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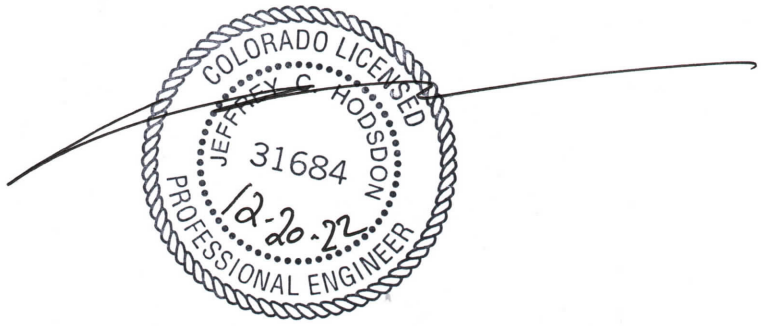
4-Way Ranch Commercial
Master Traffic Impact Analysis
CS-22-003
(LSC #S224450)
December 20, 2022

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.

December 20, 2022

Date

4-Way Ranch Commercial

Master Traffic Impact Analysis

Prepared for:
Craig Dossey | President
Vertex Consulting Services
455 East Pikes Peak Avenue, Suite 101
Colorado Springs, CO 80903

DECEMBER 20, 2022

LSC Transportation Consultants, Inc.

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

EPC PCD File No.: CS-22-003

LSC #S224450

CONTENTS

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December 20, 2022

Craig Dossey | President
Vertex Consulting Services
455 East Pikes Peak Avenue, Suite 101
Colorado Springs, CO 80903

RE: 4-Way Ranch Commercial
El Paso County, Colorado
Master Traffic Impact Analysis
EPC PCD File No. CS-22-003
LSC #S224450

Dear Mr. Dossey:

In response to your request, LSC Transportation Consultants, Inc. has prepared this Master traffic impact analysis for the proposed 4-Way Ranch Commercial Rezone in El Paso County, Colorado. As shown in Figure 1, the site is located north and south of Stapleton Drive and northwest of US Highway 24 (US Hwy 24).

REPORT CONTENTS

This report is being submitted as part of a request to remove the current PUD zoning for the 4-Way Ranch site and replace it with a conventional zoning district.

The report contains the following:

- The traffic-count data and street conditions;
- Short-term and 2042 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;
- Traffic-signal warrant analysis at key intersections; and
- Findings and recommendations.

PREVIOUS TRAFFIC REPORTS

The overall 4-Way Ranch PUD Development Plan was previously studied in a traffic impact study by LSC dated January 10, 2013.

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.

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

LAND USE AND ACCESS

Site Plan

The 67.1-acre site is located north and south of Stapleton Drive and east of US Hwy 24. Figure 2 shows the proposed site plan. The initial development is planned to include the area south of Stapleton Drive adjacent to US Hwy 24 and is planned to include about four to six acres of general commercial uses, three to five acres of mini-warehouse, three to four acres for Boat/RV storage, and three to four acres for contractor equipment storage. Access is proposed to the future Dumont Drive to be located about 845 feet west of US Hwy 24. This access does not meet the intersection spacing requirements for an Urban Principal Arterial found in the *El Paso County Engineering Criteria Manual* (*ECM*). **However**, the location of the Stapleton/Dumont intersection was established with the Stapleton Corridor Study and access control plan. Generally, a deviation should not be necessary as a corridor-specific access management plan essentially overrides the general *ECM* criteria. However, at the request of the County, a deviation request will be submitted with the next stage in the application process.

This study assumes the future areas north of Stapleton Drive will be developed with commercial uses consistent with ITE Land Use 821 Shopping Plaza and will have access to the future Dumont Drive and an additional right-in/right-out access to Stapleton Drive about 535 feet west of Dumont Drive.

This study assumes the future areas west of the initial phase will be developed with commercial uses consistent with ITE Land Use 770 Business Park and will have access to Stapleton Drive aligning with the intersection of Saybrook Drive/Stapleton Drive about 1,345 feet west of the future Dumont Drive. A deviation for a full-movement intersection at Stapleton/Saybrook was previously approved. A new deviation was submitted as part of the Waterbury Filings 1 and 2 Preliminary Plan/PUD (PUD SP215) on the north side of Stapleton and is still under review. Copies of both the prior approved deviation and the resubmitted request have been attached.

Sight Distance Analysis

Detailed sight-distance analysis/evaluation and any associated recommendations are typically exhibits at the Preliminary Plan stage. Generally, based on a design speed of 50 miles per hour (mph) for Stapleton Drive and the criteria contained in Table 2-21 of the *Engineering Criteria Manual* (*ECM*), the required intersection sight distance at the future intersections is 555 feet.

There does not appear to be any sight-distance-limiting roadway vertical curves along Stapleton or obstructions on the inside of the Stapleton horizontal curve that could not be removed with development (such as roadside vegetation, if identified at the Preliminary Plan stage).

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. The posted speed limit is currently 45 miles per hour (mph) north of Stapleton Drive and 35 mph south of Stapleton Drive. Pikes Peak Rural Transportation Authority (PPRTA) Eastonville Phase 1 project-funded improvements are anticipated in the short-term future at the intersection of Eastonville Road and Stapleton Drive. A roundabout is under design for this intersection.

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 mph.

Stapleton Drive is shown as an Urban four-lane Principal Arterial on the El Paso County *Major Transportation Corridors Plan* and El Paso County *Corridor Preservation Plan (CPP)*. Stapleton Drive extends east from Towner Drive to US Hwy 24. Stapleton continues southeast, then south

as Curtis Road. It is planned to be ultimately extended west to connect with the Briargate Parkway extension. Stapleton Drive currently is a half-section of a four-lane Principal Arterial street (one through lane in each direction) between Meridian Road and US Hwy 24. The posted speed limit between Eastonville Road and US Hwy 24 is 45 mph.

Judge Orr Road is a two-lane roadway that extends east from Eastonville Road across most of El Paso County. It is shown on the El Paso County 2040 *MTCP* and the *Preserved Corridor Network Plan* as a four-lane Minor Arterial west of Curtis Road. Posted speed limits range from 45 to 55 mph. West of Curtis Road, the speed limit is 45 mph, while it generally increases to 55 mph east of Curtis Road.

Pedestrian and Bicycle Accommodations

The following is a list of known and planned multi-modal and pedestrian accommodations in the vicinity of the site:

- A Park-and-Ride facility is planned for a site near Meridian Road and US Highway 24.
- The Rock Island Regional Trail passes adjacent to the site.
- There are currently no sidewalks on Stapleton Drive adjacent to the site. However, sidewalks will be constructed once it is upgraded to its final cross section
- Many of the area County roads have been or will be upgraded to provide paved shoulders for cyclists. Stapleton Drive is also shown as a future “bike route.”
- The Highway 24 PEL study also includes multi-modal elements.

Existing (2021) Traffic Volumes

Figure 3 shows the existing morning and afternoon peak-hour traffic volumes at the intersections of Stapleton/US Hwy 24, Stapleton/Eastonville, and Londonderry/Eastonville. The morning peak hour was assumed to occur for one hour between 6:30 a.m. and 8:30 a.m. The afternoon peak hour was assumed to occur for one hour between 4:00 p.m. and 6:00 p.m. These volumes are based on manual intersection turning-movement counts conducted by LSC in April 2021, October 2021, and April 2022. The count-data sheets are attached for reference.

Existing Levels of Service

Level of service (LOS) is a quantitative measure of the level of delay at an intersection. Level of service is indicated on a scale from “A” to “F.” LOS A represents control delay of less than 10 seconds for unsignalized and signalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 1 shows the level of service delay ranges.

Table 1: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections Average Control Delay (seconds per vehicle)	Unsignalized Intersections 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 3 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.

All movements at the stop-sign-controlled intersection of Judge Orr/Curtis are currently operating at LOS B or better during the peak hours.

Safety and Accident Analysis

The Colorado State Patrol (CSP) provided LSC with crash history data for Stapleton Drive between Eastonville Road and US Hwy 24 and at the intersection of Judge Orr Road and Curtis Road from November 2019 through November 2022. The crash history data has been attached.

During the reported time period, there were eight reported crashes at the intersection of Eastonville/Stapleton. All of the crashes involved vehicles on Stapleton Drive failing to properly yield to the stop signs. It is our understanding that this intersection is planned to be reconstructed as a modern one-lane roundabout in the short term as part of the overall Eastonville Road improvements planned by El Paso County.

During the reported time period, there were seven reported crashes at the intersection of US Hwy 24/Stapleton. Six of the crashes involved vehicles on Stapleton Drive failing to properly yield to the stop signs. The seventh crash involved an eastbound vehicle on US Hwy 24 turning left in front of a westbound through vehicle on US Hwy 24. Five crashes were reported in a twelve-month period between September 2020 and September 2021. However, the two crashes reported on August 9, 2021 may be duplicate entries. Only two crashes have been reported in the last 12 months. In order to meet a Crash Experience traffic-signal warrant, as defined in the 2009 Edition of the *Manual on Uniform Traffic Control Devices* (*MUTCD*), five or more reported crashes of types susceptible to correction by a traffic-control signal, must have occurred within a 12-month period.

No crashes were reported from November 2019 and November 2022 at the intersections of Gilbert Drive/Stapleton Drive and Bandanero Drive/Stapleton Drive.

During the reported time period, there were two crashes reported at the intersection of Judge Orr/Curtis. A crash in 2020 involved an emergency vehicle with their lights activated. The most recent crash in October 2022 involved a northbound vehicle on Curtis Road that failed to properly yield at the stop sign.

SHORT-TERM (YEAR 2026) BACKGROUND TRAFFIC

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

The addition of new roadways, notably the future completion of Rex Road east to Eastonville Road, will greatly affect the existing traffic patterns. In lieu of a general/"blanket" growth rate, LSC has developed small-area traffic models for Meridian Ranch, Waterbury, and the Latigo Trails as part of previous work completed in the area. The results of these modeling efforts have been combined to estimate the background traffic volumes. The LSC local model volumes have been presented in the Figures. These background traffic volumes have been based on the existing traffic volumes (from Figure 3) plus increases in traffic due to regional growth, including buildout of the following subdivisions in the vicinity of the site:

- Meridian Ranch Filings 1-3 and Filings 6-8;
- Meridian Ranch Estates Filings 2-3;
- Meridian Ranch Filing 11;
- Stonebridge at Meridian Ranch Filings 1, 2, and 3;
- Meridian Ranch Filing 9;
- The Vistas at Meridian Ranch Filing 1;
- WindingWalk at Meridian Ranch Filing 1;
- The Enclave at Stonebridge at Meridian Ranch;

- The Estates at Rolling Hills Ranch Filing Nos. 1 and 2;
- The Rolling Hills Ranch at Meridian Ranch PUD;
- The areas included in the Meridian Ranch 2021 Sketch Plan Amendment;
- Latigo Trails Filing Nos. 1 and 2;
- Waterbury Filing Nos. 1 and 2; and
- Grandview Reserve Phase 1

The **short-term** background traffic volumes assume Rex Road extended from its existing terminus in Meridian Ranch, across Eastonville to the first Grandview Reserve access east of Eastonville Road but **not** further east.

Figure 4 shows the lane geometry, traffic control, and level of service at the key area intersections, based on the short-term background volumes. It is our understanding that El Paso County plans to improve Eastonville Road from Snaffle Bit north to Londonderry Drive in the short-term future (a portion of Phase 1 of the Eastonville PPRTA project – Phase 1 also includes the segment between Londonderry and Rex Road). As shown in Figure 4, the intersection of Stapleton/Eastonville is planned to be reconstructed as a one-lane modern roundabout as part of these improvements.

2042 BACKGROUND TRAFFIC

Figure 5 shows the projected 2042 background-traffic volumes. The small-area model was also used to develop these volumes. The LSC local-area model volumes have been presented in the Figures. In addition to the developments assumed to be developed by 2026, the 2042 background traffic volumes assume buildout of the Meridian Ranch development including buildout of the proposed school site located north of Falcon High School, buildout of Waterbury, buildout of Grandview Reserve, buildout of Latigo Trails, and buildout of the area generally north of Rex Road between Eastonville Road and US Hwy 24 with 2 ½ acre residential lots. Buildout of all of these area developments may not occur within the next twenty years. The 2042 background-traffic estimates shown are therefore likely conservative. The 2042 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 2042 background volumes.

TRIP GENERATION

The 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 shows the trip-generation estimates. Table 2 also shows the trip-generation estimate for this same area from the *4-Way Ranch Updated Traffic Impact Analysis* by LSC dated January 29, 2009 for comparison.

The total number of vehicle trips generated has been reduced to account for the "pass by" phenomena. A pass-by trip is made by a motorist who would already be on the adjacent roadways regardless of the proposed development, but who stops in at the site while passing by. The motorist would then continue on his or her way to a final destination in the original direction. The pass-by percentages shown in Table 2 are from the Trip Generation Handbook - An ITE Proposed Recommended Practice, 3rd Edition, 2017 by ITE.

The initial phase is expected to generate about 2,606 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, which generally occurs for one hour between 6:30 and 8:30 a.m., about 82 vehicles would enter and 46 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 147 vehicles would enter and 166 vehicles would exit the site.

At buildout, 4-Way Ranch Commercial site is expected to generate about 15,600 new external vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. This is about 4,457 fewer vehicle trips than was assumed in the 2009 PUD TIS. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 630 vehicles would enter and 521 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 890 vehicles would enter and 960 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. Figure 6 shows the directional-distribution estimates for the site-generated traffic volumes. The estimates have been based on the following factors: the recent traffic-count data; the Pikes Peak Area Council of Governments' (PPACG) 2040 traffic projections; the site's location with respect to the nearby employment, commercial, and activity centers, and the balance of the Falcon and Colorado Springs metropolitan areas; the site's proposed land use; the site's proposed access points; and the phasing of the existing and future roadway system serving the site.

When the distribution percentages (from Figure 6) were applied to the trip-generation estimates (from Table 2), the short-term site-generated traffic volumes on the area roadways were determined. Figure 7 shows the site-generated traffic volumes following buildout of the initial phase. Figure 8 shows the long-term site-generated traffic volumes following buildout of the entire site.

TOTAL TRAFFIC

Figure 9 shows the projected short-term (Year 2026) total-traffic volumes. The short-term total-traffic volumes are the sum of the short-term background-traffic volumes (from Figure 4) plus the initial phase site-generated traffic volumes (from Figure 7).

Figure 10 shows the projected 2042 total-traffic volumes. The 2042 total-traffic volumes are the sum of the 2042 background traffic volumes (from Figure 5) plus the long-term buildout site-generated traffic volumes (from Figure 8).

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 *Engineering Criteria Manual*, a peak-hour factor of 0.85 was used for the short-term (Year 2026) analysis, except for those intersections whose existing peak-hour factor calculated from traffic counts conducted by LSC was higher than 0.85. In those cases, the existing peak-hour factor was used. A peak-hour factor of 0.95 was used for the long term (Year 2042). Two-percent heavy vehicles were assumed for both the Year 2026 and Year 2042 analysis. The results of the analysis are contained in Figures 5, 6, 10, and 11. The level of service reports are attached.

Stapleton/Eastonville

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. The intersection is planned to be converted to a modern roundabout. The roundabout laneage shown for the short term by LSC is estimated and should be verified and updated in subsequent site-specific traffic reports for developments within 4-Way Ranch Commercial as the design progresses.

By 2042, it was assumed that Stapleton Drive would be constructed to its full Principal Arterial cross section. Based on the estimated roundabout lane geometry and projected volumes, the projected intersection levels of service are shown in Figure 11.

Saybrook/Stapleton

The intersection of Saybrook/Stapleton is projected to operate at LOS D or better for all movements as a signal-controlled intersection, based on the projected 2042 total traffic volumes.

Dumont/Stapleton

Dumont Drive is planned to only be constructed south of Stapleton Drive in the initial phase. As a stop-sign-controlled "T" intersection, all movements at this intersection are projected to operate at LOS D or better during the morning and afternoon peak hours, based on the projected 2026 total traffic volumes. By 2042, it was assumed the north leg of Dumont would be constructed and that the intersection would be converted to traffic-signal control. All movements

at this intersection are projected to operate at LOS D or better based on the projected 2042 total traffic volumes.

US Hwy 24 /Stapleton

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 short-term total traffic volumes.

By 2042, the northeast- and southwest-bound left-turn movements at this intersection are projected to operate at LOS E during the morning and afternoon peak hours, with or without the proposed development. Alternate traffic-control options were presented in the US Hwy 24 PEL Study. Alternatives to a "conventional" four-leg signalized intersection may include a jug-handle intersection, a continuous-flow intersection (or partial/half CFI), or a junior interchange. An alternate intersection design may be needed in the long term to maintain an acceptable level of service.

Judge Orr/Curtis

All movements at the intersection of Judge Orr/Curtis are projected to operate at LOS C or better during the peak hours if it remains a stop-sign-controlled intersection. By 2042, it was assumed that this intersection would be reconstructed as a two-lane modern roundabout. Based on the projected 2042 total traffic volumes, all approaches are projected to operate at LOS B or better during the peak hours.

TRAFFIC-SIGNAL WARRANT ANALSYIS

The intersections of Stapleton/Saybrook, Stapleton/Dumont, and Stapleton/US Hwy 24 were analyzed to determine when Four-Hour and/or Eight-Hour Vehicular-Volume Traffic-Signal Warrant thresholds would be reached or exceeded, based on the projected traffic volumes. The satisfaction of warrants does not indicate that a signal must be installed. The decision to require a signal to be installed rests with the County (or CDOT in the case of US Highway 24/Stapleton).

Stapleton/Saybrook

Table 3 shows the results of the analysis for the intersection of Stapleton/Saybrook. The off-peak traffic volumes were based on traffic counts conducted by LSC in October 2021 and vehicle time-of-day distribution data for single-family residential land uses and shopping center land uses published by the Institute of Transportation Engineers.

Based on the 2042 total traffic volumes, all of the eight hours analyzed are projected to meet the minimum thresholds for an Eight-Hour Vehicular-Volume Traffic-Signal Warrant and five of the eight hours analyzed are projected to meet the minimum thresholds for a Four-Hour Vehicular-Volume Traffic-Signal Warrant.

Stapleton/Dumont

Table 4 shows the results of the analysis for the intersection of Stapleton/Dumont. The off-peak traffic volumes were based on traffic counts conducted by LSC in October 2021 and vehicle time-of-day distribution data for single-family residential and shopping center land uses published by the Institute of Transportation Engineers.

Based on the 2042 total traffic volumes, all of the eight hours analyzed are projected to meet the minimum thresholds for an Eight-Hour Vehicular-Volume Traffic-Signal Warrant and for a Four-Hour Vehicular-Volume Traffic-Signal Warrant.

Stapleton/US Hwy 24

Table 5 shows the signal-warrant analysis for the intersection of Stapleton/US Hwy 24. The analysis assumes the minor approach includes the higher of either the southbound (Stapleton Drive) left-turn and through movements or northbound (Curtis Road) left-turn and through movements. This intersection currently only meets the thresholds for a Four-Hour Vehicular-Volume Traffic-Signal Warrant for three of the four required hours and only six of the required eight hours are anticipated to meet the minimum thresholds for an Eight-Hour Vehicular-Volume Traffic-Signal Warrant. A traffic-signal warrant is not projected to be met in the short-term with the addition of Phase 1 4-Way Ranch Commercial traffic only.

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)/roundabouts at US Hwy 24 intersections with Rex Road and/or Stapleton Road per fee-program guidelines

ROADWAY CLASSIFICATION

The future public roadways (unless developed as private roads) within the 4-Way Ranch development would potentially be classified as Urban Non-Residential Collector streets or Urban Local streets, depending on ADT volume, continuity, and other factors. This could be determined at the Preliminary Plan stage.

ROADWAY IMPROVEMENTS

The attached Table 6 presents the "master-study-level" anticipated roadway improvements and required auxiliary turn-lane locations and lengths.

* * * * *

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 2-6
Figures 1-11
Traffic Count Reports
Level of Service Reports
Appendix Table 1
MTCP Maps
Crash History
Deviation No 1 - Saybrook Full Movement

Tables 2-6

TRANSPORTATION
CONSULTANTS, INC.

Table 2
Trip Generation Estimate
Four Way Ranch Commercial

Land Use Code	Land Use Description	Area (Acres)	Floor Area Ratio	Trip Generation Units	Trip Generation Rates [1] Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Total Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Passby Trips[2] (%)	New Trips Generated Average Weekday Traffic
South of Stapleton Road and East of the Drainage Area (Initial Phase)																
- - -	RV/Boat Storage[3]	4	- - -	4 Acres	10.90	0.62	0.67	0.37	0.52	44	2	3	1	2	0%	44
151	Mini-Warehouse	5	0.25	54 KSF[4]	1.45	0.05	0.04	0.07	0.08	78	3	2	4	4	0%	78
180	Specialty Trade Contractor	4	0.10	17 KSF	9.82	1.23	0.43	0.62	1.31	167	21	7	10	22	0%	167
821	Shopping Plaza (40-150 KSF No Supermarket)	6	0.20	52 KSF	67.52	1.07	0.66	2.54	2.65	3,511	56	34	132	138	34%	2,317
								Initial Phase Total		**3,800**	**82**	**46**	**147**	**166**		**2,606**
South of Stapleton Road and West of the Drainage Area																
770	Business Park	29.18	0.20	254 KSF	13.44	1.10	0.19	0.34	0.97	3,413	279	49	86	245	0%	3,413
North of Stapleton Road and East of Dumont Dr																
821	Shopping Plaza (40-150 KSF No Supermarket)	5.59	0.20	49 KSF	67.52	1.07	0.66	2.54	2.65	3,308	53	32	125	130	34%	2,183
North of Stapleton Road and West of Dumont Dr																
821	Shopping Plaza (40-150 KSF No Supermarket)	7.6	0.20	66 KSF	67.52	1.07	0.66	2.54	2.65	4,456	71	43	168	175	34%	2,941
Other																
- - -	Drainage/Open Space/R.O.W.	5.73	- - -	- - - - - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
								Grand Total		**14,977**	**485**	**170**	**526**	**716**		**11,143**
	Trip Generation Estimate from the *Updated 4 Way Ranch Traffic Impact Analysis, January 29, 2009*									**21,446**	**630**	**521**	**890**	**960**		**15,600**
								Change (Decrease)		**-6,469**	**-145**	**-351**	**-364**	**-244**		**-4,457**

Notes:

(1) Source: "Trip Generation, 11th Edition, 2021" by the Institute of Transportation Engineers (ITE).

(2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice 3rd Edition, September 2017" by ITE

(3) "RV/Boat Storage" rates based on RV storage facility trip generation counts conducted by LSC in El Paso County (2018)

(4) KSF = one thousand square feet of floor space

Source: LSC Transportation Consultants, Inc.

Nov-22

Table 3
Traffic Signal Warrant Analysis
Saybrook Drive/Stapleton Drive

				Warrant Analysis[1]										
				Warrant 1: Eight Hour Vehicular Volume Evaluation								Warrant 2: Four Hour Vehicular Volume Evaluation		
				Warrant Thresholds				Warrant Threshold Met?						
				Condition A (70%)		Condition B (70%)		Condition A		Condition B				
Hour	Major[2] Stapleton	Minor 1[3] Saybrook NB	Minor[3] Saybrook SB	Major	Minor	Major	Minor	NB	SB	NB	SB	70% Warrant Threshold Minor Minimum	Warrant Threshold Met? NB	SB
2042 Total Traffic Total Traffic														
6:30 - 7:30 am	1274	16	83	350	105	525	53	No	No	No	Yes	80	No	Yes
7:30 - 8:30 am	742	24	105	350	105	525	53	No	No	No	Yes	92	No	Yes
11:00 am - 12:00 pm	537	99	49	350	105	525	53	No	No	Yes	No	152	No	No
12:00 - 1:00 pm	570	120	55	350	105	525	53	Yes	No	Yes	Yes	140	No	No
2:15 - 3:15 PM	637	116	58	350	105	525	53	Yes	No	Yes	Yes	119	No	No
3:15 - 4:15 PM	733	114	61	350	105	525	53	Yes	No	Yes	Yes	93	Yes	No
4:15 - 5:15 PM	687	118	73	350	105	525	53	Yes	No	Yes	Yes	104	Yes	No
5:15 - 6:15 PM	675	120	68	350	105	525	53	Yes	No	Yes	Yes	108	Yes	No
Numbers of Hours the Threshold is Met								**5**		**8**			**5**	
Warrant Met?								**No**		**Yes**			**Yes**	

Notes:
(1) Thresholds are based on 1 lane on the major approach and 1 lane on the minor approach with the 70% factor applied for a posted speed limit above 40 mph
(2) The major street traffic includes all movements (left, through, and right)
(3) The minor street traffic includes only the left turns from the minor street

Source: LSC Transportation Consultants, Inc. Sep-22

Table 4
Traffic Signal Warrant Analysis
Dumont Drive/Stapleton Drive

				Warrant Analysis[1]										
				Warrant 1: Eight Hour Vehicular Volume Evaluation								Warrant 2: Four Hour Vehicular Volume Evaluation		
				Warrant Thresholds				Warrant Threshold Met?						
				Condition A (70%)		Condition B (70%)		Condition A		Condition B				
Hour	Major[2] Stapleton	Minor 1[3] Saybrook NB	Minor[3] Saybrook SB	Major	Minor	Major	Minor	NB	SB	NB	SB	70% Warrant Threshold Minor Minimum	Warrant Threshold Met? NB	SB
2042 Total Traffic Total Traffic														
6:30 - 7:30 am	1293	14	185	350	105	525	53	No	Yes	No	Yes	80	No	Yes
7:30 - 8:30 am	674	20	234	350	105	525	53	No	Yes	No	Yes	108	No	Yes
11:00 am - 12:00 pm	630	73	110	350	105	525	53	No	Yes	Yes	Yes	121	No	No
12:00 - 1:00 pm	664	89	124	350	105	525	53	No	Yes	Yes	Yes	111	No	Yes
2:15 - 3:15 PM	682	86	129	350	105	525	53	No	Yes	Yes	Yes	106	No	Yes
3:15 - 4:15 PM	789	85	136	350	105	525	53	No	Yes	Yes	Yes	82	Yes	Yes
4:15 - 5:15 PM	752	88	163	350	105	525	53	No	Yes	Yes	Yes	90	No	Yes
5:15 - 6:15 PM	742	89	154	350	105	525	53	No	Yes	Yes	Yes	92	No	Yes
Numbers of Hours the Threshold is Met								**8**		**8**			**8**	
Warrant Met?								**Yes**		**Yes**			**Yes**	

Notes:
(1) Thresholds are based on 1 lane on the major approach and 1 lane on the minor approach with the 70% factor applied for a posted speed limit above 40 mph
(2) The major street traffic includes all movements (left, through, and right)
(3) The minor street traffic includes only the left turns from the minor street

Source: LSC Transportation Consultants, Inc. Sep-22

Table 5
Traffic Signal Warrant Analysis
US 24/Stapleton Drive

Hour	Major[2] US 24	Minor 1[3] Stapleton SE	Minor 2[3] Stapleton NE	Warrant Analysis[1] — Warrant 1: Eight Hour Vehicular Volume Evaluation — Warrant Thresholds — Condition A (70%) Major	Condition A (70%) Minor	Condition B (70%) Major	Condition B (70%) Minor	Warrant Threshold Met? — Condition A NB	Condition A SB	Condition B NB	Condition B SB	Warrant 2: Four Hour Vehicular Volume Evaluation — 70% Warrant Threshold Minor Minimum	Warrant Threshold Met? NB	Warrant Threshold Met? SB
Existing Traffic														
6:45 - 7:45 am	857	198	79	420	140	630	70	Yes	No	Yes	Yes	91	Yes	No
7:30 - 8:30 am	706	112	47	420	140	630	70	No	No	Yes	No	138	No	No
11:00 am - 12:00 pm	739	32	28	420	140	630	70	No	No	No	No	126	No	No
12:00 - 1:00 pm	692	42	37	420	140	630	70	No	No	No	No	143	No	No
2:15 - 3:15 PM	782	56	72	420	140	630	70	No	No	No	Yes	111	No	No
3:15 - 4:15 PM	1037	83	131	420	140	630	70	No	No	Yes	Yes	80	Yes	Yes
4:15 - 5:15 PM	977	67	124	420	140	630	70	No	No	No	Yes	80	No	Yes
5:15 - 6:15 PM	939	74	92	420	140	630	70	No	No	Yes	Yes	80	No	Yes
								1		**6**			**3**	
								No		**No**			**No**	
2026 Background Traffic														
6:45 - 7:45 am	858	199	80	420	140	630	70	Yes	No	Yes	Yes	91	Yes	No
7:30 - 8:30 am	707	112	48	420	140	630	70	No	No	Yes	No	138	No	No
11:00 am - 12:00 pm	742	33	28	420	140	630	70	No	No	No	No	125	No	No
12:00 - 1:00 pm	697	43	37	420	140	630	70	No	No	No	No	141	No	No
2:15 - 3:15 PM	783	57	73	420	140	630	70	No	No	No	Yes	111	No	No
3:15 - 4:15 PM	1038	84	132	420	140	630	70	No	No	Yes	Yes	80	Yes	Yes
4:15 - 5:15 PM	978	68	125	420	140	630	70	No	No	No	Yes	80	No	Yes
5:15 - 6:15 PM	940	75	93	420	140	630	70	No	No	Yes	Yes	80	No	Yes
								1		**6**			**3**	
								No		**No**			**No**	
2026 Total Traffic														
6:45 - 7:45 am	873	212	83	420	140	630	70	Yes	No	Yes	Yes	87	Yes	No
7:30 - 8:30 am	707	112	52	420	140	630	70	No	No	Yes	No	138	No	No
11:00 am - 12:00 pm	742	33	33	420	140	630	70	No	No	No	No	125	No	No
12:00 - 1:00 pm	697	43	43	420	140	630	70	No	No	No	No	141	No	No
2:15 - 3:15 PM	783	57	78	420	140	630	70	No	No	No	Yes	111	No	No
3:15 - 4:15 PM	1038	84	137	420	140	630	70	No	No	Yes	Yes	80	Yes	Yes
4:15 - 5:15 PM	978	68	130	420	140	630	70	No	No	No	Yes	80	No	Yes
5:15 - 6:15 PM	940	75	98	420	140	630	70	No	No	Yes	Yes	80	No	Yes
								1		**6**			**3**	
								No		**No**			**No**	

Notes:
(1) Thresholds are based on 2 or more lanes on the major approach and 2 or more lanes on the minor approach with the 70% factor applied for a posted speed limit above 40 mph
(2) The major street traffic includes all movements (left, through, and right)
(3) The minor street traffic includes left and through volumes from the minor street

Source: LSC Transportation Consultants, Inc. Sep-22

Table 6
Roadway Improvements
4-Way Ranch Commercial

Item #	Improvement	Trigger	Timing	Responsibility
		Roadway Segment Improvements		
1	Stapleton Drive - US Hwy 24 to Eastonville Road complete southern (eastbound) half	average daily traffic > 18,000 vehicles per day	Shown in 2040 MTCP	4-Way Ranch Metro District east of Eastonville Road (El Paso County west of Eastonville Road)
2	Widen US Hwy 24 to provide two lanes in each direction	dependent on CDOT funding priorities	Shown in US Highway 24 PEL Study; 2040 MTCP	CDOT
		Eastonville/Stapleton		
3	Reconstruct as modern roundabout	- - -	Short-Term (under design)	PPRTA Eastonville Phase 1 Project/El Paso County
		Stapleton/Saybrook Intersection		
4	Construct a westbound left-turn lane on Stapleton Dr approaching Saybrook. This lane should be 375 feet long plus a 200-foot taper.	westbound left-turn volume > 10 vph	With development of 4-Way Ranch parcels south of Stapleton and west of the drainage area	4-Way Ranch Commercial
5	Construct an eastbound right-turn deceleration lane on Stapleton Dr approaching Saybrook Dr. This lane should be 235 feet long plus a 200-foot taper.	eastbound right-turn volume > 25 vph	With development of 4-Way Ranch parcels south of Stapleton and west of the drainage area	4-Way Ranch Commercial
6	Construct an eastbound right-turn acceleration lane on Stapleton Dr at Saybrook Dr. This lane should be 760 feet long plus a 180-foot taper.	northbound right-turn volume > 50 vph	With development of 4-Way Ranch parcels south of Stapleton and west of the drainage area	4-Way Ranch Commercial
7	Construct an eastbound left-turn lane on Stapleton Dr approaching Saybrook Dr. This lane should be 335 feet long plus a 200-foot taper.	eastbound left-turn volume > 10 vph	With Waterbury Filing Nos. 1 and 2	Waterbury Phase 1
8	Construct a westbound right-turn deceleration lane on Stapleton Dr approaching Saybrook Dr. This lane should be 235 feet long plus a 200-foot taper.	westbound right-turn volume > 25 vph	With Waterbury Filing Nos. 1 and 2	Waterbury Phase 1
9	Construct a westbound right-turn acceleration lane on Stapleton Dr at Saybrook Dr. This lane should be 760 feet long plus a 180-foot taper.	southbound right-turn volume > 50 vph	With Future Waterbury Filings	Waterbury Phase 1
10	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 El Paso County	Future	4-Way Ranch Commercial and Waterbury
		Stapleton/Dumont Intersection		
11	Construct a westbound left-turn lane on Stapleton Dr approaching Dumont Dr. This lane should be 315 feet long plus a 200-foot taper.	westbound left-turn volume > 10 vph	With development of 4-Way Ranch parcels south of Stapleton and west of the drainage area	4-Way Ranch Commercial
12	Construct an eastbound right-turn deceleration lane on Stapleton Dr approaching Dumont Dr. This lane should be 235 feet long plus a 200-foot taper.	eastbound right-turn volume > 25 vph	With development of 4-Way Ranch parcels south of Stapleton and west of the drainage area	4-Way Ranch Commercial
13	Construct an eastbound right-turn acceleration lane on Stapleton Dr at Saybrook. This lane should be 760 feet long plus a 180-foot taper.	northbound right-turn volume > 50 vph	With development of 4-Way Ranch parcels south of Stapleton and west of the drainage area	4-Way Ranch Commercial
14	Construct an eastbound left-turn lane on Stapleton Dr approaching Dumont Dr. This lane should be 375 feet long plus a 200-foot taper.	eastbound left-turn volume > 10 vph	With future Waterbury Phases or with development of 4-Way Ranch parcels north of Stapleton; potential other development participation, such as if development occurs on the adjacent parcel(s).	4-Way Ranch Commercial and/or Waterbury
15	Construct a westbound right-turn deceleration lane on Stapleton Dr approaching Dumont DR. This lane should be 235 feet long plus a 200-foot taper (or continuous right turn accel/decel. lane).	westbound right-turn volume > 25 vph	With future Waterbury Phases or with development of 4-Way Ranch parcels north of Stapleton; potential other development participation, such as if development occurs on the adjacent parcel(s).	4-Way Ranch Commercial and/or Waterbury
16	Construct a westbound right-turn acceleration lane on Stapleton Dr at Dumot Dr. This lane should be 760 feet long plus a 180-foot taper (or continuous right turn accel/decel. lane)	southbound right-turn volume > 50 vph	With future Waterbury Phases or with development of 4-Way Ranch parcels north of Stapleton; potential other development participation, such as if development occurs on the adjacent parcel(s).	4-Way Ranch Commercial or Waterbury
17	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 El Paso County	With future Waterbury Phases or with development of 4-Way Ranch parcels north of Stapleton;; potential other development participation, such as if development occurs on the adjacent parcel(s).	4-Way Ranch Commercial and/or Waterbury
		Stapleton/US Hwy 24 Intersection		
18	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 but likely beyond initial phase of 4-Way Ranch Commercial. 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, including those within this 4 Way Ranch commercial development
19	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)	At buildout of 4-Way Ranch Commercial initial phase, Grandview Reserve Phase 1 and the Meridian Ranch Sketch Plan 2021 Amendment Area	Area developments as required or potentially escrow participation toward future improvements.
20	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
21	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, including this project, through the access permitting process.

Source: LSC Transportation Consultants, Inc. (Sept 2022)

Figures 1-11

TRANSPORTATION
CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 4,000'

Figure 1

Vicinity Map

4-Way Ranch Commercial (LSC# S224450)

TRANSPORTATION CONSULTANTS, INC.

A. Future Business Park
B. Boat/RV Storage
C. Contractor Equipment
D. Mini-Warehouse
E. Commercial
F. Future Retail

N

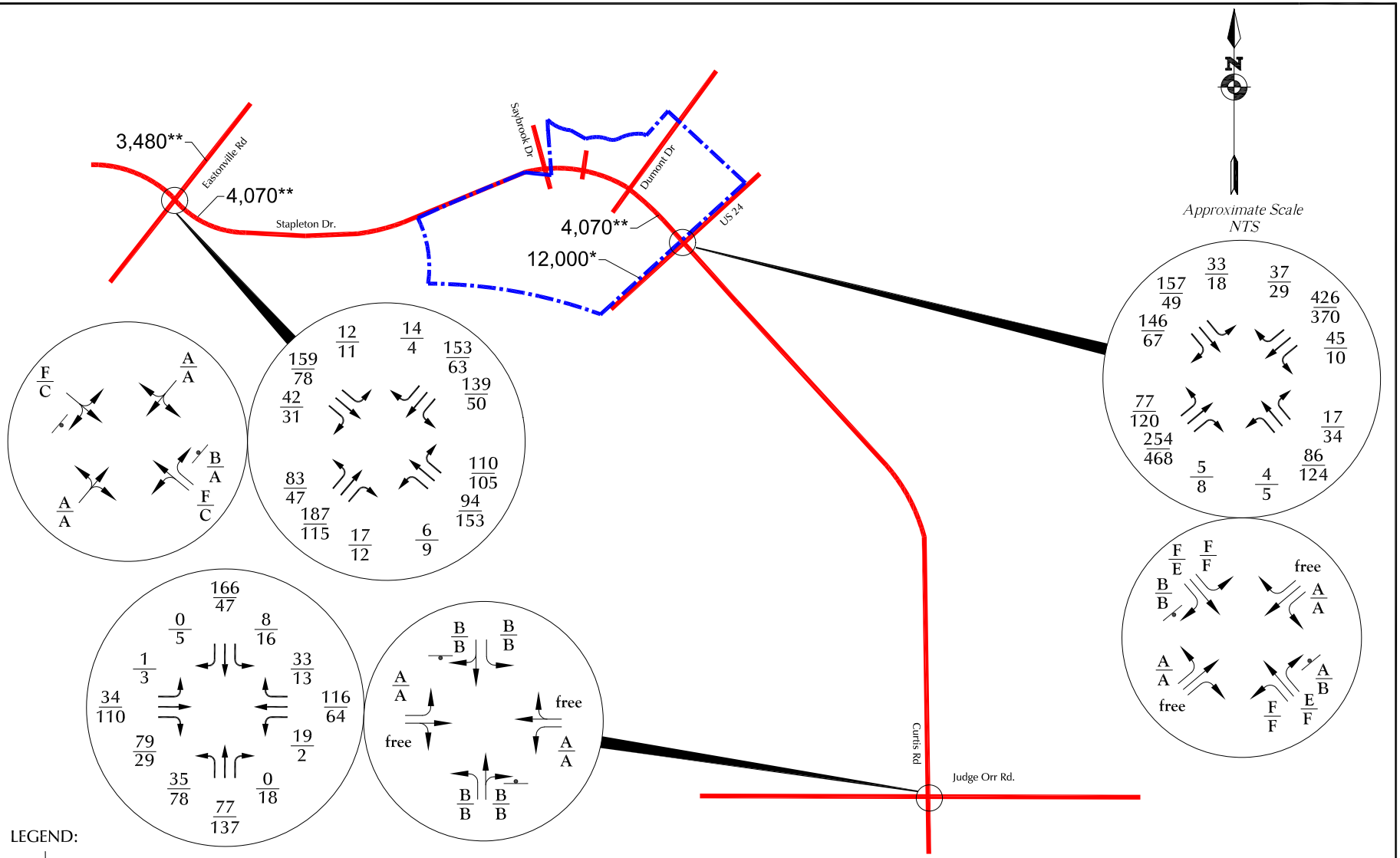
Approximate Scale 1" = 1,000'

Figure 2

Site Plan

4-Way Ranch Commercial (LSC# S224450)

LSC TRANSPORTATION CONSULTANTS, INC.



LEGEND:

| = Stop Sign

$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour (6:45 to 7:45 AM) Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

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

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

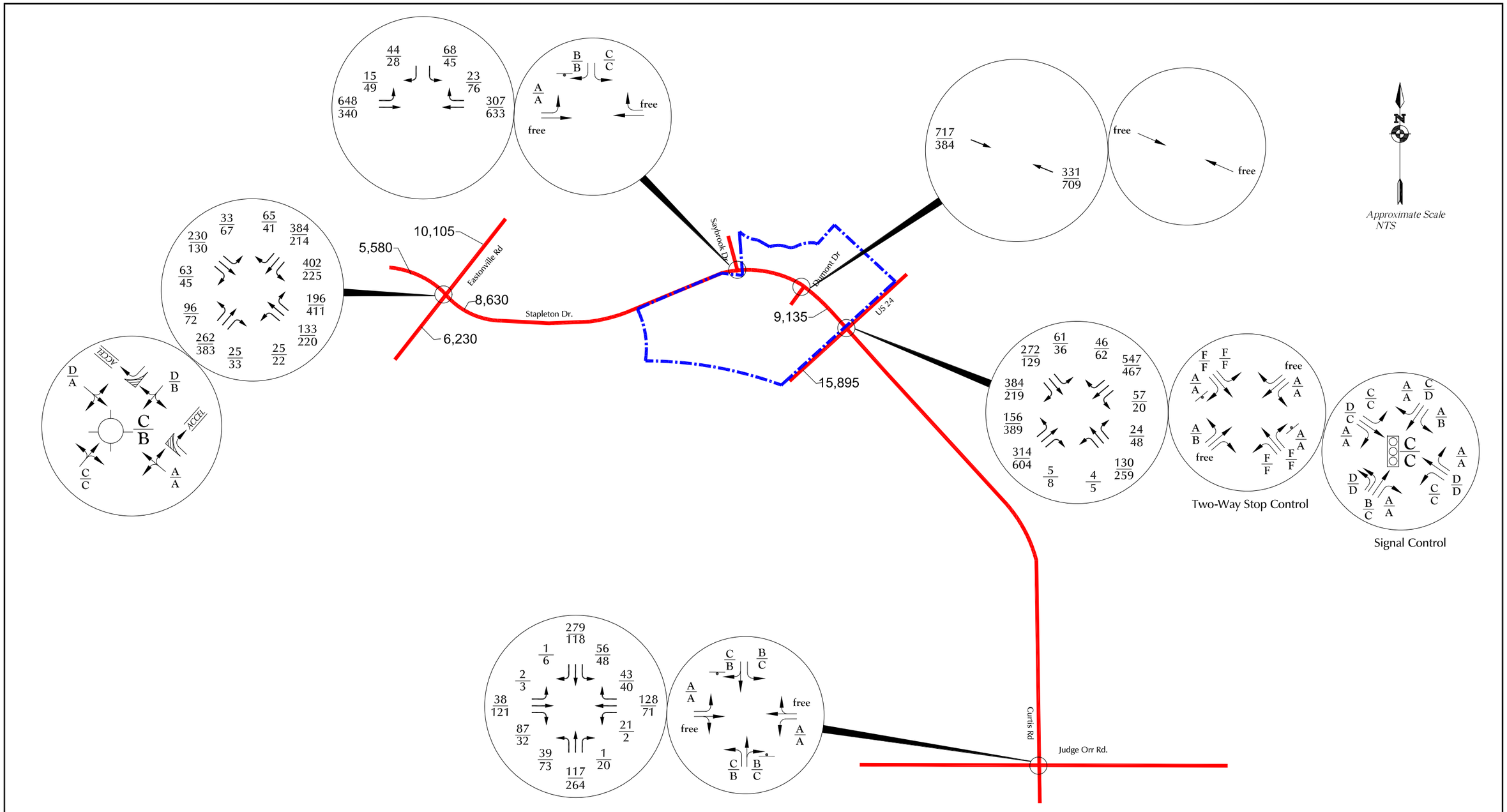
* 2021 CDOT AADT
** Estimate by LSC

TRANSPORTATION CONSULTANTS, INC.

Figure 3

Existing Traffic, Lane Geometry and Traffic Control

4-Way Ranch Commercial (LSC# S224450)



LEGEND:

= Stop Sign

= Roundabout

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)

$\frac{A}{B}$ = 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

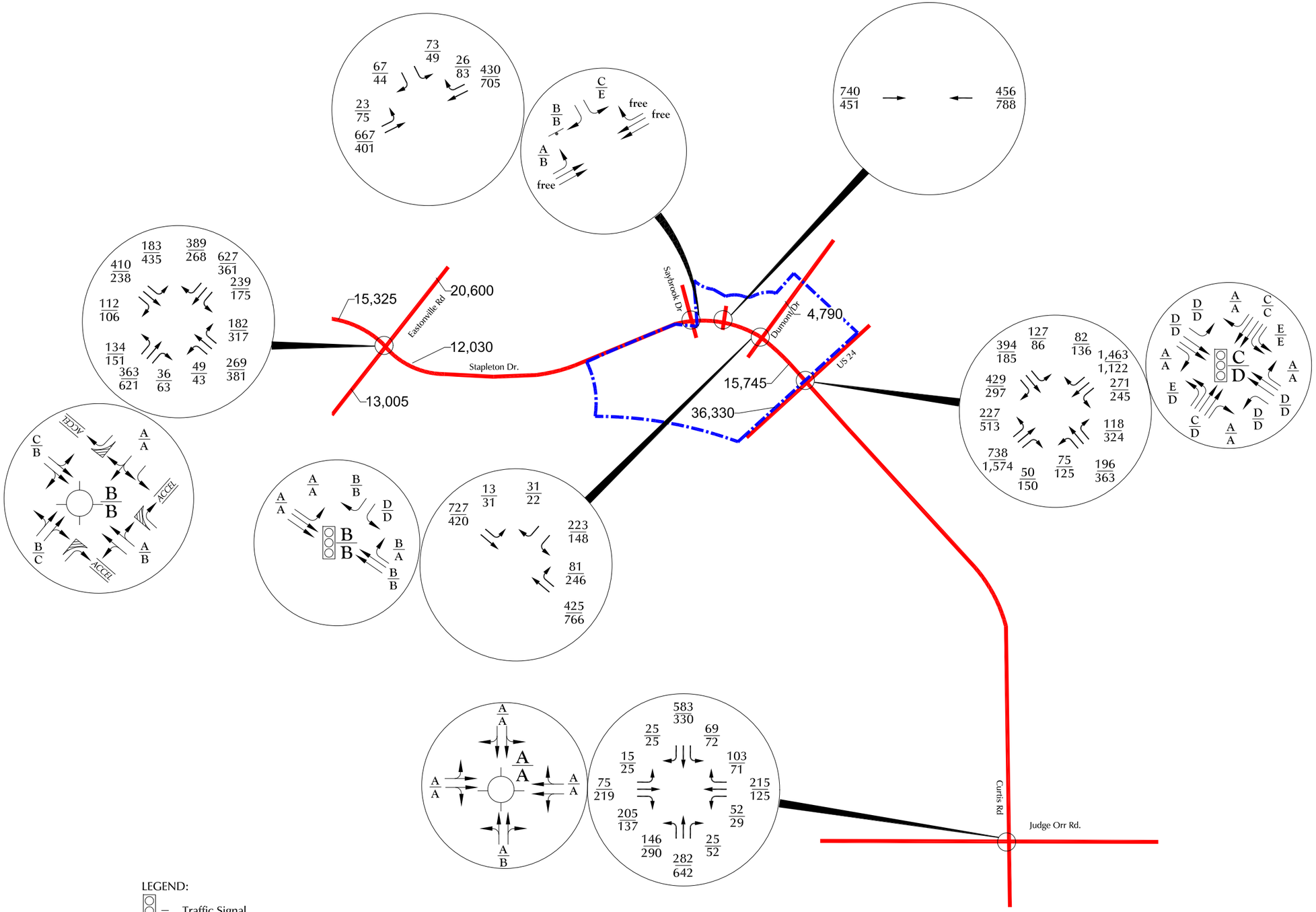
X,XXX= Average Daily Traffic (vehicles per day)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 4

Year 2026 Background Traffic, Lane Geometry and Traffic Control

4-Way Ranch Commercial (LSC# S224450)



Approximate Scale
NTS

LEGEND:

= Traffic Signal

= Stop Sign

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

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

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

= Roundabout

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 5

Year 2042 Background Traffic, Lane Geometry and Traffic Control

4-Way Ranch Commercial (LSC# S224450)

N

Approximate Scale
Scale: 1"= 4,000'

LEGEND:

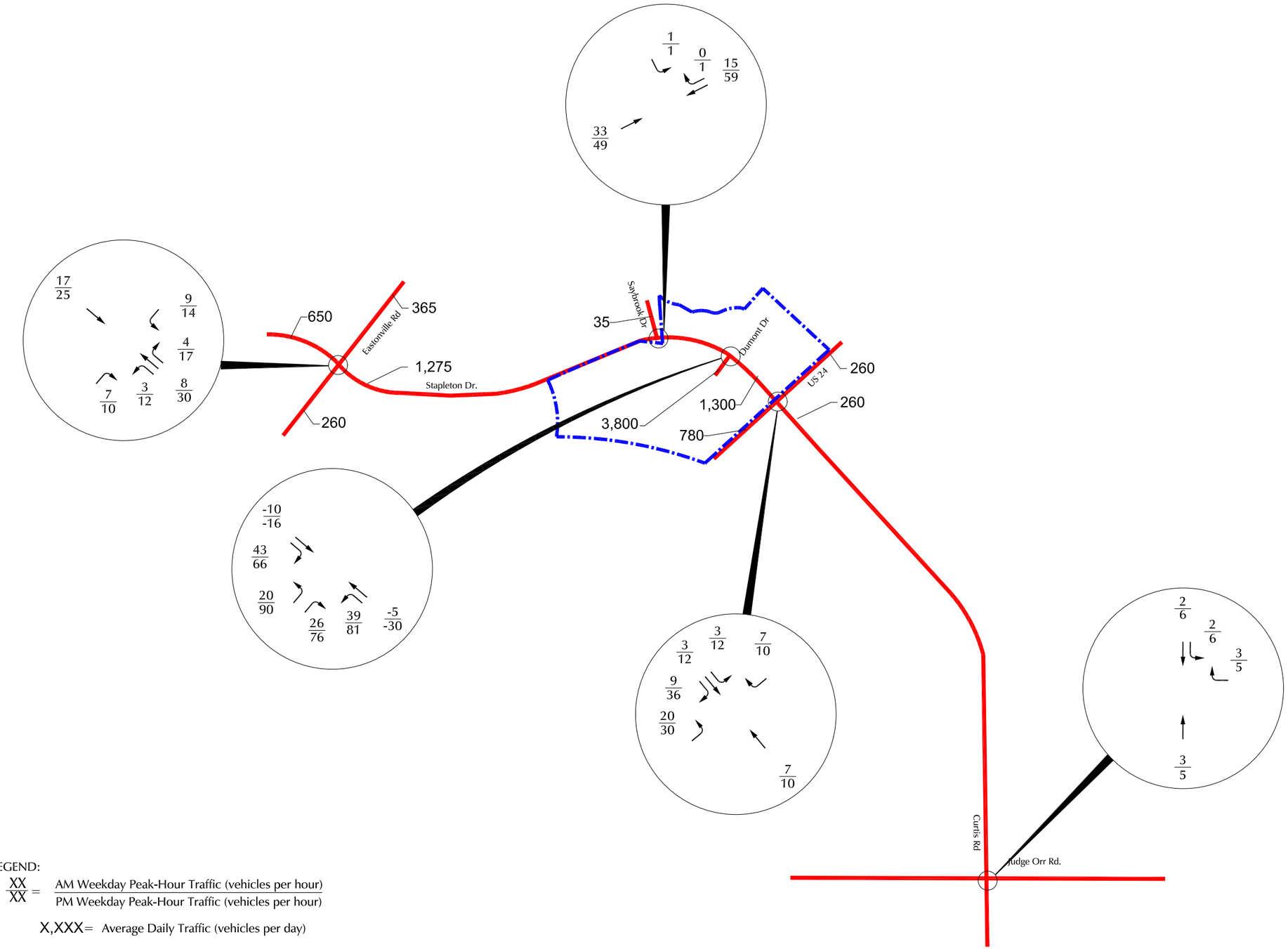
XX% = Percent Estimated Directional Distribution

Figure 6

Directional Distribution of Site-Generated Traffic

4-Way Ranch Commercial (LSC# S224450)

TRANSPORTATION CONSULTANTS, INC.



Approximate Scale
NTS

LEGEND:

$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

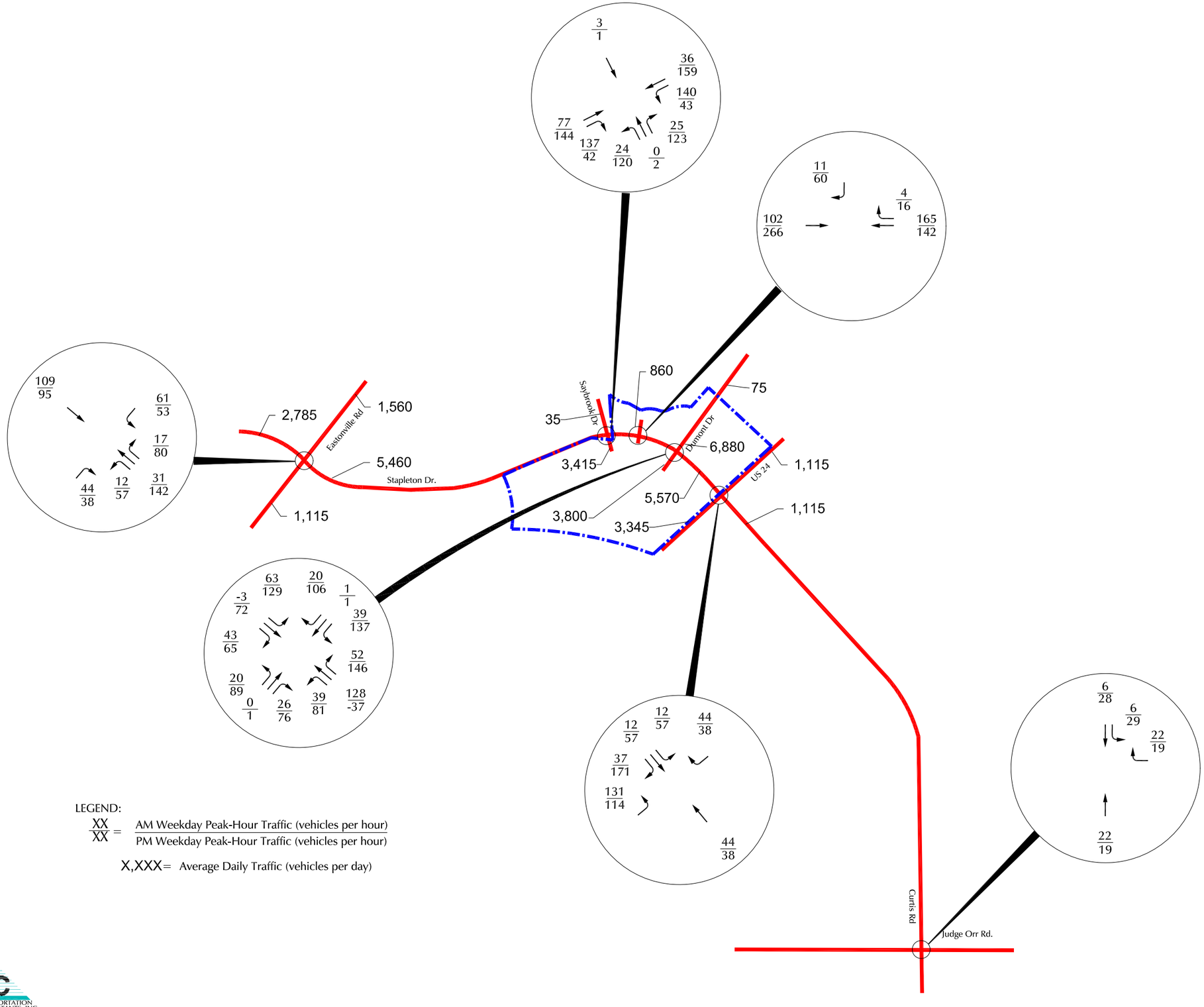
X,XXX= Average Daily Traffic (vehicles per day)

TRANSPORTATION CONSULTANTS, INC.

Figure 7

Assignment of Phase 1 Site-Generated Traffic

4-Way Ranch Commercial (LSC# S224450)



Approximate Scale
NTS

LEGEND:

$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

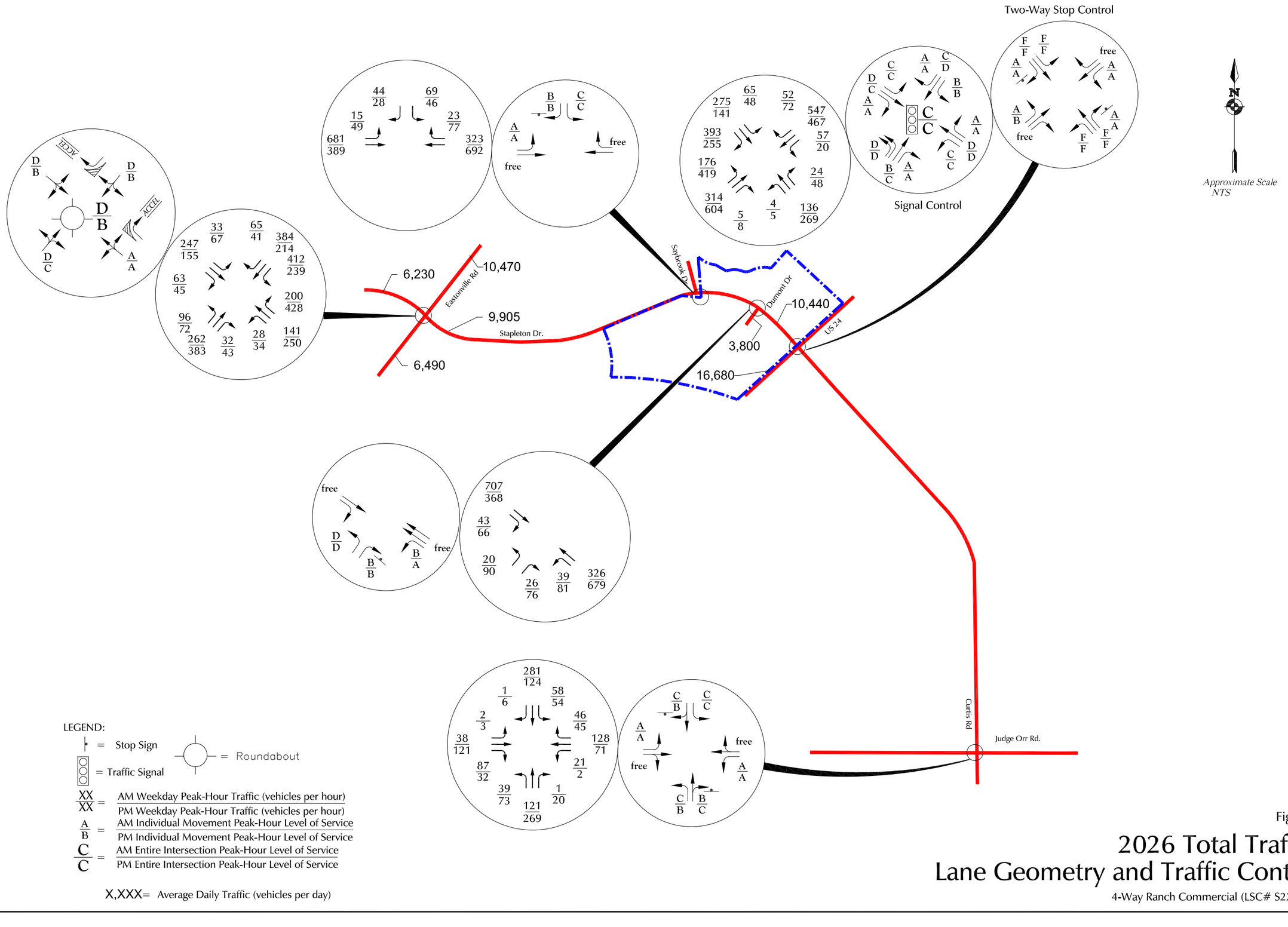
X,XXX= Average Daily Traffic (vehicles per day)

TRANSPORTATION CONSULTANTS, INC.

Figure 8

Assignment of Buildout Site-Generated Traffic

4-Way Ranch Commercial (LSC# S224450)

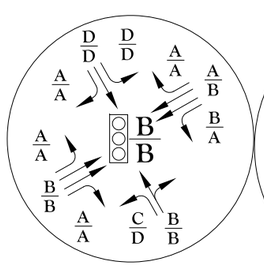


LSC TRANSPORTATION CONSULTANTS, INC.

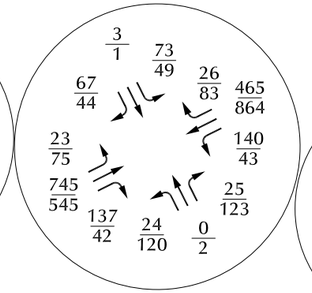
Figure 9

2026 Total Traffic, Lane Geometry and Traffic Control

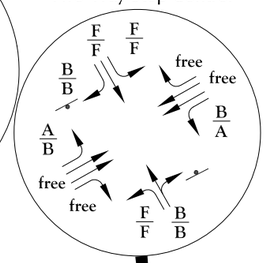
4-Way Ranch Commercial (LSC# S224450)

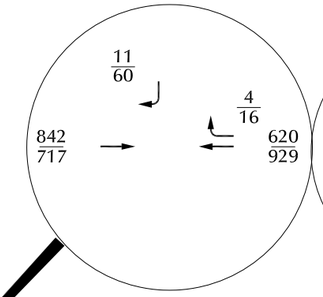


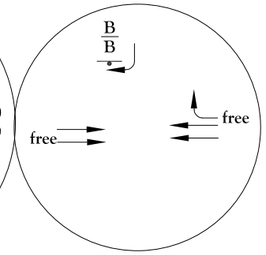
Signal Control



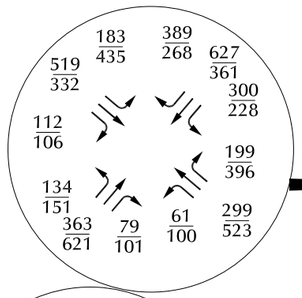
Two-Way Stop Control

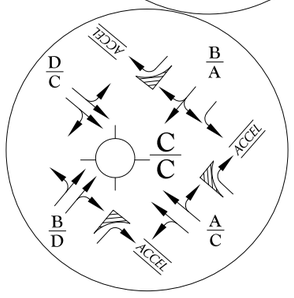


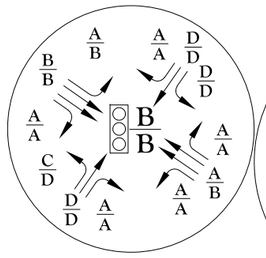


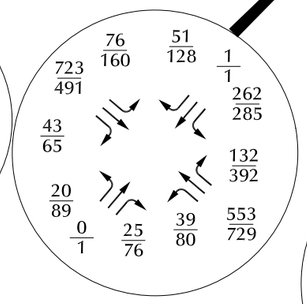


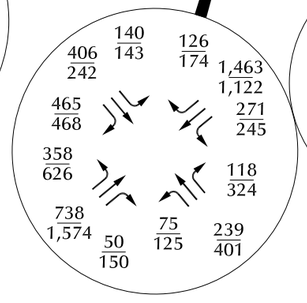
Approximate Scale
NTS

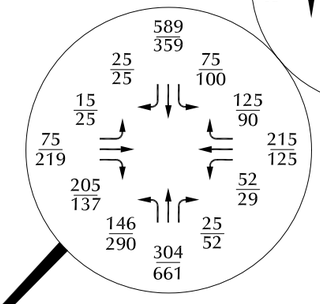


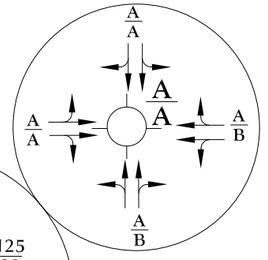


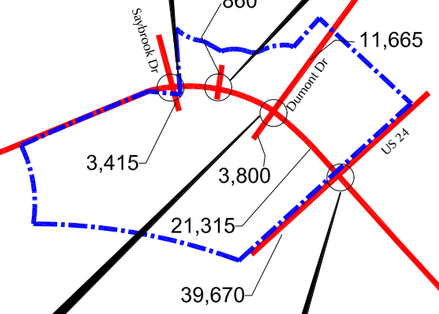


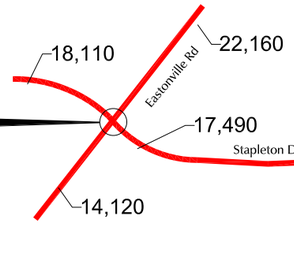


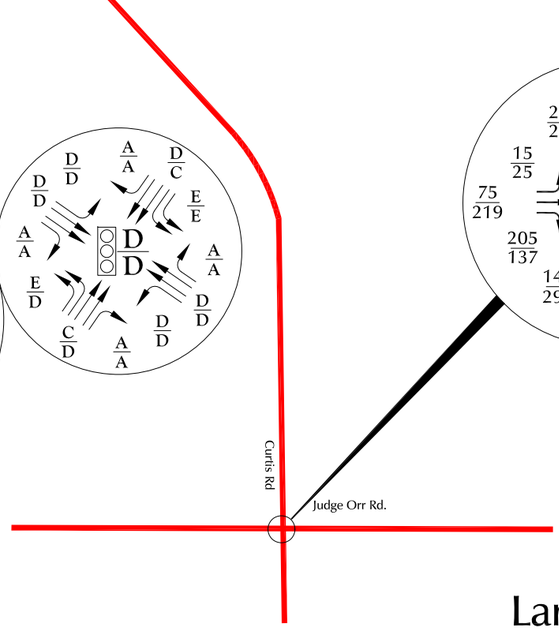












LEGEND:

= Stop Sign

= Traffic Signal

= Roundabout

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)

$\frac{A}{B}$ = 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

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

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 10

2042 Total Traffic, Lane Geometry and Traffic Control

4-Way Ranch Commercial (LSC# S224450)

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

LSC Transportation Consultants, Inc.

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

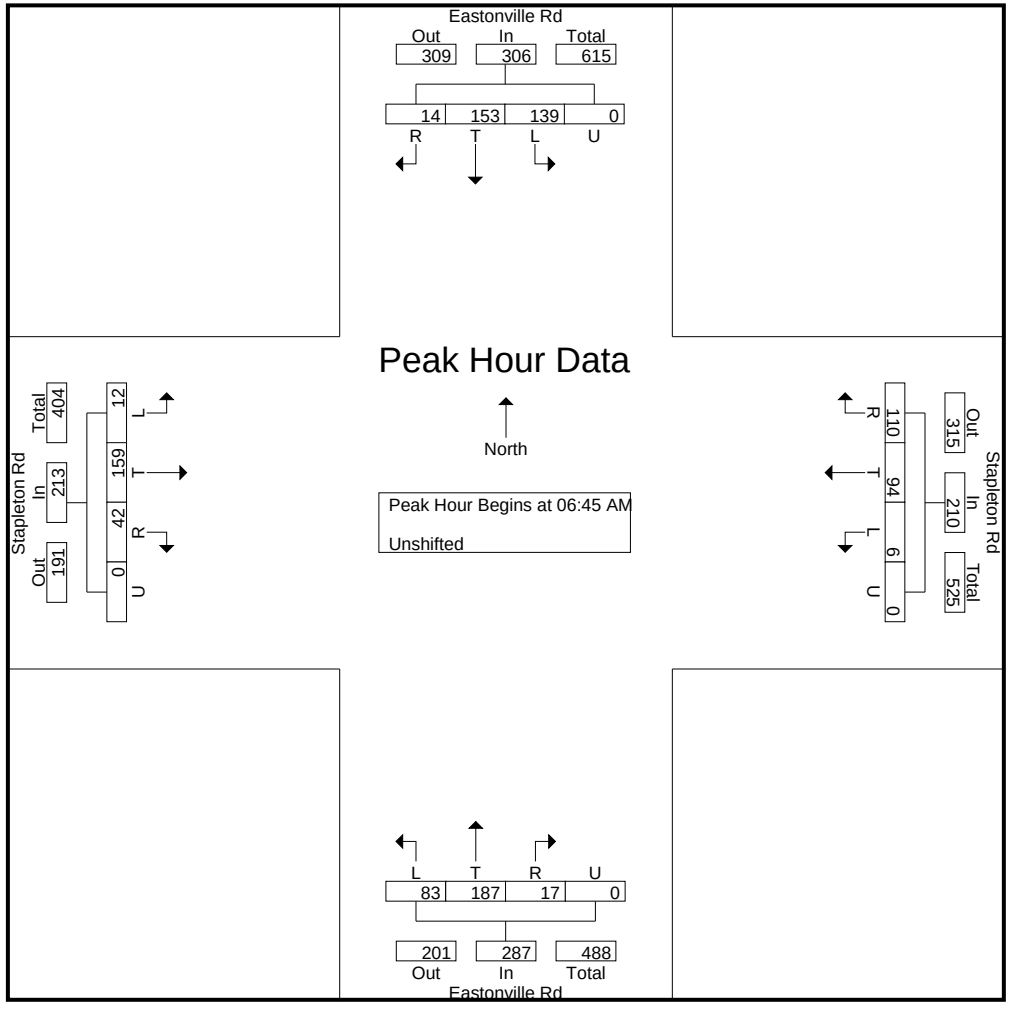
File Name : Eastonville Rd - Stapleton Rd AM
Site Code : S214870
Start Date : 10/7/2021
Page No : 1

Groups Printed- Unshifted

	Eastonville Rd Southbound					Stapleton Rd Westbound					Eastonville Rd Northbound					Stapleton Rd 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	

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

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



LSC Transportation Consultants, Inc.

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

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

Groups Printed- Unshifted

	Eastonville Rd Southbound					Stapleton Rd Westbound					Eastonville Rd Northbound					Stapleton Rd 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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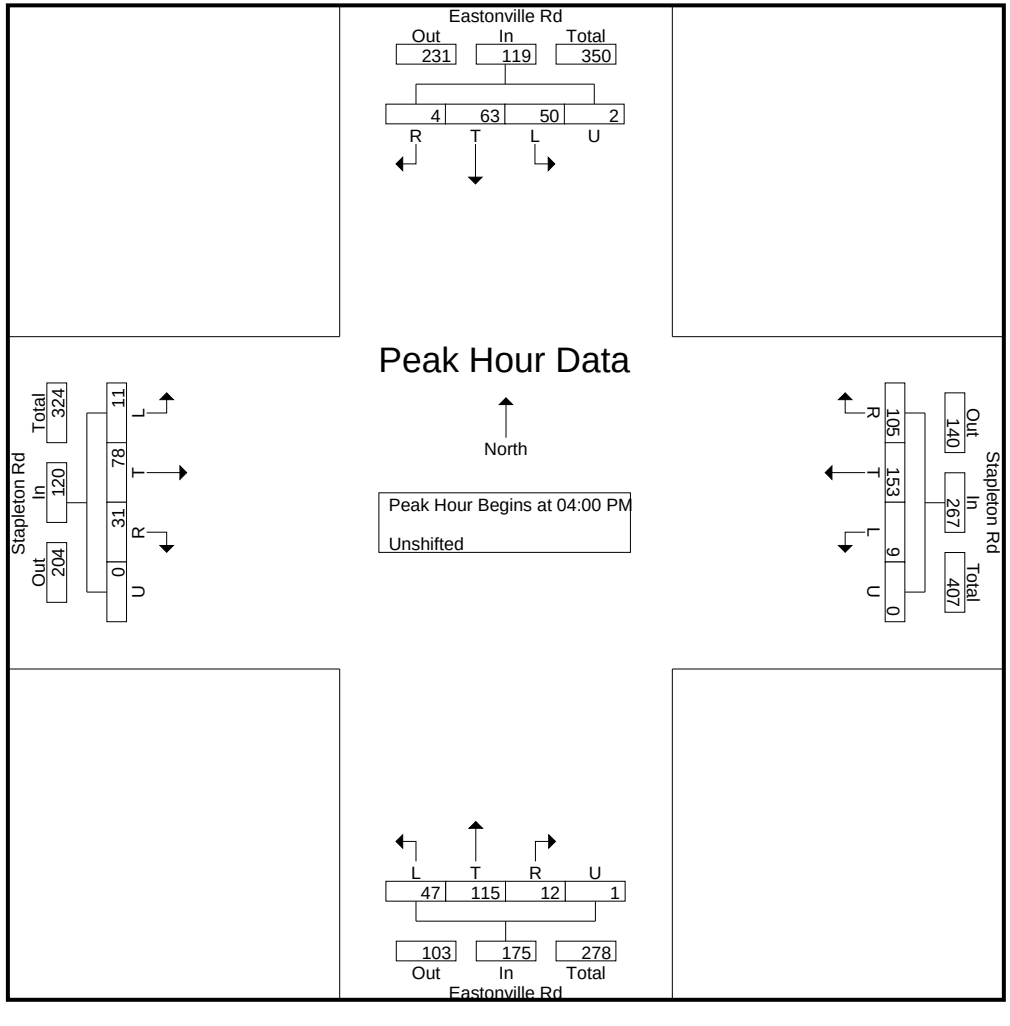
719-633-2868

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



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

File Name : Hwy 24 - Stapleton Rd AM
Site Code : S214740
Start Date : 10/6/2021
Page No : 1

Groups Printed- Unshifted

	Hwy 24 Southbound					Stapleton Rd Westbound					Hwy 24 Northbound					Stapleton Rd 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	6	101	2	0	109	0	7	3	0	10	11	79	0	0	90	6	44	20	0	70	279
06:45 AM	8	112	3	0	123	2	12	2	0	16	24	77	1	0	102	6	32	36	1	75	316
Total	14	213	5	0	232	2	19	5	0	26	35	156	1	0	192	12	76	56	1	145	595
07:00 AM	9	98	8	0	115	1	27	4	0	32	17	71	1	0	89	16	41	32	1	90	326
07:15 AM	16	105	19	0	140	1	29	6	0	36	22	64	3	0	89	7	46	46	0	99	364
07:30 AM	12	111	7	0	130	0	18	5	0	23	14	42	0	0	56	4	38	32	0	74	283
07:45 AM	6	71	7	0	84	1	11	3	0	15	12	62	1	0	75	8	23	19	0	50	224
Total	43	385	41	0	469	3	85	18	0	106	65	239	5	0	309	35	148	129	1	313	1197
08:00 AM	4	95	8	0	107	0	9	3	0	12	18	59	3	0	80	1	22	15	0	38	237
08:15 AM	3	105	4	0	112	0	8	3	0	11	13	48	1	0	62	1	15	20	0	36	221
08:30 AM	4	44	4	0	52	4	4	2	0	10	4	43	0	0	47	8	9	7	0	24	133
Grand Total	68	842	62	0	972	9	125	31	0	165	135	545	10	0	690	57	270	227	2	556	2383
Apprch %	7	86.6	6.4	0		5.5	75.8	18.8	0		19.6	79	1.4	0		10.3	48.6	40.8	0.4		
Total %	2.9	35.3	2.6	0	40.8	0.4	5.2	1.3	0	6.9	5.7	22.9	0.4	0	29	2.4	11.3	9.5	0.1	23.3	

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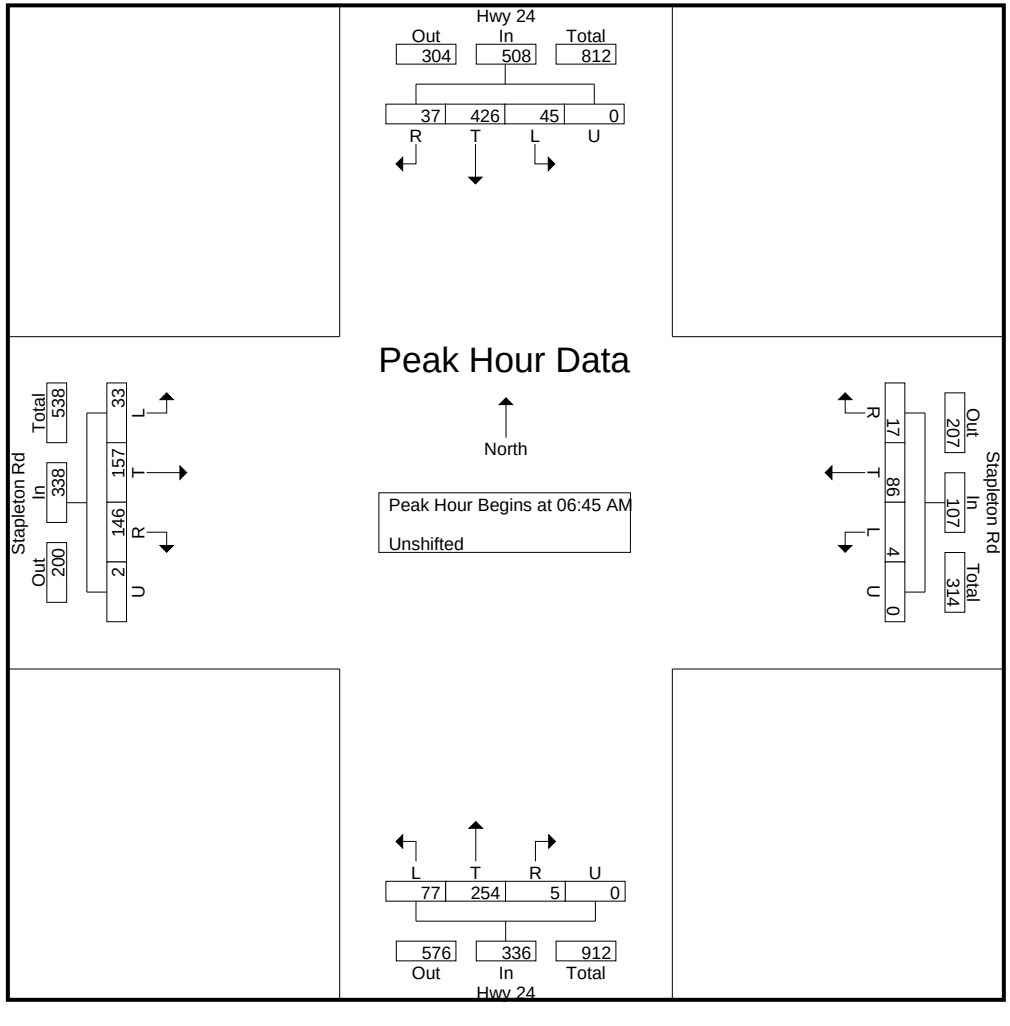
719-633-2868

File Name : Hwy 24 - Stapleton Rd AM
Site Code : S214740
Start Date : 10/6/2021
Page No : 3



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

File Name : Hwy 24 - Stapleton Rd PM
Site Code : S214740
Start Date : 10/6/2021
Page No : 1

Groups Printed- Unshifted

	Hwy 24 Southbound					Stapleton Rd Westbound					Hwy 24 Northbound					Stapleton Rd 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	2	100	10	0	112	2	27	6	0	35	32	115	2	0	149	3	11	20	0	34	330
04:15 PM	4	98	11	0	113	1	35	12	0	48	26	109	4	0	139	3	15	15	0	33	333
04:30 PM	2	101	3	0	106	2	27	9	0	38	28	124	1	0	153	5	15	16	0	36	333
04:45 PM	2	71	5	0	78	0	35	7	0	42	34	120	1	0	155	7	8	16	0	31	306
Total	10	370	29	0	409	5	124	34	0	163	120	468	8	0	596	18	49	67	0	134	1302
05:00 PM	0	73	12	0	85	0	25	7	0	32	26	112	10	0	148	5	9	24	0	38	303
05:15 PM	1	80	9	0	90	2	18	6	0	26	37	122	3	0	162	4	14	20	0	38	316
05:30 PM	6	82	6	0	94	1	26	6	0	33	29	121	4	0	154	5	9	20	0	34	315
05:45 PM	1	73	3	1	78	3	22	7	1	33	25	107	3	0	135	10	19	4	1	34	280
Total	8	308	30	1	347	6	91	26	1	124	117	462	20	0	599	24	51	68	1	144	1214
06:00 PM	3	87	2	0	92	2	18	5	0	25	18	108	9	0	135	5	8	24	0	37	289
Grand Total	21	765	61	1	848	13	233	65	1	312	255	1038	37	0	1330	47	108	159	1	315	2805
Apprch %	2.5	90.2	7.2	0.1		4.2	74.7	20.8	0.3		19.2	78	2.8	0		14.9	34.3	50.5	0.3		
Total %	0.7	27.3	2.2	0	30.2	0.5	8.3	2.3	0	11.1	9.1	37	1.3	0	47.4	1.7	3.9	5.7	0	11.2	

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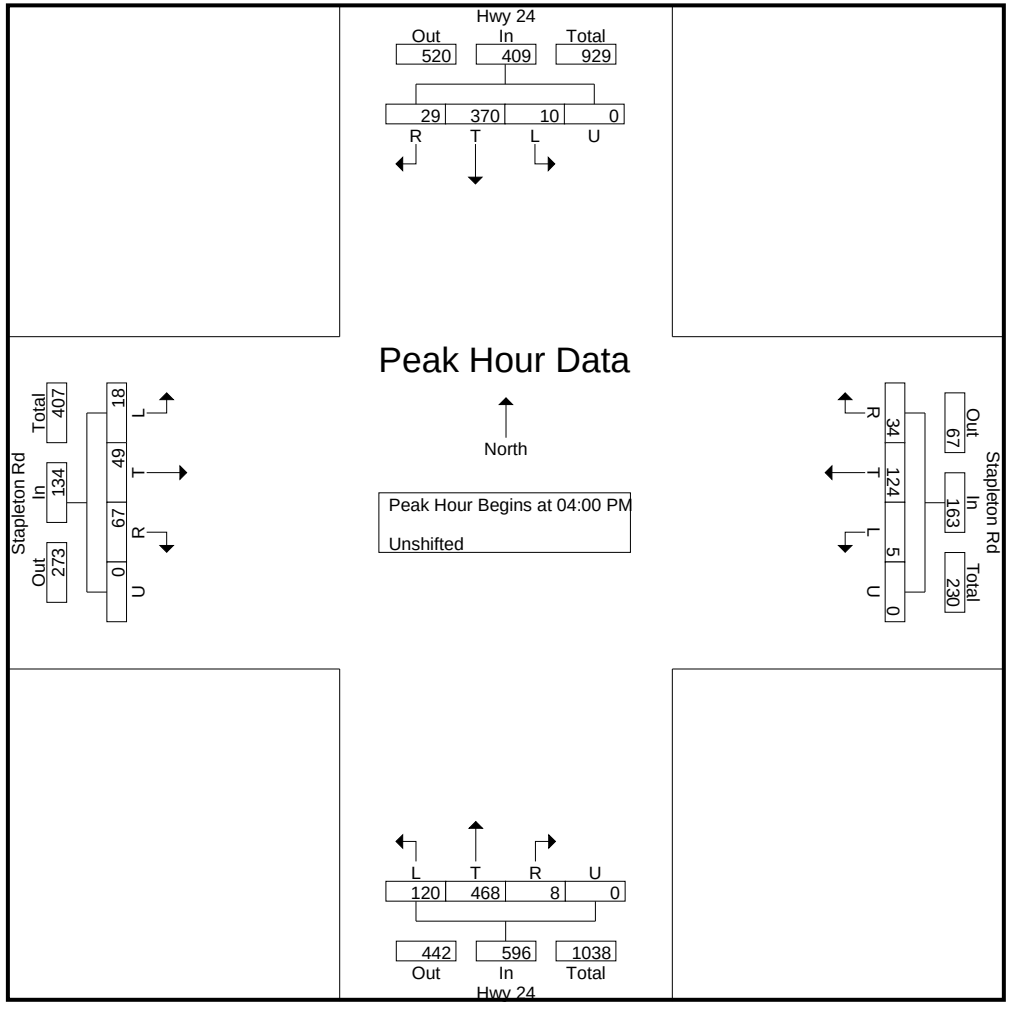
Colorado Springs, CO 80909
719-633-2868

File Name : Hwy 24 - Stapleton Rd PM
Site Code : S214740
Start Date : 10/6/2021
Page No : 3



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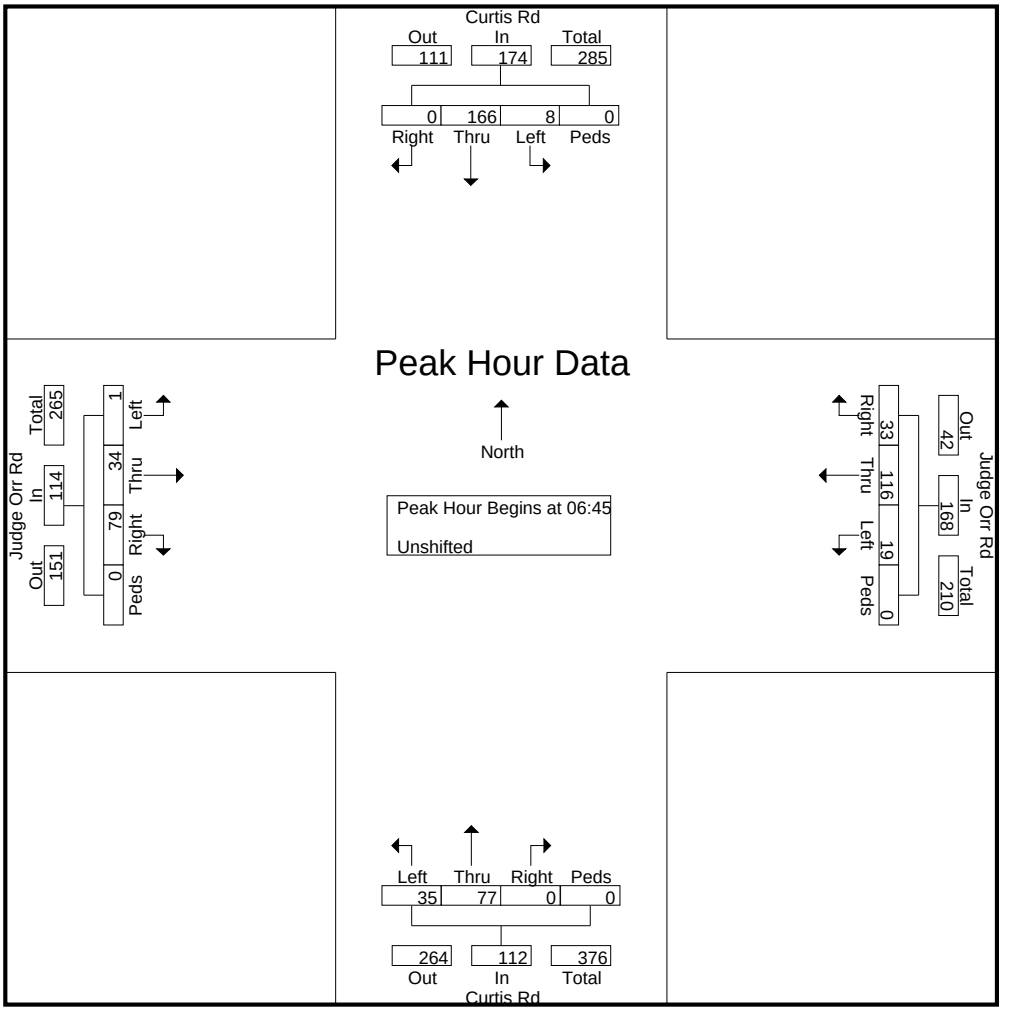
2504 E. Pikes Peak Ave, Suite 304
Colorado Springs, CO 80909
719-633-2868

File Name : Curtis Rd - Judge Orr Rd AM
Site Code : S214950
Start Date : 4/21/2022
Page No : 2

	Curtis Rd Southbound					Judge Orr Rd Westbound					Curtis Rd Northbound					Judge Orr Rd 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 08:25 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45																					
06:45	0	12	1	0	13	2	12	1	0	15	0	5	3	0	8	5	1	0	0	6	42
06:50	0	14	0	0	14	4	6	0	0	10	0	5	1	0	6	4	**5**	0	0	9	39
06:55	0	14	2	0	16	0	9	**4**	0	13	0	2	2	0	4	4	3	0	0	7	40
07:00	0	13	0	0	13	1	9	2	0	12	0	**11**	2	0	**13**	4	4	0	0	8	46
07:05	0	13	0	0	13	5	**16**	2	0	**23**	0	6	3	0	9	6	3	0	0	9	54
07:10	0	18	0	0	18	2	9	1	0	12	0	9	4	0	13	**9**	3	0	0	**12**	55
07:15	0	16	0	0	16	**6**	11	4	0	21	0	9	2	0	11	7	3	0	0	10	**58**
07:20	0	15	0	0	15	1	9	1	0	11	0	9	4	0	13	7	3	0	0	10	49
07:25	0	9	1	0	10	5	11	1	0	17	0	7	4	0	11	8	2	0	0	10	48
07:30	0	**20**	0	0	**20**	1	8	1	0	10	0	4	2	0	6	7	4	**1**	0	12	48
07:35	0	9	1	0	10	3	7	2	0	12	0	5	3	0	8	9	1	0	0	10	40
07:40	0	13	**3**	0	16	3	9	0	0	12	0	5	**5**	0	10	9	2	0	0	11	49
Total Volume	0	166	8	0	174	33	116	19	0	168	0	77	35	0	112	79	34	1	0	114	568
% App. Total	0	95.4	4.6	0		19.6	69	11.3	0		0	68.8	31.2	0		69.3	29.8	0.9	0		
PHF	.000	.692	.222	.000	.725	.458	.604	.396	.000	.609	.000	.583	.583	.000	.718	.731	.567	.083	.000	.792	.816



LSC Transportation Consultants, Inc.

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

File Name : Curtis Rd - Judge Orr Rd AM
Site Code : S214950
Start Date : 4/21/2022
Page No : 1

Groups Printed- Unshifted

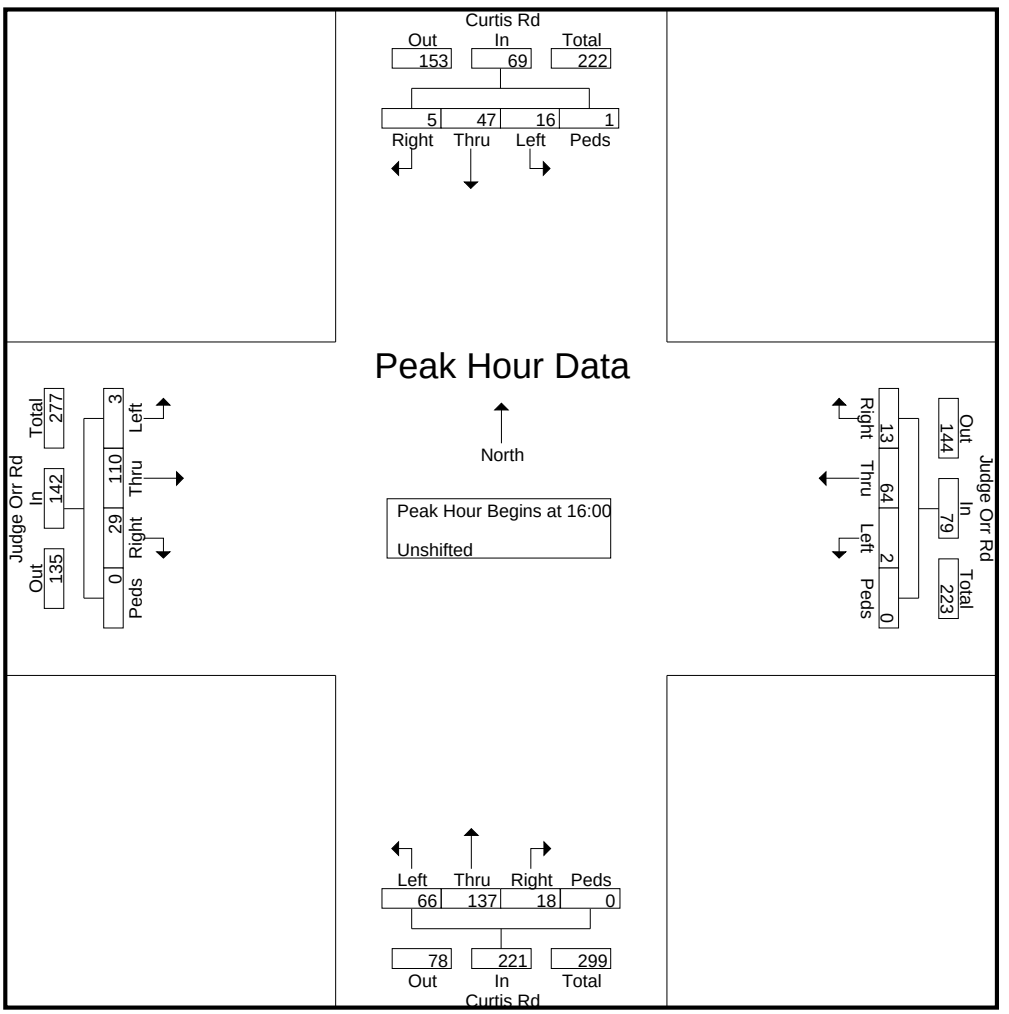
	Curtis Rd Southbound					Judge Orr Rd Westbound					Curtis Rd Northbound					Judge Orr Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30	0	42	1	0	43	2	29	2	0	33	0	9	4	0	13	14	5	0	0	19	108
06:45	0	40	3	0	43	6	27	5	0	38	0	12	6	0	18	13	9	0	0	22	121
Total	0	82	4	0	86	8	56	7	0	71	0	21	10	0	31	27	14	0	0	41	229
07:00	0	44	0	0	44	8	34	5	0	47	0	26	9	0	35	19	10	0	0	29	155
07:15	0	40	1	0	41	12	31	6	0	49	0	25	10	0	35	22	8	0	0	30	155
07:30	0	42	4	0	46	7	24	3	0	34	0	14	10	0	24	25	7	1	0	33	137
07:45	1	42	2	0	45	3	32	2	0	37	1	11	8	0	20	12	5	1	0	18	120
Total	1	168	7	0	176	30	121	16	0	167	1	76	37	0	114	78	30	2	0	110	567
08:00	1	17	7	0	25	4	18	2	0	24	0	8	3	0	11	5	7	1	0	13	73
08:15	1	17	3	0	21	3	21	1	0	25	2	14	2	0	18	7	13	0	0	20	84
Grand Total	3	284	21	0	308	45	216	26	0	287	3	119	52	0	174	117	64	3	0	184	953
Apprch %	1	92.2	6.8	0		15.7	75.3	9.1	0		1.7	68.4	29.9	0		63.6	34.8	1.6	0		
Total %	0.3	29.8	2.2	0	32.3	4.7	22.7	2.7	0	30.1	0.3	12.5	5.5	0	18.3	12.3	6.7	0.3	0	19.3	

LSC Transportation Consultants, Inc.

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

File Name : Curtis Rd - Judge Orr Rd PM
Site Code : S214950
Start Date : 4/21/2022
Page No : 2

	Curtis Rd Southbound					Judge Orr Rd Westbound					Curtis Rd Northbound					Judge Orr Rd 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 16:00 to 17:55 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	**1**	4	1	0	6	0	7	0	0	7	0	11	4	0	15	3	10	0	0	13	41
16:05	1	5	2	**1**	**9**	1	8	0	0	9	0	12	8	0	20	2	9	0	0	11	49
16:10	0	3	1	0	4	0	**10**	**1**	0	**11**	2	10	3	0	15	**4**	12	0	0	16	46
16:15	0	4	1	0	5	1	3	1	0	5	1	11	3	0	15	3	8	0	0	11	36
16:20	1	5	0	0	6	1	5	0	0	6	**3**	11	9	0	23	3	10	0	0	13	48
16:25	0	1	1	0	2	**2**	5	0	0	7	0	**16**	6	0	22	3	3	0	0	6	37
16:30	0	4	2	0	6	2	6	0	0	8	1	9	5	0	15	1	**16**	**1**	0	**18**	47
16:35	0	1	1	0	2	1	3	0	0	4	1	13	3	0	17	4	9	1	0	14	37
16:40	0	6	2	0	8	2	2	0	0	4	3	8	5	0	16	2	5	0	0	7	35
16:45	0	**7**	1	0	8	1	3	0	0	4	3	9	5	0	17	1	7	0	0	8	37
16:50	1	4	**3**	0	8	2	7	0	0	9	1	15	**10**	0	**26**	2	14	1	0	17	**60**
16:55	1	3	1	0	5	0	5	0	0	5	3	12	5	0	20	1	7	0	0	8	38
Total Volume	5	47	16	1	69	13	64	2	0	79	18	137	66	0	221	29	110	3	0	142	511
% App. Total	7.2	68.1	23.2	1.4		16.5	81	2.5	0		8.1	62	29.9	0		20.4	77.5	2.1	0		
PHF	.417	.560	.444	.083	.639	.542	.533	.167	.000	.598	.500	.714	.550	.000	.708	.604	.573	.250	.000	.657	.710



LSC Transportation Consultants, Inc.

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

File Name : Curtis Rd - Judge Orr Rd PM
Site Code : S214950
Start Date : 4/21/2022
Page No : 1

Groups Printed- Unshifted

	Curtis Rd Southbound					Judge Orr Rd Westbound					Curtis Rd Northbound					Judge Orr Rd 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
16:00	2	12	4	1	19	1	25	1	0	27	2	33	15	0	50	9	31	0	0	40	136
16:15	1	10	2	0	13	4	13	1	0	18	4	38	18	0	60	9	21	0	0	30	121
16:30	0	11	5	0	16	5	11	0	0	16	5	30	13	0	48	7	30	2	0	39	119
16:45	2	14	5	0	21	3	15	0	0	18	7	36	20	0	63	4	28	1	0	33	135
Total	5	47	16	1	69	13	64	2	0	79	18	137	66	0	221	29	110	3	0	142	511
17:00	0	9	4	0	13	4	10	0	0	14	6	41	11	0	58	5	32	1	0	38	123
17:15	1	15	2	0	18	3	15	0	0	18	2	23	11	0	36	8	22	1	0	31	103
17:30	1	10	9	0	20	5	11	0	0	16	2	17	6	0	25	6	36	0	0	42	103
17:45	1	13	9	0	23	0	19	1	0	20	1	18	4	0	23	3	23	1	0	27	93
Total	3	47	24	0	74	12	55	1	0	68	11	99	32	0	142	22	113	3	0	138	422
Grand Total	8	94	40	1	143	25	119	3	0	147	29	236	98	0	363	51	223	6	0	280	933
Apprch %	5.6	65.7	28	0.7		17	81	2	0		8	65	27	0		18.2	79.6	2.1	0		
Total %	0.9	10.1	4.3	0.1	15.3	2.7	12.8	0.3	0	15.8	3.1	25.3	10.5	0	38.9	5.5	23.9	0.6	0	30	

Levels of Service

TRANSPORTATION
CONSULTANTS, INC.

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	18.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	157	146	4	86	17	77	254	5	45	426	37
Future Vol, veh/h	33	157	146	4	86	17	77	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	85	85	85	74	74	74	94	94	94	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	185	172	5	116	23	82	270	5	49	468	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1072	1005	468	1199	1041	270	509	0	0	275	0	0
Stage 1	566	566	-	434	434	-	-	-	-	-	-	-
Stage 2	506	439	-	765	607	-	-	-	-	-	-	-
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	198	241	595	162	230	769	1056	-	-	1288	-	-
Stage 1	509	507	-	600	581	-	-	-	-	-	-	-
Stage 2	549	578	-	396	486	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	97	214	595	29	204	769	1056	-	-	1288	-	-
Mov Cap-2 Maneuver	97	214	-	29	204	-	-	-	-	-	-	-
Stage 1	469	488	-	553	536	-	-	-	-	-	-	-
Stage 2	385	533	-	168	468	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	48.5	42.5	2	0.7
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1056	-	-	97	214	595	29	204	769	1288	-	-
HCM Lane V/C Ratio	0.078	-	-	0.4	0.863	0.289	0.186	0.57	0.03	0.038	-	-
HCM Control Delay (s)	8.7	-	-	64.9	77.5	13.5	155.7	43.7	9.8	7.9	-	-
HCM Lane LOS	A	-	-	F	F	B	F	E	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	1.6	6.7	1.2	0.6	3.1	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	34	79	19	116	33	35	77	0	8	166	0
Future Vol, veh/h	1	34	79	19	116	33	35	77	0	8	166	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	87	87	87	83	83	83	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	41	95	22	133	38	42	93	0	9	191	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	171	0	0	136	0	0	383	306	89	333	334	152
Stage 1	-	-	-	-	-	-	91	91	-	196	196	-
Stage 2	-	-	-	-	-	-	292	215	-	137	138	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1406	-	-	1448	-	-	575	608	969	620	586	894
Stage 1	-	-	-	-	-	-	916	820	-	806	739	-
Stage 2	-	-	-	-	-	-	716	725	-	866	782	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1406	-	-	1448	-	-	423	598	969	540	577	894
Mov Cap-2 Maneuver	-	-	-	-	-	-	423	598	-	540	577	-
Stage 1	-	-	-	-	-	-	915	819	-	805	728	-
Stage 2	-	-	-	-	-	-	520	714	-	767	781	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	12.9	14.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	423	598	1406	-	-	1448	-	-	540	577
HCM Lane V/C Ratio	0.1	0.155	0.001	-	-	0.015	-	-	0.017	0.331
HCM Control Delay (s)	14.5	12.1	7.6	-	-	7.5	-	-	11.8	14.3
HCM Lane LOS	B	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.3	0.5	0	-	-	0	-	-	0.1	1.4

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	21.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	49	67	5	124	34	120	468	8	10	370	29
Future Vol, veh/h	18	49	67	5	124	34	120	468	8	10	370	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	93	93	93	85	85	85	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	53	72	6	146	40	130	509	9	11	411	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1300	1211	411	1281	1234	509	443	0	0	518	0	0
Stage 1	433	433	-	769	769	-	-	-	-	-	-	-
Stage 2	867	778	-	512	465	-	-	-	-	-	-	-
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	138	182	641	142	177	564	1117	-	-	1048	-	-
Stage 1	601	582	-	394	411	-	-	-	-	-	-	-
Stage 2	348	407	-	545	563	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	20	159	641	85	155	564	1117	-	-	1048	-	-
Mov Cap-2 Maneuver	20	159	-	85	155	-	-	-	-	-	-	-
Stage 1	531	576	-	348	363	-	-	-	-	-	-	-
Stage 2	171	360	-	435	557	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	81.2	91.6	1.7	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1117	-	-	20	159	641	85	155	564	1048	-	-
HCM Lane V/C Ratio	0.117	-	-	0.968	0.331	0.112	0.069	0.941	0.071	0.011	-	-
HCM Control Delay (s)	8.6	-	-	$ 457.8	38.5	11.3	50.5	115.1	11.9	8.5	-	-
HCM Lane LOS	A	-	-	F	E	B	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	2.7	1.4	0.4	0.2	6.8	0.2	0	-	-

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	110	29	2	64	13	78	137	18	16	47	5
Future Vol, veh/h	3	110	29	2	64	13	78	137	18	16	47	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	87	87	87	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	133	35	2	77	16	90	157	21	19	57	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	93	0	0	168	0	0	280	256	151	337	265	85
Stage 1	-	-	-	-	-	-	159	159	-	89	89	-
Stage 2	-	-	-	-	-	-	121	97	-	248	176	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1501	-	-	1410	-	-	672	648	895	617	640	974
Stage 1	-	-	-	-	-	-	843	766	-	918	821	-
Stage 2	-	-	-	-	-	-	883	815	-	756	753	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1501	-	-	1410	-	-	620	645	895	488	637	974
Mov Cap-2 Maneuver	-	-	-	-	-	-	620	645	-	488	637	-
Stage 1	-	-	-	-	-	-	840	764	-	915	820	-
Stage 2	-	-	-	-	-	-	816	814	-	585	751	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	12.2	11.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	620	667	1501	-	-	1410	-	-	488	659
HCM Lane V/C Ratio	0.145	0.267	0.002	-	-	0.002	-	-	0.04	0.095
HCM Control Delay (s)	11.8	12.4	7.4	-	-	7.6	-	-	12.7	11
HCM Lane LOS	B	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.5	1.1	0	-	-	0	-	-	0.1	0.3

Intersection	
Intersection Delay, s/veh	22.4
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	374	407	440	978
Demand Flow Rate, veh/h	381	416	449	997
Vehicles Circulating, veh/h	951	458	779	298
Vehicles Exiting, veh/h	268	770	553	346
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	27.2	2.9	23.2	28.2
Approach LOS	D	A	C	D

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	229	4.976	4.976	76
Entry Flow, veh/h	381	186	1938	449	921	1938
Cap Entry Lane, veh/h	523	865	0.980	623	1018	0.980
Entry HV Adj Factor	0.981	0.978	225	0.980	0.981	75
Flow Entry, veh/h	374	182	1900	440	903	1900
Cap Entry, veh/h	513	846	0.118	611	999	0.039
V/C Ratio	0.728	0.215	0.0	0.720	0.905	0.0
Control Delay, s/veh	27.2	6.5	A	23.2	30.6	A
LOS	D	A	0	C	D	0
95th %tile Queue, veh	6	1		6	13	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	648	307	23	68	44
Future Vol, veh/h	15	648	307	23	68	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	235	-	-	235	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	762	361	27	80	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	388	0	-	0	1159	361
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	798	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1170	-	-	-	216	684
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	443	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1170	-	-	-	213	684
Mov Cap-2 Maneuver	-	-	-	-	336	-
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	443	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1170	-	-	-	336	684
HCM Lane V/C Ratio	0.015	-	-	-	0.238	0.076
HCM Control Delay (s)	8.1	-	-	-	19	10.7
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9	0.2

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	61	272	384	4	130	24	156	314	5	57	547	46
Future Vol, veh/h	61	272	384	4	130	24	156	314	5	57	547	46
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	-	-	Free	-	-	Free	-	-	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	85	85	85	74	74	74	94	94	94	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	72	320	452	5	176	32	166	334	5	63	601	51

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1484	1398	-	1579	1444	-	652	0	0	339	0	0
Stage 1	727	727	-	666	666	-	-	-	-	-	-	-
Stage 2	757	671	-	913	778	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	-	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	-	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	103	~ 141	0	88	~ 132	0	935	-	-	1220	-	-
Stage 1	415	429	0	449	457	0	-	-	-	-	-	-
Stage 2	400	455	0	328	407	0	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 110	-	-	~ 103	-	935	-	-	1220	-	-
Mov Cap-2 Maneuver	-	~ 110	-	-	~ 103	-	-	-	-	-	-	-
Stage 1	341	407	-	369	376	-	-	-	-	-	-	-
Stage 2	175	374	-	66	386	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			3.2	0.7
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	-	110	-	-	103	-	1220	-	-
HCM Lane V/C Ratio	0.177	-	-	-	2.909	-	-	1.706	-	0.051	-	-
HCM Control Delay (s)	9.7	-	-	-$	944.1	0	-$	426.8	0	8.1	-	-
HCM Lane LOS	A	-	-	-	F	A	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-	30.2	-	-	13.8	-	0.2	-	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	272	384	4	130	24	156	314	5	57	547	46
Future Volume (vph)	61	272	384	4	130	24	156	314	5	57	547	46
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8			2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	1.0		5.0	1.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	6.0		10.0	6.0	6.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	35.0		12.0	35.0	35.0	20.0	63.0	63.0	10.0	53.0	53.0
Total Split (%)	10.0%	29.2%		10.0%	29.2%	29.2%	16.7%	52.5%	52.5%	8.3%	44.2%	44.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	26.0	24.7	103.8	22.0	17.5	17.5	10.4	58.3	58.3	56.6	50.5	50.5
Actuated g/C Ratio	0.25	0.24	1.00	0.21	0.17	0.17	0.10	0.56	0.56	0.55	0.49	0.49
v/c Ratio	0.28	0.72	0.29	0.03	0.56	0.08	0.48	0.32	0.01	0.10	0.66	0.06
Control Delay	31.8	47.0	0.5	27.5	47.8	0.4	50.8	15.7	0.0	10.0	27.2	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	31.8	47.0	0.5	27.5	47.8	0.4	50.8	15.7	0.0	10.0	27.2	0.1
LOS	C	D	A	C	D	A	D	B	A	A	C	A
Approach Delay		20.8			40.2			27.0			23.8	
Approach LOS		C			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 103.8	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 24.9	Intersection LOS: C
Intersection Capacity Utilization 69.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 106: US 24 & Stapleton Dr

Intersection	
Int Delay, s/veh	11.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	38	87	21	128	43	39	117	1	56	279	1
Future Vol, veh/h	2	38	87	21	128	43	39	117	1	56	279	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	87	87	87	83	83	83	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	46	105	24	147	49	47	141	1	64	321	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	196	0	0	151	0	0	484	347	99	394	375	172
Stage 1	-	-	-	-	-	-	103	103	-	220	220	-
Stage 2	-	-	-	-	-	-	381	244	-	174	155	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1377	-	-	1430	-	-	493	576	957	566	556	872
Stage 1	-	-	-	-	-	-	903	810	-	782	721	-
Stage 2	-	-	-	-	-	-	641	704	-	828	769	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1377	-	-	1430	-	-	259	566	957	451	546	872
Mov Cap-2 Maneuver	-	-	-	-	-	-	259	566	-	451	546	-
Stage 1	-	-	-	-	-	-	902	809	-	781	709	-
Stage 2	-	-	-	-	-	-	345	692	-	682	768	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8	15.5	19.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	259	568	1377	-	-	1430	-	-	451	547
HCM Lane V/C Ratio	0.181	0.25	0.002	-	-	0.017	-	-	0.143	0.588
HCM Control Delay (s)	22	13.4	7.6	-	-	7.6	-	-	14.3	20.6
HCM Lane LOS	C	B	A	-	-	A	-	-	B	C
HCM 95th %tile Q(veh)	0.6	1	0	-	-	0.1	-	-	0.5	3.8

Intersection	
Intersection Delay, s/veh	10.3
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	292	694	575	578
Demand Flow Rate, veh/h	298	708	587	589
Vehicles Circulating, veh/h	562	630	519	349
Vehicles Exiting, veh/h	326	476	341	543
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.5	3.6	19.0	10.3
Approach LOS	A	A	C	B

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	446	4.976	4.976	50
Entry Flow, veh/h	298	262	1938	587	539	1938
Cap Entry Lane, veh/h	778	726	0.980	813	967	0.980
Entry HV Adj Factor	0.979	0.982	437	0.980	0.981	49
Flow Entry, veh/h	292	257	1900	575	529	1900
Cap Entry, veh/h	762	713	0.230	796	948	0.026
V/C Ratio	0.383	0.361	0.0	0.722	0.558	0.0
Control Delay, s/veh	9.5	9.7	A	19.0	11.3	A
LOS	A	A	1	C	B	0
95th %tile Queue, veh	2	2		6	4	

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	340	633	76	45	28
Future Vol, veh/h	49	340	633	76	45	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	235	-	-	235	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	83	94	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	410	673	89	53	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	762	0	-	0	1199	673
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	526	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	850	-	-	-	205	455
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	850	-	-	-	191	455
Mov Cap-2 Maneuver	-	-	-	-	326	-
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	593	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	850	-	-	-	326	455
HCM Lane V/C Ratio	0.068	-	-	-	0.162	0.072
HCM Control Delay (s)	9.5	-	-	-	18.2	13.5
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6	0.2

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	129	219	5	259	48	389	604	8	20	467	62
Future Vol, veh/h	36	129	219	5	259	48	389	604	8	20	467	62
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	-	-	Free	-	-	Free	-	-	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	93	93	93	85	85	85	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	139	235	6	305	56	423	657	9	22	519	69

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2223	2075	-	2170	2135	-	588	0	0	666	0	0
Stage 1	563	563	-	1503	1503	-	-	-	-	-	-	-
Stage 2	1660	1512	-	667	632	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	-	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	-	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 31	~ 54	0	34	~ 49	0	987	-	-	923	-	-
Stage 1	511	509	0	152	~ 184	0	-	-	-	-	-	-
Stage 2	123	183	0	448	474	0	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 30	-	-	~ 27	-	987	-	-	923	-	-
Mov Cap-2 Maneuver	-	~ 30	-	-	~ 27	-	-	-	-	-	-	-
Stage 1	292	497	-	87	~ 105	-	-	-	-	-	-	-
Stage 2	-	~ 104	-	315	463	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			4.4	0.3
HCM LOS	-	-		

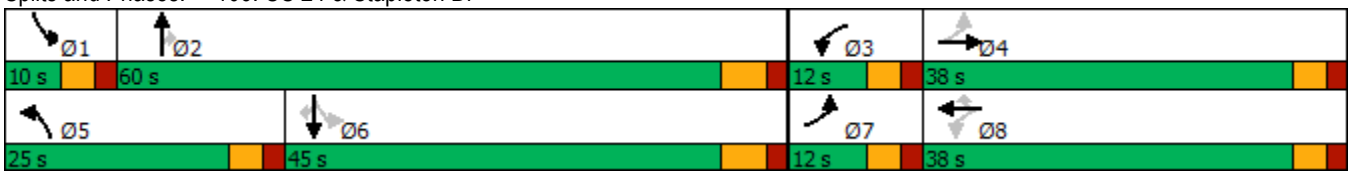
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	987	-	-	-	30	-	-	27	-	923	-	-
HCM Lane V/C Ratio	0.428	-	-	-	4.624	-	-	11.285	-	0.024	-	-
HCM Control Delay (s)	11.4	-	-	-	$ 1896.6	0	-	$ 4908.7	0	9	-	-
HCM Lane LOS	B	-	-	-	F	A	-	F	A	A	-	-
HCM 95th %tile Q(veh)	2.2	-	-	-	16.7	-	-	37.7	-	0.1	-	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	129	219	5	259	48	389	604	8	20	467	62
Future Volume (vph)	36	129	219	5	259	48	389	604	8	20	467	62
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8			2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	1.0		5.0	1.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	6.0		10.0	6.0	6.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	38.0		12.0	38.0	38.0	25.0	60.0	60.0	10.0	45.0	45.0
Total Split (%)	10.0%	31.7%		10.0%	31.7%	31.7%	20.8%	50.0%	50.0%	8.3%	37.5%	37.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	27.8	26.6	101.8	25.3	22.1	22.1	16.9	58.5	58.5	46.1	40.0	40.0
Actuated g/C Ratio	0.27	0.26	1.00	0.25	0.22	0.22	0.17	0.57	0.57	0.45	0.39	0.39
v/c Ratio	0.18	0.29	0.15	0.02	0.75	0.12	0.74	0.61	0.01	0.06	0.71	0.10
Control Delay	27.3	31.7	0.2	24.6	50.7	0.5	50.7	21.9	0.0	13.3	36.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.3	31.7	0.2	24.6	50.7	0.5	50.7	21.9	0.0	13.3	36.2	0.3
LOS	C	C	A	C	D	A	D	C	A	B	D	A
Approach Delay		13.4			42.6			32.9			31.3	
Approach LOS		B			D			C			C	

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 101.8		
Natural Cycle: 75		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.75		
Intersection Signal Delay: 30.7	Intersection LOS: C	
Intersection Capacity Utilization 71.3%	ICU Level of Service C	
Analysis Period (min) 15		

Splits and Phases: 106: US 24 & Stapleton Dr



Intersection	
Int Delay, s/veh	10.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	121	32	2	71	40	73	264	20	48	118	6
Future Vol, veh/h	3	121	32	2	71	40	73	264	20	48	118	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	87	87	87	83	83	83	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	146	39	2	82	46	88	318	24	55	136	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	128	0	0	185	0	0	355	306	166	454	302	105
Stage 1	-	-	-	-	-	-	174	174	-	109	109	-
Stage 2	-	-	-	-	-	-	181	132	-	345	193	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1458	-	-	1390	-	-	600	608	878	516	611	949
Stage 1	-	-	-	-	-	-	828	755	-	896	805	-
Stage 2	-	-	-	-	-	-	821	787	-	671	741	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1458	-	-	1390	-	-	492	606	878	293	609	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	492	606	-	293	609	-
Stage 1	-	-	-	-	-	-	826	753	-	893	804	-
Stage 2	-	-	-	-	-	-	677	786	-	376	739	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	16.9	14.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	492	620	1458	-	-	1390	-	-	293	620
HCM Lane V/C Ratio	0.179	0.552	0.002	-	-	0.002	-	-	0.188	0.23
HCM Control Delay (s)	13.9	17.7	7.5	-	-	7.6	-	-	20.1	12.5
HCM Lane LOS	B	C	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.6	3.4	0	-	-	0	-	-	0.7	0.9

Intersection	
Intersection Delay, s/veh	25.3
Intersection LOS	D

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	394	424	448	990
Demand Flow Rate, veh/h	402	433	457	1009
Vehicles Circulating, veh/h	966	458	812	310
Vehicles Exiting, veh/h	277	811	556	346
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	31.9	3.0	26.5	31.7
Approach LOS	D	A	D	D

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	235	4.976	4.976	76
Entry Flow, veh/h	402	198	1938	457	933	1938
Cap Entry Lane, veh/h	515	865	0.980	603	1006	0.980
Entry HV Adj Factor	0.981	0.979	230	0.980	0.981	75
Flow Entry, veh/h	394	194	1900	448	915	1900
Cap Entry, veh/h	505	846	0.121	591	987	0.039
V/C Ratio	0.780	0.229	0.0	0.758	0.928	0.0
Control Delay, s/veh	31.9	6.7	A	26.5	34.3	A
LOS	D	A	0	D	D	0
95th %tile Queue, veh	7	1		7	15	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	681	323	23	69	44
Future Vol, veh/h	15	681	323	23	69	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	235	-	-	235	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	801	380	27	81	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	407	0	-	0	1217	380
Stage 1	-	-	-	-	380	-
Stage 2	-	-	-	-	837	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1152	-	-	-	200	667
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	425	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1152	-	-	-	197	667
Mov Cap-2 Maneuver	-	-	-	-	321	-
Stage 1	-	-	-	-	680	-
Stage 2	-	-	-	-	425	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1152	-	-	-	321	667
HCM Lane V/C Ratio	0.015	-	-	-	0.253	0.078
HCM Control Delay (s)	8.2	-	-	-	20	10.9
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	1	0.3

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	707	43	39	326	20	25
Future Vol, veh/h	707	43	39	326	20	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	235	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	832	51	46	384	24	29

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	883	0	1116	832
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	284	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	764	-	215	368
Stage 1	-	-	-	-	426	-
Stage 2	-	-	-	-	740	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	764	-	202	368
Mov Cap-2 Maneuver	-	-	-	-	202	-
Stage 1	-	-	-	-	426	-
Stage 2	-	-	-	-	696	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	19.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	202	368	-	-	764	-
HCM Lane V/C Ratio	0.116	0.08	-	-	0.06	-
HCM Control Delay (s)	25.2	15.6	-	-	10	-
HCM Lane LOS	D	C	-	-	B	-
HCM 95th %tile Q(veh)	0.4	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	275	393	4	136	24	176	314	5	57	547	52
Future Vol, veh/h	65	275	393	4	136	24	176	314	5	57	547	52
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	-	-	Free	-	-	Free	-	-	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	85	85	85	74	74	74	94	94	94	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	324	462	5	184	32	187	334	5	63	601	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1530	1440	-	1626	1492	-	658	0	0	339	0	0
Stage 1	727	727	-	708	708	-	-	-	-	-	-	-
Stage 2	803	713	-	918	784	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	-	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	-	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	96	~ 133	0	82	~ 123	0	930	-	-	1220	-	-
Stage 1	415	429	0	426	438	0	-	-	-	-	-	-
Stage 2	377	435	0	326	404	0	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 101	-	-	~ 93	-	930	-	-	1220	-	-
Mov Cap-2 Maneuver	-	~ 101	-	-	~ 93	-	-	-	-	-	-	-
Stage 1	332	407	-	340	350	-	-	-	-	-	-	-
Stage 2	143	348	-	63	383	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			3.5	0.7
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	930	-	-	-	101	-	-	93	-	1220	-	-
HCM Lane V/C Ratio	0.201	-	-	-	3.203	-	-	1.976	-	0.051	-	-
HCM Control Delay (s)	9.8	-	-	$ 1081.5	0	-	$ 550.9	0	-	8.1	-	-
HCM Lane LOS	A	-	-	-	F	A	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-	31.6	-	-	15.7	-	0.2	-	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	275	393	4	136	24	176	314	5	57	547	52
Future Volume (vph)	65	275	393	4	136	24	176	314	5	57	547	52
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8			2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	1.0		5.0	1.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	6.0		10.0	6.0	6.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	35.0		12.0	35.0	35.0	20.0	63.0	63.0	10.0	53.0	53.0
Total Split (%)	10.0%	29.2%		10.0%	29.2%	29.2%	16.7%	52.5%	52.5%	8.3%	44.2%	44.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	26.3	25.1	104.2	22.3	17.9	17.9	11.0	58.4	58.4	56.0	49.9	49.9
Actuated g/C Ratio	0.25	0.24	1.00	0.21	0.17	0.17	0.11	0.56	0.56	0.54	0.48	0.48
v/c Ratio	0.30	0.72	0.29	0.03	0.58	0.08	0.52	0.32	0.01	0.11	0.67	0.07
Control Delay	32.1	47.0	0.5	27.5	48.2	0.4	50.8	15.8	0.0	10.2	28.2	0.2
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	32.1	47.0	0.5	27.5	48.2	0.4	50.8	15.8	0.0	10.2	28.2	0.2
LOS	C	D	A	C	D	A	D	B	A	B	C	A
Approach Delay		20.8			40.8			28.1			24.4	
Approach LOS		C			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 104.2	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 25.4	Intersection LOS: C
Intersection Capacity Utilization 70.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 106: US 24 & Stapleton Dr

Intersection	
Int Delay, s/veh	10.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	38	87	21	128	46	39	111	1	91	257	1
Future Vol, veh/h	2	38	87	21	128	46	39	111	1	91	257	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	87	87	87	83	83	83	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	46	105	24	147	53	47	134	1	105	295	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	200	0	0	151	0	0	473	351	99	392	377	174
Stage 1	-	-	-	-	-	-	103	103	-	222	222	-
Stage 2	-	-	-	-	-	-	370	248	-	170	155	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1372	-	-	1430	-	-	501	573	957	567	555	869
Stage 1	-	-	-	-	-	-	903	810	-	780	720	-
Stage 2	-	-	-	-	-	-	650	701	-	832	769	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1372	-	-	1430	-	-	283	563	957	456	545	869
Mov Cap-2 Maneuver	-	-	-	-	-	-	283	563	-	456	545	-
Stage 1	-	-	-	-	-	-	902	809	-	779	708	-
Stage 2	-	-	-	-	-	-	372	689	-	693	768	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8	15.2	18.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	283	565	1372	-	-	1430	-	-	456	546
HCM Lane V/C Ratio	0.166	0.239	0.002	-	-	0.017	-	-	0.229	0.543
HCM Control Delay (s)	20.2	13.4	7.6	-	-	7.6	-	-	15.2	19.2
HCM Lane LOS	C	B	A	-	-	A	-	-	C	C
HCM 95th %tile Q(veh)	0.6	0.9	0	-	-	0.1	-	-	0.9	3.2

Intersection	
Intersection Delay, s/veh	12.1
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	322	757	587	595
Demand Flow Rate, veh/h	329	772	599	607
Vehicles Circulating, veh/h	594	630	568	395
Vehicles Exiting, veh/h	358	537	355	543
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.8	4.3	22.9	11.8
Approach LOS	B	A	C	B

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	464	4.976	4.976	50
Entry Flow, veh/h	329	308	1938	599	557	1938
Cap Entry Lane, veh/h	753	726	0.980	773	922	0.980
Entry HV Adj Factor	0.979	0.980	455	0.980	0.980	49
Flow Entry, veh/h	322	302	1900	587	546	1900
Cap Entry, veh/h	737	711	0.239	758	904	0.026
V/C Ratio	0.437	0.424	0.0	0.775	0.604	0.0
Control Delay, s/veh	10.8	10.9	A	22.9	12.9	A
LOS	B	B	1	C	B	0
95th %tile Queue, veh	2	2		8	4	

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	389	692	77	46	28
Future Vol, veh/h	49	389	692	77	46	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	235	-	-	235	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	83	94	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	469	736	91	54	33

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	827	0	-	0	1321	736			
Stage 1	-	-	-	-	736	-			
Stage 2	-	-	-	-	585	-			
Critical Hdwy	4.12	-	-	-	6.42	6.22			
Critical Hdwy Stg 1	-	-	-	-	5.42	-			
Critical Hdwy Stg 2	-	-	-	-	5.42	-			
Follow-up Hdwy	2.218	-	-	-	3.518	3.318			
Pot Cap-1 Maneuver	804	-	-	-	173	419			
Stage 1	-	-	-	-	474	-			
Stage 2	-	-	-	-	557	-			
Platoon blocked, %		-	-	-					
Mov Cap-1 Maneuver	804	-	-	-	161	419			
Mov Cap-2 Maneuver	-	-	-	-	296	-			
Stage 1	-	-	-	-	440	-			
Stage 2	-	-	-	-	557	-			

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	804	-	-	-	296	419
HCM Lane V/C Ratio	0.072	-	-	-	0.183	0.079
HCM Control Delay (s)	9.8	-	-	-	19.9	14.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.7	0.3

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	368	66	80	679	90	76
Future Vol, veh/h	368	66	80	679	90	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	235	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	433	78	94	799	106	89

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	511	0	1021	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	588	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1052	-	247	622
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	519	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1052	-	225	622
Mov Cap-2 Maneuver	-	-	-	-	225	-
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	473	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	24.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	225	622	-	-	1052	-
HCM Lane V/C Ratio	0.471	0.144	-	-	0.089	-
HCM Control Delay (s)	34.5	11.8	-	-	8.8	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	2.3	0.5	-	-	0.3	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	141	255	5	269	48	419	604	8	20	467	72
Future Vol, veh/h	48	141	255	5	269	48	419	604	8	20	467	72
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	-	-	Free	-	-	Free	-	-	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	93	93	93	85	85	85	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	152	274	6	316	56	455	657	9	22	519	80

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2293	2139	-	2246	2210	-	599	0	0	666	0	0
Stage 1	563	563	-	1567	1567	-	-	-	-	-	-	-
Stage 2	1730	1576	-	679	643	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	-	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	-	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 28	~ 49	0	30	~ 44	0	978	-	-	923	-	-
Stage 1	511	509	0	139	~ 172	0	-	-	-	-	-	-
Stage 2	112	170	0	441	468	0	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 26	-	-	~ 23	-	978	-	-	923	-	-
Mov Cap-2 Maneuver	-	~ 26	-	-	~ 23	-	-	-	-	-	-	-
Stage 1	273	497	-	74	~ 92	-	-	-	-	-	-	-
Stage 2	-	~ 91	-	299	457	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			4.8	0.3
HCM LOS	-	-		

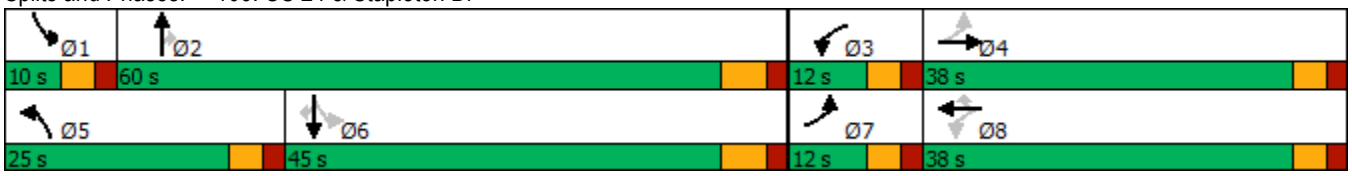
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	978	-	-	-	26	-	-	23	-	923	-	-
HCM Lane V/C Ratio	0.466	-	-	-	5.831	-	-	13.76	-	0.024	-	-
HCM Control Delay (s)	11.8	-	-	-	$ 2473.5	0	-	$ 6067.4	0	9	-	-
HCM Lane LOS	B	-	-	-	F	A	-	F	A	A	-	-
HCM 95th %tile Q(veh)	2.5	-	-	-	18.7	-	-	39.7	-	0.1	-	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	141	255	5	269	48	419	604	8	20	467	72
Future Volume (vph)	48	141	255	5	269	48	419	604	8	20	467	72
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8			2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	1.0		5.0	1.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	6.0		10.0	6.0	6.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	38.0		12.0	38.0	38.0	25.0	60.0	60.0	10.0	45.0	45.0
Total Split (%)	10.0%	31.7%		10.0%	31.7%	31.7%	20.8%	50.0%	50.0%	8.3%	37.5%	37.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	31.5	30.3	106.3	27.6	23.2	23.2	18.0	59.2	59.2	45.8	39.7	39.7
Actuated g/C Ratio	0.30	0.29	1.00	0.26	0.22	0.22	0.17	0.56	0.56	0.43	0.37	0.37
v/c Ratio	0.24	0.29	0.17	0.02	0.78	0.12	0.78	0.63	0.01	0.07	0.75	0.12
Control Delay	28.2	31.5	0.2	24.6	53.6	0.5	54.0	23.4	0.0	13.7	39.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	31.5	0.2	24.6	53.6	0.5	54.0	23.4	0.0	13.7	39.7	0.3
LOS	C	C	A	C	D	A	D	C	A	B	D	A
Approach Delay		13.2			45.3			35.6			33.7	
Approach LOS		B			D			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 106.3	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 32.5	Intersection LOS: C
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 106: US 24 & Stapleton Dr



Intersection	
Int Delay, s/veh	11

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	121	32	2	71	45	73	239	20	103	104	6
Future Vol, veh/h	3	121	32	2	71	45	73	239	20	103	104	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	87	87	87	83	83	83	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	146	39	2	82	52	88	288	24	118	120	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	0	185	0	0	350	312	166	442	305	108
Stage 1	-	-	-	-	-	-	174	174	-	112	112	-
Stage 2	-	-	-	-	-	-	176	138	-	330	193	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1451	-	-	1390	-	-	605	603	878	526	608	946
Stage 1	-	-	-	-	-	-	828	755	-	893	803	-
Stage 2	-	-	-	-	-	-	826	782	-	683	741	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1451	-	-	1390	-	-	508	601	878	318	606	946
Mov Cap-2 Maneuver	-	-	-	-	-	-	508	601	-	318	606	-
Stage 1	-	-	-	-	-	-	826	753	-	890	802	-
Stage 2	-	-	-	-	-	-	697	781	-	409	739	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	16	17.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	508	616	1451	-	-	1390	-	-	318	618
HCM Lane V/C Ratio	0.173	0.507	0.002	-	-	0.002	-	-	0.372	0.205
HCM Control Delay (s)	13.6	16.7	7.5	-	-	7.6	-	-	22.9	12.3
HCM Lane LOS	B	C	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.6	2.9	0	-	-	0	-	-	1.7	0.8

Intersection	
Intersection Delay, s/veh	11.8
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	743	527	561	1321
Demand Flow Rate, veh/h	758	538	573	1347
Vehicles Circulating, veh/h	983	731	895	486
Vehicles Exiting, veh/h	433	698	846	587
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	4.9	11.4	9.8
Approach LOS	C	A	B	A

Lane	Left	Right	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Designated Moves	LT	TR	LT	TR	R	LT	TR	R	L	LTR	R
Assumed Moves	LT	TR	LT	TR	R	LT	TR	R	L	TR	R
RT Channelized					Free			Free			Free
Lane Util	0.470	0.530	0.471	0.529		0.470	0.530		0.276	0.724	
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	196	4.645	4.328	39	4.645	4.328	417
Entry Flow, veh/h	356	402	161	181	1938	251	283	1938	257	673	1938
Cap Entry Lane, veh/h	546	616	689	763	0.980	593	664	0.980	863	939	0.980
Entry HV Adj Factor	0.981	0.980	0.979	0.982	192	0.980	0.980	38	0.981	0.980	409
Flow Entry, veh/h	349	394	158	178	1900	246	277	1900	252	660	1900
Cap Entry, veh/h	536	603	675	749	0.101	581	650	0.020	846	921	0.215
V/C Ratio	0.651	0.653	0.234	0.237	0.0	0.424	0.426	0.0	0.298	0.716	0.0
Control Delay, s/veh	21.6	19.7	8.1	7.5	A	12.8	11.7	A	7.5	16.7	A
LOS	C	C	A	A	0	B	B	0	A	C	1
95th %tile Queue, veh	5	5	1	1		2	2		1	6	

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	667	430	26	73	67
Future Vol, veh/h	23	667	430	26	73	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	235	-	-	235	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	725	467	28	79	73

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	495	0	-	0	880	234
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	413	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1065	-	-	-	287	768
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	636	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1065	-	-	-	280	768
Mov Cap-2 Maneuver	-	-	-	-	280	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	636	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1065	-	-	-	280	768
HCM Lane V/C Ratio	0.023	-	-	-	0.283	0.095
HCM Control Delay (s)	8.5	-	-	-	22.9	10.2
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.1	0.3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	13	727	425	81	223	31
Future Volume (vph)	13	727	425	81	223	31
Turn Type	pm+pt	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		3	3
Permitted Phases	2			6		
Detector Phase	5	2	6	6	3	3
Switch Phase						
Minimum Initial (s)	5.0	20.0	20.0	20.0	25.0	25.0
Minimum Split (s)	10.0	25.0	25.0	25.0	30.0	30.0
Total Split (s)	12.0	90.0	78.0	78.0	30.0	30.0
Total Split (%)	10.0%	75.0%	65.0%	65.0%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Min	Min
Act Effct Green (s)	85.0	85.0	80.5	80.5	25.0	25.0
Actuated g/C Ratio	0.71	0.71	0.67	0.67	0.21	0.21
v/c Ratio	0.02	0.32	0.19	0.08	0.66	0.10
Control Delay	5.2	7.0	19.1	11.1	53.2	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	7.0	19.1	11.1	53.2	13.1
LOS	A	A	B	B	D	B
Approach Delay		6.9	17.8		48.2	
Approach LOS		A	B		D	

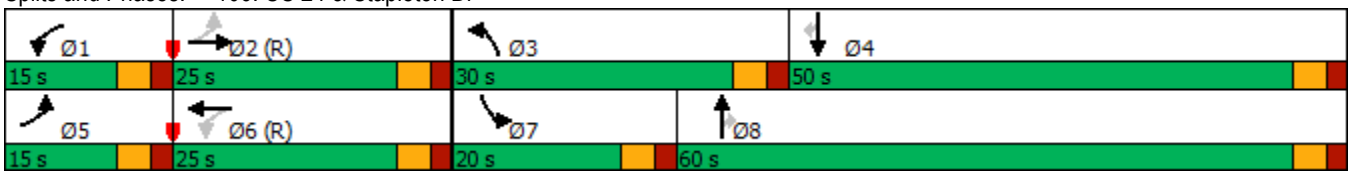
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 49.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 105: Stapleton Dr & Dumont Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	394	429	75	196	118	227	738	50	271	1463	82
Future Volume (vph)	127	394	429	75	196	118	227	738	50	271	1463	82
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		8.0	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	10.0	15.0		13.0	10.0		13.0	11.0	11.0	10.0	20.0	20.0
Total Split (s)	15.0	25.0		15.0	25.0		30.0	60.0	60.0	20.0	50.0	50.0
Total Split (%)	12.5%	20.8%		12.5%	20.8%		25.0%	50.0%	50.0%	16.7%	41.7%	41.7%
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)	31.5	23.5	120.0	29.5	20.4	120.0	13.7	56.1	56.1	13.9	56.3	56.3
Actuated g/C Ratio	0.26	0.20	1.00	0.25	0.17	1.00	0.11	0.47	0.47	0.12	0.47	0.47
v/c Ratio	0.42	0.60	0.29	0.32	0.34	0.08	0.61	0.47	0.07	0.72	0.90	0.10
Control Delay	40.8	53.3	0.5	35.5	45.9	0.1	57.2	23.2	0.2	72.5	29.3	0.2
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	40.8	53.3	0.5	35.5	45.9	0.1	57.2	23.2	0.2	72.5	29.3	0.2
LOS	D	D	A	D	D	A	E	C	A	E	C	A
Approach Delay		27.8			30.0			29.7			34.6	
Approach LOS		C			C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 64 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 31.4	Intersection LOS: C
Intersection Capacity Utilization 80.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 106: US 24 & Stapleton Dr



Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	321	403	487	736
Demand Flow Rate, veh/h	327	411	497	751
Vehicles Circulating, veh/h	781	485	176	457
Vehicles Exiting, veh/h	427	188	932	439
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.3	6.4	5.0	8.7
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	LT	TR	LT	TR
Assumed Moves	LT	R	LT	TR	LT	TR	LT	TR
RT Channelized								
Lane Util	0.306	0.694	0.470	0.530	0.471	0.529	0.470	0.530
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	4.645	4.328	4.645	4.328
Entry Flow, veh/h	100	227	193	218	234	263	353	398
Cap Entry Lane, veh/h	658	731	864	940	1148	1223	887	963
Entry HV Adj Factor	0.984	0.982	0.982	0.981	0.978	0.981	0.980	0.981
Flow Entry, veh/h	98	223	190	214	229	258	346	390
Cap Entry, veh/h	647	718	849	922	1123	1200	869	944
V/C Ratio	0.152	0.310	0.223	0.232	0.204	0.215	0.398	0.413
Control Delay, s/veh	7.3	8.8	6.6	6.2	5.0	4.9	8.8	8.5
LOS	A	A	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	1	1	2	2

Intersection	
Intersection Delay, s/veh	12.0
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	807	768	879	846
Demand Flow Rate, veh/h	823	784	896	864
Vehicles Circulating, veh/h	622	1282	897	605
Vehicles Exiting, veh/h	559	444	548	1120
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.6	10.5	18.3	6.2
Approach LOS	B	B	C	A

Lane	Left	Right	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Designated Moves	LT	TR	LT	TR	R	LT	TR	R	L	LTR	R
Assumed Moves	L	TR	LT	TR	R	LT	TR	R	L	TR	R
RT Channelized					Free			Free			Free
Lane Util	0.550	0.450	0.470	0.530		0.470	0.530		0.326	0.674	
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	341	4.645	4.328	67	4.645	4.328	288
Entry Flow, veh/h	453	370	208	235	1938	390	439	1938	188	388	1938
Cap Entry Lane, veh/h	762	837	415	478	0.980	591	662	0.980	774	849	0.980
Entry HV Adj Factor	0.980	0.981	0.981	0.979	334	0.980	0.981	66	0.979	0.980	282
Flow Entry, veh/h	444	363	204	230	1900	382	431	1900	184	380	1900
Cap Entry, veh/h	747	821	407	468	0.176	579	650	0.035	757	832	0.148
V/C Ratio	0.595	0.442	0.501	0.492	0.0	0.659	0.663	0.0	0.243	0.457	0.0
Control Delay, s/veh	14.6	10.0	19.9	17.4	A	20.7	19.0	A	7.5	10.2	A
LOS	B	B	C	C	1	C	C	0	A	B	1
95th %tile Queue, veh	4	2	3	3		5	5		1	2	

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	75	401	705	83	49	44
Future Vol, veh/h	75	401	705	83	49	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	235	-	-	235	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	436	766	90	53	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	856	0	-	0	1148	383
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	382	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	780	-	-	-	192	615
Stage 1	-	-	-	-	419	-
Stage 2	-	-	-	-	660	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	780	-	-	-	172	615
Mov Cap-2 Maneuver	-	-	-	-	172	-
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	660	-

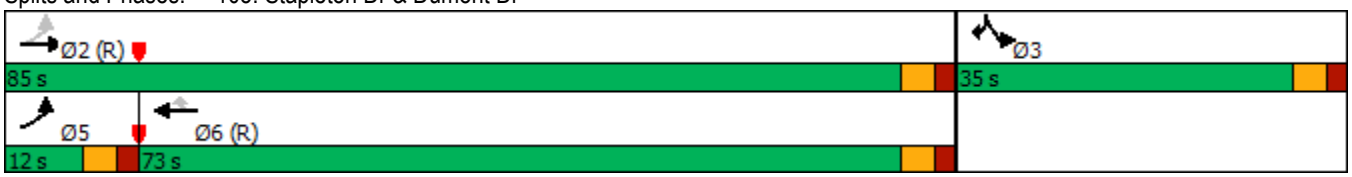
Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	23.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	780	-	-	-	172	615
HCM Lane V/C Ratio	0.105	-	-	-	0.31	0.078
HCM Control Delay (s)	10.2	-	-	-	35.1	11.3
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1.2	0.3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	31	420	766	246	148	22
Future Volume (vph)	31	420	766	246	148	22
Turn Type	pm+pt	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		3	3
Permitted Phases	2			6		
Detector Phase	5	2	6	6	3	3
Switch Phase						
Minimum Initial (s)	5.0	20.0	20.0	20.0	25.0	25.0
Minimum Split (s)	10.0	25.0	25.0	25.0	30.0	30.0
Total Split (s)	12.0	85.0	73.0	73.0	35.0	35.0
Total Split (%)	10.0%	70.8%	60.8%	60.8%	29.2%	29.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	85.0	85.0	78.1	78.1	25.0	25.0
Actuated g/C Ratio	0.71	0.71	0.65	0.65	0.21	0.21
v/c Ratio	0.08	0.18	0.36	0.24	0.44	0.07
Control Delay	5.6	6.1	18.5	8.3	45.8	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	6.1	18.5	8.3	45.8	14.5
LOS	A	A	B	A	D	B
Approach Delay		6.0	16.0		41.7	
Approach LOS		A	B		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 15.9	Intersection LOS: B
Intersection Capacity Utilization 54.9%	ICU Level of Service A
Analysis Period (min) 15	

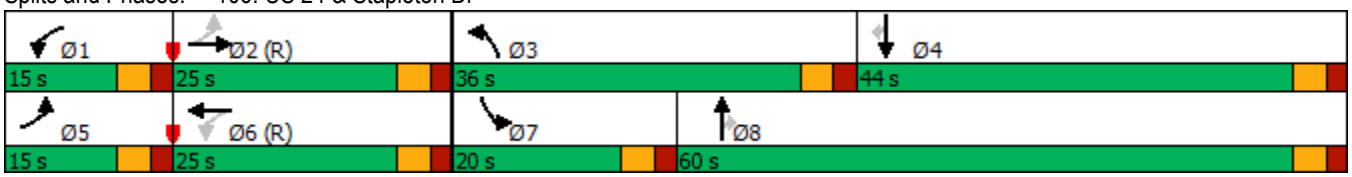
Splits and Phases: 105: Stapleton Dr & Dumont Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	185	297	125	363	324	513	1574	150	245	1122	136
Future Volume (vph)	86	185	297	125	363	324	513	1574	150	245	1122	136
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		8.0	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	10.0	15.0		13.0	10.0		13.0	11.0	11.0	20.0	20.0	20.0
Total Split (s)	15.0	25.0		15.0	25.0		36.0	60.0	60.0	20.0	44.0	44.0
Total Split (%)	12.5%	20.8%		12.5%	20.8%		30.0%	50.0%	50.0%	16.7%	36.7%	36.7%
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)	29.4	20.4	120.0	30.6	21.0	120.0	24.1	56.5	56.5	13.5	45.9	45.9
Actuated g/C Ratio	0.24	0.17	1.00	0.26	0.18	1.00	0.20	0.47	0.47	0.11	0.38	0.38
v/c Ratio	0.37	0.32	0.20	0.40	0.62	0.22	0.78	0.99	0.20	0.67	0.85	0.20
Control Delay	43.7	53.5	0.4	36.9	51.1	0.3	53.9	52.9	7.2	65.2	26.1	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	53.5	0.4	36.9	51.1	0.3	53.9	52.9	7.2	65.2	26.1	1.6
LOS	D	D	A	D	D	A	D	D	A	E	C	A
Approach Delay		24.2			28.6			50.0			30.3	
Approach LOS		C			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 64 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 82.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 106: US 24 & Stapleton Dr



Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	414	245	940	584
Demand Flow Rate, veh/h	423	251	958	596
Vehicles Circulating, veh/h	601	929	546	490
Vehicles Exiting, veh/h	485	575	478	690
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.4	8.6	12.4	7.8
Approach LOS	A	A	B	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	LT	TR	LT	TR
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	TR
RT Channelized								
Lane Util	0.470	0.530	0.470	0.530	0.470	0.530	0.470	0.530
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	4.645	4.328	4.645	4.328
Entry Flow, veh/h	199	224	118	133	450	508	280	316
Cap Entry Lane, veh/h	777	852	574	645	817	893	860	936
Entry HV Adj Factor	0.978	0.980	0.977	0.977	0.981	0.980	0.981	0.980
Flow Entry, veh/h	195	220	115	130	442	498	275	310
Cap Entry, veh/h	760	835	561	630	802	875	843	917
V/C Ratio	0.256	0.263	0.205	0.206	0.551	0.569	0.326	0.338
Control Delay, s/veh	7.6	7.2	9.1	8.2	12.6	12.2	7.9	7.6
LOS	A	A	A	A	B	B	A	A
95th %tile Queue, veh	1	1	1	1	3	4	1	1

Intersection	
Intersection Delay, s/veh	16.0
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	857	588	606	1385
Demand Flow Rate, veh/h	874	599	619	1412
Vehicles Circulating, veh/h	1060	731	1076	530
Vehicles Exiting, veh/h	465	879	858	587
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	33.0	5.3	13.8	10.9
Approach LOS	D	A	B	B

Lane	Left	Right	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Designated Moves	LT	TR	LT	TR	R	LT	TR	R	L	LTR	R
Assumed Moves	LT	TR	LT	TR	R	LT	TR	R	L	TR	R
RT Channelized					Free			Free			Free
Lane Util	0.470	0.530	0.469	0.531		0.470	0.530		0.324	0.676	
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	213	4.645	4.328	85	4.645	4.328	417
Entry Flow, veh/h	411	463	181	205	1938	251	283	1938	322	673	1938
Cap Entry Lane, veh/h	509	577	689	763	0.980	502	569	0.980	829	905	0.980
Entry HV Adj Factor	0.980	0.981	0.983	0.979	209	0.980	0.980	83	0.981	0.980	409
Flow Entry, veh/h	403	454	178	201	1900	246	277	1900	316	660	1900
Cap Entry, veh/h	499	566	678	747	0.110	492	558	0.044	814	887	0.215
V/C Ratio	0.807	0.803	0.263	0.269	0.0	0.500	0.497	0.0	0.388	0.744	0.0
Control Delay, s/veh	35.0	31.3	8.5	7.9	A	16.9	15.2	A	9.1	18.5	A
LOS	D	D	A	A	0	C	C	0	A	C	1
95th %tile Queue, veh	8	8	1	1		3	3		2	7	

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	745	137	140	465	26	24	1	25	73	3	67
Future Vol, veh/h	23	745	137	140	465	26	24	1	25	73	3	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	235	-	0	235	-	235	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	810	149	152	505	28	26	1	27	79	3	73

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	533	0	0	959	0	0	1418	1697	405	1265	1818	253
Stage 1	-	-	-	-	-	-	860	860	-	809	809	-
Stage 2	-	-	-	-	-	-	558	837	-	456	1009	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1031	-	-	713	-	-	97	92	595	126	77	746
Stage 1	-	-	-	-	-	-	317	371	-	340	392	-
Stage 2	-	-	-	-	-	-	482	380	-	554	316	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1031	-	-	713	-	-	69	71	595	98	59	746
Mov Cap-2 Maneuver	-	-	-	-	-	-	69	71	-	98	59	-
Stage 1	-	-	-	-	-	-	309	362	-	332	309	-
Stage 2	-	-	-	-	-	-	339	299	-	514	308	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	2.5	48.1	68.7
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	69	463	1031	-	-	713	-	-	98	59	746
HCM Lane V/C Ratio	0.378	0.061	0.024	-	-	0.213	-	-	0.81	0.055	0.098
HCM Control Delay (s)	85.9	13.3	8.6	-	-	11.4	-	-	122.3	69.6	10.3
HCM Lane LOS	F	B	A	-	-	B	-	-	F	F	B
HCM 95th %tile Q(veh)	1.4	0.2	0.1	-	-	0.8	-	-	4.4	0.2	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	23	745	137	140	465	26	24	1	73	3	67
Future Volume (vph)	23	745	137	140	465	26	24	1	73	3	67
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	25.0	25.0	10.0	25.0	25.0	10.0	15.0	10.0	15.0	15.0
Total Split (s)	12.0	71.0	71.0	12.0	71.0	71.0	12.0	25.0	12.0	25.0	25.0
Total Split (%)	10.0%	59.2%	59.2%	10.0%	59.2%	59.2%	10.0%	20.8%	10.0%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	Max	Max
Act Effct Green (s)	72.1	66.0	66.0	75.3	71.1	71.1	27.8	22.4	29.0	24.8	24.8
Actuated g/C Ratio	0.60	0.55	0.55	0.63	0.59	0.59	0.23	0.19	0.24	0.21	0.21
v/c Ratio	0.04	0.42	0.16	0.39	0.24	0.03	0.08	0.09	0.23	0.01	0.18
Control Delay	7.8	16.6	2.4	16.9	6.2	0.1	33.6	16.2	36.1	42.0	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	16.6	2.4	16.9	6.2	0.1	33.6	16.2	36.1	42.0	3.7
LOS	A	B	A	B	A	A	C	B	D	D	A
Approach Delay		14.2			8.3			24.6		20.9	
Approach LOS		B			A			C		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 80 (67%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.42	
Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 51.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 104: Saybrook Dr & Stapleton Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	723	43	39	553	132	20	1	25	262	1	51
Future Volume (vph)	76	723	43	39	553	132	20	1	25	262	1	51
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	25.0	25.0	10.0	25.0	25.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	58.0	58.0	12.0	58.0	58.0	12.0	25.0	25.0	25.0	38.0	38.0
Total Split (%)	10.0%	48.3%	48.3%	10.0%	48.3%	48.3%	10.0%	20.8%	20.8%	20.8%	31.7%	31.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	72.7	66.2	66.2	70.6	65.1	65.1	16.4	10.0	10.0	34.4	27.3	27.3
Actuated g/C Ratio	0.61	0.55	0.55	0.59	0.54	0.54	0.14	0.08	0.08	0.29	0.23	0.23
v/c Ratio	0.17	0.40	0.05	0.11	0.31	0.15	0.10	0.01	0.10	0.70	0.00	0.12
Control Delay	7.4	10.2	0.1	3.2	6.5	2.1	33.2	51.0	0.7	46.4	39.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	10.2	0.1	3.2	6.5	2.1	33.2	51.0	0.7	46.4	39.0	0.6
LOS	A	B	A	A	A	A	C	D	A	D	D	A
Approach Delay		9.4			5.5			16.0			39.0	
Approach LOS		A			A			B			D	

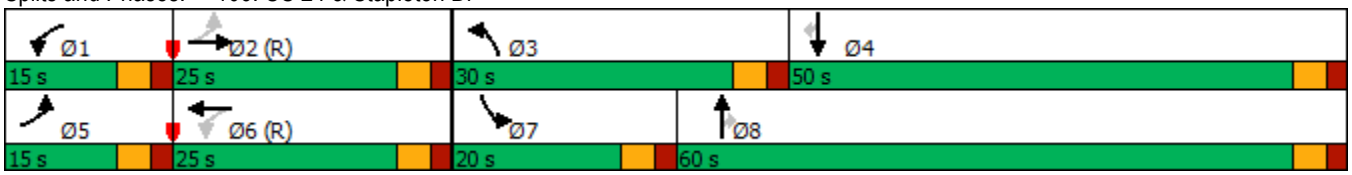
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 101 (84%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 57.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 105: Dumont Dr & Stapleton Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	406	465	75	239	118	358	738	50	271	1463	126
Future Volume (vph)	140	406	465	75	239	118	358	738	50	271	1463	126
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		8.0	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	10.0	15.0		13.0	10.0		13.0	11.0	11.0	10.0	20.0	20.0
Total Split (s)	15.0	25.0		15.0	25.0		30.0	60.0	60.0	20.0	50.0	50.0
Total Split (%)	12.5%	20.8%		12.5%	20.8%		25.0%	50.0%	50.0%	16.7%	41.7%	41.7%
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)	31.5	23.5	120.0	29.4	20.3	120.0	18.4	56.1	56.1	13.9	51.6	51.6
Actuated g/C Ratio	0.26	0.20	1.00	0.24	0.17	1.00	0.15	0.47	0.47	0.12	0.43	0.43
v/c Ratio	0.49	0.62	0.31	0.33	0.42	0.08	0.72	0.47	0.07	0.72	0.98	0.17
Control Delay	37.8	48.6	0.5	35.7	47.2	0.1	56.1	23.2	0.2	72.3	43.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	48.6	0.5	35.7	47.2	0.1	56.1	23.2	0.2	72.3	43.6	0.6
LOS	D	D	A	D	D	A	E	C	A	E	D	A
Approach Delay		24.9			32.4			32.5			44.9	
Approach LOS		C			C			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 64 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 35.9	Intersection LOS: D
Intersection Capacity Utilization 85.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 106: US 24 & Stapleton Dr



Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	321	427	511	749
Demand Flow Rate, veh/h	327	436	522	765
Vehicles Circulating, veh/h	795	510	184	457
Vehicles Exiting, veh/h	427	196	938	489
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.5	6.8	5.1	8.8
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	LT	TR	LT	TR
Assumed Moves	LT	R	LT	TR	LT	TR	LT	TR
RT Channelized								
Lane Util	0.306	0.694	0.470	0.530	0.469	0.531	0.471	0.529
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	4.645	4.328	4.645	4.328
Entry Flow, veh/h	100	227	205	231	245	277	360	405
Cap Entry Lane, veh/h	650	722	844	921	1140	1214	887	963
Entry HV Adj Factor	0.984	0.982	0.980	0.980	0.981	0.979	0.978	0.980
Flow Entry, veh/h	98	223	201	226	240	271	352	397
Cap Entry, veh/h	639	710	827	902	1118	1188	867	944
V/C Ratio	0.154	0.314	0.243	0.251	0.215	0.228	0.406	0.421
Control Delay, s/veh	7.4	9.0	7.0	6.6	5.2	5.1	9.0	8.7
LOS	A	A	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	1	1	2	2

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	842	620	4	0	11
Future Vol, veh/h	0	842	620	4	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	915	674	4	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	337
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	659
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	659
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	659
HCM Lane V/C Ratio	-	-	-	0.018
HCM Control Delay (s)	-	-	-	10.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Intersection Delay, s/veh	17.6
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	905	1056	919	902
Demand Flow Rate, veh/h	923	1077	937	921
Vehicles Circulating, veh/h	740	1282	1054	814
Vehicles Exiting, veh/h	707	601	609	1120
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	16.9	18.9	25.4	8.9
Approach LOS	C	C	D	A

Lane	Left	Right	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Designated Moves	LT	TR	LT	TR	R	LT	TR	R	L	LTR	R
Assumed Moves	LT	TR	LT	TR	R	LT	TR	R	L	TR	R
RT Channelized					Free			Free			Free
Lane Util	0.470	0.530	0.469	0.531		0.470	0.530		0.387	0.613	
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	425	4.645	4.328	108	4.645	4.328	288
Entry Flow, veh/h	434	489	306	346	1938	390	439	1938	245	388	1938
Cap Entry Lane, veh/h	683	757	415	478	0.980	512	580	0.980	638	711	0.980
Entry HV Adj Factor	0.980	0.981	0.982	0.979	417	0.980	0.981	106	0.980	0.980	282
Flow Entry, veh/h	425	480	300	339	1900	382	431	1900	240	380	1900
Cap Entry, veh/h	670	743	408	468	0.219	502	569	0.056	625	697	0.148
V/C Ratio	0.635	0.646	0.737	0.725	0.0	0.762	0.757	0.0	0.384	0.546	0.0
Control Delay, s/veh	17.4	16.5	33.6	29.0	A	30.4	27.2	A	11.2	13.9	A
LOS	C	C	D	D	1	D	D	0	B	B	1
95th %tile Queue, veh	5	5	6	6		7	7		2	3	

Intersection	
Int Delay, s/veh	27.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	545	42	43	864	83	120	2	123	49	1	44
Future Vol, veh/h	75	545	42	43	864	83	120	2	123	49	1	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	235	-	0	235	-	235	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	592	46	47	939	90	130	2	134	53	1	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1029	0	0	638	0	0	1320	1879	296	1494	1835	470
Stage 1	-	-	-	-	-	-	756	756	-	1033	1033	-
Stage 2	-	-	-	-	-	-	564	1123	-	461	802	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	671	-	-	942	-	-	~ 115	71	700	85	75	540
Stage 1	-	-	-	-	-	-	366	414	-	249	308	-
Stage 2	-	-	-	-	-	-	478	279	-	550	395	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	671	-	-	942	-	-	~ 90	59	700	58	63	540
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 90	59	-	58	63	-
Stage 1	-	-	-	-	-	-	321	363	-	219	293	-
Stage 2	-	-	-	-	-	-	412	265	-	388	347	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.4	171.4	115.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	90	596	671	-	-	942	-	-	58	63	540
HCM Lane V/C Ratio	1.449	0.228	0.121	-	-	0.05	-	-	0.918	0.017	0.089
HCM Control Delay (s)	$ 336.6	12.8	11.1	-	-	9	-	-	209.9	63.1	12.3
HCM Lane LOS	F	B	B	-	-	A	-	-	F	F	B
HCM 95th %tile Q(veh)	10	0.9	0.4	-	-	0.2	-	-	4.2	0.1	0.3

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	75	545	42	43	864	83	120	2	49	1	44
Future Volume (vph)	75	545	42	43	864	83	120	2	49	1	44
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	25.0	25.0	10.0	25.0	25.0	10.0	15.0	10.0	15.0	15.0
Total Split (s)	12.0	71.0	71.0	12.0	71.0	71.0	12.0	25.0	12.0	25.0	25.0
Total Split (%)	10.0%	59.2%	59.2%	10.0%	59.2%	59.2%	10.0%	20.8%	10.0%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	Max	Max
Act Effct Green (s)	74.2	68.7	68.7	73.8	68.4	68.4	28.0	22.4	26.7	20.0	20.0
Actuated g/C Ratio	0.62	0.57	0.57	0.62	0.57	0.57	0.23	0.19	0.22	0.17	0.17
v/c Ratio	0.24	0.29	0.05	0.09	0.47	0.09	0.39	0.34	0.18	0.00	0.14
Control Delay	9.6	14.2	0.1	9.0	13.6	2.7	39.8	10.1	35.2	42.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	14.2	0.1	9.0	13.6	2.7	39.8	10.1	35.2	42.0	0.8
LOS	A	B	A	A	B	A	D	B	D	D	A
Approach Delay		12.8			12.5			24.6		19.1	
Approach LOS		B			B			C		B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 80 (67%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 104: Saybrook Dr & Stapleton Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	491	65	80	729	392	89	1	76	285	1	128
Future Volume (vph)	160	491	65	80	729	392	89	1	76	285	1	128
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	25.0	25.0	10.0	25.0	25.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	58.0	58.0	12.0	58.0	58.0	12.0	25.0	25.0	25.0	38.0	38.0
Total Split (%)	10.0%	48.3%	48.3%	10.0%	48.3%	48.3%	10.0%	20.8%	20.8%	20.8%	31.7%	31.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	73.2	62.8	62.8	68.0	60.2	60.2	17.0	10.0	10.0	34.4	22.4	22.4
Actuated g/C Ratio	0.61	0.52	0.52	0.57	0.50	0.50	0.14	0.08	0.08	0.29	0.19	0.19
v/c Ratio	0.42	0.29	0.08	0.17	0.45	0.42	0.44	0.01	0.30	0.77	0.00	0.34
Control Delay	12.8	11.2	0.2	4.3	10.0	3.3	41.2	51.0	2.8	51.0	39.0	9.2
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	12.8	11.2	0.2	4.3	10.0	3.3	41.2	51.0	2.8	51.0	39.0	9.2
LOS	B	B	A	A	B	A	D	D	A	D	D	A
Approach Delay		10.6			7.5			23.7			38.1	
Approach LOS		B			A			C			D	

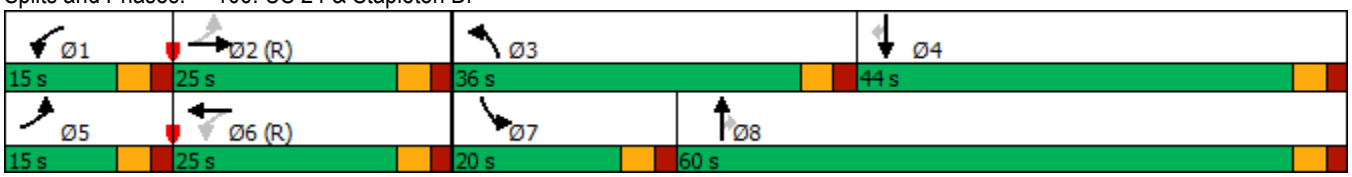
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 101 (84%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 64.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 105: Dumont Dr & Stapleton Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	242	468	125	401	324	626	1574	150	245	1122	174
Future Volume (vph)	143	242	468	125	401	324	626	1574	150	245	1122	174
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		8.0	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	10.0	15.0		13.0	10.0		13.0	11.0	11.0	20.0	20.0	20.0
Total Split (s)	15.0	25.0		15.0	25.0		36.0	60.0	60.0	20.0	44.0	44.0
Total Split (%)	12.5%	20.8%		12.5%	20.8%		30.0%	50.0%	50.0%	16.7%	36.7%	36.7%
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)	30.2	20.4	120.0	29.8	20.2	120.0	27.4	56.5	56.5	13.5	42.6	42.6
Actuated g/C Ratio	0.25	0.17	1.00	0.25	0.17	1.00	0.23	0.47	0.47	0.11	0.36	0.36
v/c Ratio	0.65	0.42	0.31	0.44	0.71	0.22	0.84	0.99	0.20	0.67	0.91	0.27
Control Delay	43.6	43.2	0.6	37.9	54.5	0.3	54.5	52.9	7.2	64.7	33.1	1.9
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	43.6	43.2	0.6	37.9	54.5	0.3	54.5	52.9	7.2	64.7	33.1	1.9
LOS	D	D	A	D	D	A	D	D	A	E	C	A
Approach Delay		19.9			31.4			50.4			34.7	
Approach LOS		B			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 64 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 38.5	Intersection LOS: D
Intersection Capacity Utilization 86.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 106: US 24 & Stapleton Dr



Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	414	266	1079	526
Demand Flow Rate, veh/h	423	272	1100	537
Vehicles Circulating, veh/h	542	1071	382	490
Vehicles Exiting, veh/h	485	411	583	853
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.9	10.4	11.1	7.3
Approach LOS	A	B	B	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	LT	TR	LT	TR
Assumed Moves	LT	TR	LT	TR	LT	TR	LT	TR
RT Channelized								
Lane Util	0.470	0.530	0.471	0.529	0.470	0.530	0.469	0.531
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	4.645	4.328	4.645	4.328
Entry Flow, veh/h	199	224	128	144	517	583	252	285
Cap Entry Lane, veh/h	820	896	504	571	950	1026	860	936
Entry HV Adj Factor	0.978	0.980	0.978	0.980	0.981	0.981	0.981	0.979
Flow Entry, veh/h	195	220	125	141	507	572	247	279
Cap Entry, veh/h	802	878	493	560	932	1007	844	916
V/C Ratio	0.243	0.250	0.254	0.252	0.544	0.568	0.293	0.304
Control Delay, s/veh	7.1	6.7	11.0	9.8	11.1	11.0	7.5	7.2
LOS	A	A	B	A	B	B	A	A
95th %tile Queue, veh	1	1	1	1	3	4	1	1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	717	929	16	0	60
Future Vol, veh/h	0	717	929	16	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	779	1010	17	0	65

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	505
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	512
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	512
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	512
HCM Lane V/C Ratio	-	-	-	0.127
HCM Control Delay (s)	-	-	-	13.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.4

Appendix Table 1

TRANSPORTATION
CONSULTANTS, INC.

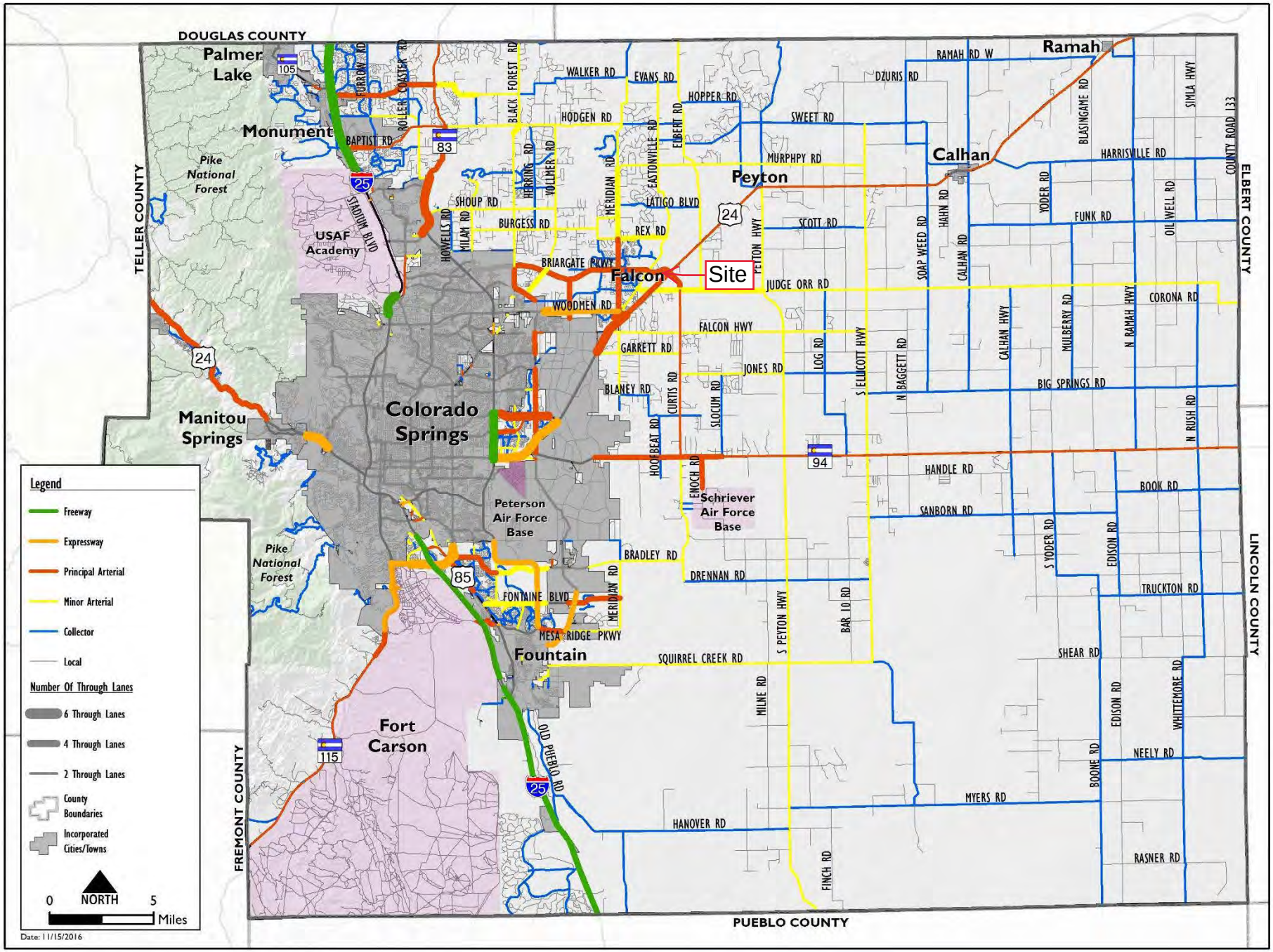
Appendix Table 1
Area Trafffic Impact Studies by LSC
4-Way Ranch Commercial

Study	Date
4-Way Ranch Commercial	
4-Way Ranch Updated TIA	January 29, 2009
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
Grandview Reserve	
Grandview Reserve Updated Master TIA	December 5, 2020
Grandview Reserve Phase 1 TIA	March 8, 2022
Waterbury/4-Way Ranch	
Waterbury PUD Development Plan Updated TIA	January 10, 2013
Waterbury Filing Nos. 1 and 2 TIA	December 18, 2020
Meadowlake Ranch	
Meadowlake Ranch Traffic Impact Analysis	May 29, 2019
Latigo Preserve	
Latigo Preserve Filing No. 10	March 31, 2022

Source: LSC Transportation Consultants, Inc. (September 2022)

MTCP Maps

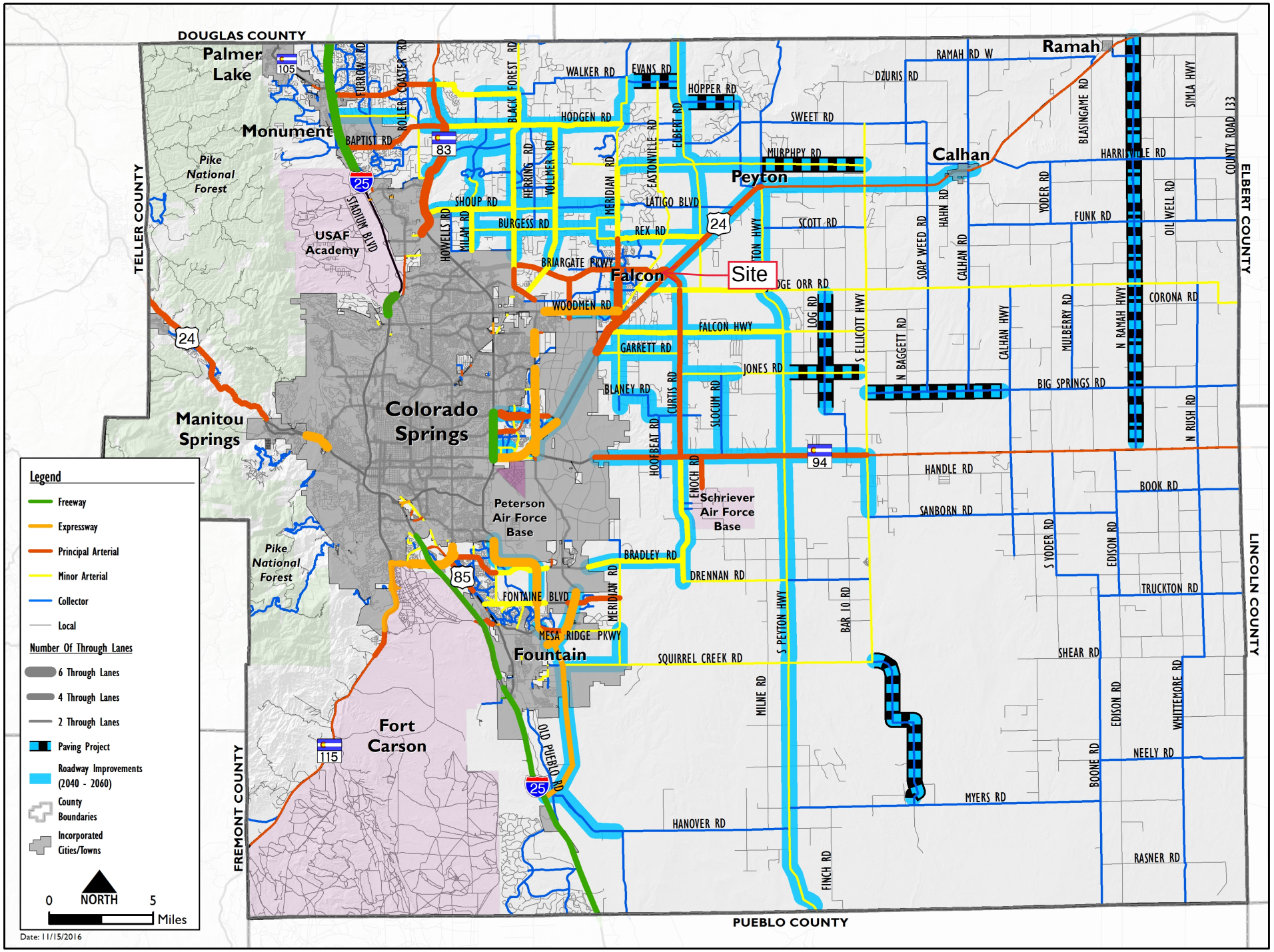
TRANSPORTATION
CONSULTANTS, INC.



Map 14: 2040 Roadway Plan (Classification and Lanes)

EL PASO COUNTY COLORADO

Map 17: 2060 Corridor Preservation



Crash History

TRANSPORTATION
CONSULTANTS, INC.

AccidentDate	ReferencePointName	ReferencePointAtName	AccidentNarrative
2020-09-03	STAPLETON RD	HIGHWAY 24	Vehicle 1 was traveling eastbound on Highway 24. Vehicle 2 was stopped at a stop sign on Stapleton road and Highway 24. Vehicle 1 made a wide right hand turn onto Stapleton road from Highway 24. Vehicle 1's front collided with Vehicle 2's front. Vehicle 1 came to final rest facing south in contact with Vehicle 2. Vehicle 2 came to final rest facing north in contact with Vehicle 1.
2021-05-16	HIGHWAY 24	STAPLETON RD	Vehicle 2 was westbound on Highway 24 near milepost 324. Vehicle 1 was east on Stapleton Rd approaching the intersection with Highway 24. Vehicle 1 proceeded into the intersection of Highway 24 traveling east. Vehicle 2 collided front to side with Vehicle 1. Vehicle 2 continued west traveling approximately 61', before coming to final rest on all four wheels facing west. Vehicle 1 was spun around counter clockwise for approximately 35' before coming to final rest facing southwest on its wheels.
2021-08-09	HIGHWAY 24	STAPLETON RD	Vehicle#1 was turning left from Stapelton Rd onto eastbound Highway 24. Vehicle#2 was traveling west on Highway 24 approaching Stapleton Rd. Vehicle#2 impacted Vehicle#1 from front to side. Both vehicles were moved from traffic prior to on scene investigation.
2021-08-13	HIGHWAY 24	STAPLETON DR	Vehicle #1 was south bound on Stapleton Road at the stop sign for Highway 24. Vehicle #2 was east bound on Highway 24 approaching the intersection of Stapleton Road. Vehicle #1 failed to yield the right of way and pulled into the intersection in front of Vehicle #2. Vehicle #2 could not stop in time and collided with the front of Vehicle #1. After impact Vehicle #1 rotated counter clockwise and came to rest in the east bound lanes of Highway 24. After impact Vehicle #2 continued eastbound, ran off the south shoulder of Highway 24 and down a small embankment.
2021-08-09	HIGHWAY 24	STAPLETON RD	Vehicle#1 was turning left from Stapleton Rd to eastbound Highway 24. Vehicle#2 was traveling north on Stapleton Rd through the intersection of Highway 24 and Stapleton Rd. Vehicle#2 impacted Vehicle#1 from front to side. Both vehicles were moved prior to on scene investigation.
2022-05-13	HIGHWAY 24	STAPLETON DR	Vehicle #1 was travelling eastbound on Highway 24 in the left turn lane, attempting to turn left onto Stapleton Rd. Vehicle #2 was travelling westbound on Highway 24 approaching Stapleton Rd. Vehicle #1 turned left directly in front of Vehicle #2. The front of Vehicle #2 collided with the passenger side of Vehicle #1. Vehicle #1 rotated counter clockwise and came to rest on its wheels facing southwest in the westbound lane of traffic. Vehicle #2 rotate clockwise and came to rest on its wheels facing northeast in the eastbound lane of traffic.
2022-09-06	HIGHWAY 24	STAPLETON DR	Vehicle#1 was traveling westbound on Stapleton in the left turn lane to westbound Highway 24. Vehicle#2 was traveling eastbound on Highway 24 in the #1 lane. Vehicle#1 continued into the intersection from a stopped position. Vehicle#2 struck its front with the left side of Vehicle#1. Vehicle#1 was moved prior to investigation. Vehicle#2 came to final rest on its wheels facing north in the intersection blocking the eastbound #1 lane of Highway 24.

AccidentDate	Year	Month	Day	DayOfWeek	AccidentTime	ReferencePointName	ReferencePointAtName	AccidentNarrative
2020-09-03	2020	9	3	Thursday	17:59	STAPLETON RD	HIGHWAY 24	Vehicle 1 was traveling eastbound on Highway 24. Vehicle 2 was stopped at a stop sign on Stapleton road and Highway 24. Vehicle 1 made a wide right hand turn onto Stapleton road from Highway 24. Vehicle 1's front collided with Vehicle 2's front. Vehicle 1 came to final rest facing south in contact with Vehicle 2. Vehicle 2 came to final rest facing north in contact with Vehicle 1.
2021-05-16	2021	5	16	Sunday	21:04	HIGHWAY 24	STAPLETON RD	Vehicle 2 was westbound on Highway 24 near milepost 324. Vehicle 1 was east on Stapleton Rd approaching the intersection with Highway 24. Vehicle 1 proceeded into the intersection of Highway 24 traveling east. Vehicle 2 collided front to side with Vehicle 1. Vehicle 2 continued west traveling approximately 61', before coming to final rest on all four wheels facing west. Vehicle 1 was spun around counter clockwise for approximately 35' before coming to final rest facing southwest on its wheels.
2021-08-09	2021	8	9	Monday	16:05	HIGHWAY 24	STAPLETON RD	Vehicle#1 was turning left from Stapelton Rd onto eastbound Highway 24. Vehicle#2 was traveling west on Highway 24 approaching Stapleton Rd. Vehicle#2 impacted Vehicle#1 from front to side. Both vehicles were moved from traffic prior to on scene investigation.
2021-08-13	2021	8	13	Friday	13:30	HIGHWAY 24	STAPLETON DR	Vehicle #1 was south bound on Stapleton Road at the stop sign for Highway 24. Vehicle #2 was east bound on Highway 24 approaching the intersection of Stapleton Road. Vehicle #1 failed to yield the right of way and pulled into the intersection in front of Vehicle #2. Vehicle #2 could not stop in time and collided with the front of Vehicle #1. After impact Vehicle #1 rotated counter clockwise and came to rest in the east bound lanes of Highway 24. After impact Vehicle #2 continued eastbound, ran off the south shoulder of Highway 24 and down a small embankment.
2021-08-09	2021	8	9	Monday	16:10	HIGHWAY 24	STAPLETON RD	Vehicle#1 was turning left from Stapleton Rd to eastbound Highway 24. Vehicle#2 was traveling north on Stapleton Rd through the intersection of Highway 24 and Stapleton Rd. Vehicle#2 impacted Vehicle#1 from front to side. Both vehicles were moved prior to on scene investigation.
2022-05-13	2022	5	13	Friday	16:35	HIGHWAY 24	STAPLETON DR	Vehicle #1 was travelling eastbound on Highway 24 in the left turn lane, attempting to turn left onto Stapleton Rd. Vehicle #2 was travelling westbound on Highway 24 approaching Stapleton Rd. Vehicle #1 turned left directly in front of Vehicle #2. The front of Vehicle #2 collided with the passenger side of Vehicle #1. Vehicle #1 rotated counter clockwise and came to rest on its wheels facing southwest in the westbound lane of traffic. Vehicle #2 rotate clockwise and came to rest on its wheels facing northeast in the eastbound lane of traffic.
2022-09-06	2022	9	6	Tuesday	11:00	HIGHWAY 24	STAPLETON DR	Vehicle#1 was traveling westbound on Stapleton in the left turn lane to westbound Highway 24. Vehicle#2 was traveling eastbound on Highway 24 in the #1 lane. Vehicle#1 continued into the intersection from a stopped position. Vehicle#2 struck its front with the left side of Vehicle#1. Vehicle#1 was moved prior to investigation. Vehicle#2 came to final rest on its wheels facing north in the intersection blocking the eastbound #1 lane of Highway 24.

AccidentDate	ReferencePointName	ReferencePointAtName	AccidentNarrative
2020-04-08	JUDGE ORR RD	CURTIS RD	Vehicle #1 (emergency vehicle with lights activated) was traveling southbound on Curtis Road, approaching the stop sign at the intersection of Judge Orr Road. Vehicle #2 (SUV Pulling a trailer) was traveling eastbound on Judge Orr Road approaching the intersection of Curtis Road. Vehicle #3(HD Motorcycle) was stopped in the left turn lane, northbound Curtis Road at the stop sign. Vehicle #1 pulled into the intersection into the path of Vehicle #2 where Vehicle #2 collided with its front to the right rear of Vehicle #1. After impact, Vehicle #1 and #2 spun clockwise. Vehicle #1 traveled into the left turn lane of northbound Curtis Road where it collided with Vehicle #3 which was stopped in the through lane to Curtis Road. Vehicle #1 continued, coming to rest on the east shoulder of Curtis Road facing northwest. Vehicle #2 traveled off the southeast corner of the intersection where it came to rest facing west. Vehicle #3 went backwards from impact, ejecting its driver and coming to rest on its side in the northbound lane of Curtis Road.
2022-10-16	CURTIS RD	JUDGE ORR RD	VEHICLE 1 WAS NORTHBOUND ON NORTH CURTIS ROAD, STOPPED AT THE INTERSECTION OF NORTH CURTIS ROAD AND JUDGE ORR ROAD. VEHICLE 2 WAS EASTBOUND ON JUDGE ORR ROAD WEST OF THE INTERSECTION. DRIVER 1 PROCEEDED FROM THE STOP SIGN AT THE INTERSECTION. VEHICLE 2 STRUCK THE FRONT DRIVERS SIDE OF VEHICLE 1 WITH THE FRONT OF VEHICLE 2. VEHICLE 1 ROTATED 1/4 TIME CLOCKWISE AND TRAVELED EAST COMING TO FINAL REST PARTIALLY IN THE EASTBOUND LANE OF TRAVEL FACING SOUTHEAST. VEHICLE 2 TRAVELED OFF THE NORTH SIDE OF JUDGE ORR ROAD AND CAME TO FINAL REST ON ITS WHEELS FACING EAST, IN CONTACT WITH A BARBED WIRE FENCE.

Deviation No 1 - Saybrook Full Movement

TRANSPORTATION
CONSULTANTS, INC.

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

DEVIATION REQUEST AND DECISION FORM

Updated: 6/26/2019

PROJECT INFORMATION

Project Name :	Waterbury Filings 1 and 2
Schedule No.(s) :	4200000417
Legal Description :	TR IN NW4, SW4 SEC 28, E2SE4 SEC 29, NW4 SEC 33-12-64 DESC AS FOLS: COM AT NW COR OF SD SEC 28, TH S 00<30'55" E 1319.39 FT TO NW COR OF S2NW4, S 89<47'08" E 588.96 FT TO A PT ON ELY R/W OF EASTONVILLE RD FOR POB, CON S 89<47'08" E 1605.16 FT, S 00<12'59" W 435.00 FT, S 89<47'01" E 139.63 FT, S 00<12'59" W 330.00 FT, N 89<47'01" W 350.00 FT, N 00<12'59" E 30.00 FT, N 89<47'01" W 435.00 FT, S 00<12'59" W 377.02 FT, S 12<05'17" E 298.63 FT, S 25<18'38" E 227.74 FT, S 37<45'39" E 249.37 FT, S 51<48'59" E 239.45 FT, S 24<21'29" W 365.46 FT, TH ALG ARC OF CUR TO THE L HAVING A RAD OF 965.00 FT AN ARC DIST OF 18.61 FT A C/A OF 01<06'18" WHICH CHORD BEARS N 26<38'08" E, TH S 25<31'50" W 699.86 FT, N 28<50'14" W 419.93 FT, S 39<02'37" W 269.86 FT, S 28<43'09" E 182.42 FT, S 20<34'25" E 144.94 FT, S 04<10'28" W 63.70 FT, TH ALG ARC OF CUR TO THE R HAVING A RAD OF 1465.00 FT AN ARC DIST OF 64.34 FT A C/A OF 02<30'59" WHICH CHORD BEARS N 07<06'03" E, S 09<37'02" W 70.00 FT, S 12<40'04" W 679.15 FT, S 10<45'49" E 120.00 FT, TH ALG ARC OF CUR TO THE L HAVING A RAD OF 1280.00 FT AN ARC DIST OF 336.84 FT A C/A OF 15<04'39" WHICH CHORD BEARS S 10<45'49" E, S 64<09'32" W 723.95 FT, N 10<22'31" E 439.41 FT, N 12<01'08" W 399.03 FT, N 18<38'16" W 326.29 FT, N 24<17'51" W 617.25 FT, N 30<04'30" W 382.89 FT, N 18<14'27" W 254.35 FT, N 28<23'01" W 429.55 FT TO A PT ON ELY R/W LN OF EASTONVILLE RD, N 38<15'31" E 549.80 FT TO A PT ON SLY LN OF NE4 SEC 29 S 89<54'34" E 310.49 FT, N 00<30'55" W 389.80 FT TO A PT ON ELY R/W LN OF EASTONVILLE RD, N 38<15'31" E 3.28 FT, N 37<34'53" E 508.84 FT, TH ALG ARC OF CUR TO THE L HAVING A RAD OF 1630.00 FT AN ARC DIST OF 589.68 FT A C/A OF 20<43'39" TO POB, EX THAT SLY POR CONV BY REC # 208025323, EX PT DESC BY REC # 217092201

APPLICANT INFORMATION

Company :	4 Way Ranch Joint Venture, LLC
Name :	Mr. Peter Martz
	☒ Owner ☐ Consultant ☐ Contractor
Mailing Address :	P.O. Box 50223
	Colorado Springs, CO 80949
Phone Number :	719-491-3150
FAX Number :	
Email Address :	pmartzlrg@comcast.net

ENGINEER INFORMATION

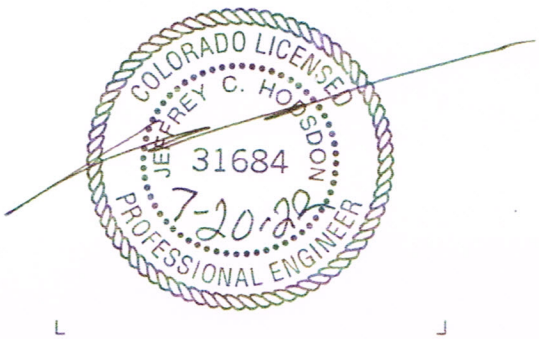
Company :	LSC Transportation Consultants, Inc		
Name :	Jeffrey C. Hodsdon	Colorado P.E. Number :	31684
Mailing Address :	2504 E. Pikes Peak Ave, Suite 304		
	Colorado Springs, CO 80909		
Phone Number :	719-633-2868		
FAX Number :	719-633-5430		
Email Address :	jeff@LSCtrans.com		

OWNER, APPLICANT, AND ENGINEER DECLARATION

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

Signature of owner (or authorized representative) — Date: 7/21/22

Engineer's Seal, Signature
And Date of Signature



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

A deviation from the standards of or in Section **2.2.5.B.1** of the Engineering Criteria Manual (ECM) is requested. The request is to allow a proposed full-movement intersection along Stapleton Road about 2,200 feet from US Highway 24 and 1,345 feet from the future Dumont Drive intersection. The proposed intersection location is shown in Exhibit 1.

The following paragraph from the PUD Development Plan TIS report dated January 10, 2013, referenced the approved deviation.

> Figure 2 also shows the proposed site access points and intersection spacing along Stapleton Drive and Eastonville Road. The access plan includes a new full-movement intersection on Stapleton between Bandanero and Dumont as approved through the deviation request process. The access plan for Eastonville is shown in Figure 3.

A copy of the prior approved deviation **is attached** for reference. **Also attached** is a copy of the April 7, 2011, ***4 Way Ranch – New Stapleton Intersection Technical Memorandum*** that was prepared in support of the deviation request.

Identify the specific ECM standard which a deviation is requested:

Rural and Urban Principal Arterial Spacing
The spacing on Stapleton Road would be about 2,200 feet from US Highway 24 and 1,345 feet from Dumont Drive. The standard is 2,640 feet.

State the reason for the requested deviation:

The Waterbury residential project has limited street frontage on Stapleton Drive and Eastonville Road and there is an existing neighborhood to the east, private property, and no opportunity for access to US Highway 24 to the east. The access to US Highway 24 needs to be via Stapleton.

The implementation of the full-movement intersection at the proposed location would provide much improved access and circulation to the development areas both north and south of Stapleton. It would improve the service to the commercial and mixed-use development on the south side. Also, the overall land use plan would be better served with the location shifted east from the half-mile point on US 24.

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

The spacing on Stapleton Road would be about 2,200 feet from US Highway 24 and 1,345 feet from Dumont Drive. The standard is 2,640 feet. The intersection would be within 450 feet of the half-mile (from US 24) following a shift east from the half-mile point due to planning considerations. The Dumont/Stapleton signal will be a "shadow" signal and should be considered an extra signal location. This was called out in the Stapleton corridor traffic study. Therefore, from a signal spacing standpoint, the half-mile spacing should be being considered from US 24, not Dumont. The spacing would be more than a half-mile from the next planned signal at Eastonville Road. Bandanero is a current full movement intersection between Eastonville and Saybrook; however, it is unlikely that this intersection would be signalized.

LIMITS OF CONSIDERATION

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

☐ The ECM standard is inapplicable to the particular situation.

☒ Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.

☐ A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

Provide justification:

The Waterbury residential project has limited street frontage on Stapleton Drive and Eastonville Road and there is an existing neighborhood to the east, private property, and no opportunity for access to US Highway 24 to the east. The access to US Highway 24 needs to be via Stapleton.

CRITERIA FOR APPROVAL

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

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

The deviation is requested to improve the overall plan for access and circulation for the areas both north and south of Stapleton, shift some traffic demand from the Dumont/Stapleton intersection and provide a good alternative to minimize use of the local road within the neighborhood to the west.

The deviation will not adversely affect safety or operations.

The addition of a future signal at this intersection would not affect/reduce the through-band procession efficiency along Stapleton (see the April 7, 2011, 4 Way Ranch – New Stapleton Intersection Technical Memorandum that was prepared in support of the previously-approved deviation for details). Auxiliary turn lanes could be accommodated, and the intersection approach grades, and the intersection sight distance would be confirmed through the CD plan review.

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

The maintenance cost would likely be comparable regardless of location.

The deviation will not adversely affect aesthetic appearance.

The aesthetic appearance would likely be comparable regardless of location.

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

The implementation of the full-movement intersection would provide good access to development areas both north and south of Stapleton. It would allow a shift of some of the left-turn demand from Dumont/Stapleton to this intersection. This would result in better operations at the Dumont intersection. This would not only reduce delay but would also reduce queue length potential for left-turning movements at Dumont. A signal at this location would provide a future controlled pedestrian crossing location across Stapleton. With this additional full-movement intersection, Bandanero could potentially be converted to a right-in/right-out. This intersection would direct higher-density traffic demand from the planned higher density next phases of Waterbury to the street connecting to the new intersection and away from Bandenero (and the lower-density lots along this street). The addition of this intersection would provide a good secondary access to the 4 Way Ranch commercial and mixed-use development areas south of Stapleton.

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

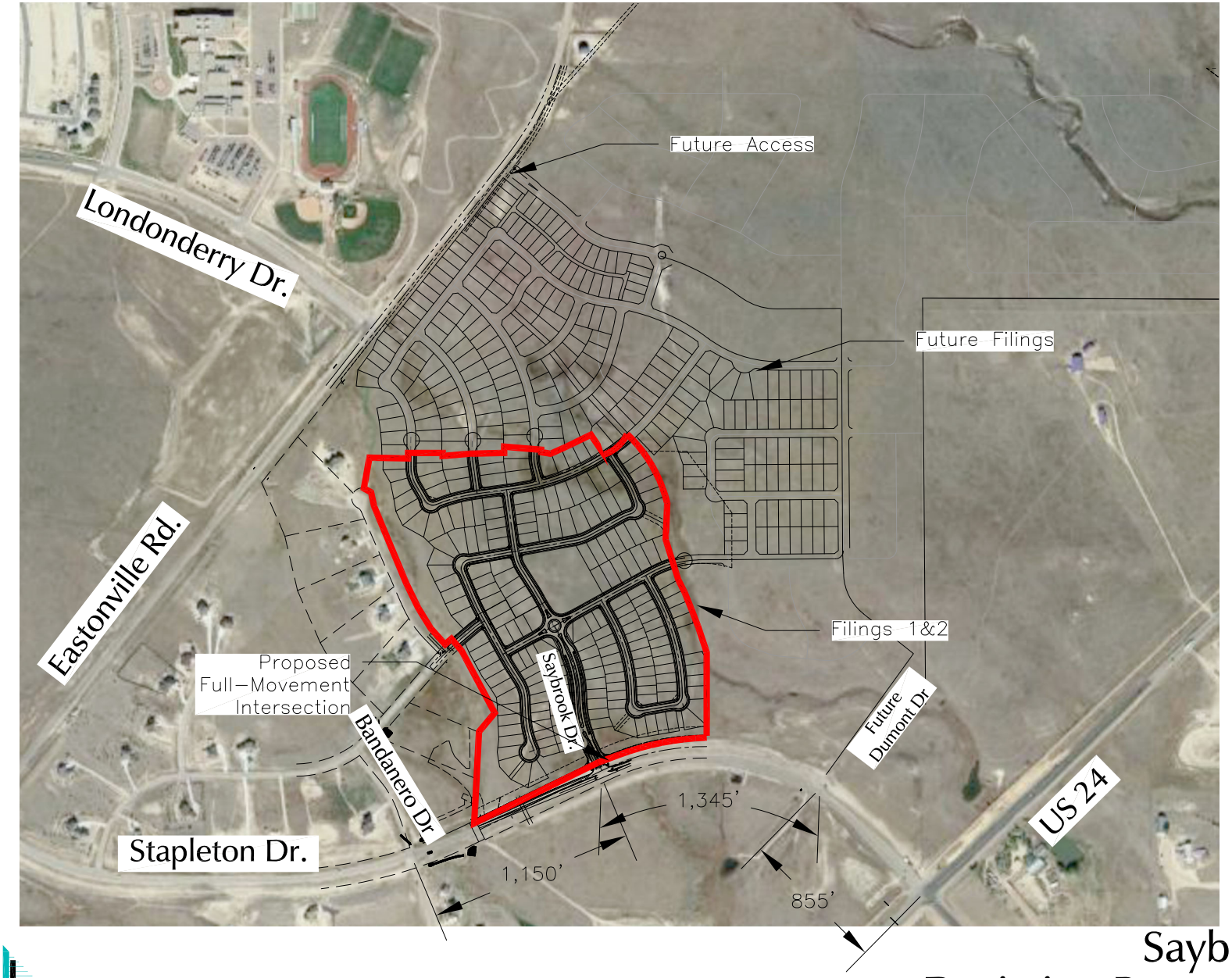
Water quality will be provided

Review and Recommendation:

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

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

ECM ADMINISTRATOR COMMENTS/CONDITIONS:



N

Approximate Scale
Scale: NTS

Exhibit 1

Saybrook Drive
Deviation Request Location

Waterbury Filing Nos 1 and 2 (LSC #204220)

LSC TRANSPORTATION CONSULTANTS, INC.

Development Services Department
2880 International Circle
Colorado Springs, Colorado 80910

Phone: 719.520.6300
Fax: 719.520.6695
Website www.elpasoco.com

DEVIATION REVIEW AND DECISION FORM

Procedure # R-FM-051-07
Issue Date: 12/31/07
Revision Issued: 00/00/00
DSD FILE NO.:

D	E	V	1	1	0	0	5

General Property Information:
Address of Subject Property (Street Number/Name):
Tax Schedule ID(s) #: 4200000367, 4200000366 , 4200000349
Legal Description of Property: Please refer to Public Record Property Information by Schedule No.

Subdivision or Project Name: 4 Way Ranch

Section of ECM from Which Deviation is Sought: 2.2.5.B.1
Specific Criteria from Which a Deviation is Sought: Rural and Urban Principal Arterial Spacing

Proposed Nature and Extent of Deviation: Allow a proposed full-movement intersection on Stapleton Road about 2,200 feet from US Highway 24 and 1,345 feet from Dumont.

Applicant Information:
Applicant: 4 Way Ranch Joint Venture, LLC Email Address: pmartzlrg@integra.net
Applicant is: __X___ Owner _____ Consultant _____ Contractor
Mailing Address: P.O. Box 50223, Colorado Springs State: CO Postal Code: 80949
Telephone Number: (719) 491-3150 Fax Number:_____

Engineer Information:
Engineer: Jeffrey C. Hodsdon Email Address: jchodsdon@lsccs.com
Company Name: LSC Transportation Consultants, Inc.
Mailing Address: 516 North Tejon State: CO Postal Code: 80903
Registration Number: 31684 State of Registration: CO
Telephone Number: (719) 633-2868 Fax Number: (719) 633-5430

Explanation of Request (Attached diagrams, figures and other documentation to clarify request):
Section of ECM from Which Deviation is Sought: 2.2.5.B.1
Specific Criteria from Which a Deviation is Sought: Rural and Urban Principal Arterial Spacing
Proposed Nature and Extent of Deviation: Allow a proposed full-movement intersection on Stapleton Road about 2,200 feet from US Highway 24 and 1,345 feet from Dumont

Reason for the Requested Deviation: The deviation is needed as the proposed spacing of intersections is less than one-half mile.

Comparison of Proposed Deviation to ECM Standard: The spacing on Stapleton Road would be about 2,200 feet from US Highway 24 and 1,345 feet from Dumont. The standard is 2,640 feet. The intersection would be within 450 feet of the half-mile (from US 24) following a shift east from the half-mile point due to planning considerations. The Dumont/Stapleton signal will be a "shadow" signal and should be considered an extra signal location. Therefore, from a signal spacing standpoint, the half-mile spacing is being considered from US 24, not Dumont. The spacing would be more than a half-mile from the next planned signal at Eastonville.

Applicable Regional or National Standards used as Basis: CDOT access code contains provisions for deviating from the half-mile spacing.

Application Consideration:

CHECK IF APPLICATION MEETS CRITERIA FOR CONSIDERATION	JUSTIFICATION
☐ The ECM standard is inapplicable to a particular situation.	
☒ Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship on the applicant, and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.	The implementation of the full-movement intersection at the proposed location would provide much improved access and circulation to development areas both north and south of Stapleton. It would improve the service to the commercial and mixed-use development on the south side. Also, the overall land use plan would be better served with the location shifted east from the half-mile point from US 24.
☐ A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.	

If at least one of the criteria listed above is not met, this application for deviation cannot be considered.

Criteria for Approval:

PLEASE EXPLAIN HOW EACH OF THE FOLLOWING CRITERIA HAVE BEEN SATISFIED BY THIS REQUEST

The request for a deviation is not based exclusively on financial considerations.	The deviation is requested to improve the overall plan for access and circulation for the areas both north and south of Stapleton, as well as to shift some traffic demand from Dumont/Stapleton intersection.
The deviation will achieve the intended result with a comparable or superior design and quality of improvement.	The implementation of the full-movement intersection would provide good access to development areas both north and south of Stapleton. It would allow a shift of some of the left-turn demand from Dumont/Stapleton to this intersection. This would result in better operations at the Dumont intersection. This would not only reduce delay but would also reduce queue length potential for left-turning movements at Dumont. A signal at this location would provide a future controlled pedestrian crossing location across Stapleton. With this additional full-movement intersection, Bandanero could potentially be converted to a right-in/right-out. This intersection would direct higher-density traffic demand from the planned higher-density next phases of 4 Way Ranch to the street connecting to the new intersection and away from Bandanero (and the lower-density lots along this street). The addition of this intersection would provide a good secondary access to the 4 Way Ranch commercial and mixed-use development areas south of Stapleton.
The deviation will not adversely affect safety or operations.	The addition of a future signal at this intersection would not affect/reduce the through-band progression efficiency along Stapleton (see traffic report for details). Auxiliary turn lanes could be accommodated and we will confirm that the intersection approach grades and the intersection sight distance would be acceptable for an intersection at this location.
The deviation will not adversely affect maintenance and its associated cost.	The maintenance cost would likely be comparable regardless of location.
The deviation will not adversely affect aesthetic appearance.	The aesthetic appearance would likely be comparable regardless of location.

*April 7, 2011 ***4 Way Ranch - New Stapleton Intersection Technical Memorandum***

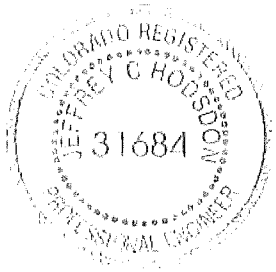
Owner, Applicant and Engineer Declaration:
To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have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

Signature of owner (or authorized representative) — Date 4/11/11

Signature of applicant (if different from owner) — Date

Signature of Engineer — Date 4-11-11

Engineer's Seal



Review and Recommendation:
APPROVED by the ECM Administrator

Date 4-21-2011

This request has been determined to have met the criteria for approval. A deviation from Section 2.2.5.B.1 of ECM is hereby granted based on the justification provided. Comments:

____ Additional comments or information are attached.

DENIED by the ECM Administrator

Date

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

____ Additional comments or information are attached.

El Paso County Procedures Manual
Procedure # R-FM-051-07
Issue Date: 12/31/07
Revision Issued: 00/00/00
DSD File No. ___ ___ ___ ___ ___ ___ ___ ___

April 7, 2011

4 Way Ranch Joint Venture, LLC
c/o Mr. Peter Martz
P.O. Box 50223
Colorado Springs, CO 80949

RE: 4 Way Ranch - New Stapleton Intersection
Technical Memorandum
El Paso County, Colorado
LSC #114220

Dear Peter:

In response to your request, LSC Transportation Consultants, Inc. has prepared this technical memorandum for the proposed new full-movement intersection to Stapleton Road. The intersection location is shown in Figure 1 and be located about 3,725 feet east of Eastonville Road. The purpose of this analysis and report is to request preliminary approval for the access, as the remainder of the planning for 4 Way Ranch is dependent upon this proposed full-movement intersection.

REPORT CONTENTS

This report presents analysis of the projected traffic volumes and levels of service at this intersection for the long term based on the buildout of the land uses the intersection would serve; an analysis of the intersection spacing along Stapleton Drive; an arterial progression analysis; a traffic signal warrant analysis; and auxiliary turn-lane improvement requirements. The report explains the benefits of a full-movement intersection at this location.

SITE DEVELOPMENT AND LAND USE

Figure 2 shows the 4 Way Ranch plan divided into traffic analysis zones (TAZs). The land use assumptions are shown in Table 1. The land uses served by the proposed new intersection include previously platted low density lots north of Stapleton, 4 Way Ranch commercial parcels south of Stapleton, and the remaining 300 acres of residential development north of Stapleton. The figure also shows the general plan for circulation and access.

PROPOSED INTERSECTION LOCATION

Figure 3 shows the proposed intersection spacing along Stapleton Road relative to other nearby intersections in the corridor. This location has been selected as it is close to the half-mile point and

it is in the best location to serve the land uses to the north and south. We will confirm that the intersection approach grades and the intersection sight distance would be acceptable for an intersection at this location.

TRIP GENERATION

In order to estimate the buildout peak-hour vehicle turning movements at the new proposed full-movement intersection, estimates of total TAZ trip generation have been developed. TAZ trip generation has been made using the nationally published trip generation rates found in *Trip Generation, 8th Edition, 2008* by the Institute of Transportation Engineers (ITE). Table 1 shows the results of the trip generation estimates. The estimates for the 4 Way Ranch commercial parcels have been taken directly from the most recent traffic report for the commercial.

The table shows average weekday and peak-hour trips for each TAZ. This table shows the total trip generation for all TAZs. Not all trips generated would use the proposed intersection for access/egress (or even pass through the intersection on Stapleton). In fact, for outlying zones such as TAZ 11, no trips are expected to use this proposed intersection for access even though the total trip generation for the entire zone is shown in the table. Trips from each TAZ using the proposed intersection for access/egress onto Stapleton is based on estimates of trip distribution and trip assignment for each TAZ.

TRIP DISTRIBUTION AND ASSIGNMENT

The determination of trips from each of the TAZs that would use the proposed new Stapleton intersection for access/egress is based on both the overall directional distribution of trips to the area transportation system and the local routing of trips internal and adjacent to the site based on the local street network, other access points, estimates of driver route preferences etc. The directional distribution percentages contained in previous 4 Way Ranch reports for the residential and commercial developments were used in this analysis. This report scope is limited to the estimate of trips using the proposed new intersection for access/egress and identifying the level of traffic demand that would shift from certain turning movements at Dumont/Stapleton to this intersection if this intersection were approved and added to the plan. Figure 4 shows the resulting forecast volumes at the proposed new Stapleton full-movement intersection for buildout/2035. Figure 5 shows the reduced traffic turning movement demand from certain turning movements at the Dumont/Stapleton intersection due to a volume shift to this new proposed intersection if implemented. For example, the northeast-bound left-turn movement is shown to be 84 vehicles lower per hour in the afternoon peak hour if the proposed full-movement intersection is implemented.

PROJECTED LEVELS OF SERVICE

The new full-movement intersection on Stapleton has been analyzed to determine the projected levels of service for the 2035/buildout total traffic volumes, based on the unsignalized method of analysis procedures found in the *Highway Capacity Manual, 2000 Edition* by the Transportation Research Board. Figure 4 shows the level of service analysis results.

The stop-sign-controlled approaches to the intersection are projected to operate at LOS F during the morning and afternoon peak hours based on the projected volumes. If a traffic signal were installed at the intersection, the LOS would be B. The level of service reports are attached.

SIGNAL WARRANT ANALYSIS

The projected 2035 morning and afternoon peak-hour volumes for the intersection have been plotted on the Four Hour Vehicular Volume traffic signal warrant chart to provide a preliminary indication if a signal warrant might be met in the future. This is only an indicator, for planning purposes, as four hours would need to be met in the future based on actual volumes (or one of the other warrants would need to be met) in order for the signal to be installed. The 70-percent factor chart was used because Stapleton Road's posted speed limit will be above 40 miles per hour. Analysis has been based on the left-turn movements only from the minor street approaches.

Figure 6 shows the Four Hour Warrant chart for 2035 total traffic. As can be seen in the figure, the peak-hour volume data points fall above the threshold lines on the warrant chart. This indicates that a signal could potentially be met based on the 2035 total traffic volumes.

TRAFFIC SIGNAL PROGRESSION ANALYSIS

An arterial progression analysis has been completed for Stapleton Road from US 24 to Meridian Road to determine if the addition of a signal at this proposed full-movement intersection would change the arterial through-band progression efficiency. The time-space diagram attached to this report shows through-bandwidth for eastbound and westbound directions. The bandwidth values in seconds divided by the cycle length of 120 seconds represents the progression efficiency through the Stapleton intersections between Meridian Road and US 24 for each direction. The higher the bandwidth values, the better the progression efficiency. The progression efficiencies would not be reduced with the addition of a signal at the proposed access and may improve progression efficiencies as operations at Dumont/Stapleton would be better.

As shown, the proposed intersection location is in a location favorable for progression relative to the other intersections as it is sufficiently close to the one-half mile spacing from Eastonville and US 24.

BENEFITS OF PROPOSED FULL-MOVEMENT INTERSECTION

The implementation of the full-movement intersection would provide good access to development areas both north and south of Stapleton. It would allow a shift of some of the left-turn demand from Dumont/Stapleton to this intersection. This would result in better operations at this intersection. This would not only reduce delay but would also reduce queue length potential for left-turning movements at Dumont. The intersection is close to the one-half mile spacing from US 24 and more than one-half mile from Eastonville. It would be within 450 feet of the half-mile (from US 24) criteria following a shift east due to planning considerations. The Dumont/Stapleton signal will be a "shadow" signal and is considered an extra signal location. Therefore, from a signal spacing

standpoint, the half-mile spacing is being considered from US 24, not Dumont. The spacing would be more than a half-mile from the next planned signal at Eastonville.

The addition of a future signal at this intersection would not affect/reduce the through-band progression efficiency along Stapleton. A signal at this location would provide a future controlled pedestrian crossing location across Stapleton. With this additional full-movement intersection, Bandanero could potentially be converted to a right-in/right-out. This intersection would direct higher-density traffic demand from the planned higher-density next phases of 4 Way Ranch to the street connecting to the new intersection and away from Bandanero (and the lower-density lots along this street). The addition of this intersection would provide a good secondary access to the 4 Way Ranch commercial and mixed-use development areas south of Stapleton.

AUXILIARY TURN LANES

Figure 7 shows the auxiliary turn lanes that would be required at the intersection. These would need to be designed and constructed per County ECM standards.

We trust that this traffic analysis will assist you with the planning for the proposed new full-movement intersection. Please contact me if you have any questions.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

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

COLORADO REGISTERED
JEFFREY C HODSDON
31684
4-7-11
PROFESSIONAL ENGINEER

JCH:bjwb

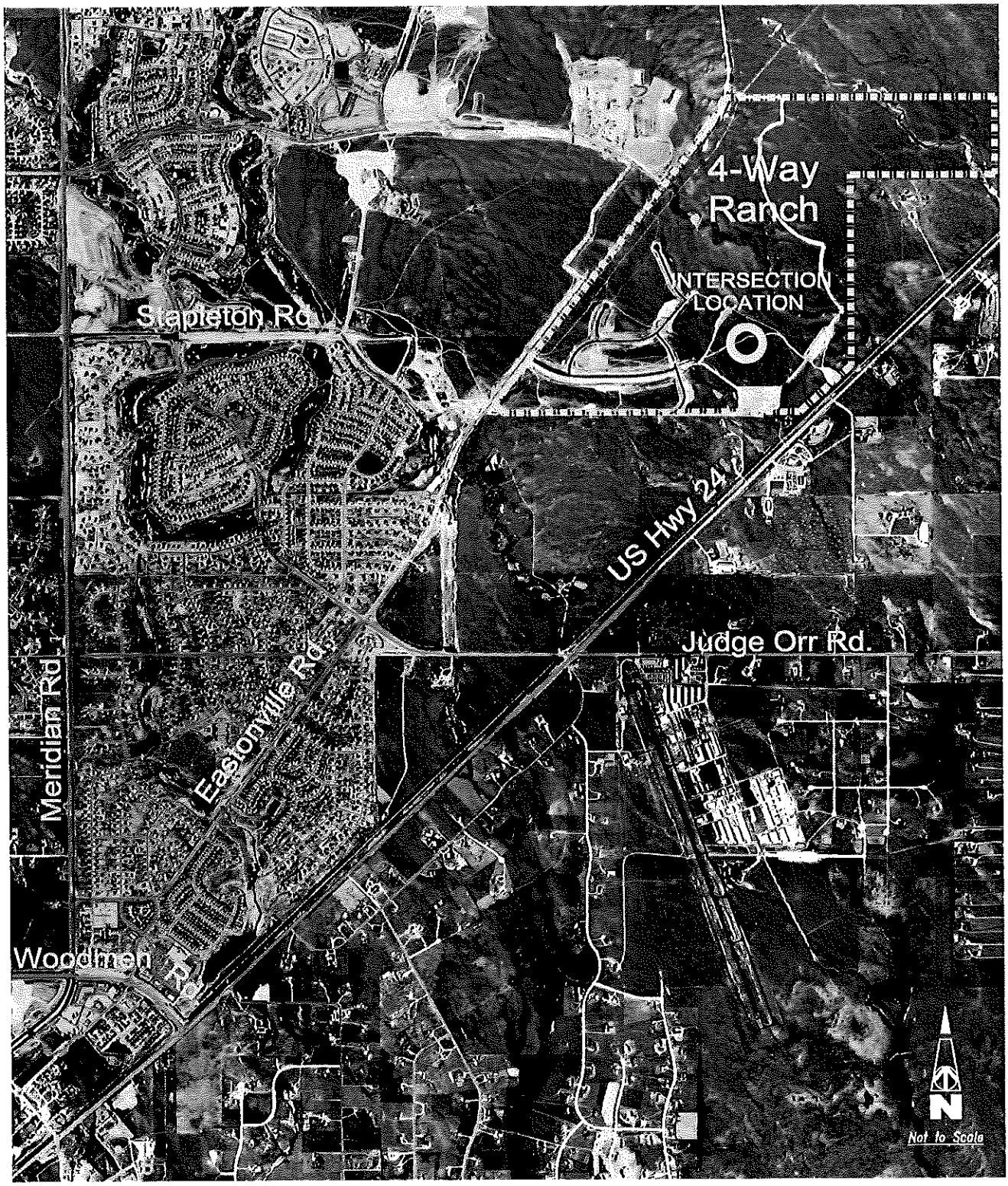
Enclosures: Table 1
Figures 1-7
Level of Service Reports
Time-Space Diagram

Table 1
4 Way Ranch
Trip Generation Estimates

TAZ	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates [1] Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Total Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Internal Trips	Total External Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Total New Trips Generated Pass-By Trips [2] Daily	Pass-By Trips [2] AM	Pass-By Trips [2] PM	Average New Weekday Traffic
Parcel 5	820	Shopping Center	36.5 KSF [3]	50.53	0.69	0.44	2.27	2.46	1,844	25	16	83	90	2%	1,808	25	16	81	88	25%	34%	34%	1,356
Parcel 5	832	High Turnover (Sit-Down) Restaurant	5.8 KSF	130.34	4.82	4.45	6.52	4.34	756	28	26	38	25	5%	718	27	25	36	24	10%	43%	43%	646
Parcel 5	834	Fast-Food Restaurant with Drive-Through Window	3 KSF	496.12	25.43	24.43	17.41	16.07	1,488	76	73	52	48	8%	1,369	70	67	48	44	35%	49%	50%	890
Parcel 5	845	Gas Station with Convenience Store	10 VFP [4]	162.78	5.03	5.03	6.69	6.69	1,628	50	50	67	67	8%	1,498	46	46	62	62	50%	62%	56%	749
TAZ 5 Total									**5,717**	**180**	**166**	**240**	**230**		**5,393**	**168**	**154**	**227**	**218**				**3,641**
Parcel 4	720	Medical-Dental Office Building	53.6 KSF	36.88	1.96	0.52	0.89	2.40	1,977	105	28	48	129	6%	1,858	99	26	45	121	0%	0%	0%	1,858
TAZ 4 Total									**1,977**	**105**	**28**	**48**	**129**		**1,858**	**99**	**26**	**45**	**121**				**1,858**
Parcel 1	820	Shopping Center	8 KSF	50.53	0.69	0.44	2.27	2.46	404	6	4	18	20	2%	396	5	3	18	19	25%	34%	34%	297
Parcel 1	834	Fast-Food Restaurant with Drive-Through Window	3 KSF	496.12	25.43	24.43	17.41	16.07	1,488	76	73	52	48	8%	1,369	70	67	48	44	35%	49%	50%	890
Parcel 1	832	High Turnover (Sit-Down) Restaurant	6 KSF	130.34	4.82	4.45	6.52	4.34	782	29	27	39	26	5%	743	27	25	37	25	10%	43%	43%	669
TAZ 1 Total									**2,675**	**111**	**104**	**109**	**94**		**2,508**	**103**	**96**	**103**	**88**				**1,856**
Parcel 3	820	Shopping Center	152.1 KSF	50.53	0.69	0.44	2.27	2.46	7,686	106	68	345	373	2%	7,532	104	66	338	366	25%	34%	34%	5,649
Parcel 3	834	Fast-Food Restaurant with Drive-Through Window	3 KSF	496.12	25.43	24.43	17.41	16.07	1,488	76	73	52	48	8%	1,369	70	67	48	44	35%	49%	50%	890
TAZ 3 Total									**9,174**	**182**	**141**	**397**	**422**		**8,901**	**174**	**134**	**386**	**410**				**6,539**
Parcel 6	130	Industrial Park	35 KSF	6.96	0.73	0.16	0.19	0.73	244	26	6	7	25	2%	239	25	5	7	25	0%	0%	0%	239
Parcel 6	820	Shopping Center	7.9 KSF	50.53	0.69	0.44	2.27	2.46	399	5	4	18	19	2%	391	5	3	18	19	25%	34%	34%	293
Parcel 6	230	Residential Condominium/Townhouse	200 DU [5]	5.86	0.07	0.37	0.35	0.17	1,172	15	73	70	34	7%	1,090	14	68	65	32	0%	0%	0%	1,090
TAZ 6 Total									**1,815**	**46**	**82**	**94**	**79**		**1,720**	**44**	**77**	**89**	**76**				**1,622**
Parcel 2	150	Warehousing	18 KSF	4.96	0.37	0.08	0.12	0.35	89	7	1	2	6	6%	84	6	1	2	6	0%	0%	0%	84
7	210	Single-Family Detached Housing	28 DU	9.57	0.19	0.56	0.64	0.37	268	5	16	18	10	0%	268	5	16	18	10	0%	0%	0%	268
8	210	Single-Family Detached Housing	283 DU	9.57	0.19	0.56	0.64	0.37	2,708	53	159	180	106	0%	2,708	53	159	180	106	0%	0%	0%	2,708
10	210	Single-Family Detached Housing	145 DU	9.57	0.19	0.56	0.64	0.37	1,388	27	82	92	54	0%	1,388	27	82	92	54	0%	0%	0%	1,388
13	210	Single-Family Detached Housing	73 DU	9.57	0.19	0.56	0.64	0.37	699	14	41	46	27	0%	699	14	41	46	27	0%	0%	0%	699
9	210	Single-Family Detached Housing	55 DU	9.57	0.19	0.56	0.64	0.37	526	10	31	35	21	0%	526	10	31	35	21	0%	0%	0%	526
11	210	Single-Family Detached Housing	317 DU	9.57	0.19	0.56	0.64	0.37	3,034	59	178	202	118	0%	3,034	59	178	202	118	0%	0%	0%	3,034
12	210	Single-Family Detached Housing	127 DU	9.57	0.19	0.56	0.64	0.37	1,215	24	71	81	47	0%	1,215	24	71	81	47	0%	0%	0%	1,215
14	520	Elementary School	500 Students	1.29	0.25	0.20	0.07	0.08	645	124	101	37	38	65%	226	43	35	13	13	0%	0%	0%	226
Buildout Total									**31,929**	**947**	**1,201**	**1,581**	**1,382**		**30,528**	**830**	**1,102**	**1,518**	**1,317**				**25,664**

Notes:
(1) Source: "Trip Generation, 6th Edition, 1997" by the Institute of Transportation Engineers (ITE)
(2) Source: "Trip Generation Handbook, 2nd Edition, June 2004" by ITE
(3) KSF = thousand square feet
(4) VHP = vehicle fueling position
(5) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.



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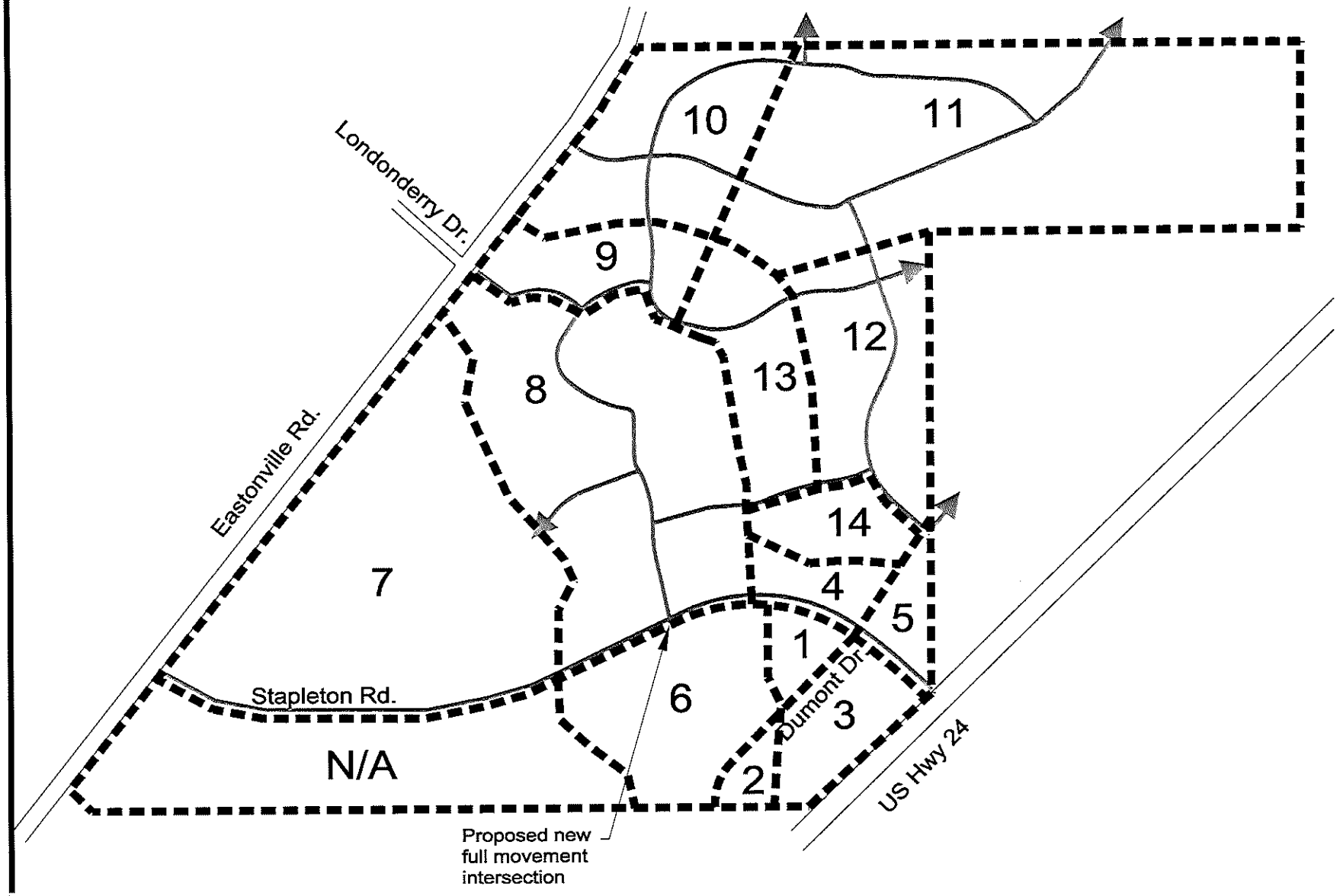
Vicinity Map

Figure 1

4 Way Ranch - Stapleton Full Movement Intersection Analysis

LSC # 114220



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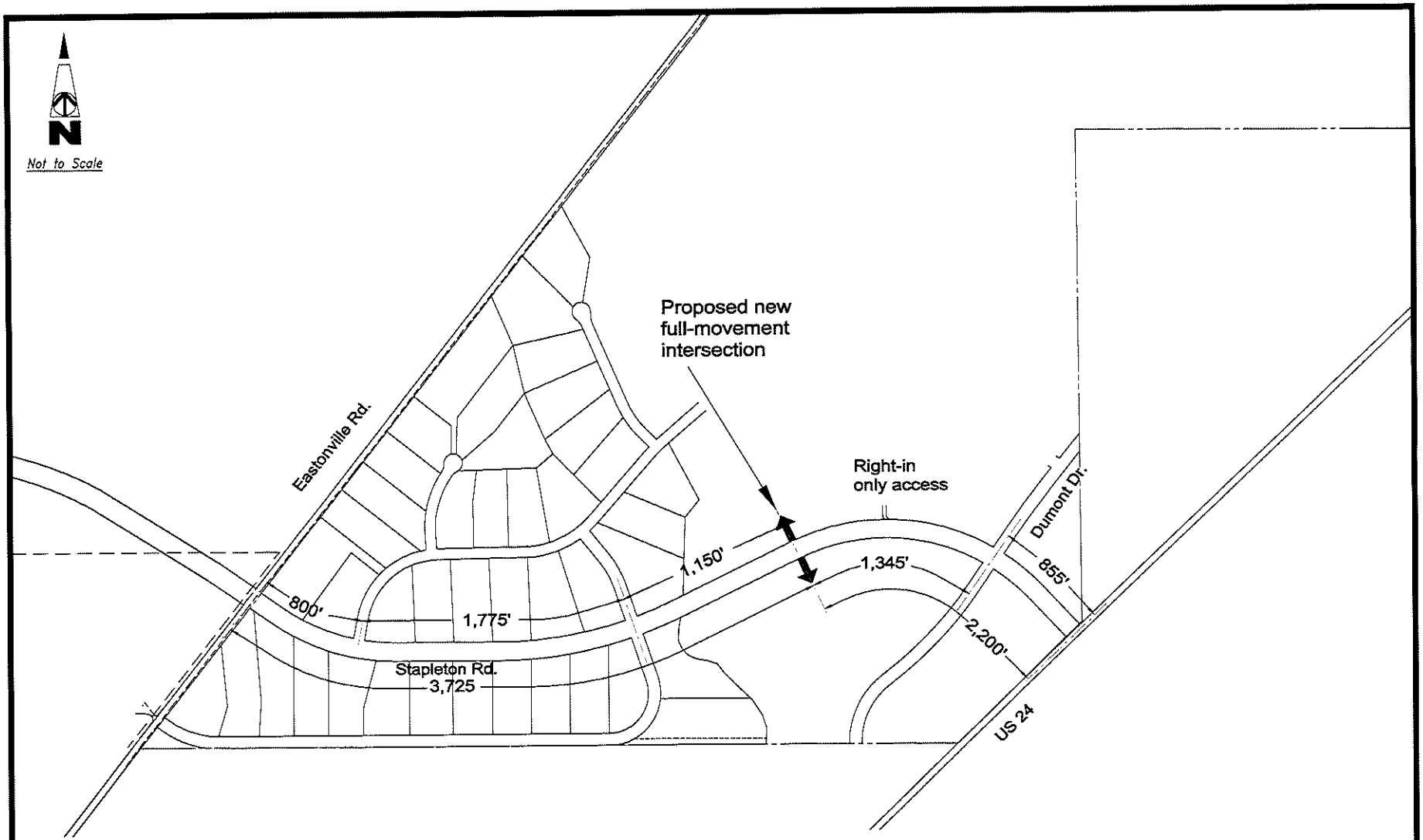
Traffic Analysis Zones

4 Way Ranch - Stapleton Full Movement Intersection Analysis

Figure 2

LSC # 114220



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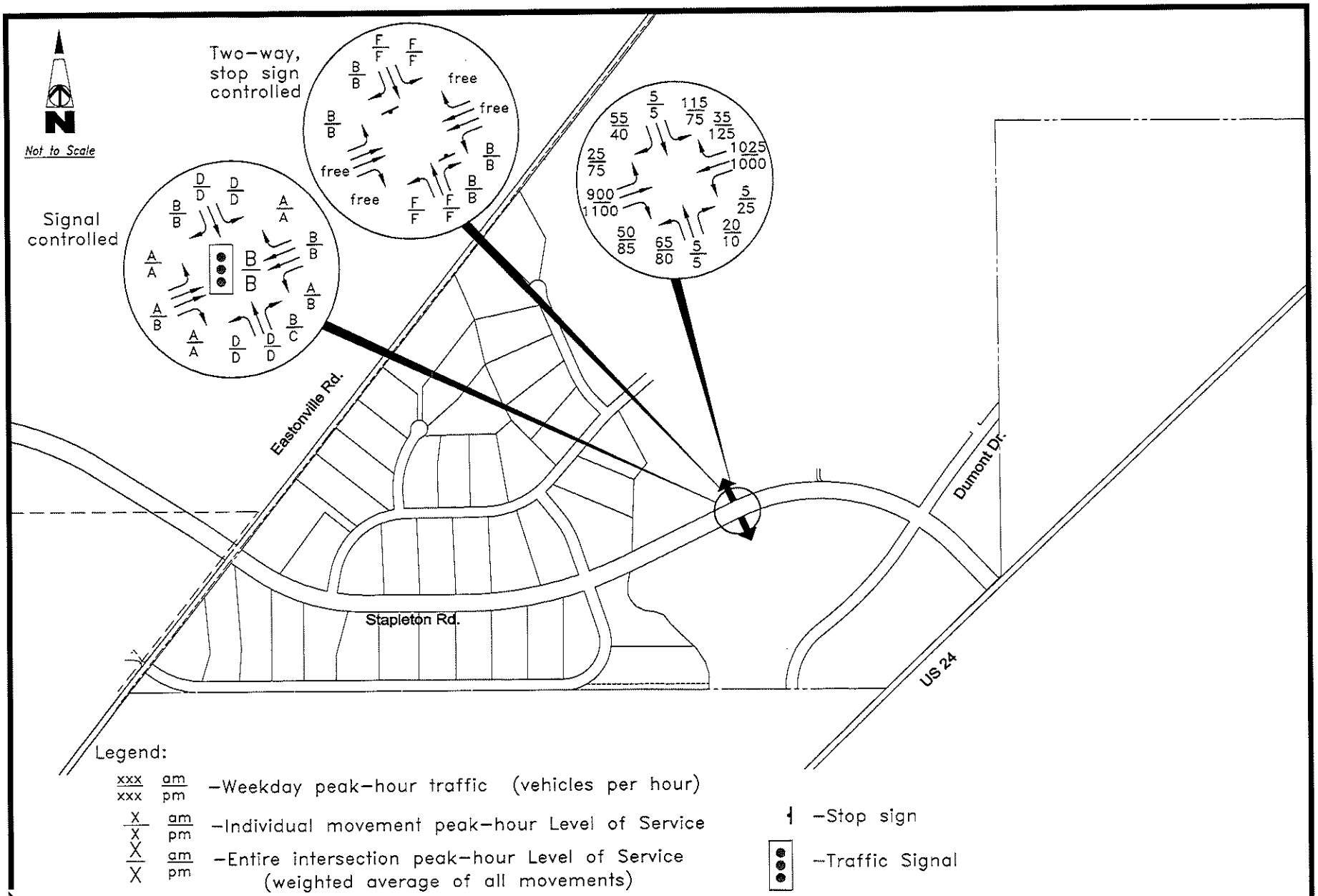
Stapleton Road Intersection Spacing

4 Way Ranch - Stapleton Full Movement Intersection Analysis

Figure 3

LSC # 114220



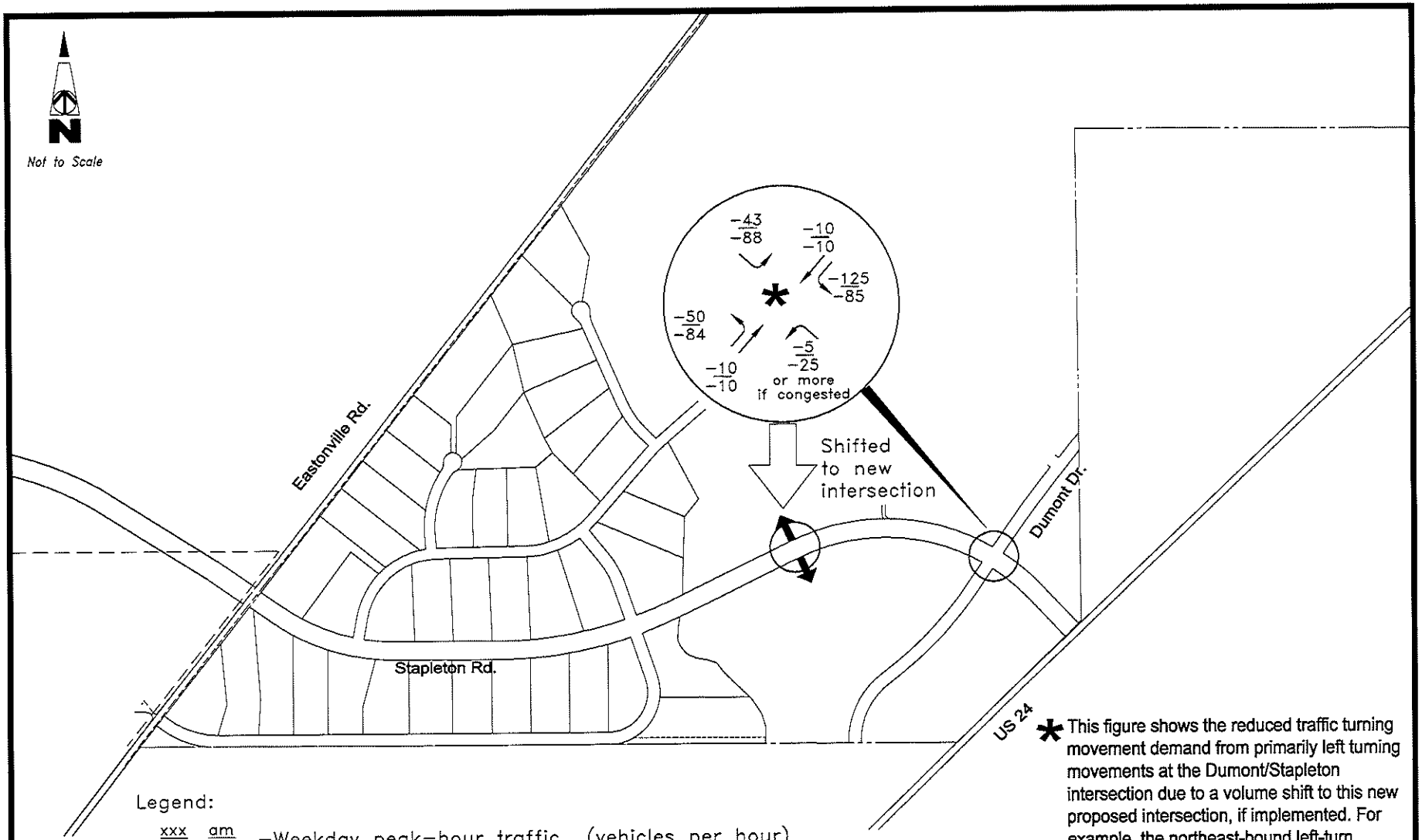
2035 Total Traffic, Lane Geometry, Traffic Control and Level of Service

Figure 4

4 Way Ranch - Stapleton Full Movement Intersection Analysis

LSC # 114220

TRANSPORTATION CONSULTANTS, INC.



* This figure shows the reduced traffic turning movement demand from primarily left turning movements at the Dumont/Stapleton intersection due to a volume shift to this new proposed intersection, if implemented. For example, the northeast-bound left-turn movement projected for Dumont/Stapleton would be 84 vehicles per hour lower in the afternoon peak hour if the proposed full-movement intersection is implemented.

TRANSPORTATION CONSULTANTS, INC.

Estimated Traffic Volume/Turning Movement Reductions at Dumont/Stapleton

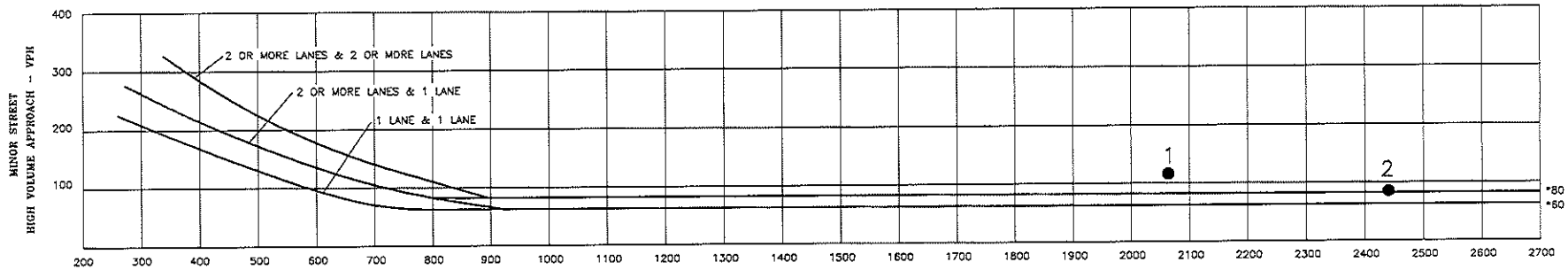
Figure 5

4 Way Ranch - Stapleton Full Movement Intersection Analysis

LSC # 114220

Figure 4C-2 Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40mph) ON MAJOR STREET)



* Note: 80 vph applies as the lower threshold volumes for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

1. AM Peak Hour (2035)
2. PM Peak Hour (2035)

(Includes left turns only on minor street for comparison to 60vph threshold volume for a minor street approach with one lane.)

*Chart taken from MUTCD 2009 Edition, page 440

N

Not to Scale

Signal Warrant Chart
Stapleton/Proposed Full Movement Intersection

4 Way Ranch - Stapleton Full Movement Intersection Analysis

Figure 6

LSC # 114220

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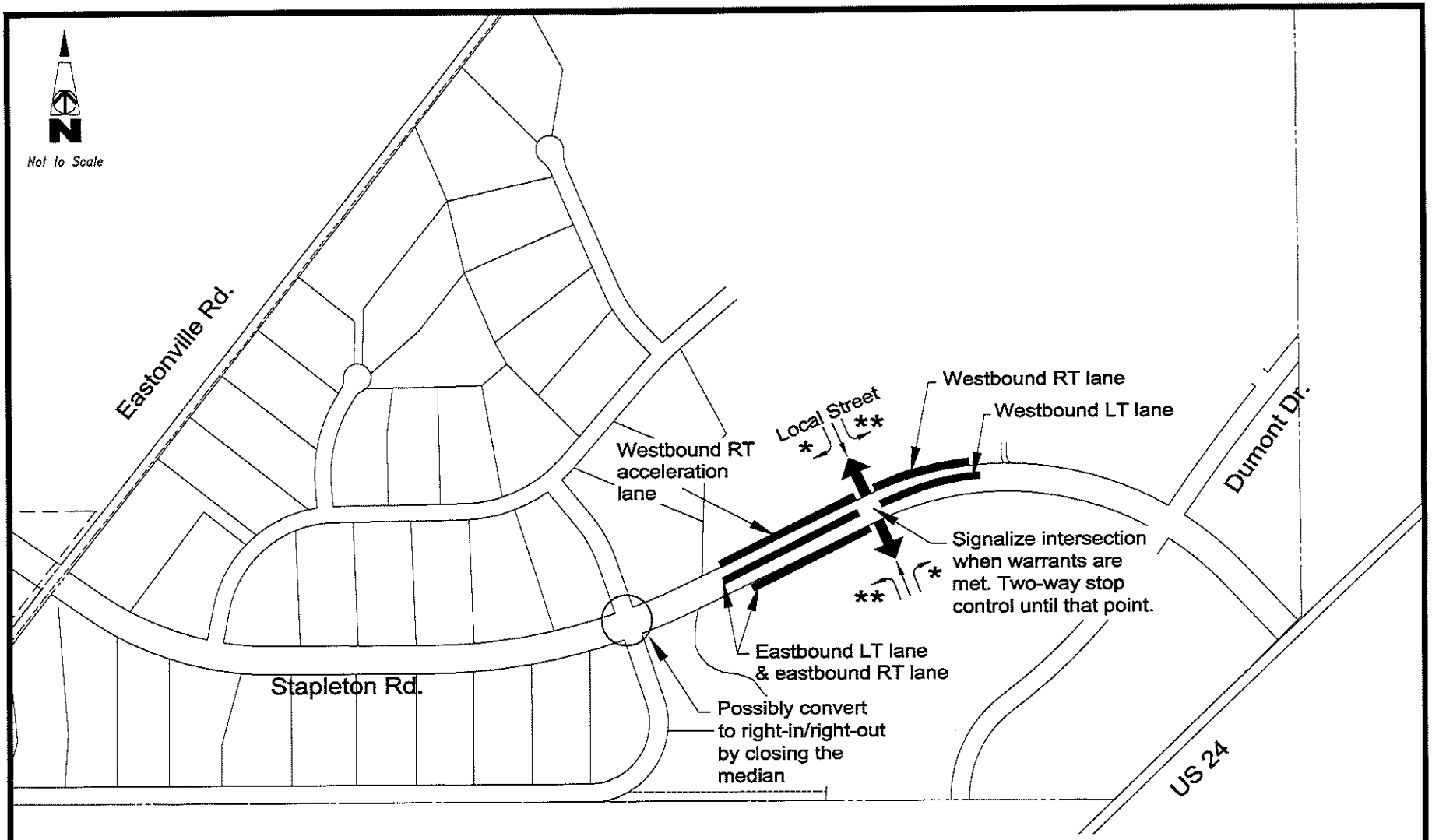


* Minor street approach right turn lanes should be of sufficient length not to block through traffic

** Minor street approach left turn lanes should be of sufficient length to accommodate left turn queues

TRANSPORTATION CONSULTANTS, INC.

Recommended Lane Geometry

4 Way Ranch - Stapleton Full Movement Intersection Analysis

Figure 7

LSC # 114220

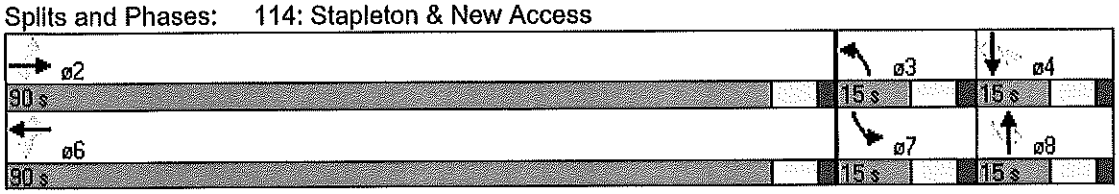
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.229			0.270			0.754			0.754		
Satd. Flow (perm)	427	3539	1583	503	3539	1583	1405	1863	1583	1405	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			53			37			21			58
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		3726			1346			791			826	
Travel Time (s)		56.5			20.4			18.0			18.8	
Volume (vph)	25	900	50	5	1025	35	65	5	20	115	5	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	947	53	5	1079	37	68	5	21	121	5	58
Lane Group Flow (vph)	26	947	53	5	1079	37	68	5	21	121	5	58
Turn Type	Perm		Perm	Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phases	2	2	2	6	6	6	3	8	8	7	4	4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0	23.0
Total Split (s)	90.0	90.0	90.0	90.0	90.0	90.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	87.6	87.6	87.6	87.6	87.6	87.6	19.9	9.4	9.4	21.2	12.4	12.4
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73	0.73	0.17	0.08	0.08	0.18	0.10	0.10
v/c Ratio	0.08	0.37	0.05	0.01	0.42	0.03	0.26	0.03	0.15	0.43	0.03	0.27
Control Delay	5.2	5.5	1.3	5.8	11.9	3.6	42.1	50.8	21.8	46.0	50.6	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	5.5	1.3	5.8	11.9	3.6	42.1	50.8	21.8	46.0	50.6	16.3
LOS	A	A	A	A	B	A	D	D	C	D	D	B
Approach Delay		5.3			11.6			38.0			36.8	
Approach LOS		A			B			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120

Offset: 21 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 11.9
Intersection LOS: B
Intersection Capacity Utilization 48.0%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 114: Stapleton & New Access



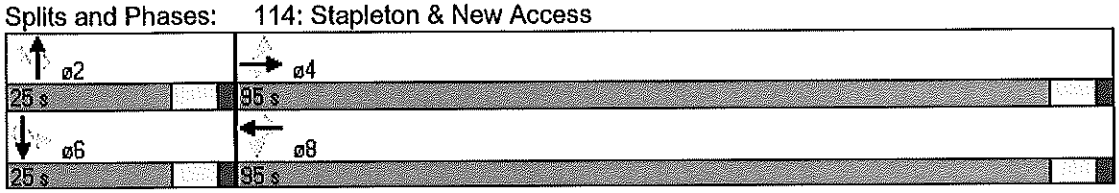
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.245			0.216			0.754			0.754		
Satd. Flow (perm)	456	3539	1583	402	3539	1583	1405	1863	1583	1405	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89			132			11			42
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		3726			1346			791			826	
Travel Time (s)		56.5			20.4			18.0			18.8	
Volume (vph)	75	1100	85	24	1000	125	80	5	10	75	5	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	79	1158	89	25	1053	132	84	5	11	79	5	42
Lane Group Flow (vph)	79	1158	89	25	1053	132	84	5	11	79	5	42
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	95.0	95.0	95.0	95.0	95.0	95.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	79.2%	79.2%	79.2%	79.2%	79.2%	79.2%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	73.6	73.6	73.6	73.6	73.6	73.6	38.4	38.4	38.4	38.4	38.4	38.4
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.61	0.61	0.32	0.32	0.32	0.32	0.32	0.32
v/c Ratio	0.28	0.53	0.09	0.10	0.49	0.13	0.19	0.01	0.02	0.18	0.01	0.08
Control Delay	8.9	12.0	1.1	11.8	19.5	5.9	37.2	37.6	19.5	37.2	37.6	12.4
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	8.9	12.0	1.1	11.8	19.5	5.9	37.2	37.6	19.5	37.2	37.6	12.4
LOS	A	B	A	B	B	A	D	D	B	D	D	B
Approach Delay		11.0			17.8			35.3			28.9	
Approach LOS		B			B			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120

Offset: 12 (10%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 15.7 Intersection LOS: B
Intersection Capacity Utilization 54.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 114: Stapleton & New Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	25	900	50	5	1025	35	65	5	20	115	5	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	26	947	53	5	1079	37	68	5	21	121	5	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1116			1000			1611	2126	474	1639	2142	539
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1116			1000			1611	2126	474	1639	2142	539
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			0	89	96	0	88	88
cM capacity (veh/h)	622			688			54	47	537	56	46	486

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	NB 3	SB 1
Volume Total	26	474	474	53	5	539	539	37	68	5	21	121
Volume Left	26	0	0	0	5	0	0	0	68	0	0	121
Volume Right	0	0	0	53	0	0	0	37	0	0	21	0
cSH	622	1700	1700	1700	688	1700	1700	1700	54	47	537	56
Volume to Capacity	0.04	0.28	0.28	0.03	0.01	0.32	0.32	0.02	1.27	0.11	0.04	2.16
Queue Length 95th (ft)	3	0	0	0	1	0	0	0	151	9	3	298
Control Delay (s)	11.0	0.0	0.0	0.0	10.3	0.0	0.0	0.0	337.5	91.4	12.0	692.7
Lane LOS	B				B				F	F	B	F
Approach Delay (s)	0.3				0.0				251.5			462.1
Approach LOS									F			F

Intersection Summary			
Average Delay	45.0		
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

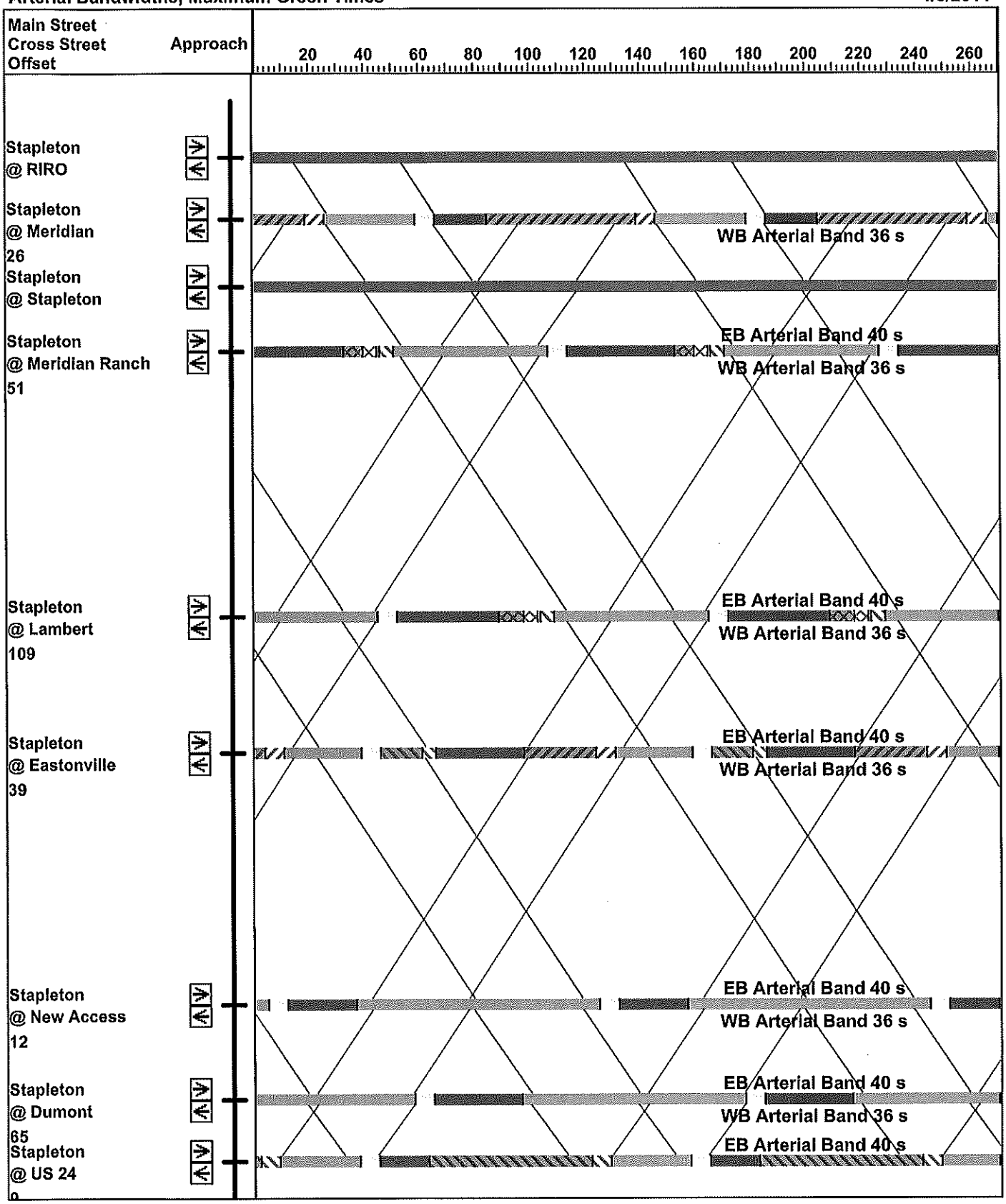
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	75	1100	85	24	1000	125	80	5	10	75	5	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	79	1158	89	25	1053	132	84	5	11	79	5	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1184			1247			1937	2551	579	1853	2508	526
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1184			1247			1937	2551	579	1853	2508	526
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	87			95			0	76	98	0	77	92
cM capacity (veh/h)	585			554			26	22	458	32	23	496

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	NB 3	SB 1
Volume Total	79	579	579	89	25	526	526	132	84	5	11	79
Volume Left	79	0	0	0	25	0	0	0	84	0	0	79
Volume Right	0	0	0	89	0	0	0	132	0	0	11	0
cSH	585	1700	1700	1700	554	1700	1700	1700	26	22	458	32
Volume to Capacity	0.13	0.34	0.34	0.05	0.05	0.31	0.31	0.08	3.25	0.24	0.02	2.50
Queue Length 95th (ft)	12	0	0	0	4	0	0	0	Err	18	2	229
Control Delay (s)	12.1	0.0	0.0	0.0	11.8	0.0	0.0	0.0	Err	217.2	13.0	946.4
Lane LOS	B				B				F	F	B	F
Approach Delay (s)	0.7				0.2				8433.0			604.2
Approach LOS									F			F

Intersection Summary			
Average Delay	333.4		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

Time-Space Diagram - Stapleton

Arterial Bandwidths, Maximum Green Times 4/5/2011



2035 Total Traffic With Signal at Proposed New Intersection JCH

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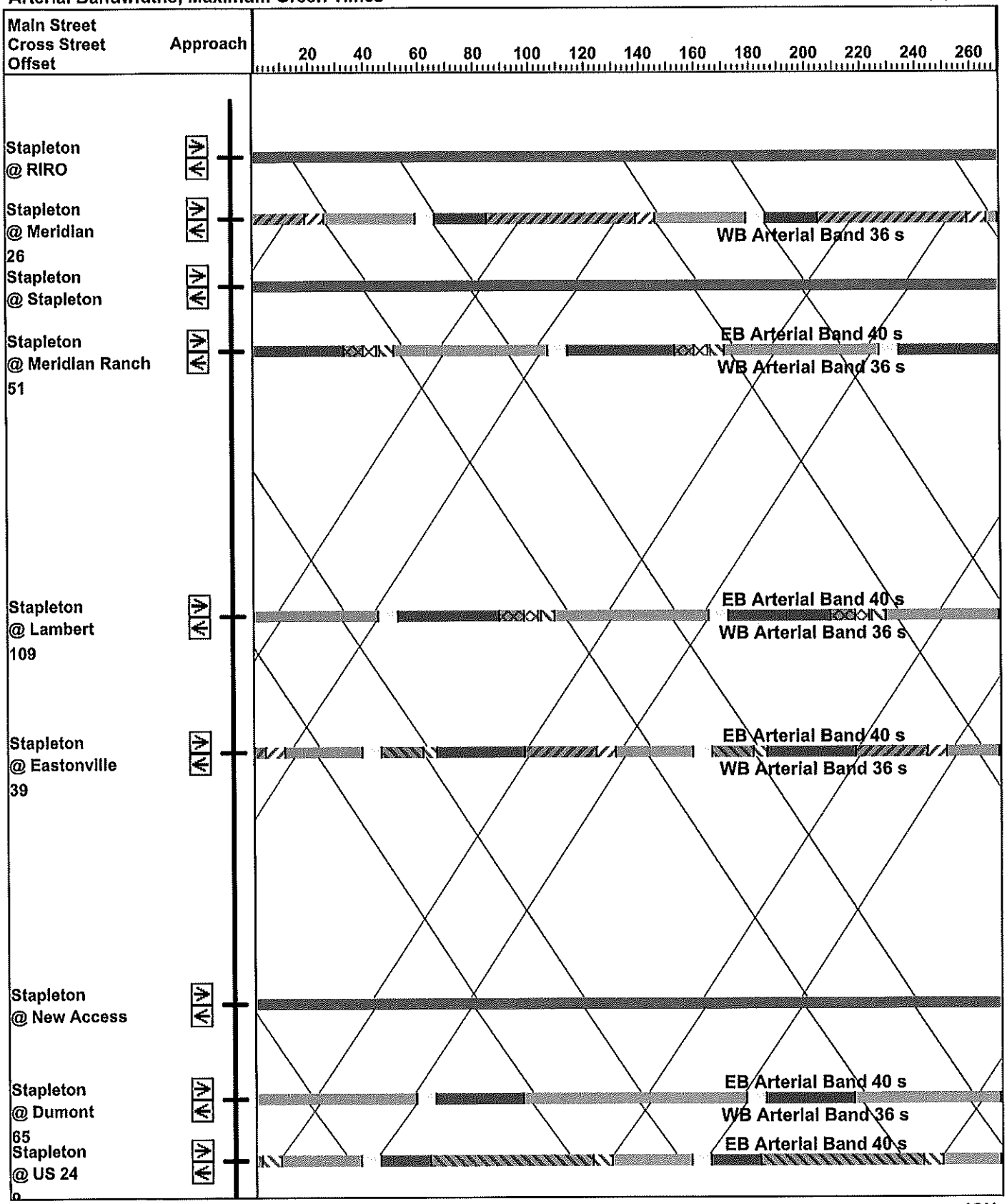
Time-Space Diagram - Stapleton

Arterial Bandwidths, Maximum Green Times

4/5/2011



2035 Total Traffic No Signal at Proposed New Intersection

JCH

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