	7.7	0	-
HCM Lane LOS	A	A	-	D	C	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.4	2.3	0.5	0.2	-	-

Intersection	
Int Delay, s/veh	20.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	51	73	5	127	34	130	468	8	10	370	30
Future Vol, veh/h	19	51	73	5	127	34	130	468	8	10	370	30
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	185	-	325	225	-	225	1000	-	0	785	-	785
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	83	83	83	86	86	86	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	61	87	6	153	41	151	544	9	11	425	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1395	1302	425	1384	1327	544	459	0	0	553	0	0
Stage 1	447	447	-	846	846	-	-	-	-	-	-	-
Stage 2	948	855	-	538	481	-	-	-	-	-	-	-
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	119	161	629	121	155	539	1102	-	-	1017	-	-
Stage 1	591	573	-	357	378	-	-	-	-	-	-	-
Stage 2	313	375	-	527	554	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	137	629	61	~ 132	539	1102	-	-	1017	-	-
Mov Cap-2 Maneuver	-	137	-	61	~ 132	-	-	-	-	-	-	-
Stage 1	510	567	-	308	326	-	-	-	-	-	-	-
Stage 2	132	324	-	401	548	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		152	1.9	0.2
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1102	-	-	-	137	629	61	132	539	1017	-	-
HCM Lane V/C Ratio	0.137	-	-	-	0.443	0.138	0.099	1.159	0.076	0.011	-	-
HCM Control Delay (s)	8.8	-	-	-	50.7	11.6	70.4	192.6	12.2	8.6	-	-
HCM Lane LOS	A	-	-	-	F	B	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-	2	0.5	0.3	9	0.2	0	-	-

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

Intersection	
Intersection Delay, s/veh	4.6
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	227	385	91
Demand Flow Rate, veh/h	231	393	93
Vehicles Circulating, veh/h	78	5	363
Vehicles Exiting, veh/h	378	304	35
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.1	4.9	4.0
Approach LOS	A	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	0.022	0.978	0.924	0.076	0.473	0.527
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	5	226	363	30	44	49
Cap Entry Lane, veh/h	1256	1329	1344	1414	967	1043
Entry HV Adj Factor	1.000	0.982	0.981	0.980	0.977	0.989
Flow Entry, veh/h	5	222	356	29	43	48
Cap Entry, veh/h	1256	1305	1318	1386	944	1032
V/C Ratio	0.004	0.170	0.270	0.021	0.046	0.047
Control Delay, s/veh	2.9	4.2	5.1	2.8	4.2	3.9
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	1	1	0	0	0

Intersection	
Intersection Delay, s/veh	5.1
Intersection LOS	A

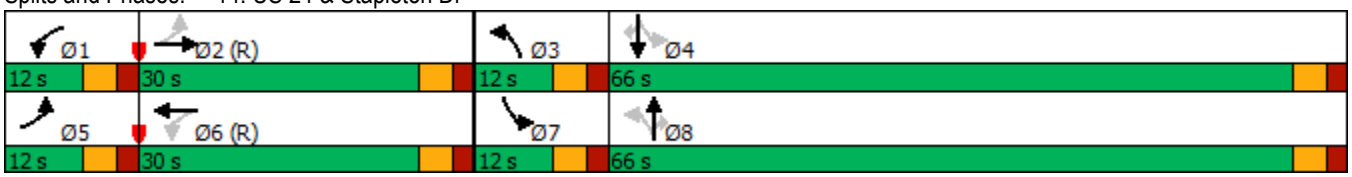
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	263	252	343	300
Demand Flow Rate, veh/h	269	257	350	306
Vehicles Circulating, veh/h	259	357	272	220
Vehicles Exiting, veh/h	213	264	256	257
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.9	2.3	6.9	4.5
Approach LOS	A	A	A	A

Lane	Left	Left	Bypass	Left	Left	Bypass
Designated Moves	LTR	LT	R	LTR	LT	R
Assumed Moves	LTR	LT	R	LTR	LT	R
RT Channelized			Free			Free
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	137	4.976	4.976	54
Entry Flow, veh/h	269	120	1938	350	252	1938
Cap Entry Lane, veh/h	1060	959	0.980	1046	1103	0.980
Entry HV Adj Factor	0.979	0.982	134	0.981	0.981	53
Flow Entry, veh/h	263	118	1900	343	247	1900
Cap Entry, veh/h	1037	941	0.071	1026	1081	0.028
V/C Ratio	0.254	0.125	0.0	0.335	0.229	0.0
Control Delay, s/veh	5.9	5.0	A	6.9	5.5	A
LOS	A	A	0	A	A	0
95th %tile Queue, veh	1	0		1	1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	159	155	4	87	17	80	254	5	45	426	37
Future Volume (vph)	34	159	155	4	87	17	80	254	5	45	426	37
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6		Free	8		8	4		4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	5.0		5.0	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	10.0	15.0		13.0	10.0		25.0	10.0	10.0	25.0	20.0	20.0
Total Split (s)	12.0	30.0		12.0	30.0		12.0	66.0	66.0	12.0	66.0	66.0
Total Split (%)	10.0%	25.0%		10.0%	25.0%		10.0%	55.0%	55.0%	10.0%	55.0%	55.0%
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	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
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effct Green (s)	36.1	34.7	120.0	33.4	29.8	120.0	69.2	63.6	63.6	67.7	61.2	61.2
Actuated g/C Ratio	0.30	0.29	1.00	0.28	0.25	1.00	0.58	0.53	0.53	0.56	0.51	0.51
v/c Ratio	0.10	0.33	0.11	0.01	0.22	0.01	0.21	0.30	0.01	0.08	0.49	0.05
Control Delay	22.6	27.3	0.1	29.2	39.5	0.0	11.0	17.6	0.0	10.1	21.8	0.1
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	22.6	27.3	0.1	29.2	39.5	0.0	11.0	17.6	0.0	10.1	21.8	0.1
LOS	C	C	A	C	D	A	B	B	A	B	C	A
Approach Delay		14.8			32.9			15.7			19.2	
Approach LOS		B			C			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 18.3	Intersection LOS: B
Intersection Capacity Utilization 47.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 14: US 24 & Stapleton Dr



Intersection	
Intersection Delay, s/veh	3.8
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	144	347	55
Demand Flow Rate, veh/h	147	354	56
Vehicles Circulating, veh/h	50	12	261
Vehicles Exiting, veh/h	267	185	105
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.4	4.1	3.5
Approach LOS	A	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	0.082	0.918	0.737	0.263	0.464	0.536
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	12	135	261	93	26	30
Cap Entry Lane, veh/h	1289	1361	1335	1406	1062	1138
Entry HV Adj Factor	1.000	0.978	0.981	0.980	0.995	0.972
Flow Entry, veh/h	12	132	256	91	26	29
Cap Entry, veh/h	1289	1331	1309	1378	1056	1106
V/C Ratio	0.009	0.099	0.196	0.066	0.024	0.026
Control Delay, s/veh	2.9	3.5	4.4	3.1	3.6	3.5
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	0	0	0

Intersection	
Intersection Delay, s/veh	3.9
Intersection LOS	A

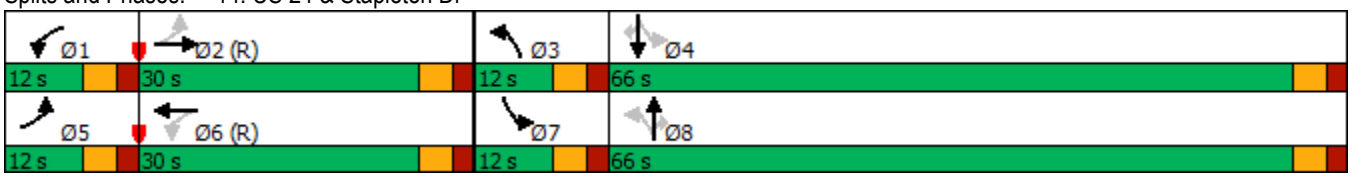
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	179	305	205	168
Demand Flow Rate, veh/h	183	311	209	172
Vehicles Circulating, veh/h	154	250	210	231
Vehicles Exiting, veh/h	221	169	127	198
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.5	2.9	5.0	3.8
Approach LOS	A	A	A	A

Lane	Left	Left	Bypass	Left	Left	Bypass
Designated Moves	LTR	LT	R	LTR	LT	R
Assumed Moves	LTR	LT	R	LTR	LT	R
RT Channelized			Free			Free
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	132	4.976	4.976	28
Entry Flow, veh/h	183	179	1938	209	144	1938
Cap Entry Lane, veh/h	1179	1069	0.980	1114	1090	0.980
Entry HV Adj Factor	0.979	0.981	129	0.982	0.982	27
Flow Entry, veh/h	179	176	1900	205	141	1900
Cap Entry, veh/h	1155	1050	0.068	1093	1071	0.014
V/C Ratio	0.155	0.167	0.0	0.188	0.132	0.0
Control Delay, s/veh	4.5	5.0	A	5.0	4.5	A
LOS	A	A	0	A	A	0
95th %tile Queue, veh	1	1		1	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	51	73	5	127	34	130	468	8	10	370	30
Future Volume (vph)	19	51	73	5	127	34	130	468	8	10	370	30
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6		Free	8		8	4		4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	20.0	20.0
Total Split (s)	12.0	30.0		12.0	30.0		12.0	66.0	66.0	12.0	66.0	66.0
Total Split (%)	10.0%	25.0%		10.0%	25.0%		10.0%	55.0%	55.0%	10.0%	55.0%	55.0%
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	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
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effct Green (s)	36.1	34.7	120.0	33.6	29.9	120.0	72.1	70.7	70.7	66.8	61.0	61.0
Actuated g/C Ratio	0.30	0.29	1.00	0.28	0.25	1.00	0.60	0.59	0.59	0.56	0.51	0.51
v/c Ratio	0.07	0.11	0.05	0.02	0.33	0.03	0.30	0.50	0.01	0.02	0.45	0.04
Control Delay	24.3	27.4	0.1	29.2	41.1	0.0	11.9	17.0	0.0	10.0	21.2	0.1
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	24.3	27.4	0.1	29.2	41.1	0.0	11.9	17.0	0.0	10.0	21.2	0.1
LOS	C	C	A	C	D	A	B	B	A	A	C	A
Approach Delay		13.1			32.3			15.7			19.4	
Approach LOS		B			C			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 18.7	Intersection LOS: B
Intersection Capacity Utilization 56.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 14: US 24 & Stapleton Dr



Intersection	
Intersection Delay, s/veh	12.6
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	470	567	502	300
Demand Flow Rate, veh/h	480	578	512	306
Vehicles Circulating, veh/h	673	273	243	680
Vehicles Exiting, veh/h	313	482	910	171
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	19.7	10.5	8.8	11.7
Approach LOS	C	B	A	B

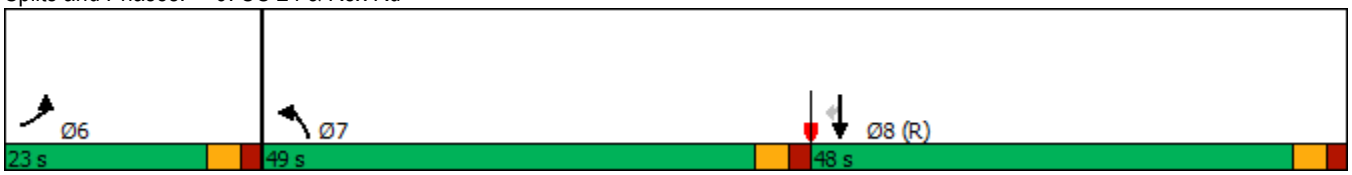
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	480	578	512	306
Cap Entry Lane, veh/h	695	1045	1077	690
Entry HV Adj Factor	0.980	0.980	0.980	0.980
Flow Entry, veh/h	470	567	502	300
Cap Entry, veh/h	681	1024	1056	676
V/C Ratio	0.691	0.553	0.475	0.444
Control Delay, s/veh	19.7	10.5	8.8	11.7
LOS	C	B	A	B
95th %tile Queue, veh	6	4	3	2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	105	1030	443	392	648	76
Future Volume (vph)	105	1030	443	392	648	76
Turn Type	Prot	Free	Prot	NA	NA	Perm
Protected Phases	6!		7	Free!	8	
Permitted Phases		Free				8
Detector Phase	6		7		8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	20.0		10.0		20.0	20.0
Total Split (s)	23.0		49.0		48.0	48.0
Total Split (%)	19.2%		40.8%		40.0%	40.0%
Yellow Time (s)	3.0		3.0		3.0	3.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	Max		None		C-Max	C-Max
Act Effct Green (s)	18.0	120.0	21.9	120.0	65.1	65.1
Actuated g/C Ratio	0.15	1.00	0.18	1.00	0.54	0.54
v/c Ratio	0.42	0.68	0.74	0.11	0.36	0.09
Control Delay	51.7	2.4	53.8	0.1	16.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	2.4	53.8	0.1	16.8	3.6
LOS	D	A	D	A	B	A
Approach Delay	7.0			29.0	15.4	
Approach LOS	A			C	B	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 8:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 16.0		Intersection LOS: B	
Intersection Capacity Utilization 48.0%		ICU Level of Service A	
Analysis Period (min) 15			

! Phase conflict between lane groups.

Splits and Phases: 9: US 24 & Rex Rd



Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	21	514	19	7	1050
Future Vol, veh/h	55	21	514	19	7	1050
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	-	-	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	58	22	541	20	7	1105

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1660	541	0	0	561	0
Stage 1	541	-	-	-	-	-
Stage 2	1119	-	-	-	-	-
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	541	-	-	1010	-
Stage 1	583	-	-	-	-	-
Stage 2	312	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	106	541	-	-	1010	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	310	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.9	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	270	1010	-
HCM Lane V/C Ratio	-	-	0.296	0.007	-
HCM Control Delay (s)	-	-	23.9	8.6	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.2	0	-

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	488	651	1170
Demand Flow Rate, veh/h	498	664	1194
Vehicles Circulating, veh/h	905	158	252
Vehicles Exiting, veh/h	541	1245	570
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	12.7	5.7	9.8
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	0.317	0.683	0.380	0.620	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	158	340	252	412	561	633
Cap Entry Lane, veh/h	587	658	1167	1242	1071	1146
Entry HV Adj Factor	0.981	0.979	0.980	0.980	0.980	0.980
Flow Entry, veh/h	155	333	247	404	550	620
Cap Entry, veh/h	576	644	1144	1217	1050	1123
V/C Ratio	0.269	0.517	0.216	0.332	0.524	0.552
Control Delay, s/veh	9.9	14.0	5.1	6.1	9.8	9.8
LOS	A	B	A	A	A	A
95th %tile Queue, veh	1	3	1	1	3	4

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

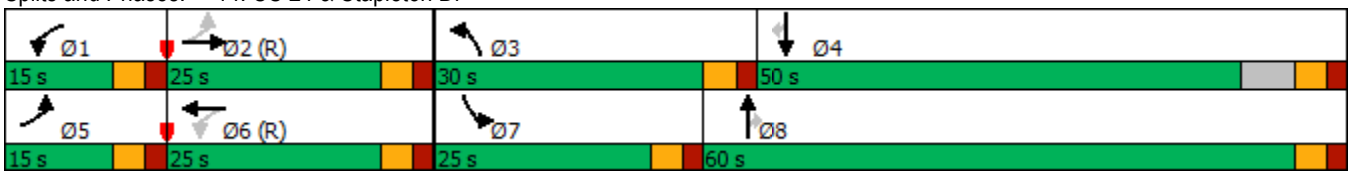
Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	839	542	536	1220
Demand Flow Rate, veh/h	856	552	547	1244
Vehicles Circulating, veh/h	928	645	1008	531
Vehicles Exiting, veh/h	465	910	776	501
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	22.4	5.2	14.7	8.7
Approach LOS	C	A	B	A

Lane	Left	Right	Left	Right	Bypass	Left	Right	Left	Right	Bypass
Designated Moves	LT	TR	LT	TR	R	LT	TR	L	LTR	R
Assumed Moves	LT	TR	LT	TR	R	LT	TR	L	TR	R
RT Channelized					Free					Free
Lane Util	0.470	0.530	0.470	0.530		0.470	0.530	0.316	0.684	
Follow-Up Headway, s	2.667	2.535	2.667	2.535		2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	165	4.645	4.328	4.645	4.328	382
Entry Flow, veh/h	402	454	182	205	1938	257	290	272	590	1938
Cap Entry Lane, veh/h	575	645	746	821	0.980	534	603	828	904	0.980
Entry HV Adj Factor	0.981	0.980	0.981	0.982	162	0.980	0.979	0.982	0.980	375
Flow Entry, veh/h	394	445	178	201	1900	252	284	267	578	1900
Cap Entry, veh/h	564	632	731	806	0.085	523	590	813	886	0.197
V/C Ratio	0.699	0.704	0.244	0.250	0.0	0.481	0.481	0.328	0.652	0.0
Control Delay, s/veh	23.4	21.6	7.7	7.2	A	15.5	14.0	8.2	14.6	A
LOS	C	C	A	A	0	C	B	A	B	1
95th %tile Queue, veh	6	6	1	1		3	3	1	5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	372	450	75	199	93	353	605	50	198	1353	127
Future Volume (vph)	136	372	450	75	199	93	353	605	50	198	1353	127
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6		Free			8			4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0		8.0	5.0		20.0	5.0	5.0	20.0	15.0	15.0
Minimum Split (s)	10.0	15.0		13.0	10.0		25.0	10.0	10.0	25.0	20.0	20.0
Total Split (s)	15.0	25.0		15.0	25.0		30.0	60.0	60.0	25.0	50.0	50.0
Total Split (%)	12.0%	20.0%		12.0%	20.0%		24.0%	48.0%	48.0%	20.0%	40.0%	40.0%
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	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
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effct Green (s)	31.4	23.4	125.0	29.5	20.3	125.0	20.8	55.0	55.0	20.0	54.2	54.2
Actuated g/C Ratio	0.25	0.19	1.00	0.24	0.16	1.00	0.17	0.44	0.44	0.16	0.43	0.43
v/c Ratio	0.47	0.59	0.30	0.33	0.36	0.06	0.65	0.41	0.07	0.38	0.90	0.18
Control Delay	41.5	51.9	0.5	38.2	48.8	0.1	54.4	24.9	0.2	49.3	42.4	4.2
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	41.5	51.9	0.5	38.2	48.8	0.1	54.4	24.9	0.2	49.3	42.4	4.2
LOS	D	D	A	D	D	A	D	C	A	D	D	A
Approach Delay		26.3			34.3			34.0			40.2	
Approach LOS		C			C			C			D	

Intersection Summary	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 64 (51%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 34.7	Intersection LOS: C
Intersection Capacity Utilization 86.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 14: US 24 & Stapleton Dr



Intersection	
Intersection Delay, s/veh	19.2
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	424	389	870	255
Demand Flow Rate, veh/h	433	396	888	260
Vehicles Circulating, veh/h	482	533	322	558
Vehicles Exiting, veh/h	336	677	593	371
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.4	11.4	29.6	8.7
Approach LOS	B	B	D	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	433	396	888	260
Cap Entry Lane, veh/h	844	801	994	781
Entry HV Adj Factor	0.979	0.983	0.980	0.979
Flow Entry, veh/h	424	389	870	255
Cap Entry, veh/h	826	787	973	765
V/C Ratio	0.513	0.494	0.894	0.333
Control Delay, s/veh	11.4	11.4	29.6	8.7
LOS	B	B	D	A
95th %tile Queue, veh	3	3	13	1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	132	812	1028	602	486	118
Future Volume (vph)	132	812	1028	602	486	118
Turn Type	Prot	Free	Prot	NA	NA	Perm
Protected Phases	6!		7	Free!	8	
Permitted Phases		Free				8
Detector Phase	6		7		8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	20.0		10.0		20.0	20.0
Total Split (s)	24.0		52.0		44.0	44.0
Total Split (%)	20.0%		43.3%		36.7%	36.7%
Yellow Time (s)	3.0		3.0		3.0	3.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	Max		None		C-Max	C-Max
Act Effct Green (s)	19.0	120.0	43.1	120.0	42.9	42.9
Actuated g/C Ratio	0.16	1.00	0.36	1.00	0.36	0.36
v/c Ratio	0.50	0.54	0.88	0.17	0.40	0.19
Control Delay	53.0	1.3	30.9	0.1	30.9	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	1.3	30.9	0.1	30.9	5.7
LOS	D	A	C	A	C	A
Approach Delay	8.6			19.7	26.0	
Approach LOS	A			B	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 50 (42%), Referenced to phase 8:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 61.7%	ICU Level of Service B
Analysis Period (min) 15	

! Phase conflict between lane groups.

Splits and Phases: 9: US 24 & Rex Rd

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	14	1041	61	25	672
Future Vol, veh/h	36	14	1041	61	25	672
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	-	-	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	38	15	1096	64	26	707

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1855	1096	0	0	1160	0
Stage 1	1096	-	-	-	-	-
Stage 2	759	-	-	-	-	-
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	81	259	-	-	602	-
Stage 1	320	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	78	259	-	-	602	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	320	-	-	-	-	-
Stage 2	442	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.8	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	217	602	-
HCM Lane V/C Ratio	-	-	0.243	0.044	-
HCM Control Delay (s)	-	-	26.8	11.3	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Approach	EB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	504	1236	740
Demand Flow Rate, veh/h	514	1261	755
Vehicles Circulating, veh/h	487	174	252
Vehicles Exiting, veh/h	520	827	1183
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.4	16.5	6.7
Approach LOS	A	C	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	0.339	0.661	0.200	0.800	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	174	340	252	1009	355	400
Cap Entry Lane, veh/h	862	939	1150	1225	1071	1146
Entry HV Adj Factor	0.983	0.979	0.980	0.980	0.980	0.981
Flow Entry, veh/h	171	333	247	989	348	392
Cap Entry, veh/h	848	919	1127	1201	1049	1125
V/C Ratio	0.202	0.362	0.219	0.824	0.332	0.349
Control Delay, s/veh	6.3	7.9	5.2	19.3	6.8	6.7
LOS	A	A	A	C	A	A
95th %tile Queue, veh	1	2	1	10	1	2

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

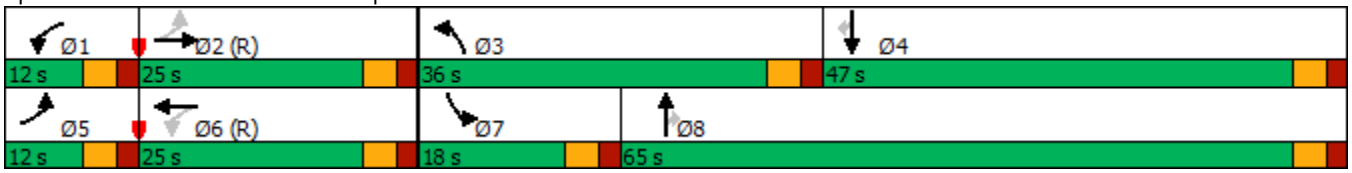
Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	846	953	789	808
Demand Flow Rate, veh/h	863	972	804	824
Vehicles Circulating, veh/h	662	1090	960	813
Vehicles Exiting, veh/h	706	674	565	928
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	13.4	13.7	21.6	7.8
Approach LOS	B	B	C	A

Lane	Left	Right	Left	Right	Bypass	Left	Right	Left	Right	Bypass
Designated Moves	LT	TR	LT	TR	R	LT	TR	L	LTR	R
Assumed Moves	LT	TR	LT	TR	R	LT	TR	L	TR	R
RT Channelized					Free					Free
Lane Util	0.470	0.530	0.470	0.530		0.470	0.530	0.380	0.620	
Follow-Up Headway, s	2.667	2.535	2.667	2.535		2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	321	4.645	4.328	4.645	4.328	269
Entry Flow, veh/h	406	457	306	345	1938	378	426	211	344	1938
Cap Entry Lane, veh/h	734	809	495	562	0.980	558	628	639	711	0.980
Entry HV Adj Factor	0.979	0.981	0.980	0.981	315	0.980	0.981	0.981	0.980	264
Flow Entry, veh/h	398	448	300	338	1900	371	418	207	337	1900
Cap Entry, veh/h	719	794	486	551	0.166	547	616	627	698	0.139
V/C Ratio	0.553	0.565	0.618	0.614	0.0	0.677	0.678	0.330	0.484	0.0
Control Delay, s/veh	13.8	13.1	21.8	19.4	A	22.7	20.7	10.2	12.3	A
LOS	B	B	C	C	1	C	C	B	B	0
95th %tile Queue, veh	3	4	4	4		5	5	1	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	217	461	125	313	245	614	1243	150	200	925	173
Future Volume (vph)	142	217	461	125	313	245	614	1243	150	200	925	173
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6		Free			8			4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0		4.0	5.0		8.0	5.0	5.0	10.0	15.0	15.0
Minimum Split (s)	10.0	15.0		9.0	10.0		13.0	10.0	10.0	15.0	20.0	20.0
Total Split (s)	12.0	25.0		12.0	25.0		36.0	65.0	65.0	18.0	47.0	47.0
Total Split (%)	10.0%	20.8%		10.0%	20.8%		30.0%	54.2%	54.2%	15.0%	39.2%	39.2%
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	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
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effct Green (s)	27.0	20.0	120.0	27.0	20.0	120.0	27.1	61.0	61.0	12.0	45.9	45.9
Actuated g/C Ratio	0.22	0.17	1.00	0.22	0.17	1.00	0.23	0.51	0.51	0.10	0.38	0.38
v/c Ratio	0.66	0.39	0.31	0.49	0.56	0.16	0.83	0.73	0.18	0.62	0.70	0.25
Control Delay	42.9	38.2	0.6	42.8	50.1	0.2	54.3	26.1	3.3	47.9	41.4	11.0
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	42.9	38.2	0.6	42.8	50.1	0.2	54.3	26.1	3.3	47.9	41.4	11.0
LOS	D	D	A	D	D	A	D	C	A	D	D	B
Approach Delay		17.8			30.8			33.0			38.3	
Approach LOS		B			C			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 31.5	Intersection LOS: C
Intersection Capacity Utilization 76.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 14: US 24 & Stapleton Dr



Queuing Reports

TRANSPORTATION
CONSULTANTS, INC.

Queuing and Blocking Report

Intersection: 11: Eastonville Rd & Brixham Dr

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	113	23
Average Queue (ft)	37	2
95th Queue (ft)	78	13
Link Distance (ft)	196	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		205
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Intersection: 11: Eastonville Rd & Brixham Dr

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	104	48
Average Queue (ft)	33	13
95th Queue (ft)	79	38
Link Distance (ft)	196	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		205
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Appendix Table 1

TRANSPORTATION
CONSULTANTS, INC.

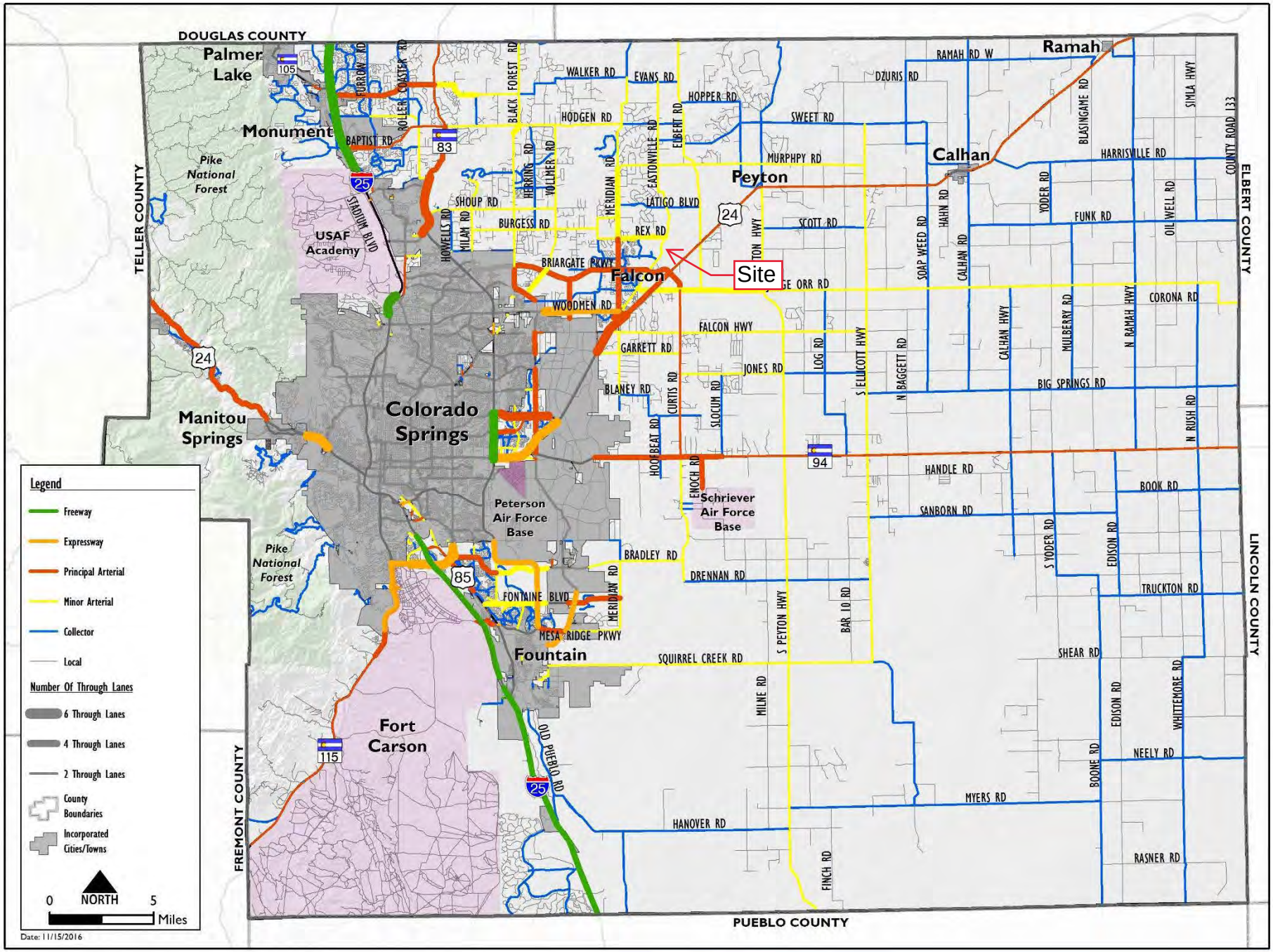
Appendix Table 1
Area Trafffic Impact Studies by LSC
Grandview Reserve Filing No. 1

Study	Date
4-Way Ranch/Waterbury	
4-Way Ranch Updated TIA	January 29, 2009
Waterbury PUD Development Plan Updated TIA	January 10, 2013
Waterbury Filing Nos. 1 and 2 TIA	December 18, 2020
4-Way Ranch Commercial Master Traffic Impact Analysis	December 20, 2022
4-Way Ranch Commercial Phase 1 Traffic Technical Memorandum	November 30, 2023
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
The Sanctuary at Meridian Ranch Transportation Memorandum	May 3, 2022
Rolling Hills Ranch North PUD Transportation Memorandum	October 30, 2023
Grandview Reserve	
Grandview Reserve Updated Master TIA	December 5, 2020
Grandview Reserve Phase 1 TIA	May 9, 2022
Grandview Reserve Phases 2 & 3 TIA	March 4, 2024
Meadowlake Ranch	
Meadowlake Ranch Traffic Impact Analysis	May 29, 2019
Latigo Preserve	
Latigo Preserve Filing No. 10	March 31, 2022

Source: LSC Transportation Consultants, Inc. *Mar-24*

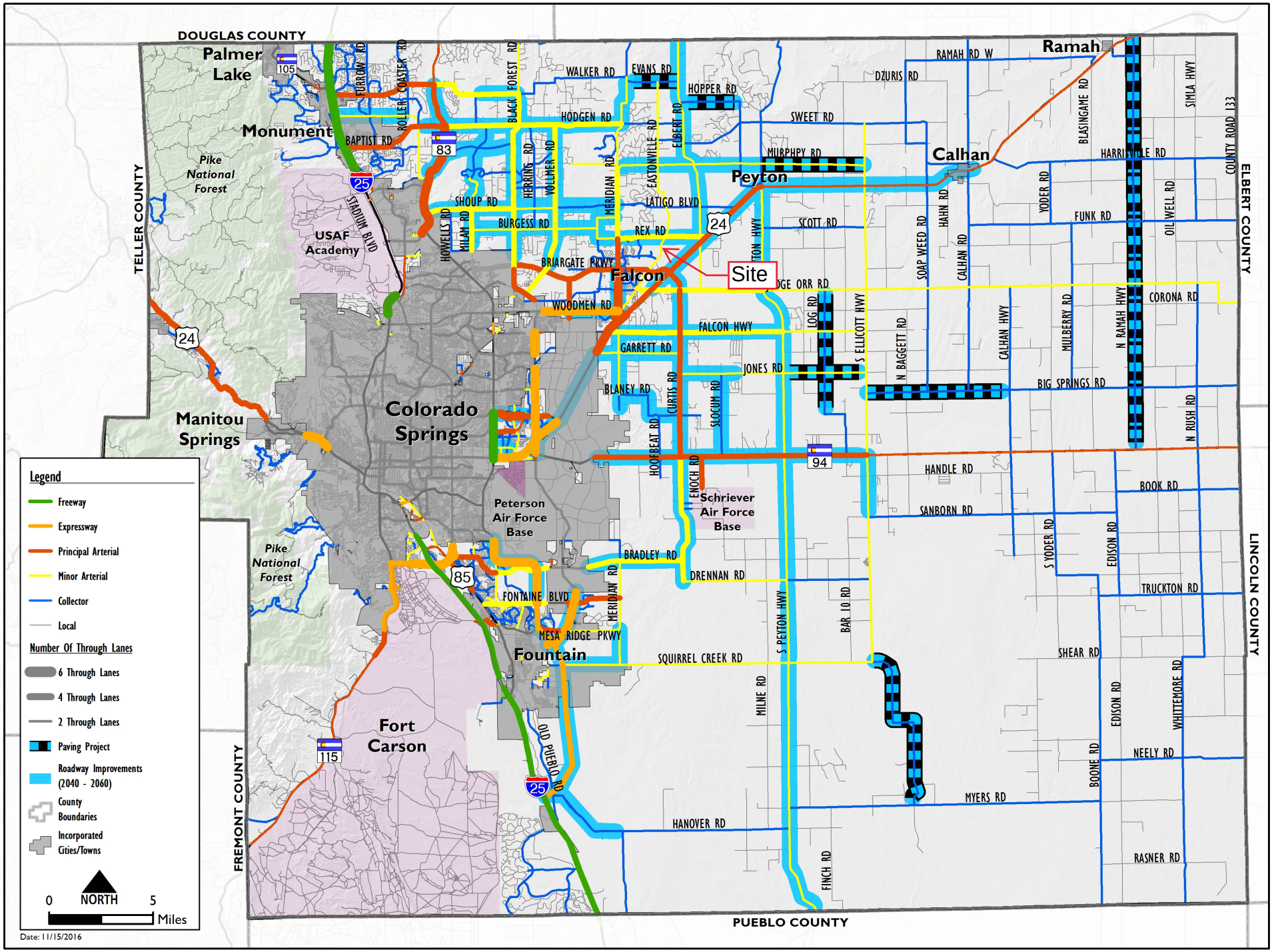
MTCP Maps

TRANSPORTATION
CONSULTANTS, INC.



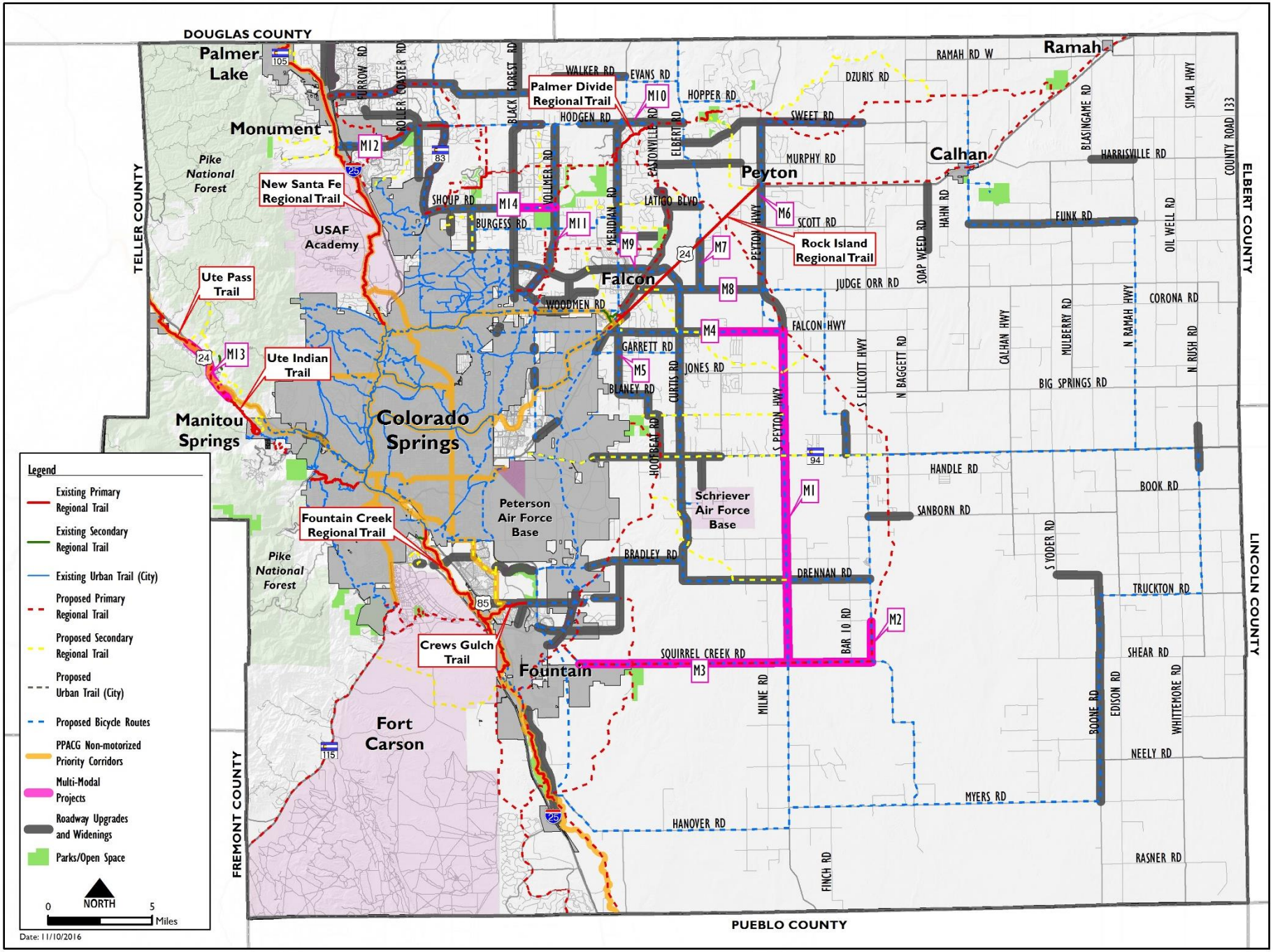
Map 14: 2040 Roadway Plan (Classification and Lanes)

Map 17: 2060 Corridor Preservation



Map 15 Bicycle and Pedestrian Network Improvements

TRANSPORTATION
CONSULTANTS, INC.



Map 15: Bicycle and Pedestrian Network and Improvements

Crash History

TRANSPORTATION
CONSULTANTS, INC.

AccidentDate	AccidentTime	TotalVehicles	LocationRoadName	NumberInjured	FIP	ReferencePointAtName	AccidentNarrative
2021-01-29	18:25	2	EASTONVILLE	0	Property	STAPLETON DR	Vehicle 1 was westbound on Stapleton Drive at the stop sign of Eastonville Road. Vehicle 2 was southbound on Eastonville Drive approaching the intersection. The intersection has a stop sign for eastbound and westbound traffic on Stapleton Drive. Vehicle 1 proceeded from the stop sign into the intersection. The front end of Vehicle 2 collided with the right side of Vehicle 1 in the
2021-05-07	11:30	2	EASTONVILLE	1	Injury	STAPLETON DR	Vehicle 1 was westbound on Stapleton Dr at Eastonville Rd. Vehicle 2 was southbound on Eastonville Rd at Stapleton Dr. Vehicle 1 failed to yield right of way and proceeded from a stop sign. Vehicle 1 collided its front with the side of vehicle 2. Both vehicles were
2021-11-04	22:40	1	EASTONVILLE	0	Property		Vehicle #1 was traveling northbound on Eastonville road approaching a left turn. Vehicle #1 lost control on the dirt road and rotated counterclockwise before rolling 3/4 time, then coming to rest on its left side off the left side of the roadway facing south.
2021-12-17	10:55	2	EASTONVILLE	0	Property	STAPLETON DR	Vehicle 1 was westbound on Stapleton Dr at Eastonville Rd. Vehicle 2 was northbound on Eastonville Rd at Stapleton Dr. Vehicle 1 failed to stop at a stop sign and entered the intersection. Vehicle 1 collided its front with the side of vehicle 2. Both vehicles were
2022-02-03	13:25	2	EASTONVILLE	0	Property	STAPLETON DR	Vehicle 1 was westbound on Stapleton Dr at Eastonville Rd. Vehicle 2 was northbound on Eastonville Rd at Stapleton Dr. Vehicle 1 failed to stop at a stop sign and entered the intersection in front of vehicle 2. Vehicle 2 collided its front with the side of vehicle 1. Vehicle 2 began to rotate counter clockwise and collided its side with the side of vehicle 1's trailer. Vehicle 2 came to a rest facing
2022-07-15	17:09	2	EASTONVILLE	0	Property	STAPLETON DR	Vehicle 1 was stopped at a controlled stop sign facing southeast on Stapleton Dr. at the intersection of Eastonville Rd. Vehicle 2 was traveling southwest on Eastonville Rd near Stapleton Dr. Vehicle 1 proceeded straight through the intersection. Vehicle 2 struck the
2022-12-05	16:07	2	EASTONVILLE	0	Property	STAPLETON DR	Vehicle #2 was traveling northbound on Eastonville Road in the #1 lane and was stopped at the stop sign at Stapleton Drive and Eastonville Road. Vehicle #1 was traveling northbound on Eastonville in the #1 lane and was stopped at the stop sign behind Vehicle #2 at Stapleton Drive and Eastonville. Vehicle #1 started to advance forward, but Vehicle #2 was still stopped. Vehicle #1 struck it's
2023-03-22	19:10	2	EASTONVILLE	0	Property	STAPLETON DR	Vehicle #1 was traveling east on Stapleton Dr approaching Eastonville Rd. Vehicle #2 was traveling southwest on Eastonville Rd approaching Stapleton Dr. Vehicle #1 failed to stop at the stop sign on Stapleton Dr at Eastonville Rd and failed to yield the right of way to Vehicle #2. Vehicle #1 entered the intersection of Stapleton Dr at Eastonville Rd in front of Vehicle #2, at which point the driver
2023-07-02	13:29	2	EASTONVILLE	0	Property	STAPLETON DR	Vehicle 1 was west bound on Stapleton Drive, stopped at the intersection with Eastonville Road in El Paso County, Colorado. Vehicle 2 was south bound on Eastonville Road, approaching the same intersection. Vehicle 1 entered the intersection to proceed straight. Vehicle 2 swerved to the right and the front right corner of Vehicle 1 hit the front left corner of Vehicle 2, in the intersection. Both