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

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2
Traffic Impact Study
SF-20-015 & SP-19-001
(LSC #184660)
June 23, 2021

Traffic Engineer's Statement

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

COLORADO LICENSED
JEFFREY C. HODSDON
31684
7-1-21
PROFESSIONAL ENGINEER

PCD Note: Figure 4 will need to be updated for Phase II at the applicable local road curves.

Developer's Statement

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

6-23-21
Date

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 Traffic Impact Study

Prepared for:
Morley-Bentley Investments, LLC
20 Boulder Crescent, 1st Floor
Colorado Springs, CO 80903

Contact: Mr. Jim Morley

JUNE 23, 2021

LSC Transportation Consultants
Prepared by: Kirstin D. Ferrin, P.E.
Reviewed by: Jeffrey C. Hodsdon, P.E.

LSC #184660

CONTENTS

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June 23, 2021

Mr. Jim Morley
Morley-Bentley Investments, LLC
20 Boulder Crescent, 1st Floor
Colorado Springs, CO 80903

RE: Sterling Ranch Filing No. 2 and
Sterling Ranch Phase 2
Traffic Impact Study
El Paso County, Colorado
LSC #184660

Dear Mr. Morley:

LSC Transportation Consultants, Inc. has prepared this Traffic Impact Study for Sterling Ranch Filing 2 and Sterling Ranch Phase 2. As shown in Figure 1, Sterling Ranch is located east of Vollmer Road near Lochwinnoch Lane between the future extensions of Marksheffel Road and Stapleton Drive in El Paso County, Colorado. This report is intended as a site-specific, final-plat traffic report for the currently-proposed filings.

REPORT CONTENTS

The preparation of this report included the following:

- A list of previous Sterling Ranch traffic reports and the context of this project;
- A summary of the proposed land use and access plan;
- The existing roadway and traffic conditions in the site's vicinity including the roadway widths, surface conditions, lane geometries, traffic controls, and posted speed limits;
- Existing (2020) traffic volume data;
- Estimates of projected short-term and intermediate-term traffic volumes;
- The projected average weekday and peak-hour vehicle trips to be generated by the proposed development;
- The assignment of the projected site-generated traffic volumes to the area roadways;
- The projected short-term total traffic volumes on the area roadways;
- The projected levels of service at the key intersections in the vicinity of the site;

- The recommended street classifications for the internal streets within the proposed development;
- The project's obligation to the County roadway improvement fee program; and
- Recommended roadway improvements.

RECENT TRAFFIC REPORTS

LSC prepared a traffic impact study (TIS) for the entire Sterling Ranch development dated June 5, 2008. LSC also prepared a traffic impact analysis for the first phase of the Sterling Ranch development, dated March 16, 2015; a memorandum for Phases 1-3, dated October 2, 2017; and a traffic impact analysis for the Sterling Ranch Phase 2 Preliminary Plan, dated December 20, 2018. The following site-specific, final-plat traffic reports have also been prepared:

- Branding Iron at Sterling Ranch Filing No. 1 and Homestead at Sterling Ranch Filing No. 1, dated December 19, 2017
- Sterling Ranch Filing No. 2, dated April 3, 2018
- *Sterling Ranch Phase 2*, dated December 20, 2018
- Copper Chase at Sterling Ranch, dated December 20, 2018
- Homestead at Sterling Ranch Filing No. 2, dated March 3, 2020
- *Branding Iron at Sterling Ranch Filing No. 2*, dated March 31, 2020 (revised May 6, 2020)
- *Homestead North Phase 1*, dated August 5, 2020

STUDY AREA

Sketch Plan

Figure 2 shows the location of the Sterling Ranch developments that are either approved, currently under review, currently proposed, or anticipated to be developed in the intermediate future. These parcels were included as traffic analysis zones (TAZs) 2 through 7 and 21 in the 2008 master traffic impact report. Table 1 shows the land uses assumed for these TAZs in the 2008 report and the land uses assumed in this report. A copy of the 2008 report with additional notes added by LSC in January 2021 has been attached. As shown in Table 1, the 2008 report assumed the study area would be developed with 1,446 single-family homes and an elementary school. This same area is now planned to be developed with about 921 single-family homes and an elementary school.

Other Recent Projects

Branding Iron at Sterling Ranch Filing No. 1 and Homestead at Sterling Ranch Filing No. 1 have both been approved. At the time traffic counts were conducted at the intersection of Vollmer/Dines, about 83 of the 123 homes had been constructed in these filings. Applications to plat Branding Iron at Sterling Ranch Filing No. 2, Homestead at Sterling Ranch Filing No. 2, and Homestead North Phase 1 have been submitted and are currently in the review process. It is our

understanding that Copper Chase at Sterling Ranch is currently on hold. However, for the purposes of this report, it was assumed that the same number of residential dwelling units as was assumed in the December 2018 report would be constructed on this parcel in the intermediate-term future.

Previously, the future elementary school site located north of Sterling Ranch Road and west of Dines Boulevard was planned to be included as part of Sterling Ranch Phase 2. It is our understanding that the school site was recently included in the Branding Iron at Sterling Ranch Filing No. 2 plat. This report assumes the school site will be developed in the intermediate future.

TAZ 8, located on the southeast corner of Briargate/Vollmer, has been reduced from the 17 acres assumed in the 2008 master plan study to 14.8 acres. TAZ 8 is planned to be developed with commercial uses. However, this report assumes it will not be developed in the intermediate future.

No changes are currently proposed to the land uses assumed in TAZ 1 and TAZs 8 through 20 of the 2008 master traffic study. This report assumes these parcels will not be developed in the intermediate future.

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 Traffic Impact Analysis Study Area

The Sketch Plan conditions of approval (SKP-07-007) require an updated Transportation Impact Study (TIS) to be submitted with each subsequent application with the same study area as defined in the Sketch Plan TIS. The study area for the June 2008 master traffic impact report was best shown in Figure 3 from that report, which has been attached for reference. As the currently-proposed number of homes within TAZs 2 through 7 and 21 is lower than what was assumed in the 2008 master traffic impact study, the future commercial parcel located within TAZ 8 has been reduced in size, and no changes are proposed for TAZs 9 through 20. LSC requests the study area for this report include the area bound by Vollmer Road, Marksheffel Road, the wetlands area just east of Dines Boulevard, and Briargate Boulevard. Only those intersections within that study area which exist today or are needed to accommodate the site traffic were analyzed for this report. Figure 2 shows the roadway segments and intersections included in the study area. Based on the reduced land use, it is anticipated that modeling of the whole Sketch Plan analysis area would not differ from the 2008 master study significantly. The study area for the future traffic studies of later phases of the Sterling Ranch development will reflect the appropriate existing conditions at that time and any additional roadway connections/intersections needed to accommodate those specific phases.

Study-Area Access Plan

The access plan for the current study area is generally consistent with the access plan shown in the master traffic report. The following summarizes the minor changes:

- An access to Vollmer Road to TAZ 2 (Alzada Drive) has been shifted to the south and assumed to be restricted to right-in/right-out only. The June 2008 report showed the Sterling Ranch development sharing the existing Vollmer Road/Lochwinnoch Lane intersection with the adjacent Barbarick Subdivision industrial development. However, it has since been determined that using this existing access point for the Sterling Ranch development is not possible. Therefore, this site access intersection was moved about 885 feet south (approximately halfway between the future locations of Marksheffel Road and Lochwinnoch Lane). A previous deviation was approved for a full-movement access at this location with conditions requiring widening of Vollmer Road. However, the 2014 Preliminary Plan 9SP-14-015) showed this access as a three-quarter movement intersection (left-in/right-in/right-out only). The applicant is requesting this access be allowed to remain open as a right-in/right-out only access in the long-term.

- The originally-proposed right-in/right-out access to TAZ 2 is no longer proposed and is not shown on the existing plans.

- The Sterling Ranch access to Briargate Parkway just east of Vollmer Road (Wheatland Drive) was previously shown as a right-in/right-out-only intersection in the Sketch Plan. It is now proposed as a three-quarter-movement (left-in/right-in/right-out-only) access. A deviation request for this access point has been submitted and approved.

These changes to the plan will result in some localized shifts in intersection turning movements shown in the master traffic study long-term traffic projections, but nothing significant requiring an update to the master study.

CURRENTLY-PROPOSED LAND USE AND ACCESS

Land Use and Vehicle Access

Sterling Ranch Filing 2 is planned to include 49 lots for single-family homes. A full-movement site access is proposed to Sterling Ranch Road about 660 feet north east of Marksheffel Road. Sterling Ranch Filing No. 2 will also utilize the proposed right-in/right-out only access to Vollmer Road located 875 feet north of Marksheffel Road (Alzada Drive).

Sterling Ranch Phase 2 is planned to include 212 lots for single-family homes (50 homes are planned north of Sterling Ranch Road and 162 homes are planned south of Sterling Ranch Road). Two full-movement access points are proposed to Sterling Ranch Road. Figure 3 shows the proposed spacing of these access points. Sterling Ranch Phase 2 will also have access through the proposed Sterling Ranch Filing No. 2. Approval of Sterling Ranch Phase 2 will be dependent on approval and construction of Sterling Ranch Filing No. 2.

Sight Distance Analysis

Figure 4 shows a sight-distance analysis at the proposed intersections to Sterling Ranch Road. Based on a design speed of 40 miles per hour (mph) and the criteria contained in Table 2-21 of the *Engineering Criteria Manual* (*ECM*), the required intersection sight distance at the future intersections is 445 feet. Based on the criteria contained in Table 2-17 of the *ECM*, the required stopping sight distance approaching this intersection is 305 feet. As shown in Figure 4, all of the proposed intersections analyzed will meet the criteria.

Figure 5 shows a sight-distance analysis at the proposed intersections of Marksheffel/Vollmer and Alzada/Vollmer. Based on a design speed of 40 mph and the criteria contained in Table 2-21 of the *ECM*, the required intersection sight distance at the future intersections is 445 feet. Based on the criteria contained in Table 2-17 of the *ECM*, the required stopping sight distance approaching this intersection is 305 feet. The sight distance at the intersection of Alzada/Vollmer was only analyzed to the south, as this intersection is planned to be restricted to right-in-right-out only. As shown in Figure 5, the available site distance will meet the criteria.

Figure 6 shows a sight-distance analysis at the proposed intersection of Marksheffel/Sterling Ranch Road. As the criteria contained in Table 2-21 of the *ECM* only apply to two-lane roads with stop control, the sight distance at this intersection was analyzed based on the criteria contained in Table 4-2 of the *State of Colorado Highway Access Code* for a four-lane roadway with a posted speed limit of 45 mph. Based on a design speed of 50 mph and the criteria contained in Table 2-17 of the *ECM*, the required stopping sight distance approaching this intersection is 425 feet. As shown in Figure 6, the available site distance will meet the criteria.

Street Connections

Figure 7 shows the proposed short- and intermediate-term street connection plan. Dines Boulevard has been constructed south from Vollmer Road to the future Sterling Ranch Road. A short half section of Briargate Parkway is planned to be constructed between Vollmer Road and Wheatland Drive and Wheatland Drive is planned to be constructed south from Briargate Parkway as part of the Homestead at Sterling Ranch Filing 2. The section of Sterling Ranch Road between Dines Boulevard and Marksheffel Road and the section of Marksheffel Road between Vollmer Road and Sterling Ranch Road are planned to be constructed in the short term with the currently-proposed developments. This section will replace an existing emergency-only route.

It is also anticipated that Marksheffel Road will be constructed between Sterling Ranch Road and the current terminus just north of Woodmen Road in the intermediate-term future. The section between Sterling Ranch Road and the south boundary of the Sterling Ranch Master Plan area will be the responsibility of Sterling Ranch. The section from the south boundary of the Sterling Ranch Master Plan area to just north of Woodmen Road is anticipated to be constructed in the intermediate-term future as part of the Aspen Meadows development within the City of Colorado Springs.

Pedestrian and Bicycle Access

Figure 2 shows the location of all planned trails and sidewalks in the vicinity of the site. Connections are also proposed to the planned future Sand Creek Regional Trail (west of Dines Boulevard) as shown in the attached map.

A detached sidewalk will be provided along the east side of Vollmer Road adjacent to the development. A detached sidewalk will be provided along the west side of Sterling Ranch Road. The multi-use paved shoulder on Sterling Ranch Road will accommodate bicycles.

An elementary school is planned to be located just north and east of Sterling Ranch Phase 2. Pedestrians will be able to utilize attached sidewalks along the internal subdivision streets to access the school site. School crossings will be needed at either the intersection of Sterling Ranch Road and Hazlett Drive and/or the intersection of Dines Boulevard and Sterling Ranch Road, depending on the final layout of the school site.

EXISTING ROAD AND TRAFFIC CONDITIONS

The adjacent streets 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* with the site location identified on them have been attached to this report.

Vollmer Road is currently a five-lane urban street within the City of Colorado Springs limits between Black Forest Road and Cowpoke Road; and a two-lane, rural, paved roadway north of Cowpoke Road extending to north of Hodgen Road. In the southbound direction, Vollmer Road has a posted speed limit of 45 mph. South of Cowpoke Road, Vollmer Road has a 40-mph posted speed limit. The *2040 El Paso County Major Transportation Corridors Plan* (*MTCP*) and the Sterling Ranch master traffic study show Vollmer Road as a four-lane Urban Minor Arterial in the vicinity of the site.

Marksheffel Road is a Principal Arterial extending north from the City of Fountain to Woodmen Road. Marksheffel Road is planned to ultimately be widened to six lanes and extended north and west from Woodmen Road to connect to Research Parkway at Black Forest Road. Marksheffel Road is shown as a six-lane Principal Arterial through the site on the El Paso County *MTCP*. The City of Colorado Springs intends to take ownership and maintenance of Marksheffel Road when it is constructed from Black Forest Road to the east and south to where it connects with the current north end of Marksheffel Road in the City. The section of Marksheffel Road adjacent to Sterling Ranch is planned to be constructed on 107 feet of right-of-way to the City's required cross section(s) and criteria. For this report of short- and intermediate-term conditions, it was assumed that the section of Marksheffel Road between Sterling Ranch Road and Vollmer Road would be constructed in the short-term future and the section of Marksheffel Road between Sterling Ranch Road and the existing terminus just north of Woodmen Road would be constructed as a four-lane roadway to the City of Colorado Springs criteria in the intermediate-term future.

Briargate Parkway is a six-lane, Principal Arterial that extends east from I-25 to Grand Lawn Circle (about one-half mile east of Powers Boulevard). Briargate Parkway is planned ultimately to extend to Towner Drive. For this report of short- and intermediate-term conditions, it was assumed that only the section of Briargate Parkway between Vollmer Road and the first Sterling Ranch access (Wheatland Drive) would be constructed.

Sterling Ranch Road is a planned Non-Residential Collector shown extending through the Sterling Ranch development between Marksheffel Road and Briargate Parkway. For this report of short- and intermediate-term conditions, it was assumed that only the section of Sterling Ranch Road between Marksheffel Road and Dines Boulevard would be constructed.

Tahiti Drive is a gravel road which extends for about 750 feet north from Vollmer Road. The intersection of Vollmer/Tahiti is located just south of the future location of the intersection of Vollmer/Marksheffel. This intersection is planned to be closed with the construction of Marksheffel Road between Vollmer Road and Sterling Ranch Road. Access for the existing home using this access will be relocated north to Loch Fyne Lane.

Crash History

The Colorado State Patrol (CSP) provided LSC with crash history data for Vollmer Road between Tahiti Drive and Dines Boulevard from 2018 through August 2020. During the reported time period, there were five single-vehicle non-intersection-related crashes on Vollmer Road between Tahiti Drive and Dines Boulevard. Adverse weather conditions were reported for three of the five crashes. The crash history data has been attached.

Existing Traffic Volumes

Figure 8 shows the existing (2020) peak-hour traffic volumes at the intersections of Dines/Vollmer and Lochwinnoch/Vollmer. The traffic volumes shown for the intersection of Dines/Vollmer were based on traffic counts conducted by LSC in May and November 2020. These traffic counts were conducted at a time when pandemic-related restrictions were in place. However, traffic counts conducted at the intersection of Black Forest Road/Vollmer Road in December 2019 (pre-pandemic) and repeated during the same week that the Dines/Vollmer counts were conducted indicate only minor impacts to traffic volumes on Vollmer Road due to these restrictions. The traffic count sheets are attached.

Figure 8 also shows the daily traffic volumes on Vollmer Road in the vicinity of the site. These volumes are based on 24-hour traffic counts conducted on Vollmer Road by LSC in November 2020.

Existing Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A represents control delay of less than 10 seconds for unsignalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections. Table 2 shows the level of service delay ranges.

Table 2: 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	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

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

The intersections of Vollmer/Lochwinnoch and Vollmer/Dines have been analyzed based on the unsignalized-intersection analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. All movements at these stop-sign-controlled intersections are currently operating at LOS B or better during the peak hours.

BACKGROUND (BASELINE) CONDITIONS

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 both Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2.

Figure 9 shows the projected short-term (Year 2021) background traffic volumes at the key area intersections. The short-term background volumes assume only the short-term street connections shown in Figure 6. The short-term background traffic includes the existing traffic volumes (from Figure 6) with some changes in traffic patterns due to new street connections, plus traffic estimated to be generated by buildout of the Homestead at Sterling Ranch Filings 1 and 2, Branding Iron at Sterling Ranch Filings 1 and 2, Homestead North Phase 1, and Filing 1 of the Retreat at Timber Ridge development to be located generally northeast of the intersection of Vollmer Road and Poco Road.

Figure 10 shows the projected intermediate-term (Year 2025) background traffic volumes at the key area intersections. These volumes assume Marksheffel Road has been completed from Woodmen Road to Vollmer Road. The intermediate traffic volumes are based on the short-term background traffic volumes shown in Figure 9 with some changes in traffic patterns due to the new street connections, plus traffic estimated to be generated by buildout of the future residential/patio homes located south of Sterling Ranch Filing No. 2 and the elementary school to be located northwest of the intersection of Sterling Ranch/Dines, plus about 2 percent per year growth of through traffic on Vollmer Road.

Figure 11 shows the projected 2040 background traffic volumes at the key area intersections. These volumes assume buildout of the area street network, including the completion of Marksheffel Road between Vollmer Road and Black Forest Road, Briargate Parkway between Meridian Road and Black Forest Road, and Sterling Ranch Road between Marksheffel Road and Briargate Parkway. The 2040 background traffic volumes are estimates by LSC, based on the Pikes Peak Area Council of Governments' (PPACG) 2040 traffic projections and previous work completed by LSC in the area, including the Sterling Ranch master traffic study, Aspen Meadows located southeast of Sterling Ranch, and The Ranch located just east of Sterling Ranch.

TRIP GENERATION

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

Sterling Ranch Filing No. 2 is projected to generate about 463 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 9 vehicles would enter and 27 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 31 vehicles would enter and 18 vehicles would exit the site.

Sterling Ranch Phase 2 is projected to generate about 2,001 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, about 39 vehicles would enter and 118 vehicles would exit the site. During the afternoon peak hour, about 132 vehicles would enter and 77 vehicles would exit the site.

TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of the site-generated traffic volumes on the street and roadway system serving the site is one of the most important factors in determining the site's traffic impacts. The specific short-term and intermediate-term distribution estimates are shown in Figure 12. The directional distribution estimates are based on the following factors: the location

of the site with respect to the Colorado Springs metropolitan area, the planned access system for the site, the street and roadway system serving the site, and the land uses proposed for the site.

The short-term distribution estimate shown in Figure 12 assumes:

- Only the short section of Briargate Parkway between Vollmer Road and Wheatland Drive has been constructed in the vicinity of the site;
- Sterling Ranch Road has been constructed between Marksheffel Road and Dines Boulevard, but not north of Dines Boulevard; and
- Marksheffel Road has been constructed as a four-lane roadway between Sterling Ranch Road and Vollmer Road, but not west of Vollmer Road nor east of Sterling Ranch Road.

The intermediate-term distribution estimate shown in Figure 12 assumes:

- Marksheffel Road has been constructed as a four-lane roadway between Woodmen Road and Vollmer Road, but not west of Vollmer Road.

The long-term distribution estimate shown in Figure 12 assumes:

- Buildout of the area street network, as shown in the *2016 MTCP 2040 Roadway Plan*

When the distribution percentages (from Figure 12) are applied to the trip-generation estimates (from Table 3), the resulting site-generated traffic volumes can be determined. Figures 13 through 15 show the short-term, intermediate-term site-generated, and long-term traffic-volume estimate for Sterling Ranch Filing No. 2 only. Figures 16 through 18 show the short-term, intermediate-term, and long-term site-generated traffic-volume estimate for Sterling Ranch Phase 2 only.

TOTAL TRAFFIC

Short-Term (Year 2021) Total Traffic Volumes

Figure 19 shows the projected short-term total traffic volumes at the key area intersections and site-access points. The short-term total traffic volumes include short-term background traffic volumes (from Figure 9) plus the short-term Sterling Ranch Filing No. 2-generated traffic volumes (from Figure 13) plus the short-term Sterling Ranch Phase 2-generated traffic volumes (from Figure 16). The short-term-total traffic volumes assume only the short-term street connections shown in Figure 7.

Intermediate-Term (Year 2025) Total Traffic Volumes

Figure 20 shows the projected intermediate-term-total traffic volumes at the key area intersections and site-access points. The intermediate-term-total traffic volumes include intermediate-term-background traffic volumes (from Figure 10) plus the intermediate-term Sterling Ranch Filing No. 2-generated traffic volumes (from Figure 14) plus the intermediate-term Sterling Ranch Phase 2-generated traffic volumes (from Figure 17). The intermediate-term total traffic volumes assume only the intermediate-term street connections shown in Figure 7.

Long-Term (Year 2040) Total Traffic Volumes

Figure 21 shows the projected 2040 total traffic volumes at the key area intersections and site access points. The 2040 total traffic volumes include long-term-background traffic volumes (from Figure 11) plus the long-term Sterling Ranch Filing No. 2-generated traffic volumes (from Figure 15) plus the long-term Sterling Ranch Phase 2-generated traffic volumes (from Figure 18). The 2040 total traffic volumes assume buildout of the area street network as shown in the *2016 MTCP 2040 Roadway Plan.*

LEVEL OF SERVICE ANALYSIS

The key area intersections and site access points have been analyzed to determine the projected intersection levels of service for short-, intermediate-, and long-term background and total traffic scenarios for the morning and afternoon peak-hour periods, based on the unsignalized-intersection analysis procedures from the *Highway Capacity Manual 6th Edition*. Figures 9 through 11 and Figures 19 through 21 show the level of service analysis results. The level of service reports are attached.

Vollmer/Briargate

The intersection of Vollmer/Briargate is projected to operate at a satisfactory level of service as a stop-sign-controlled "T" intersection in the short term and intermediate term. By 2040, it was assumed that Briargate Parkway would be completed between Black Forest and Meridian Road and that the intersection of Vollmer/Briargate would be converted to traffic-signal control. As a signal-controlled intersection, all movements are projected to operate at LOS D or better during the peak hours, based on the projected 2040 total traffic volumes.

Vollmer/Marksheffel

The intersection of Vollmer/Marksheffel is projected to operate at a satisfactory level of service (LOS D or better for all movements) as a stop-sign-controlled intersection in the short term and intermediate term. By 2040, it was assumed that Marksheffel would be completed between Vollmer Road and Meridian Road and that the intersection of Vollmer/Marksheffel would be converted to traffic-signal control. As a signal-controlled intersection, all movements are projected to operate at LOS D or better during the peak hours, based on the projected 2040 total traffic volumes.

Sterling Ranch/Marksheffel

The intersection of Sterling Ranch/Marksheffel is projected to operate at a satisfactory level of service as a stop-sign-controlled "T" intersection in the short term and intermediate term. By 2040, it was assumed that Marksheffel Road would be completed between Woodmen Road and Black

Forest Road and that the intersection of Vollmer/Sterling Ranch Road would be converted to traffic-signal control. As a signal-controlled intersection, all movements are projected to operate at LOS D or better during the peak hours, based on the projected 2040 total traffic volumes.

Alzada/Vollmer

The intersection of Alzada/Vollmer is planned to be restricted to right-in/right-out only. Based on the projected short-term, intermediate-term, and 2040 total traffic volumes and proposed lane geometry, the intersection is projected to operate at LOS B or better for all movements as a stop-sign-controlled intersection.

Sterling Ranch Road Access Points

The intersections of Bynum/Sterling Ranch, Hazlett/Sterling Ranch and Dines/Sterling Ranch are projected to operate at LOS D or better for all movements during the peak hours as stop-sign-controlled intersections, based on the projected short-term, intermediate-term, and 2040 total traffic volumes.

SUBDIVISION STREET CLASSIFICATIONS

Figure 22 shows the recommended street classifications for the streets in the vicinity of the site. Figure 22 also shows a comparison of the projected average weekday traffic volume (ADT) and the design ADT from the *ECM* for the key street segments in the vicinity of the site. All of the projected weekday traffic volumes are below the design ADT volumes.

AREA MTCP 2040 ROADWAY IMPROVEMENT PROJECTS

The *El Paso County 2016 Major Transportation Corridors Plan Update* identified the following 2040 roadway improvement projects within the study area:

- C13: Vollmer Road from Marksheffel Road to Stapleton Drive as a Rural 4-Lane Minor Arterial;
- N5 Stapleton Drive [Briargate Parkway] from Towner Road to Black Forest Road as a 4-Lane Urban Principal Arterial;
- N12: Marksheffel Road from Woodman Road to Research Parkway as a 4-Lane Urban Principal Arterial; and
- M11: Vollmer Road Bicycle & Primary Regional Trail from Marksheffel Road to Shoup Road.

ROADWAY IMPROVEMENTS

Marksheffel Road

The City of Colorado Springs intends to take ownership and maintenance of Marksheffel Road when it is constructed from Black Forest Road to the east and south to where it connects with the current north end of Marksheffel Road in the City. The section of Marksheffel Road adjacent to Sterling Ranch is planned to be constructed on 107 feet of right-of-way to the City's required cross-section(s) and criteria. A copy of the proposed cross section approved by Kathleen Krager of the City of Colorado Springs and Jeff Rice of El Paso County has been attached.

Vollmer Road

Road improvements to Vollmer Road including auxiliary turn lanes are required as part of the Subdivision Improvements Agreement (SIA) for Homestead at Sterling Ranch Filing No. 1 and Branding Iron at Sterling Ranch Filing No. 1. See Table 4 for the recommended improvements and timing of those improvements.

Sterling Ranch Road

Based on the projected intermediate-term total traffic volumes, the criteria contained in the El Paso County *Engineering Criteria Manual* and the classification of Sterling Ranch Road as an Urban Non-Residential Collector, northeastbound left-turn lanes would be required approaching the site-access points and Dines Boulevard.

A northeastbound right-turn deceleration lane would be required on Sterling Ranch Road approaching Hazlett Drive. A northeastbound right-turn deceleration lane would **not** be required on Sterling Ranch Road approaching Dines Boulevard.

DEVIATION REQUESTS

A deviation request was submitted to build Marksheffel Road adjacent to the site to the City of Colorado Springs standards.

A deviation for grades on Alzada Drive has been approved.

It is anticipated that a deviation will be submitted for the design of knuckles within Sterling Ranch Phase 2.

Copies of approved deviations are attached to this report.

TRANSPORTATION IMPROVEMENT FEE PROGRAM AND CREDIT AGREEMENTS

The applicant will be required to participate in the Countywide Transportation Improvement Fee Program. These projects will annex into the 10 mil PID, which has a per-lot upfront building permit fee of $1,221 per dwelling unit. The total building permit fee amount for the 49 lots within Sterling Ranch Filing No. 2 would be $59,829. The total building permit fee amount for the 212 lots within Sterling Ranch Phase 2 would be $258,852. Note: This is based on the current rate, which is subject to change. El Paso County updates this rate periodically.

A road fee credit agreement and development agreement and Subdivision Improvements Agreement will be required to address developer's road fee credits for construction of Vollmer Road. Additional credit agreements will be needed with each phase of construction to account for reimbursement of costs for the additional lanes and major intersection improvements.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

Sterling Ranch Filing No. 2 is projected to generate about 463 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 9 vehicles would enter and 27 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 31 vehicles would enter and 18 vehicles would exit the site.

Sterling Ranch Phase 2 is projected to generate about 2,001 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, about 39 vehicles would enter and 118 vehicles would exit the site. During the afternoon peak hour, about 132 vehicles would enter and 77 vehicles would exit the site.

Level of Service

All of the intersections analyzed are projected to operate at a satisfactory level of service (LOS D or better) for all movements during the peak hours, based on the projected short-term, intermediate-term, and 2040 total traffic volumes assuming the lane geometry and traffic control shown in Figures 19 through 21.

Recommended Improvements

A list of the roadway segment improvements is presented in Table 4. The location of each roadway segment is identified on Figure 23.

A list of all new auxiliary lanes needed in the vicinity of the site is presented in Table 5.

* * * * *

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By Jeffrey C. Hodsdon, P.E.
Principal

KDF:JCH:jas

Enclosures: Tables 1, 3, 4, and 5
Figures 1-23
Sterling Ranch Updated Traffic Impact Analysis
MTCP Maps
Regional Trail Map
Traffic Count Reports
Level of Service Reports
Crash History
Approved Sterling Ranch Deviations

Tables

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Table 1
Sketch Plan Trip Generation Comparison
Sterling Ranch Phase 2

Traffic Analysis Zone	Name	Status	Land Use Code	Land Use Description	Trip Generation Units		Trip Generation Rates [1] Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Evening Peak Hour In	Evening Peak Hour Out	Total External Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Evening Peak Hour In	Evening Peak Hour Out
Trip Generation Estimate Based on the Approved, Under Review and Currently Proposed Land Uses																
2	Future Residential/Patio Homes	Intermediate Future	210	Single-Family Detached Housing	134	DU[2]	9.44	0.19	0.56	0.62	0.37	1,265	25	74	84	49
	Sterling Ranch Filing No. 2	Currently Proposed	210	Single-Family Detached Housing	49	DU	9.44	0.19	0.56	0.62	0.37	463	9	27	31	18
	Sterling Ranch Phase 2	Currently Proposed	210	Single-Family Detached Housing	50	DU	9.44	0.19	0.56	0.62	0.37	472	9	28	31	18
3	Branding Iron at Sterling Ranch Fil No. 2	Intermediate Future	520	Elementary School	500	Students	1.89	0.36	0.31	0.08	0.09	945	181	154	41	44
4	Sterling Ranch Phase 2	Currently Proposed	---	drainage and utiilities	---	---	---	---	---	---	---	---	---	---	---	---
5&6			210	Single-Family Detached Housing	162	DU	9.44	0.19	0.56	0.62	0.37	1,529	30	90	101	59
7	Branding Iron at Sterling Ranch Fil No. 1	Approved	210	Single-Family Detached Housing	51	DU	9.44	0.19	0.56	0.62	0.37	481	9	28	32	19
	Homestead at Sterling Ranch Fil No. 1	Approved	210	Single-Family Detached Housing	72	DU	9.44	0.19	0.56	0.62	0.37	680	13	40	45	26
	Branding Iron at Sterling Ranch Fil No. 2	Under Review	210	Single-Family Detached Housing	75	DU	9.44	0.19	0.56	0.62	0.37	708	14	42	47	27
	Homestead at Sterling Ranch Fil No. 2	Under Review	210	Single-Family Detached Housing	104	DU	9.44	0.19	0.56	0.62	0.37	982	19	58	65	38
21	Homestead North Phase 1	Under Review	210	Single-Family Detached Housing	147	DU	9.44	0.19	0.56	0.62	0.37	1,388	27	82	92	54
	Homestead North Future	Future	210	Single-Family Detached Housing	77	DU	9.44	0.19	0.56	0.62	0.37	727	14	43	48	28
					921	**DU**						**9,640**	**350**	**666**	**617**	**380**
Trip Generation Estimate From the *Sterling Ranch Updated Traffic Impact Analysis* June 5, 2008																
2			210	Single-Family Detached Housing	234	DU	9.57	0.19	0.56	0.64	0.37	2,239	44	132	149	87
3			520	Elementary School	500	Students	1.29	0.23	0.19	0.00	0.01	645	116	95	1	5
4			210	Single-Family Detached Housing	89	DU	9.57	0.19	0.56	0.64	0.37	852	17	50	57	33
5			210	Single-Family Detached Housing	82	DU	9.57	0.19	0.56	0.64	0.37	785	15	46	52	31
6			210	Single-Family Detached Housing	103	DU	9.57	0.19	0.56	0.64	0.37	986	19	58	66	38
7			210	Single-Family Detached Housing	611	DU	9.57	0.19	0.56	0.64	0.37	5,847	115	344	388	227
21			210	Single-Family Detached Housing	327	DU	9.57	0.19	0.56	0.64	0.37	3,129	61	184	208	122
					1,446	**DU**						**14,483**	**387**	**909**	**921**	**543**
							Change in Trip Generation Estimate					**-4,843**	**-37**	**-243**	**-304**	**-163**

Notes:
(1) Source: "*Trip Generation, 10th Edition, 2017*" by the Institute of Transportation Engineers (ITE)
(2) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.

Table 3
Trip Generation Estimate
Sterling Ranch Phase 2 and Sterling Ranch Filing No. 2

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates [1] Average Weekday Traffic	Trip Generation Rates [1] Morning Peak Hour In	Trip Generation Rates [1] Morning Peak Hour Out	Trip Generation Rates [1] Evening Peak Hour In	Trip Generation Rates [1] Evening Peak Hour Out	Total External Trips Generated Average Weekday Traffic	Total External Trips Generated Morning Peak Hour In	Total External Trips Generated Morning Peak Hour Out	Total External Trips Generated Evening Peak Hour In	Total External Trips Generated Evening Peak Hour Out
Sterling Ranch Filing No. 2												
210	Single-Family Detached Housing	49 DU	9.44	0.19	0.56	0.62	0.37	463	9	27	31	18
Sterling Ranch Phase 2												
210	Single-Family Detached Housing	50 DU[2]	9.44	0.19	0.56	0.62	0.37	472	9	28	31	18
210	Single-Family Detached Housing	162 DU	9.44	0.19	0.56	0.62	0.37	1,529	30	90	101	59
		212 DU						**2,001**	**39**	**118**	**132**	**77**

Notes:
(1) Source: "*Trip Generation, 10th Edition, 2017*" by the Institute of Transportation Engineers (ITE)
(2) DU = dwelling unit

Source: LSC Transportation Consultants, Inc. May-20

Table 4

(page 1 of 2)

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2

Roadway Improvements

Item	Segment ID[(1)]	Improvement Description	Timing	Design ADT (vpd)	Projected Short-Term ADT (vph)	Projected Intermediate-Term ADT (vph)	Projected 2040 ADT (vpd)	Responsibility
1	SR1	Construct Sterling Ranch Road as an Urban Non-Residential Collector from Marksheffel Road to Dines Boulevard	With Sterling Ranch Fil No. 2	20,000	3,155	5,410	12,785	Sterling Ranch
2	SR2	Construct Sterling Ranch Road as an Urban Non-Residential Collector from Dines Boulevard to Briargate Parkway	Intermediate/ Long-Term Future	20,000	0	0	10,175	Sterling Ranch
3	M1	Construct Marksheffel Road as an Urban Principal Arterial to City of Colorado Springs standards in 107' of right-of-way between Vollmer Road and Sterling Ranch Road. Close the Tahiti Drive/Vollmer Road intersection as part of the improvement	With Sterling Ranch Fil No. 2	40,000	3,155	4,035	24,185	Sterling Ranch
4	M2	Construct Marksheffel Road as an Urban Principal Arterial to City of Colorado Springs standards in 107' of right-of-way between Sterling Ranch Road and the south boundary of the Sterling Ranch Master Plan Area	Intermediate Term (When the Level of Service at Marksheffel/Vollmer degrades below ECM Standards)	40,000	0	5,085	26,710	Sterling Ranch
5	M3	Construct Marksheffel Road between the south boundary of the Sterling Ranch Master Plan Area and Woodmen Road	Intermediate Term	40,000	0	5,085	26,710	Others
6	M4	Construct Marksheffel Road between Black Forest Road and Vollmer Road	Long-Term Future	40,000	0	0	25,515	Others
7	V1 northbound	Consideration of restriping the 38' of pavement for two 11' southbound lanes (remove the bike lane), a 12' northbound lane and a 4' outside paved shoulder along the east edge[(2)]	To be evaluated with the first development within Sterling Ranch Phase 2	5,500 (Directional northbound)	5,415 (Directional northbound)	4,670 (Directional northbound)	7,840 (Directional northbound)	Sterling Ranch
	V1 southbound			10,000 (Directional southbound)	5,415 (Directional southbound)	4,670 (Directional southbound)	7,840 (Directional southbound)	- - -
8	V1	Improve Vollmer Road from Dry Needle Place to Marksheffel Road to a standard 4-Lane Urban Minor Arterial Cross Section (Add a second northbound through lane and painted center median) [(3)]	Long-Term Future	20,000	10,830	9,335	15,680	Sterling Ranch and/or Others
9	V2	Improve Vollmer Road from Marksheffel Road to Lochwinnoch Lane to a standard 4-Lane Urban Minor Arterial Cross Section [(3)]	Short-Term Future (With Sterling Ranch Phase 2)	20,000 (Note: Existing Capacity 8,000[(4)])	7,900	9,490	18,800	Sterling Ranch

Notes:

(1) See Figure 23

(2) See Exhibit 1

(3) Adequate transition/redirect tapers would be needed between the various cross sections on Vollmer Road. Based on the criteria contained in Table 2-29 of the *El Paso Engineering Criteria Manual* an appropriate taper ratio for a roadway with a design speed of 40 mile per hour is 20:1

(4) Source: Table 20 *Road Impact Fee Study Updated* November 16, 2016

(5) Source: *The Ranch Sketch Plan Master Traffic Impact Study* by LSC Transportation Consultants, Inc. July 9, 2019 PCD File No. SKP-18-006

(6) Source: *Homestead North Phase 1 Traffic Impact Study* by LSC Transportation Consultants, Inc. August 5, 2020 PCD File No. SP-20-008

Source: LSC Transportation Consultants, Inc. (*January 2021*)

Table 4

(page 2 of 2)

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2

Roadway Improvements

10	V3	Improve Vollmer Road from Lochwinnoch Lane to Sterling Ranch/McClintock Station boundary to provide 36' of pavement (existing pavement approx. 23.38') and stripe for one through lane and plus a 6' paved, striped outside shoulder in each direction[3]	Short-Term Future (With Homestead North)	11,000 (Note: Existing Capacity 8,000)	7,230	8,855	18,735	Sterling Ranch
11		Improve Vollmer Road from Lochwinnoch Lane to Sterling Ranch/McClintock Station boundary south of Dines Boulevard to a standard 4-Lane Urban Minor Arterial Cross Section[3]	Long-Term Future	20,000	6,415	8,040	17,735	Sterling Ranch and/or Others
12	V4	Improve Vollmer Road from Sterling Ranch/McClintock Station boundary south of Dines Boulevard to Sam Bass Drive to a standard 4-Lane Urban Minor Arterial Cross Section[3]	Short-Term Future (With Homestead North Fil 1)	20,000	5,935	8,110	17,385	Sterling Ranch
13	B1	Construct the south half section of Briargate Pkwy (4-Lane Principal Arterial) between Vollmer Road and Wheatland Dr	Short-Term Future (With Homestead at Sterling Ranch Fil 2)	20,000	1,190	1,190	36,400	Sterling Ranch
14		Construct the north half section of Briargate Pkwy (4-Lane Principal Arterial) between Vollmer Road and Wheatland Dr	Long-Term Future	40,000				Sterling Ranch and/or others
15	B2-B3	Construct Briargate Pkwy as a 4-Lane Principal Arterial Wheatland Dr and Banning Lewis Parkway	Long-Term Future	40,000	0	0	36,675[5]	Sterling Ranch and/or others
16	B4	Construct Briargate Pkwy as a 4-Lane Principal Arterial between Banning Lewis Parkway and Meridian Road	Long-Term Future	40,000	0	0	34,375[6]	Others
17	B5	Construct Briargate Pkwy as a 4-Lane Principal Arterial between its current terminus and Black Forest Road and between Black Forest Road and Vollmer Road	Long-Term Future	40,000	0	0	33,160	Others
18	- - -	Construct Banning Lewis Parkway as a 4-Lane Principal Arterial between the south Sterling Ranch boundary and Briargate Pkwy	Long-Term Future	40,000	0	0	- - -	Sterling Ranch and/or others w/ cost recovery
19	- - -	Construct Banning Lewis Parkway as a 4-Lane Principal Arterial between Woodmen Road and the south Sterling Ranch boundary	Long-Term Future	40,000	0	0	- - -	Others
20	- - -	Widen Woodmen Road from 4-lane to 6-lane section from Powers Boulevard to US 24	Long-Term Future	- - -	- - -	- - -	- - -	Woodmen Road Metro District/ Others
21	- - -	Widen Black Forest Road from 2-lane to 6-lane section from Woodmen Road to Baker Road	Long-Term Future	- - -	- - -	- - -	- - -	Woodmen Heights District/ Wolf Ranch/ Other Adjacent Properties

Notes:

(1) See Figure 23

(2) See Exhibit 1

(3) Adequate transition/redirect tapers would be needed between the various cross sections on Vollmer Road. Based on the criteria contained in Table 2-29 of the *El Paso Engineering Criteria Manual* an appropriate taper ratio for a roadway with a design speed of 40 mile per hour is 20:1

(4) Source: Table 20 *Road Impact Fee Study Updated* November 16, 2016

(5) Source: *The Ranch Sketch Plan Master Traffic Impact Study* by LSC Transportation Consultants, Inc. July 9, 2019 PCD File No. SKP-18-006

(6) Source: *Homestead North Phase 1 Traffic Impact Study* by LSC Transportation Consultants, Inc. August 5, 2020 PCD File No. SP-20-008

Source: LSC Transportation Consultants, Inc. (*January 2021*)

Table 5

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2

Auxiliary Turn Lane Requirements

Intersection	Improvement Description	Threshold (vph)	Recommended Length	Timing
Marksheffel/ Vollmer	Northbound right-turn deceleration lane on Vollmer approaching Marksheffel	RT > 50	155’ Plus 160’ taper	Included in Initial Construction Plans
	Southbound left-turn lane on Vollmer approaching Marksheffel	LT > 25	310’ Plus 160’ taper	Included in Initial Construction Plans
	Westbound left-turn lane on Marksheffel approaching Vollmer	LT > 10(1)	425’ Plus 200’ taper	Included in Initial Construction Plans
	Westbound right-turn deceleration lane on Marksheffel approaching Vollmer	RT > 25(1)	235’ Plus 200’ taper	Included in Initial Construction Plans
Alzada/ Vollmer	Northbound right-turn deceleration lane on Vollmer approaching Alzada	RT > 50	Not Required	
Dines/ Vollmer	Northbound right-turn deceleration lane on Vollmer approaching Dines	RT > 50	Existing	
	Southbound left-turn lane on Vollmer approaching Dines	LT > 25	210’ Plus 160’ taper	Included in Initial Construction Plans
Briargate/ Vollmer	Northbound right-turn deceleration lane on Vollmer approaching Briargate	RT > 50	155’ Plus 160’ taper	Included in Initial Construction Plans
	Southbound left-turn lane on Vollmer approaching Briargate	LT > 25	280’ Plus 160’ taper	Included in Initial Construction Plans
	Westbound left-turn lane on Briargate approaching Vollmer	LT > 10(1)	435’ Plus 200’ taper	Included in Initial Construction Plans
	Westbound right-turn deceleration lane on Briargate approaching Vollmer	RT > 25(1)	235’ Plus 200’ taper	Included in Initial Construction Plans
Sterling Ranch/ Marksheffel	Westbound right-turn deceleration lane on Marksheffel approaching Sterling Ranch	RT > 25	235’ Plus 200’ taper	Intermediate Term
	Eastbound left-turn lane on Marksheffel approaching Sterling Ranch	LT > 10	470’ Plus 200’ taper	Included in Initial Construction Plans
	Southbound left-turn lane on Sterling Ranch approaching Marksheffel	LT > 25(1)	285’ Plus 90’ reverse curve taper	Included in Initial Construction Plans
	Second southbound left-turn lane on Sterling Ranch approaching Marksheffel	LT > 300		Long Term (With conversion of the intersection of Marksheffel/Sterling Ranch to traffic signal control)
	Southbound right-turn lane on Sterling Ranch approaching Marksheffel	RT > 50(1)	155’ Plus 160’ taper	Included in Initial Construction Plans
Sterling Ranch/ Bynum	Northbound left-turn lane Sterling Ranch Road approaching Bynum	LT > 25	155’ feet long plus a 90’ reverse curve taper.	Included in Initial Construction Plans
Sterling Ranch/ School House	Northbound left-turn lane on Sterling Ranch Road approaching School House	LT > 25	305’ feet long plus a 160’ taper.	Included in Initial Construction Plans
	Northbound right-turn deceleration lane on Sterling Ranch Road approaching School House	RT > 50	155’ feet long plus a 160’ taper.	With Phase 2
	Southbound left-turn lane Sterling Ranch Road approaching School House	LT > 25	305’ feet long plus a 160’ taper.	Included in Initial Construction Plans
Sterling Ranch/ Dines	Northbound left-turn lane Sterling Ranch Road approaching Dines Boulevard	LT > 25	305’ feet long plus a 160’ taper.	Included in Initial Construction Plans
	Eastbound right-turn deceleration lane on Dines Boulevard approaching Sterling Ranch Road	RT > 50	155’ feet long plus a 160’ taper	Included in Initial Construction Plans

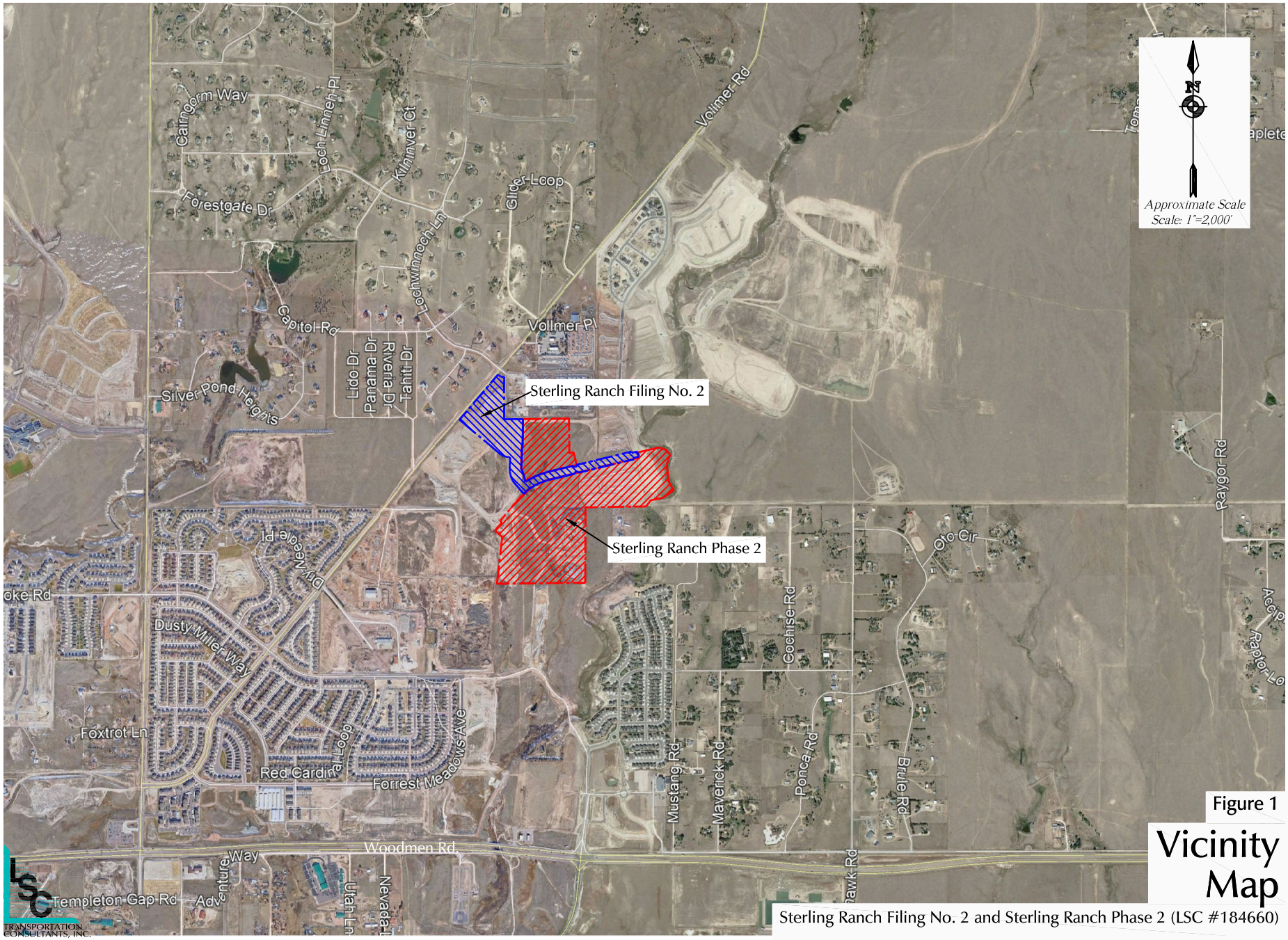
Notes:

(1) Although the turning volume thresholds are shown, in the short term, these will not function as "speed change lanes" as the intersection will be a T with all approach traffic turning left or right. The short term (interim) need for and length of these turn lanes could potentially, more appropriately, be based on intersection capacity and queuing.

Source: LSC Transportation Consultants, Inc. (January 2021)

Figures

TRANSPORTATION
CONSULTANTS, INC.


Approximate Scale
Scale: 1"=2,000'
Sterling Ranch Filing No. 2
Sterling Ranch Phase 2
Cairngorm Way
Loch Linnen Pl
Kinnver Ct
Forestgate Dr
Glider Loop
Vollmer Rd
Lochwinnoch Ln
Capitol Rd
Vollmer Pl
Lido Dr
Panama Dr
Riviera Dr
Tahiti Dr
Silver Pond Heights
Raygor Rd
Dry Meade Pl
Dusty Miller Way
Foxtrot Ln
Red Cardinal Loop
Forrest Meadows Ave
Mustang Rd
Maverick Rd
Ponca Rd
Cochise Rd
Oio Cir
Raptor Lo
Woodmen Rd
Templeton Gap Rd
Nevada
Figure 1
Vicinity Map
Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)
TRANSPORTATION CONSULTANTS, INC.

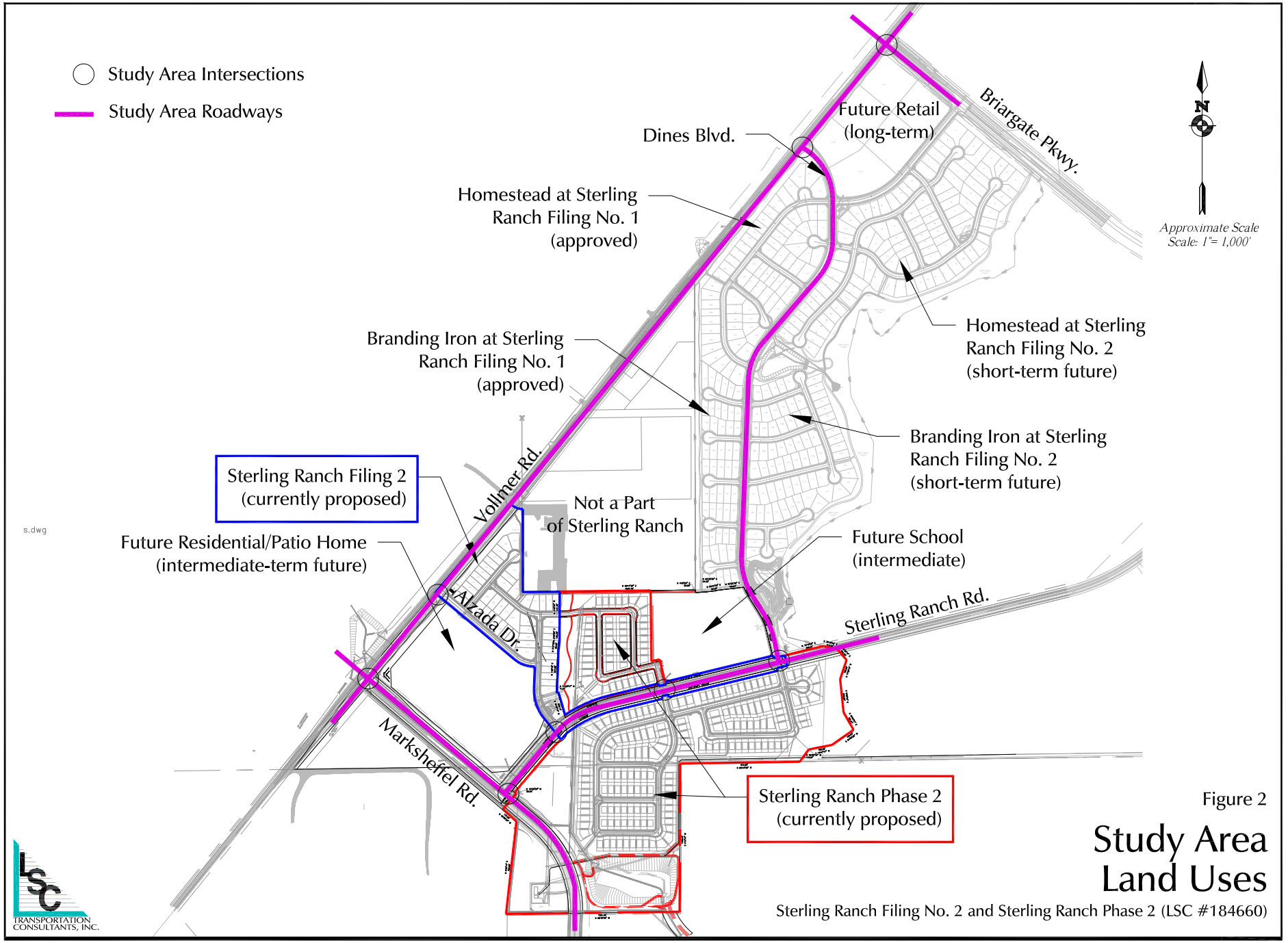


Figure 2

Study Area Land Uses

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

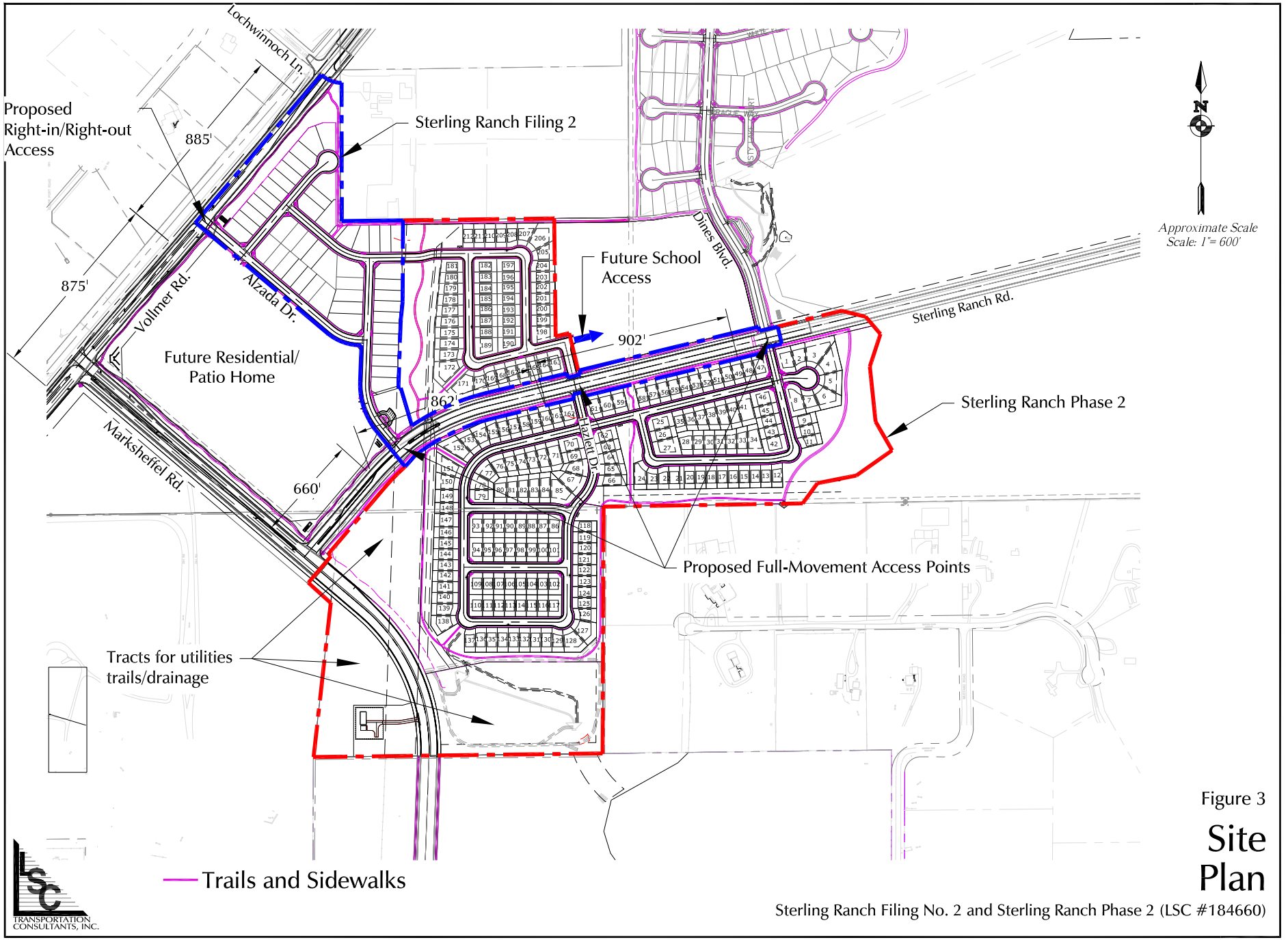


Figure 3

Site Plan

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

LSC TRANSPORTATION CONSULTANTS, INC.

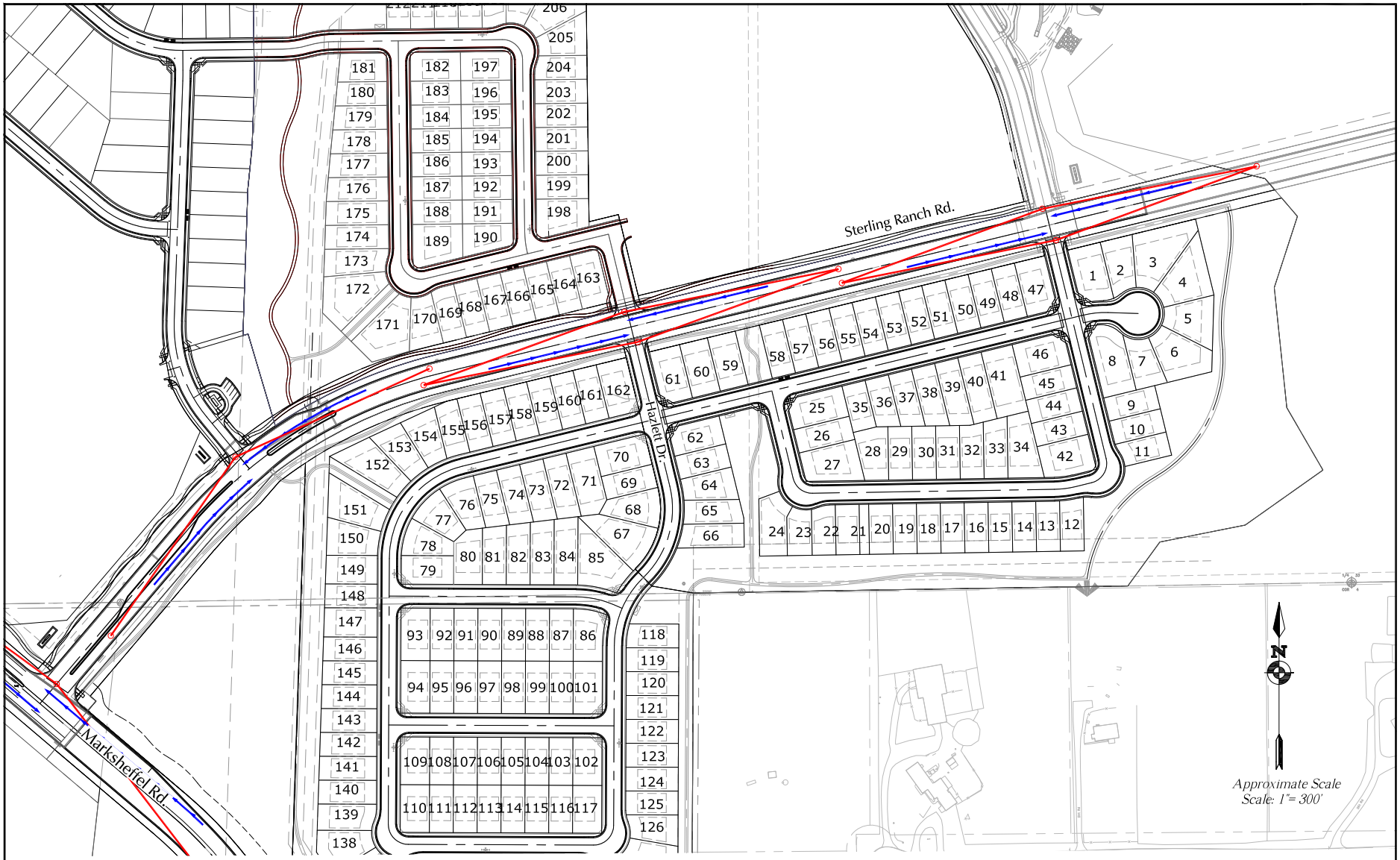


Figure 4

LEGEND:

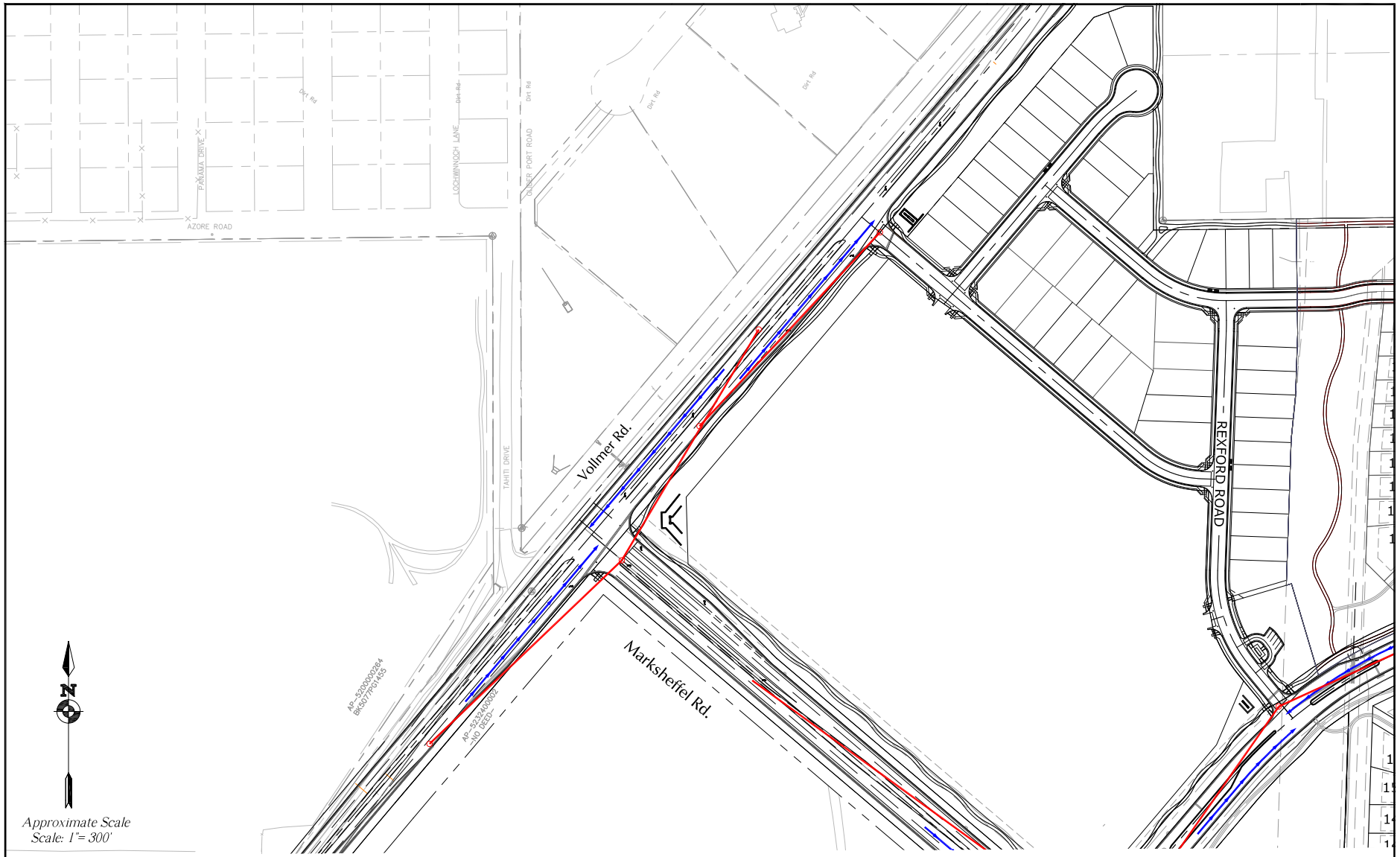
= ECM Required Intersection Sight Distance (445' from Table 2-21 Based on a Design Speed of 40mph)

= ECM Required Stopping Sight Distance (305' from Table 2-17 Based on a Design Speed of 40mph)

Sterling Ranch Road Sight Distance Analysis

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

TRANSPORTATION CONSULTANTS, INC.



N

Approximate Scale
Scale: 1"= 300'

LEGEND:

= ECM Required Intersection Sight Distance (555' from Table 2-21 Based on a Design Speed of 50mph)

= ECM Required Stopping Sight Distance (425' from Table 2-17 Based on a Design Speed of 50mph)

TRANSPORTATION CONSULTANTS, INC.

Figure 5

Vollmer Road Sight Distance Analysis

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

Approximate Scale
Scale: 1"= 300'

Figure 6

Marksheffel Road Sight Distance Analysis

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

LEGEND:

= Required Intersection Sight Distance (900' from Table 4-2 of the Colorado State Highway Access Code for a 4-lane roadway with a Posted Speed of 45mph)

= ECM Required Stopping Sight Distance (425' from Table 2-17 Based on a Design Speed of 50mph)

LSC TRANSPORTATION CONSULTANTS, INC.

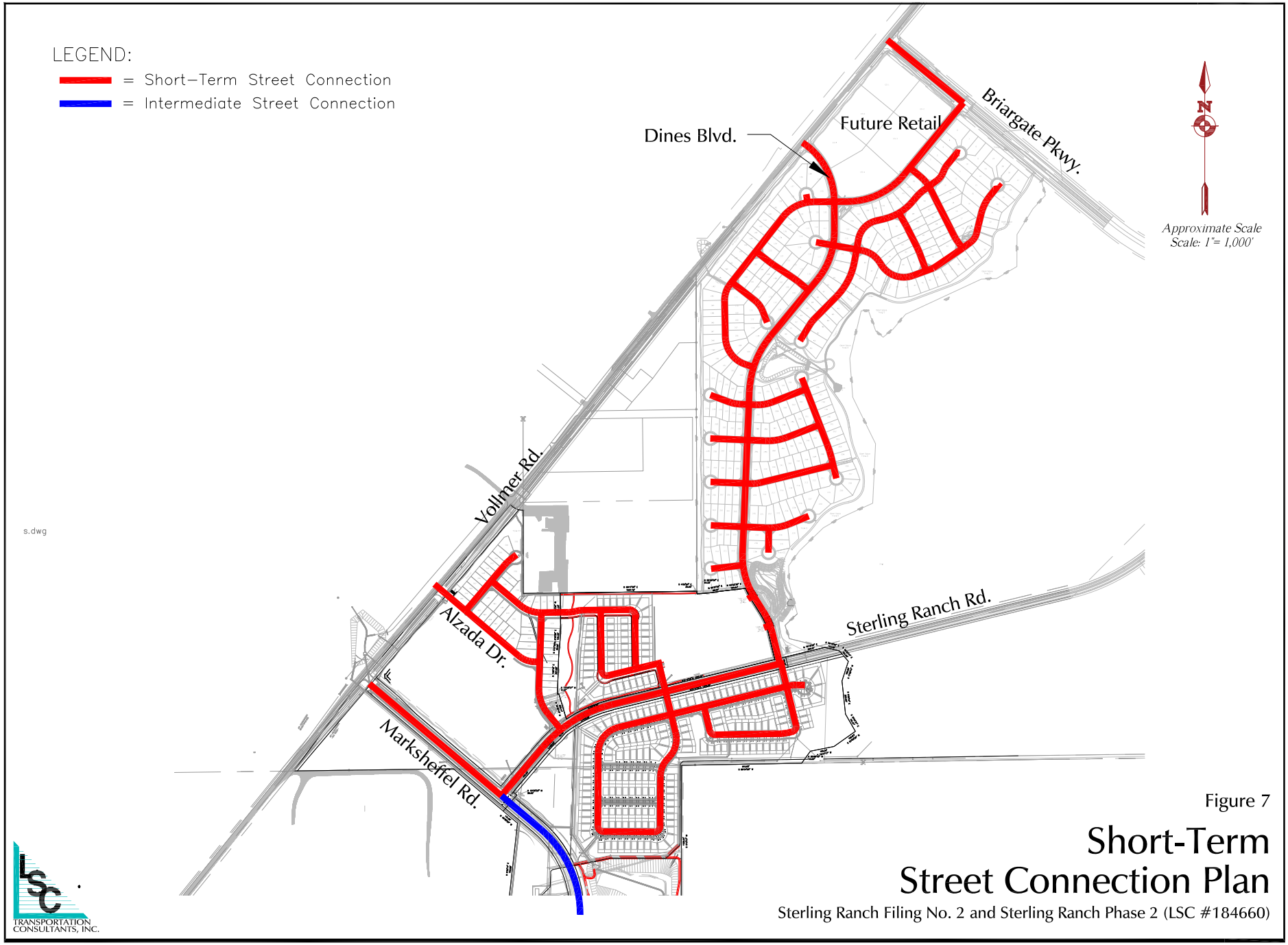
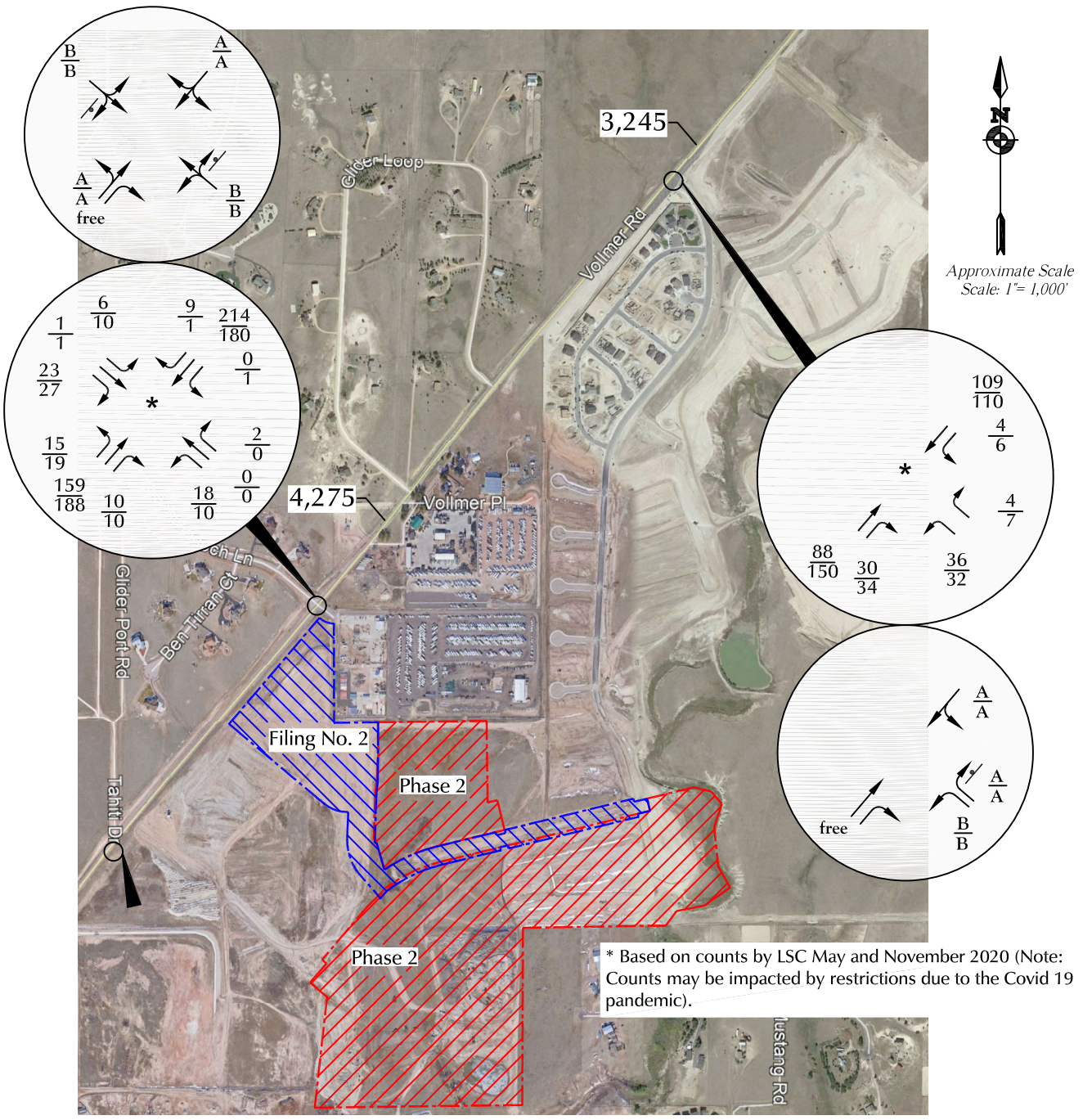


Figure 7

Short-Term Street Connection Plan

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

LSC TRANSPORTATION CONSULTANTS, INC.



LEGEND:

= Stop Sign

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

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

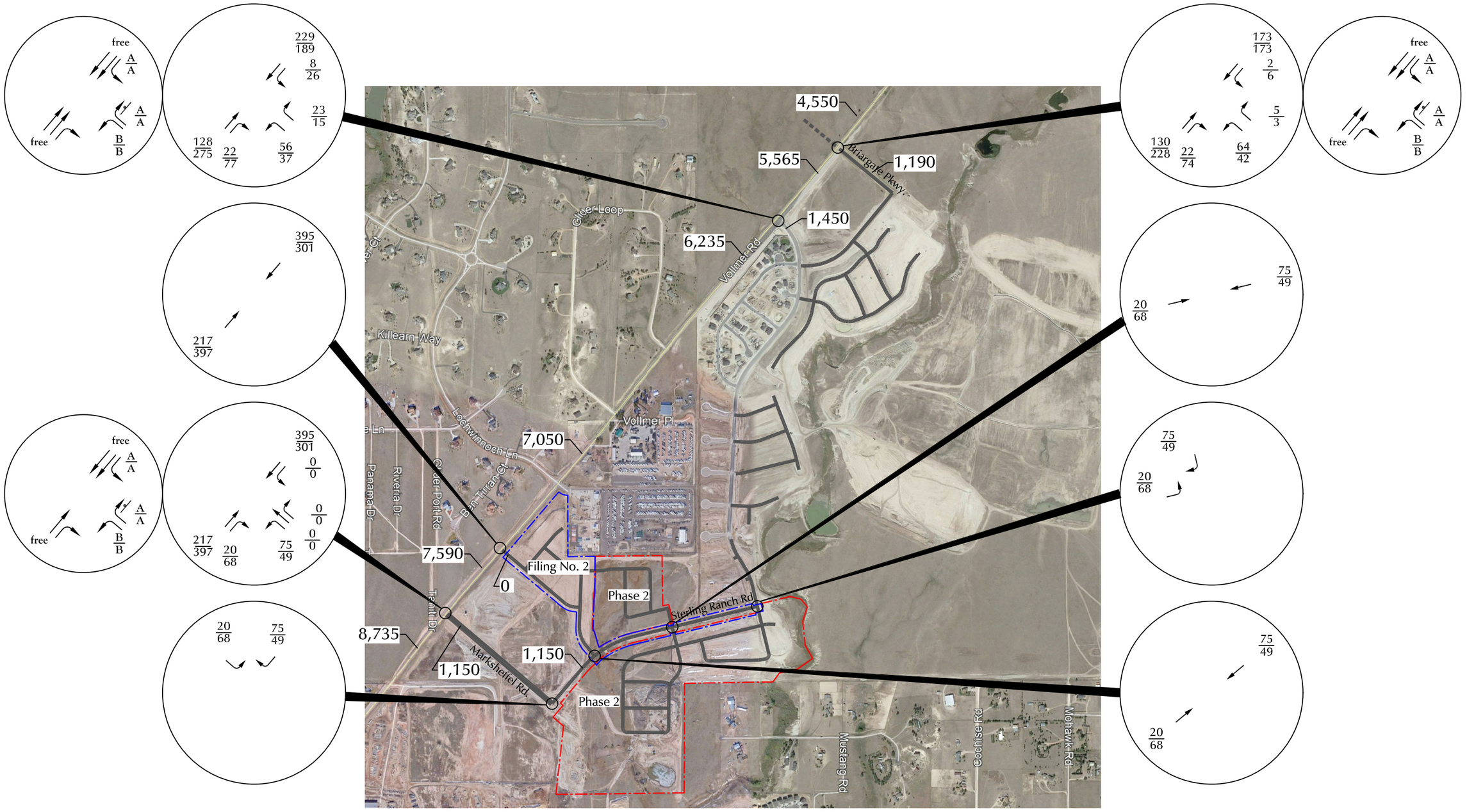
X,XXX = Average Daily Traffic (vehicles per day)

Figure 8

Existing Traffic, Lane Geometry, Traffic Control and Level of Service

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

LSC TRANSPORTATION CONSULTANTS, INC.



LEGEND:

= 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= Average Daily Traffic (vehicles per day)

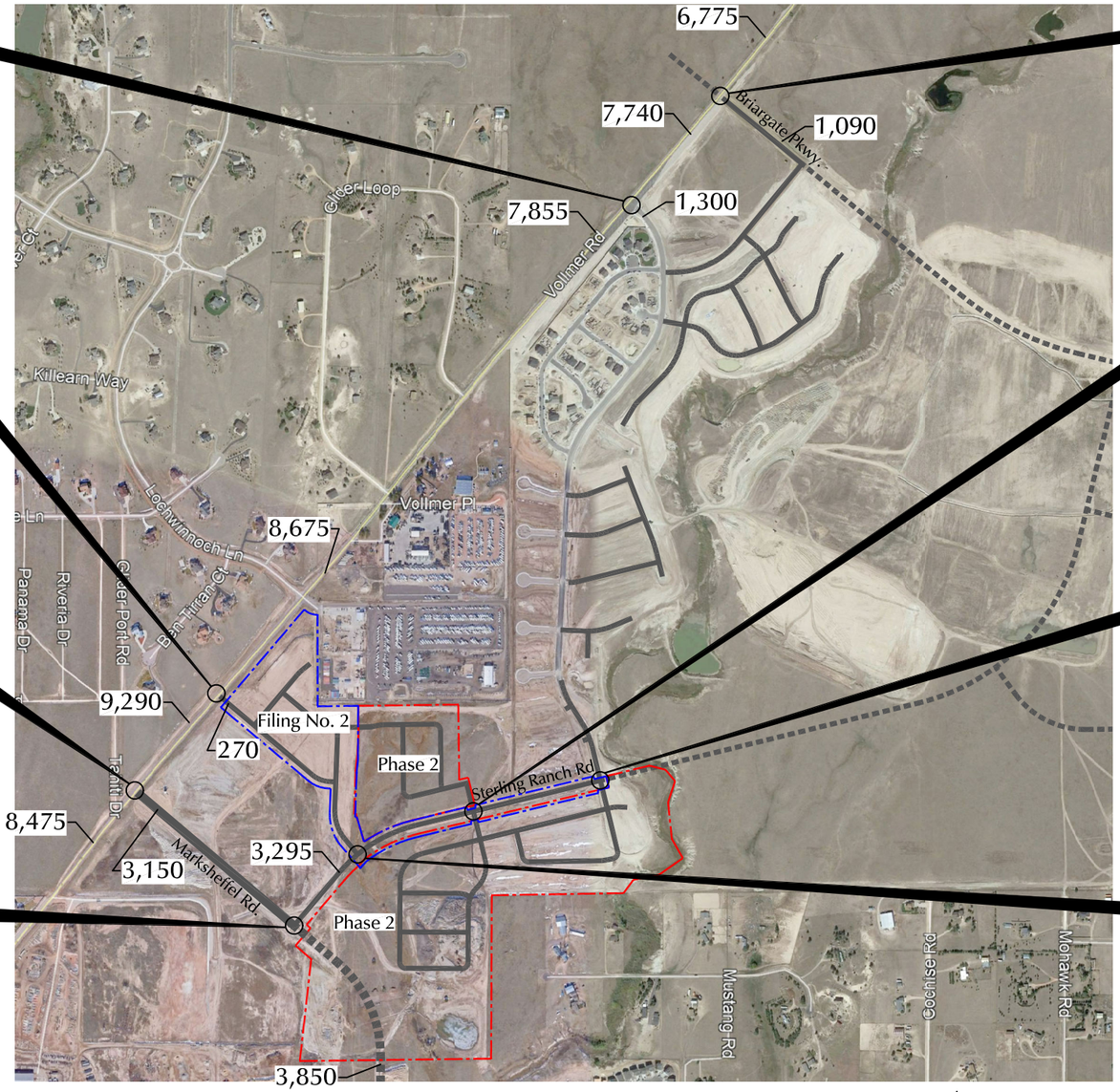
TRANSPORTATION CONSULTANTS, INC.

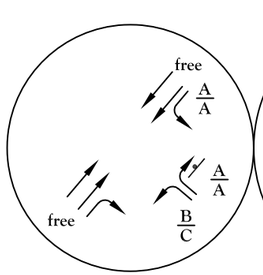
Approximate Scale
Scale: 1"= 1,000'

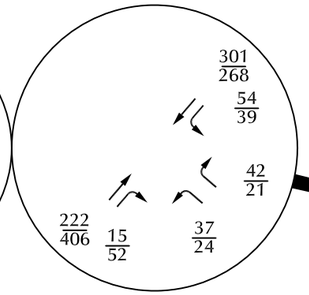
Figure 9

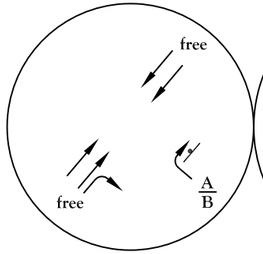
Short Term (Year 2021) Background Traffic, Lane Geometry, Traffic Control and Level of Service

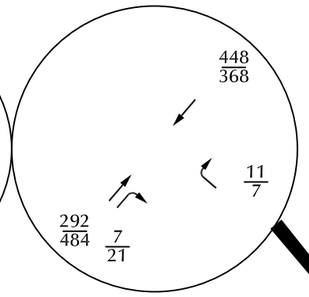
Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

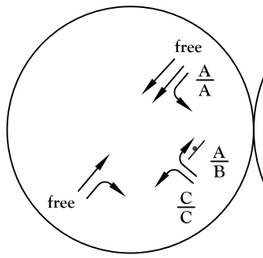


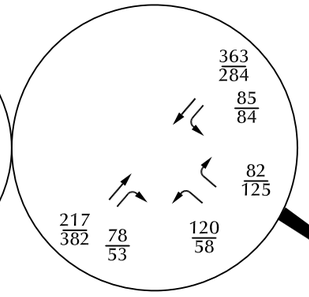


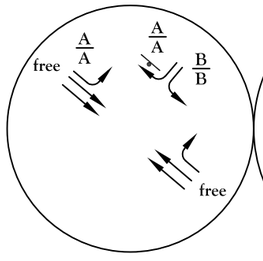


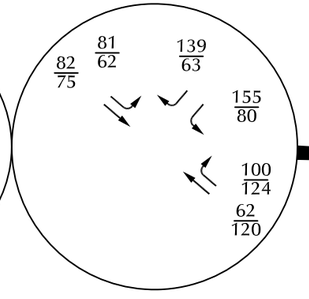


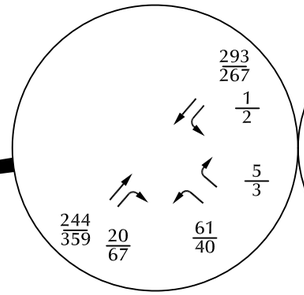


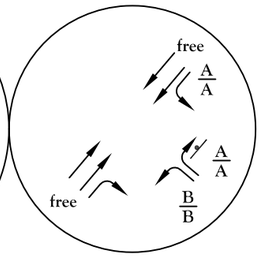


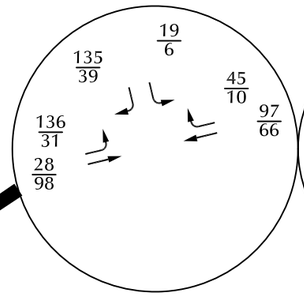


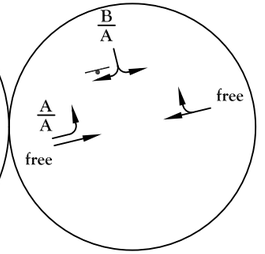


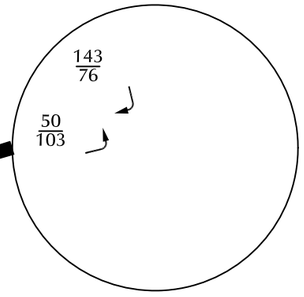


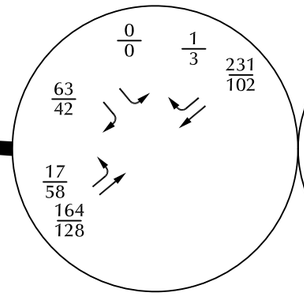


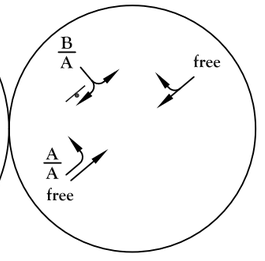












LEGEND:

= Stop Sign

= Traffic Signal

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

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)

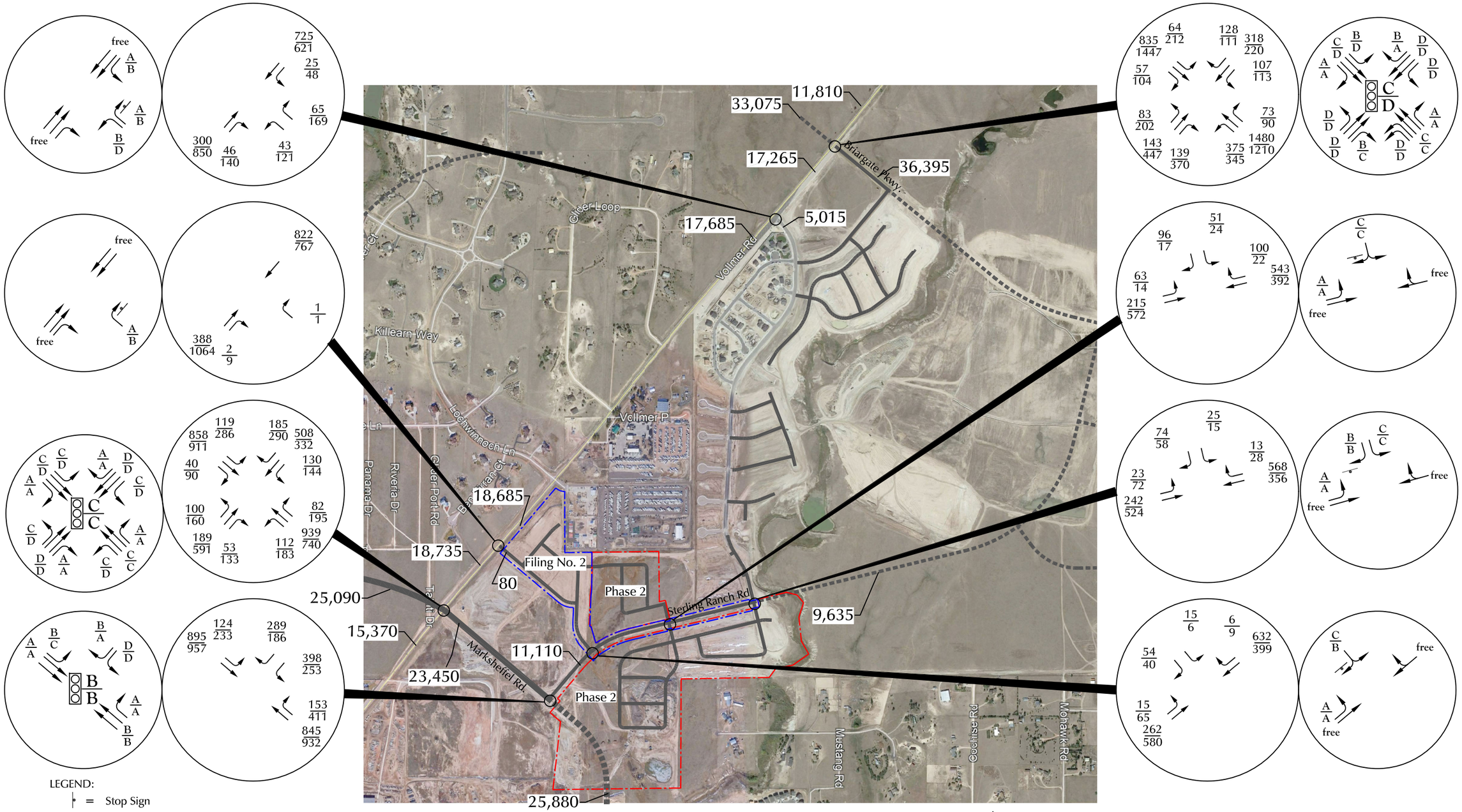
TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 1,000'

Figure 10

Intermediate Term (Year 2025) Background Traffic, Lane Geometry, Traffic Control and Level of Service

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)



LEGEND:

= Stop Sign

= Traffic Signal

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

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)

TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 1,000'

Figure 11

Year 2040 Background Traffic, Lane Geometry, Traffic Control and Level of Service

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

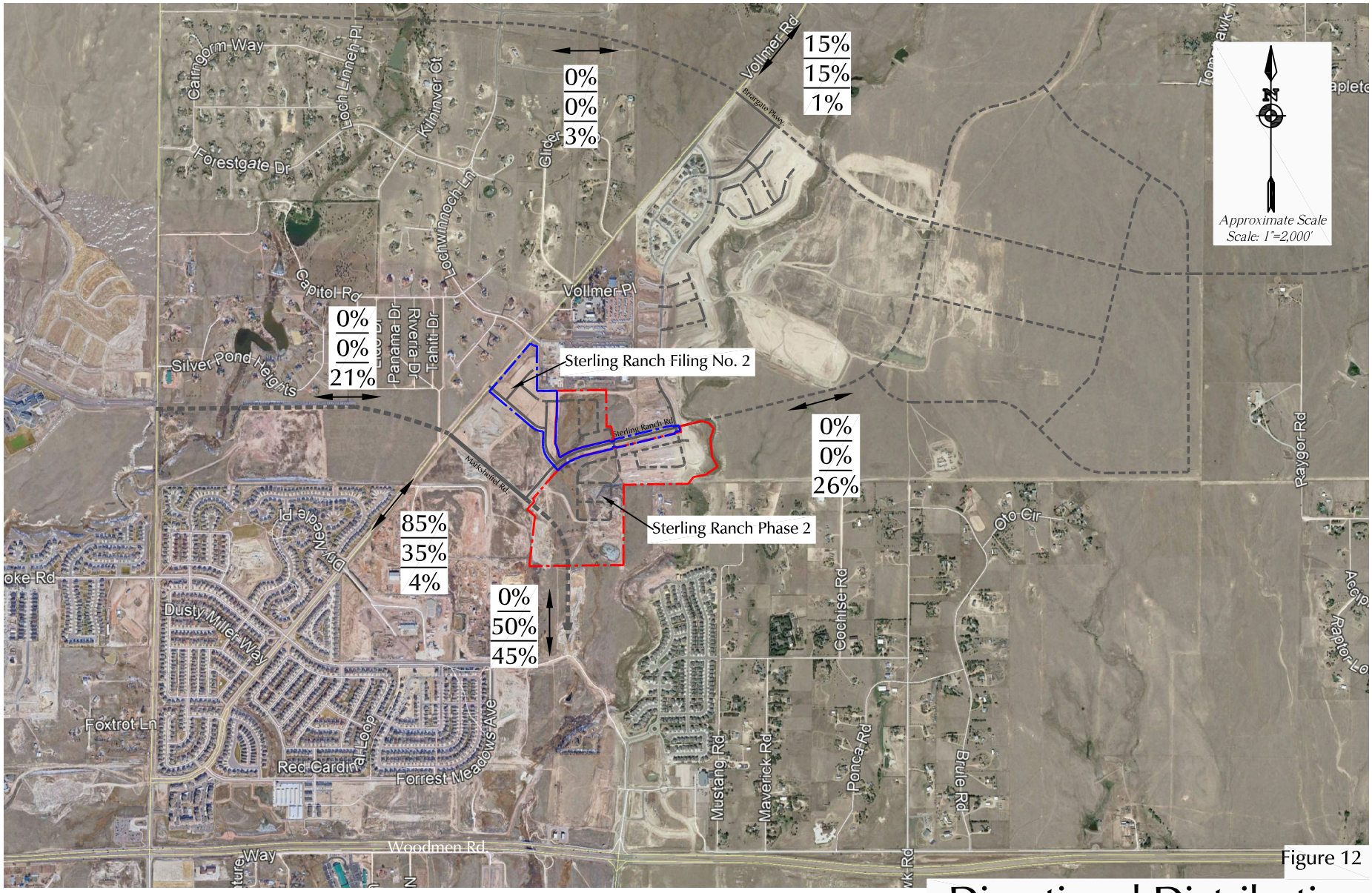


Figure 12

Directional Distribution of Site-Generated Traffic

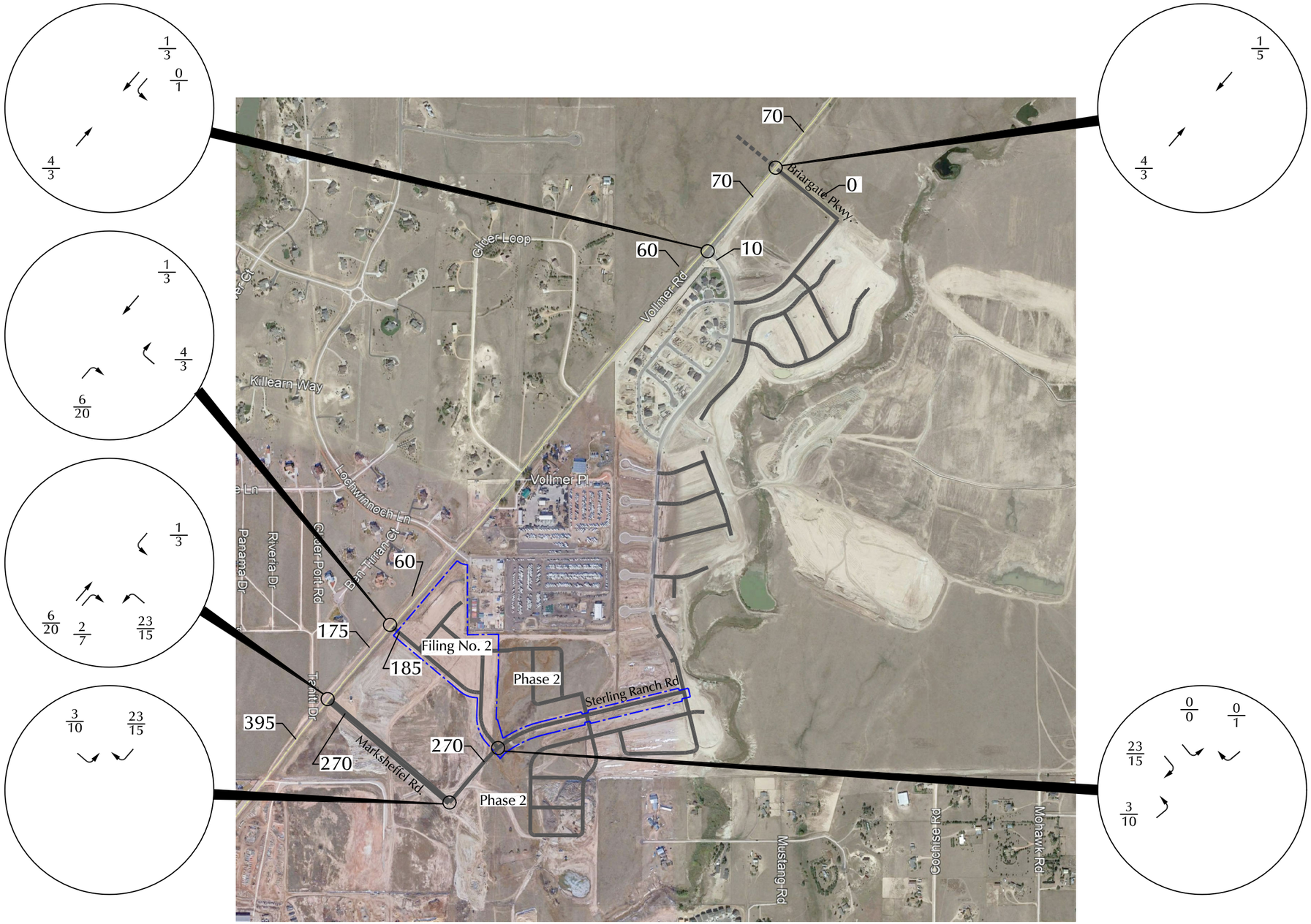
Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

LEGEND:

XX%
XX%
XX%

= Short-Term Percent Directional Distribution / Intermediate-Term Percent Directional Distribution / Long-Term Percent Directional Distribution

TRANSPORTATION CONSULTANTS, INC.



LEGEND:

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

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

TRANSPORTATION CONSULTANTS, INC.

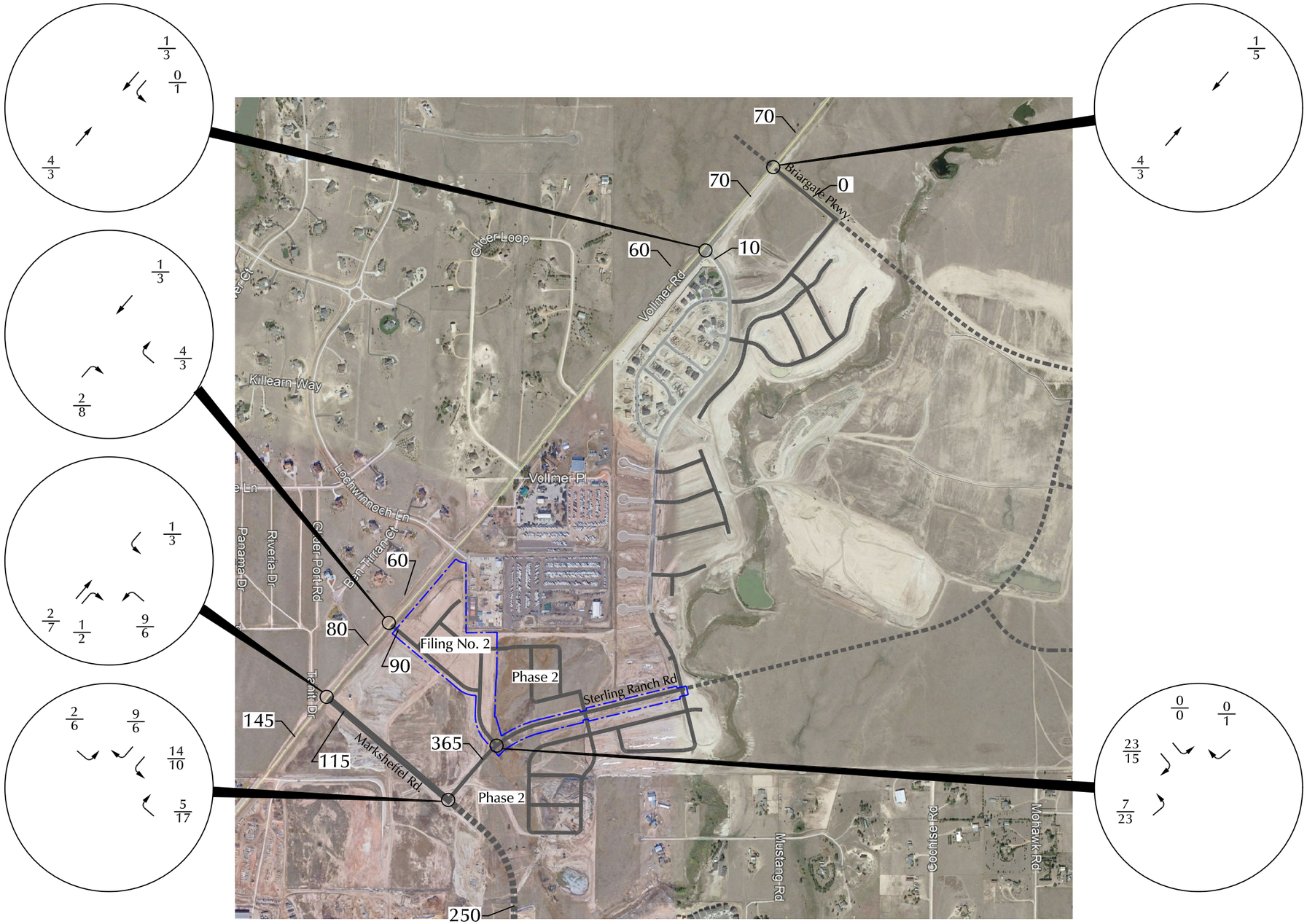
N

Approximate Scale
Scale: 1"= 1,000'

Figure 13

Short Term Assignment of Sterling Ranch Filing No. 2 Generated Traffic

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)



LEGEND:

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

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

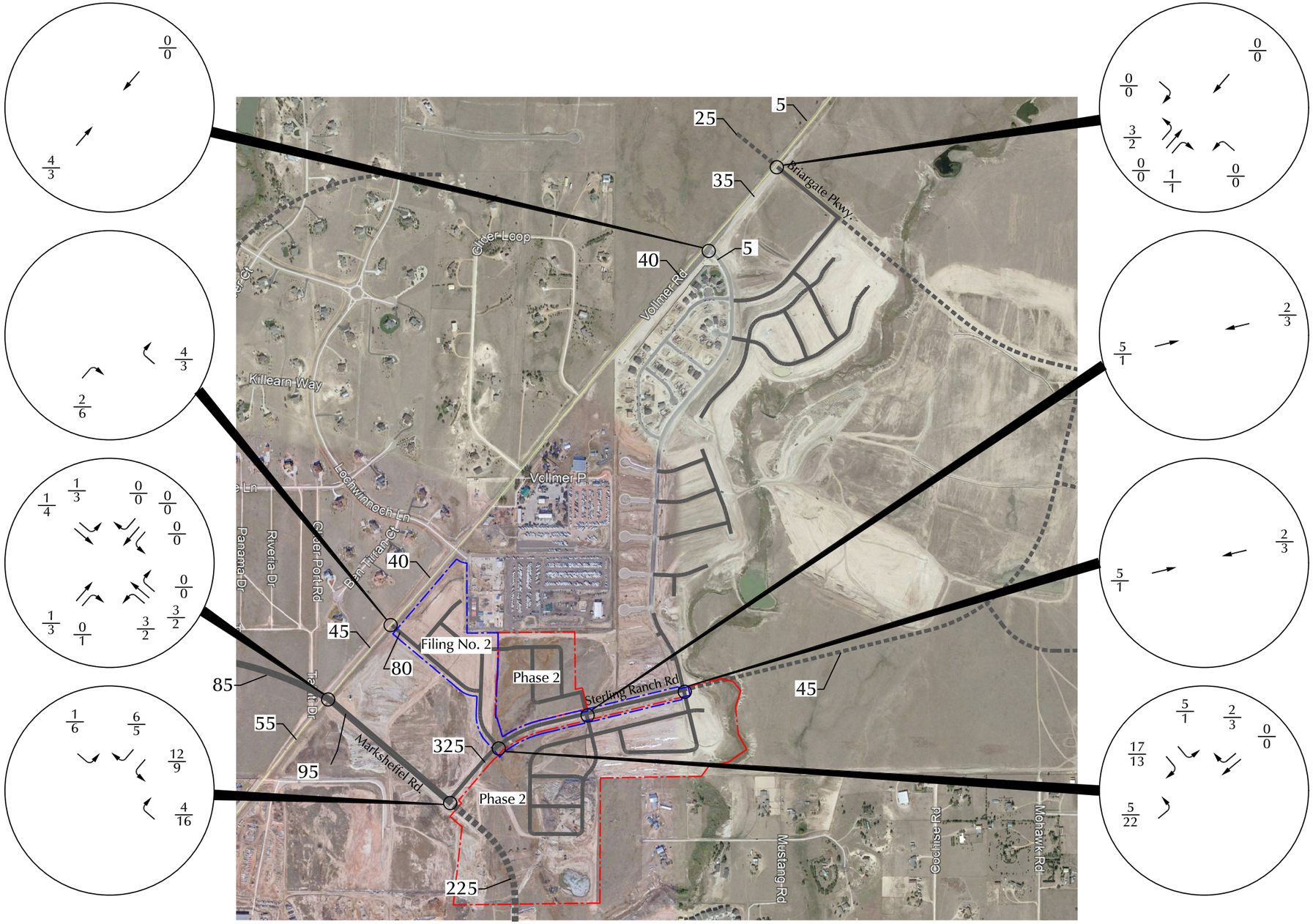
TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 1,000'

Figure 14

Intermediate Term Assignment of Sterling Ranch Filing No. 2 Generated Traffic

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)



LEGEND:

= Stop Sign

= Traffic Signal

$\frac{XX}{XX}$ = 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)

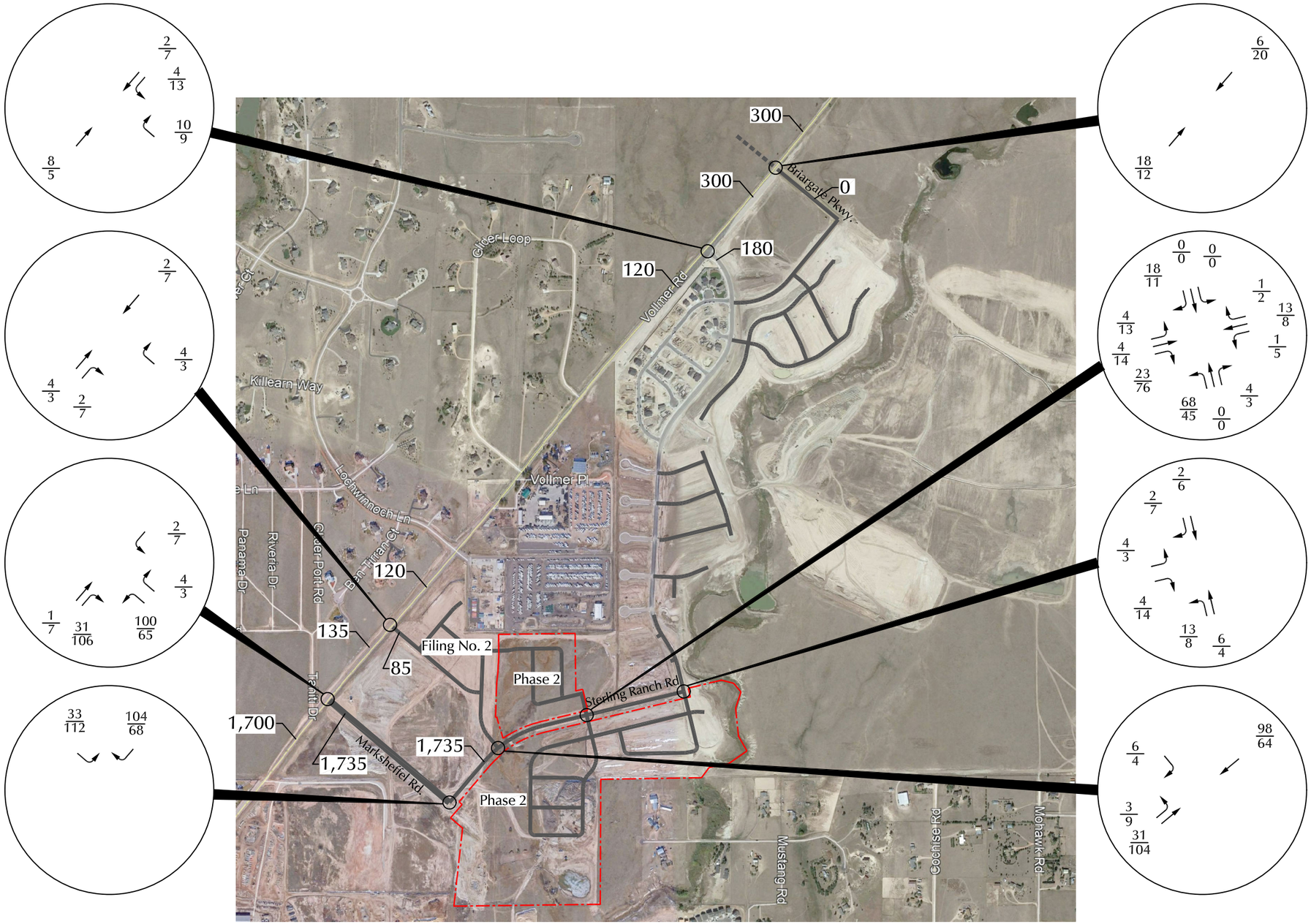
TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 1,000'

Figure 15

Long Term Assignment of Sterling Ranch Filing No. 2 Generated Traffic

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)



LEGEND:

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

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

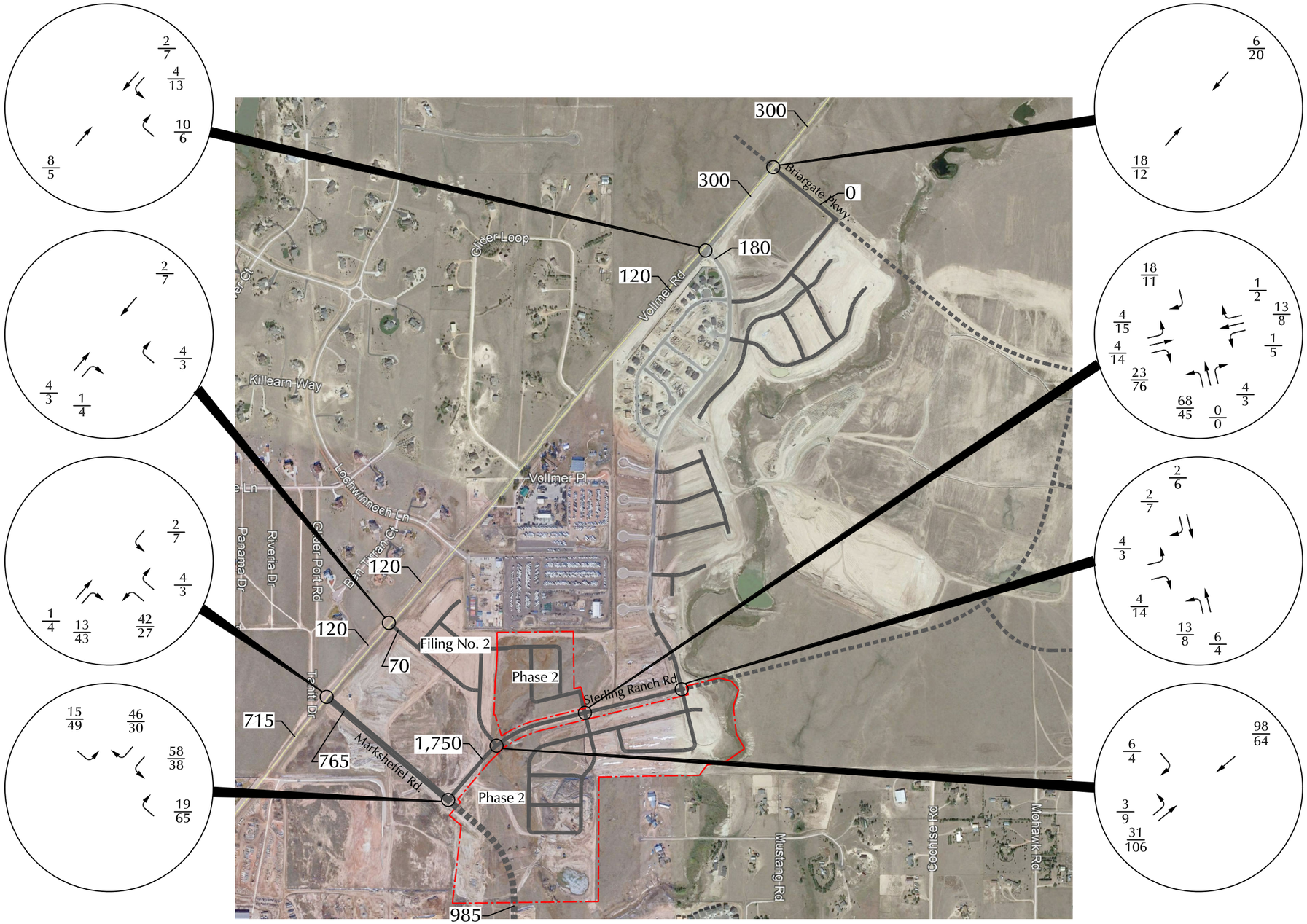
TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 1,000'

Figure 16

Short Term Assignment of Sterling Ranch Phase 2 Generated Traffic

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)



LEGEND:
XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)
X,XXX= Average Daily Traffic (vehicles per day)

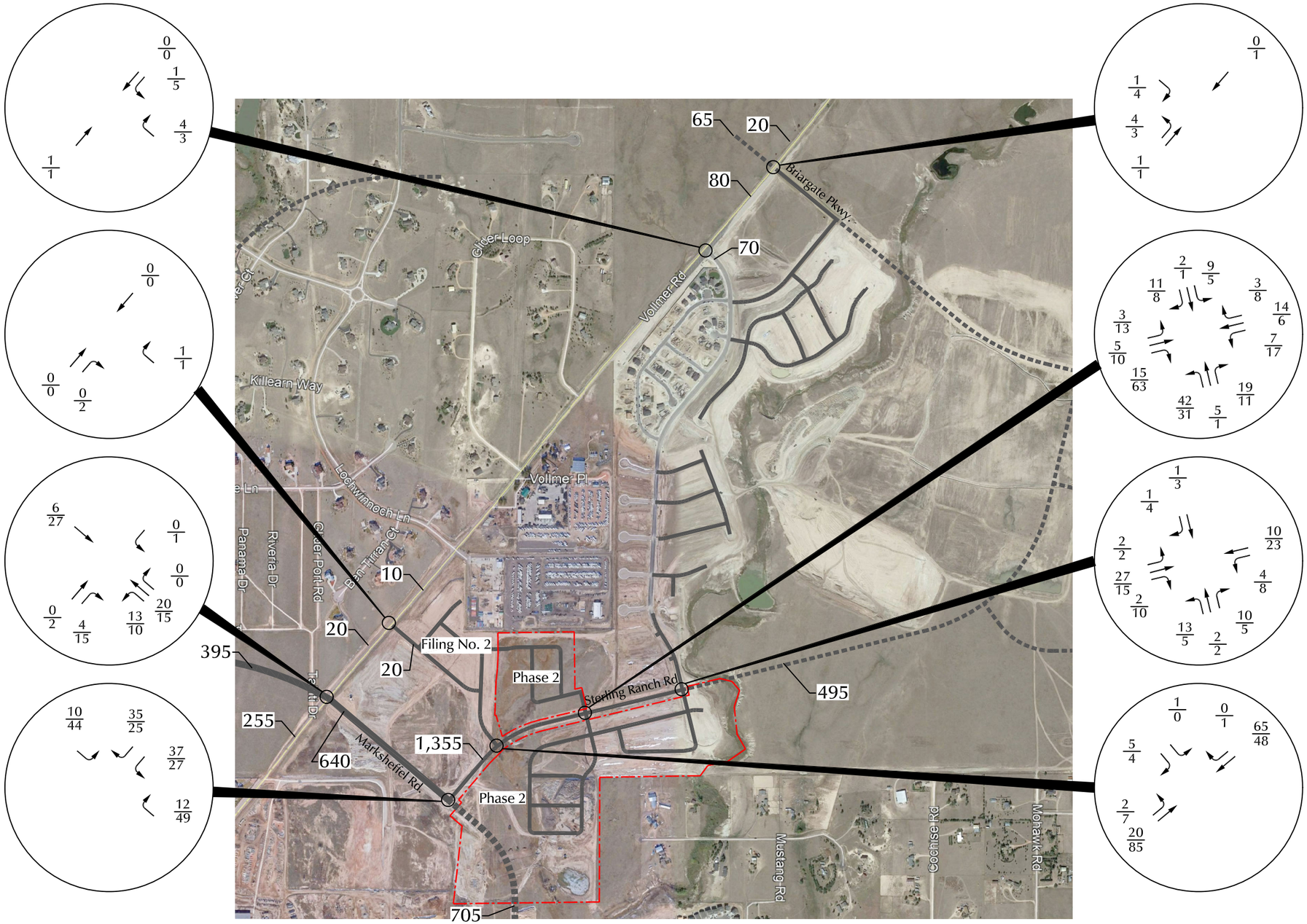
LSC TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 1,000'

Figure 17

Intermediate Term Assignment of Sterling Ranch Phase 2 Generated Traffic

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)



LEGEND:
XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)
X,XXX= Average Daily Traffic (vehicles per day)

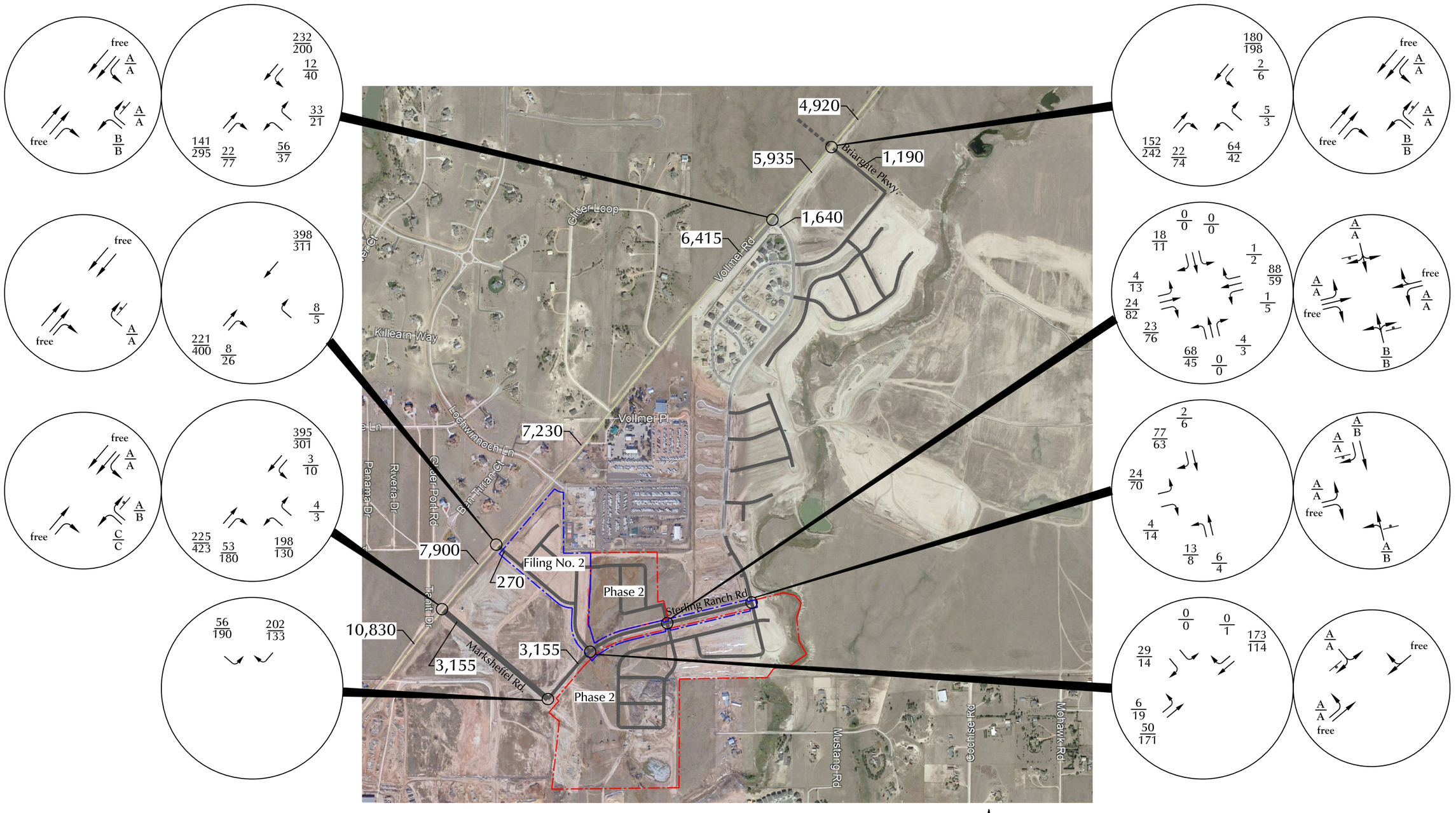
TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 1,000'

Figure 18

Long Term Assignment of Sterling Ranch Phase 2 Generated Traffic

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)



LEGEND:

⊦	= 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=	Average Daily Traffic (vehicles per day)

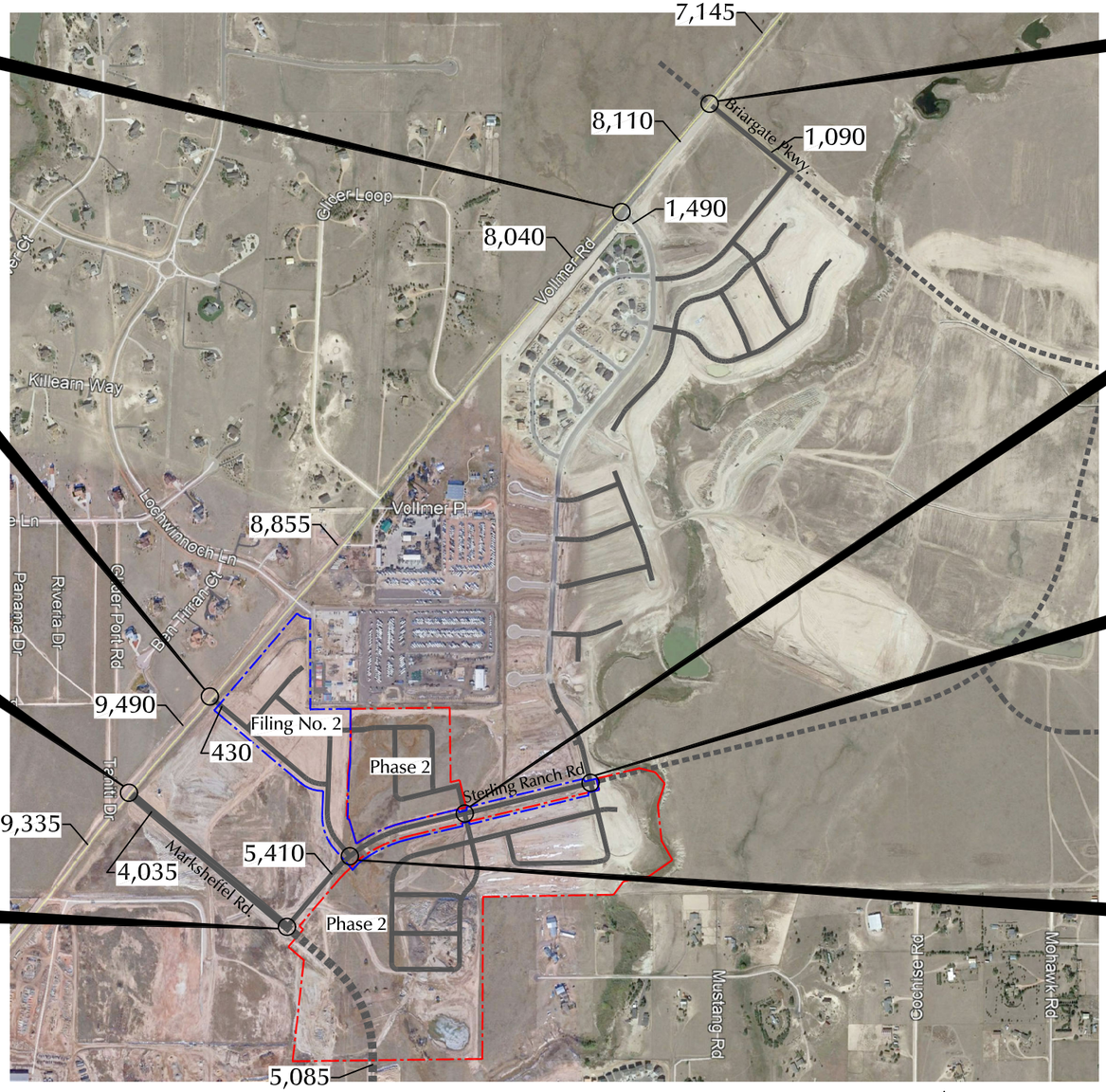
LSC TRANSPORTATION CONSULTANTS, INC.

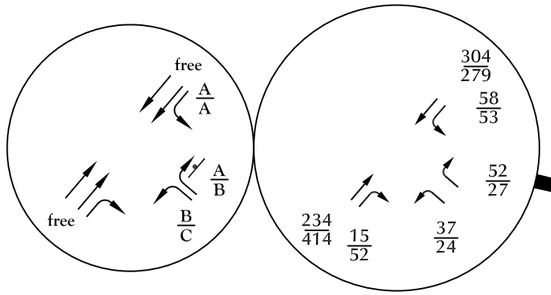
Approximate Scale
Scale: 1"= 1,000'

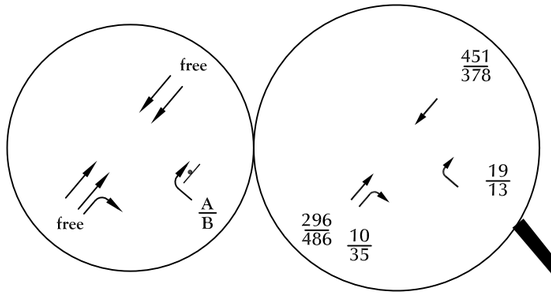
Figure 19

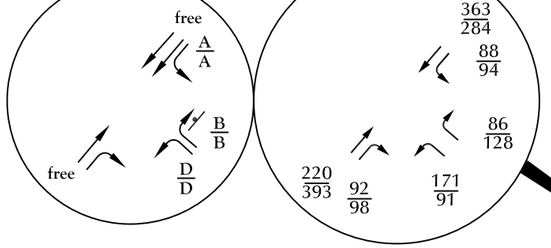
Short Term (Year 2021) Total Traffic, Lane Geometry, Traffic Control and Level of Service

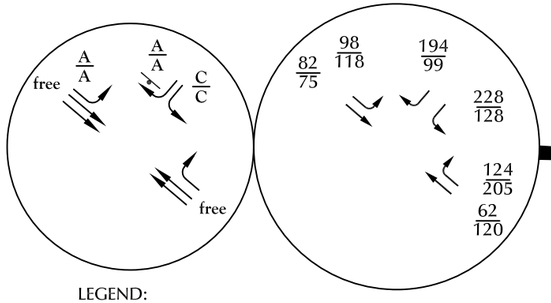
Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

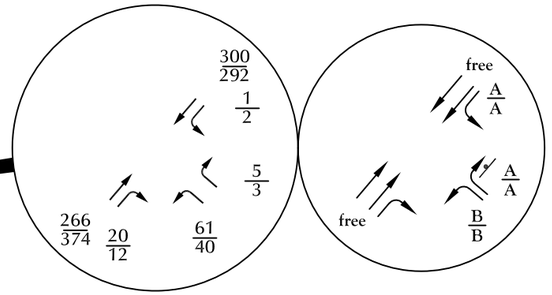


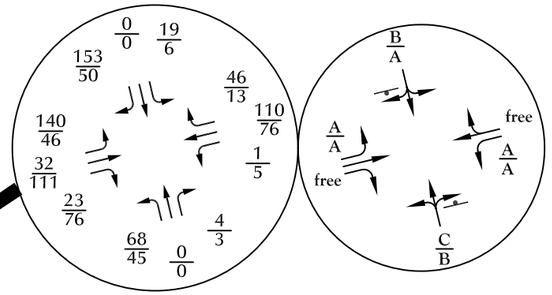


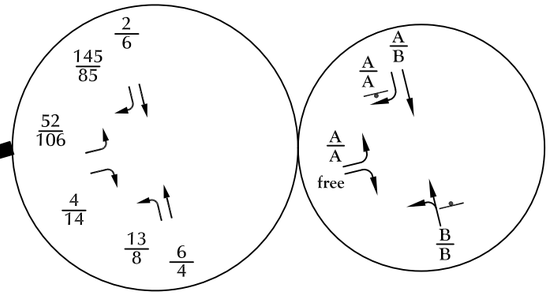


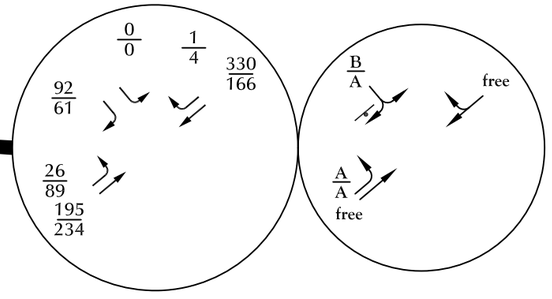












LEGEND:

= Stop Sign

= Traffic Signal

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

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

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

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

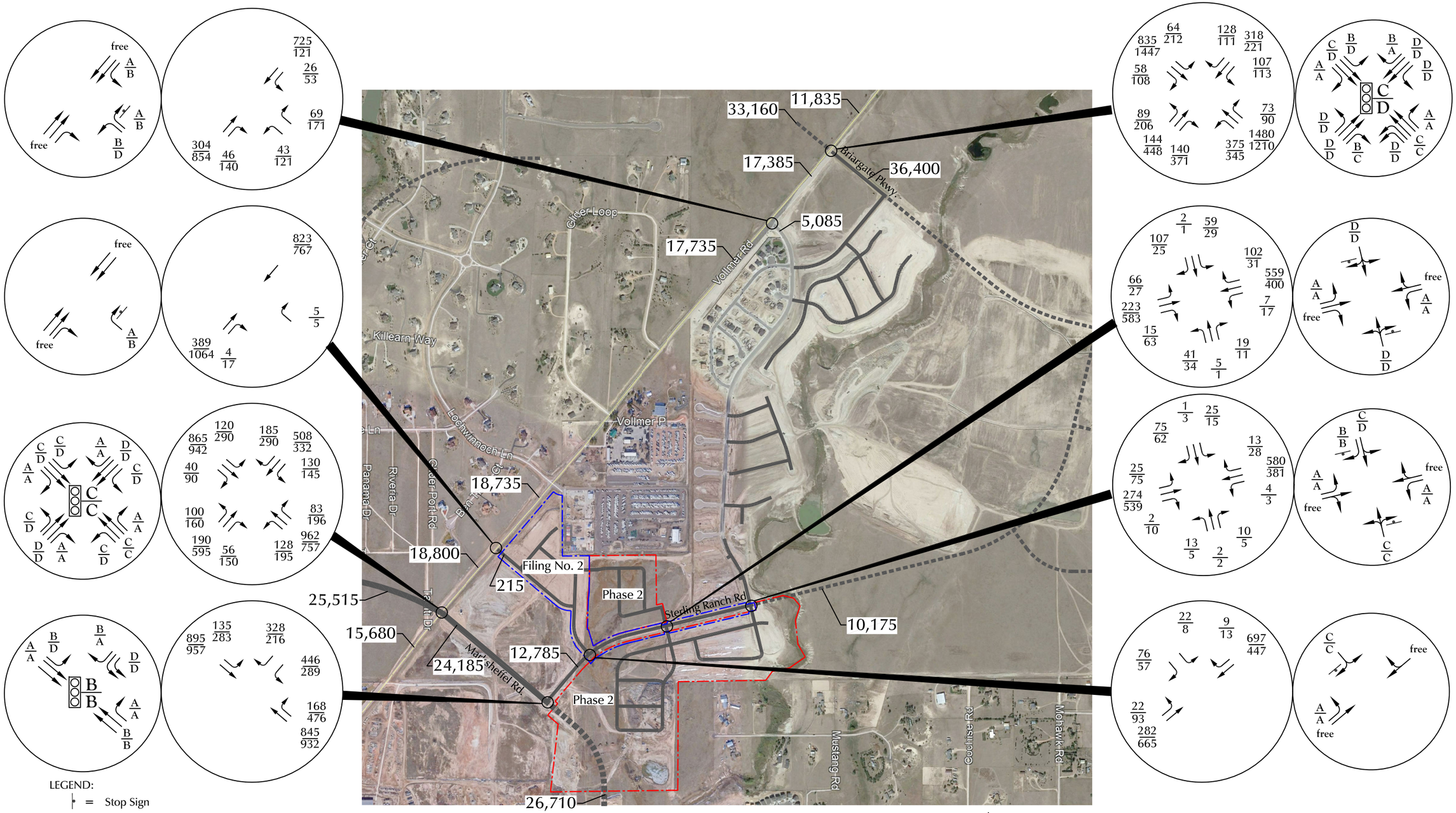
TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 1,000'

Figure 20

Intermediate Term (Year 2025) Total Traffic, Lane Geometry, Traffic Control and Level of Service

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)



LEGEND:

= Stop Sign

= Traffic Signal

$\frac{XX}{XX}$ = 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)

TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 1,000'

Figure 21

Year 2040 Total Traffic, Lane Geometry, Traffic Control and Level of Service

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

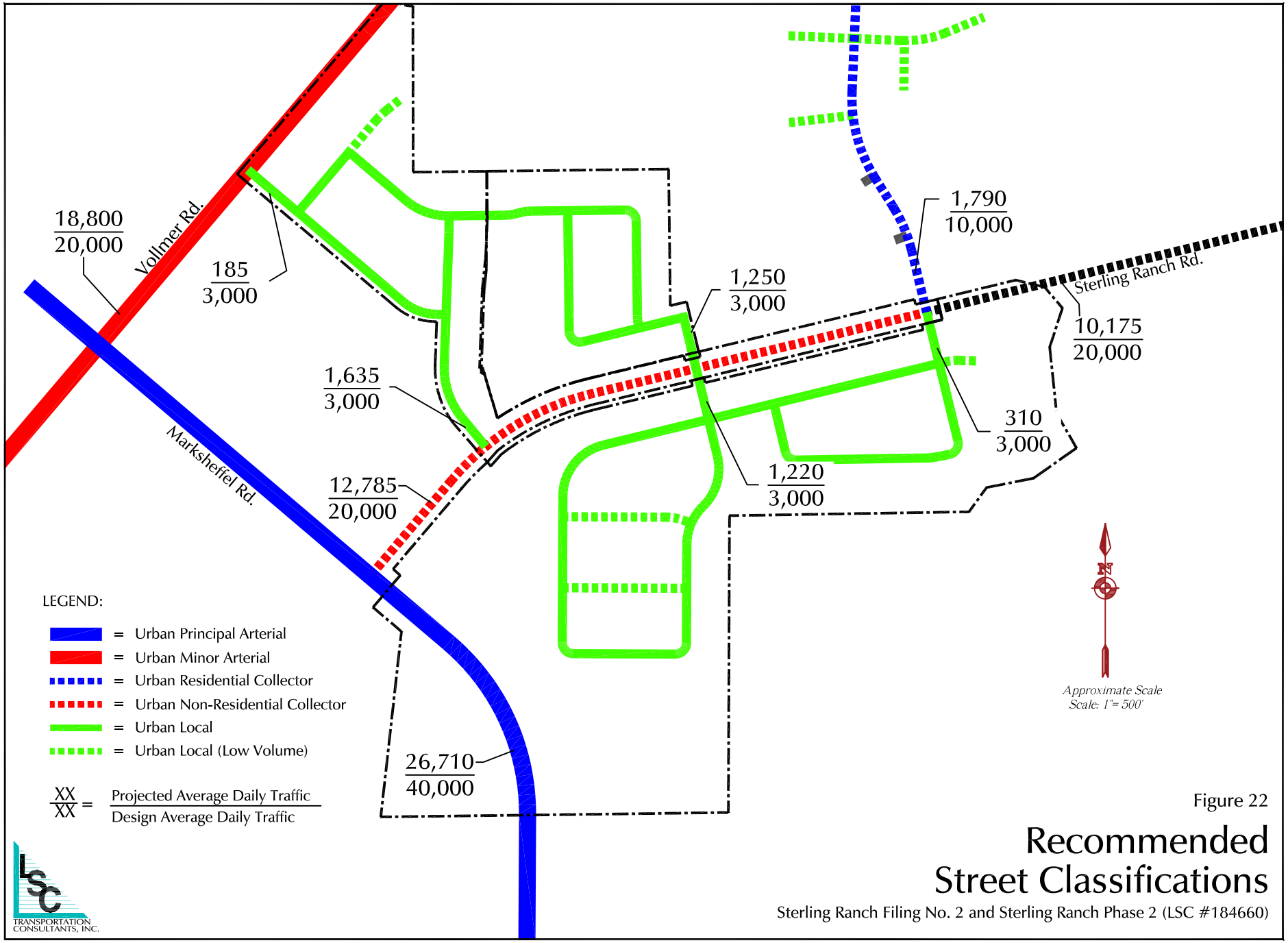


Figure 22

Recommended Street Classifications

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

LSC TRANSPORTATION CONSULTANTS, INC.

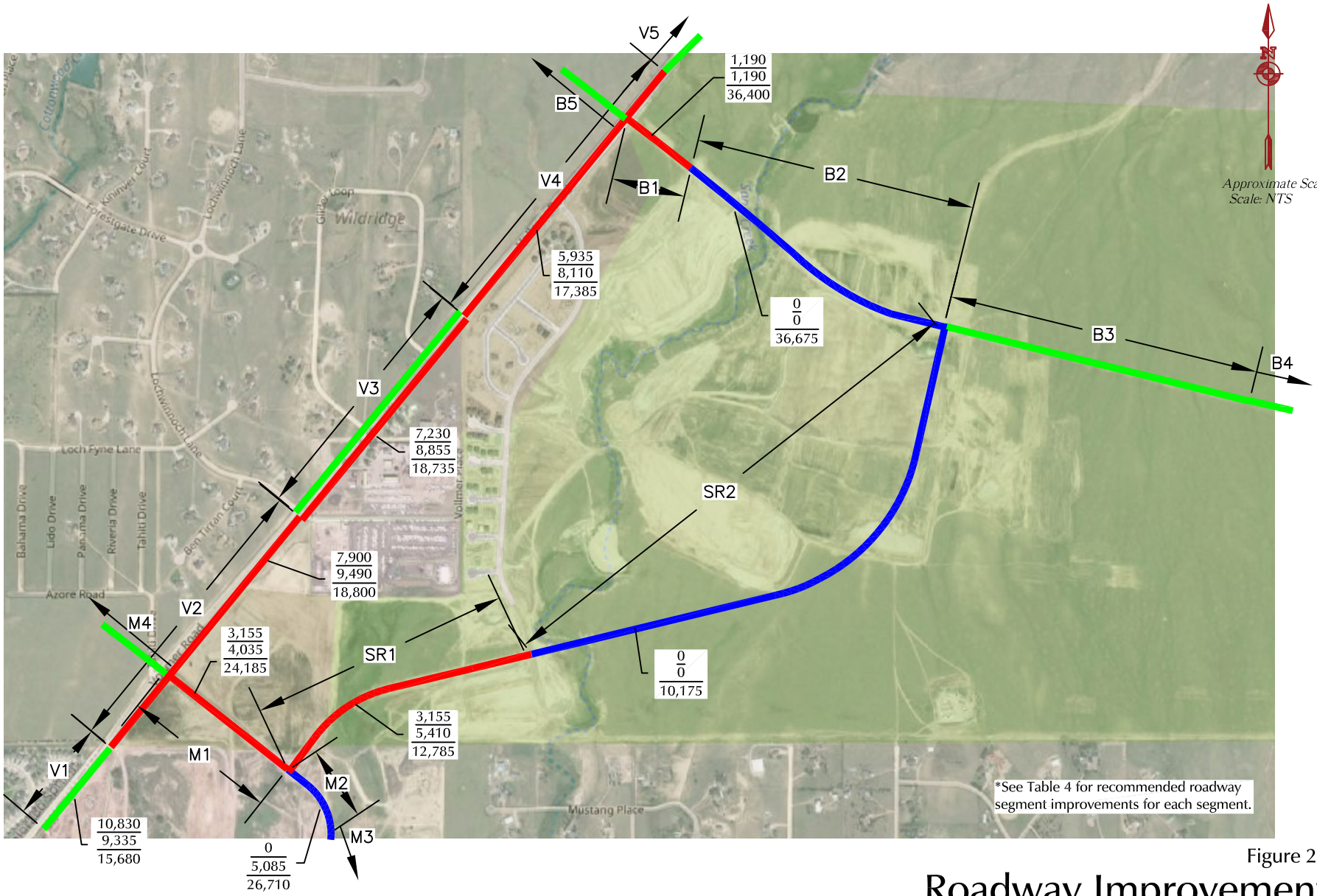


Figure 23

Roadway Improvement Segments*

Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2 (LSC #184660)

Sterling Ranch Updated Traffic Impact Analysis

Sterling Ranch
Updated Traffic Impact Analysis

June 5, 2008

Copy - With LSC January 2021 Notes.

LSC TRANSPORTATION CONSULTANTS, INC.

516 North Tejon Street
Colorado Springs, CO 80903
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsccs.com

TRANSPORTATION
CONSULTANTS, INC.

June 5, 2008

Mr. Virgil Sanchez, P.E.
M&S Civil Consultants, Inc.
15 North Nevada Avenue
Colorado Springs, Colorado 80903

RE: Sterling Ranch
Updated Traffic Impact Analysis
LSC #074230

Dear Mr. Sanchez:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed Sterling Ranch development. We trust the report will assist you in the planning and approval of this development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By _____
Christopher S. McGranahan, P.E., PTOE
Associate

COLORADO LICENSED
CHRISTOPHER S. McGRANAHAN
39018
PROFESSIONAL ENGINEER

6-5-08

CSM:EJL:bjwb

Sterling Ranch
Updated Traffic Impact Analysis

June 5, 2008

Prepared for:

Mr. Virgil Sanchez
M&S Civil Consultants, Inc.
15 North Nevada Avenue
Colorado Springs, Colorado 80903
(719) 955-5485

Prepared by:

LSC Transportation Consultants, Inc.
516 North Tejon Street
Colorado Springs, Colorado 80903
(719) 633-2868

LSC #074230

TABLE OF CONTENTS

LIST OF TABULATIONS

LIST OF ILLUSTRATIONS

SECTION A

Introduction

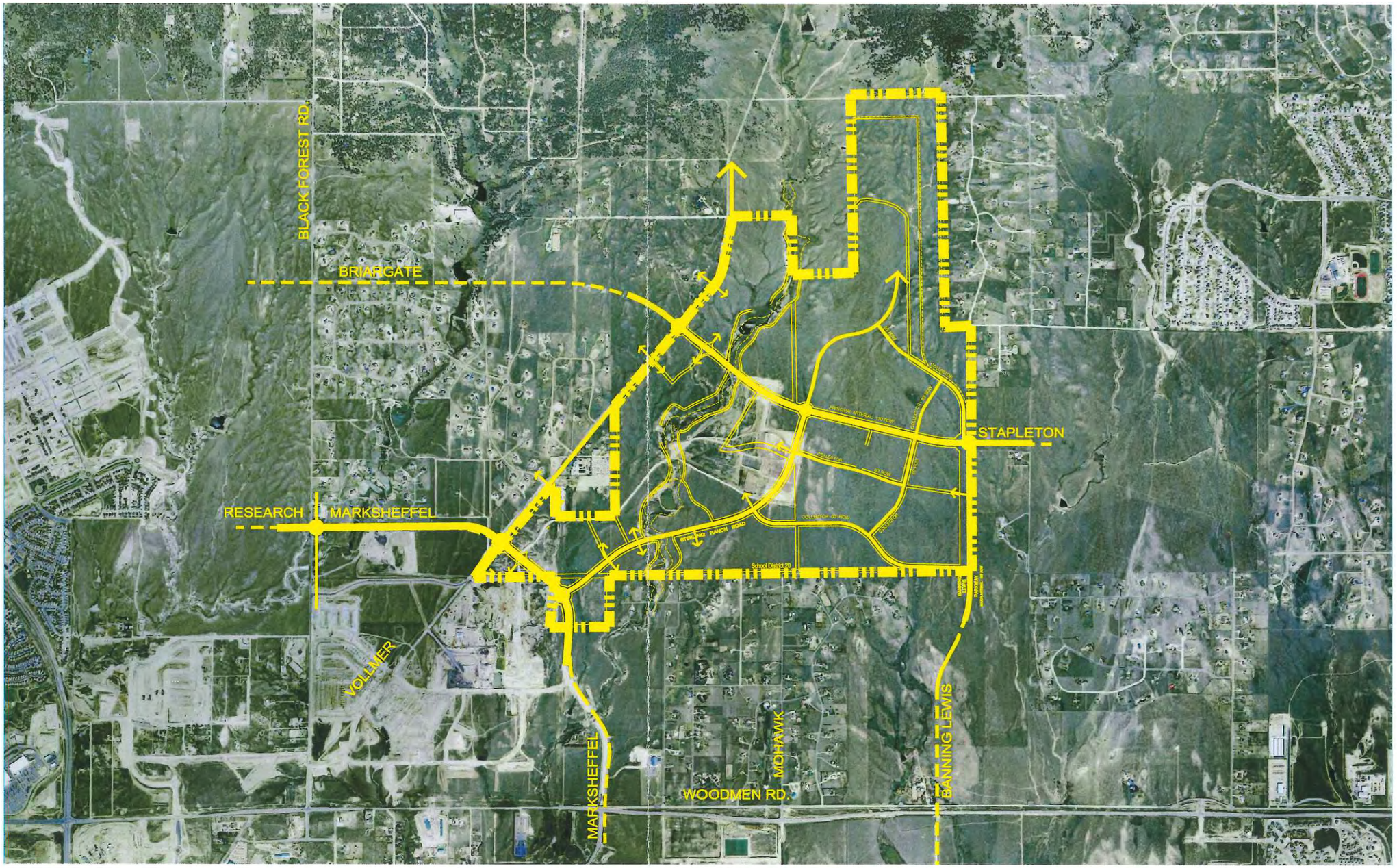
This report presents the updated traffic impact analysis to accompany the annexation of the Sterling Ranch Master Plan. Mixed-use development is proposed for the 1,444-acre site. The site is located just northeast of Colorado Springs, as shown on Figure 1. The site is located north of Woodmen Road and east of Vollmer Road. The future extension of Briargate Parkway will bisect the site. As shown on Figure 2, the development would contain single-family and multi-family residential development, commercial development, three schools, and a community park. Access would be to Vollmer Road, Briargate Parkway, Marksheffel Road, and Banning Lewis Parkway. The access points, as shown on the Sketch Plan and analyzed in this report, are conceptual only and will be subject to review at later stages of the development process.

LSC Transportation Consultants, Inc. has been retained to assess the traffic impacts of the proposed development on the external area roadway system and to develop a plan for roadway infrastructure within the Master Plan area based on the land uses shown on the Master Plan. This report outlines the traffic impacts and makes recommendations for a roadway system that would adequately accommodate the traffic volumes to be generated.

The following analysis steps were completed in the preparation of this report:

- A determination of the characteristics of the existing and planned roadway system, including roadway functional classifications, proposed roadway alignments, traffic controls, lane geometry, roadway widths, roadway surface conditions, access control, posted speed limits, and other applicable information.
- A determination of the current average weekday and peak-hour traffic volumes on the area roadways.
- Projections of the average weekday and peak-hour traffic volumes to be generated by the land uses shown on the Master Plan.
- The traffic impacts of the proposed development on the adjacent roadway system have been determined. This included developing projections of the future background traffic volumes and analyzing the total average weekday

and peak-hour traffic volumes. An analysis has been performed for the major internal site intersections, adjacent arterial intersections, and key off-site intersections. The analysis includes the trip generation, trip assignment, intersection levels of service, capacity analysis, anticipated intersection lane geometry requirements, general number of lanes on roadway segments, and functional classifications.



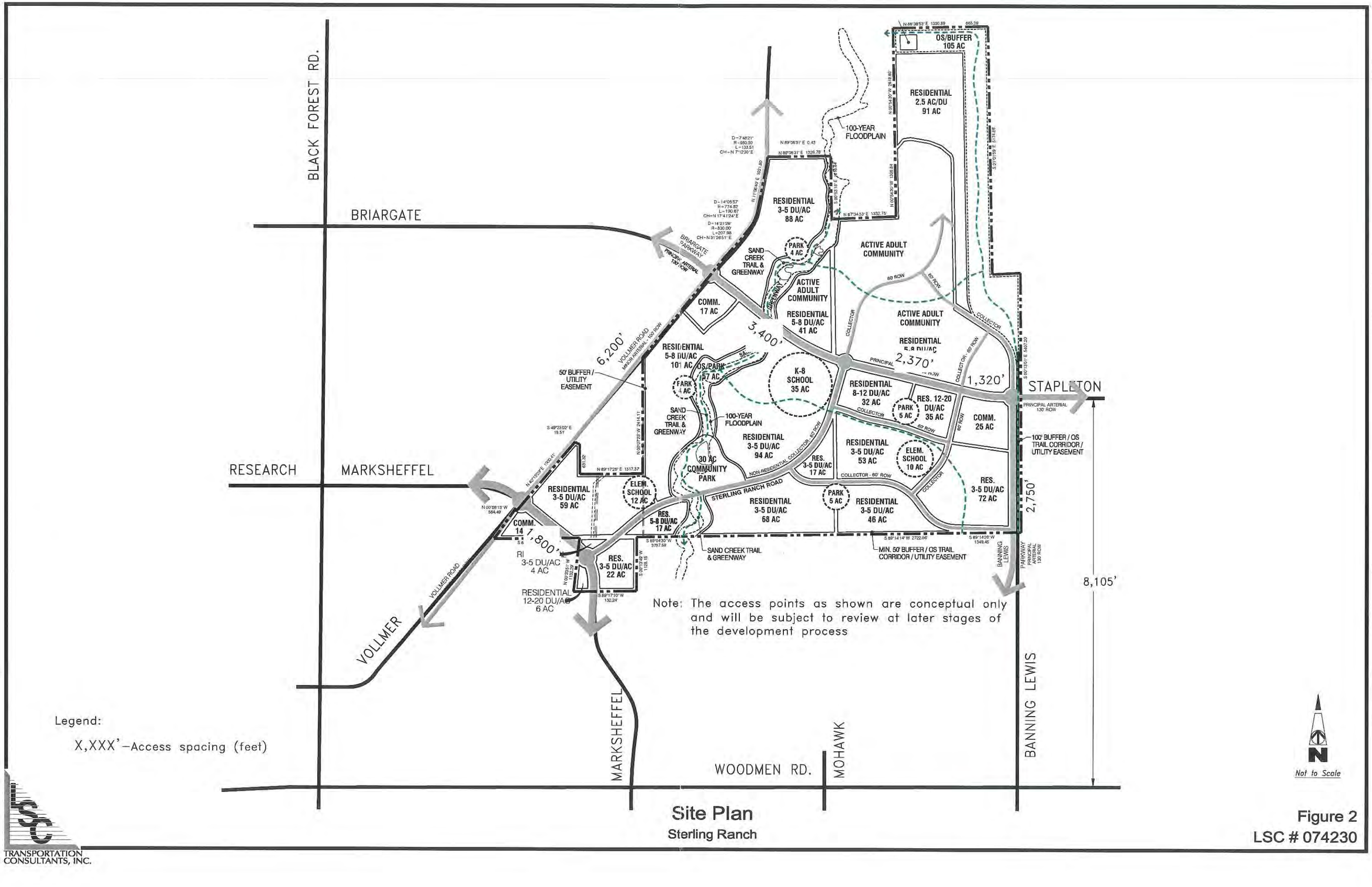
Not to Scale

TRANSPORTATION CONSULTANTS, INC.

Vicinity Map

Sterling Ranch

Figure 1
LSC # 074230



TRANSPORTATION CONSULTANTS, INC.

Site Plan
Sterling Ranch

Figure 2
LSC # 074230

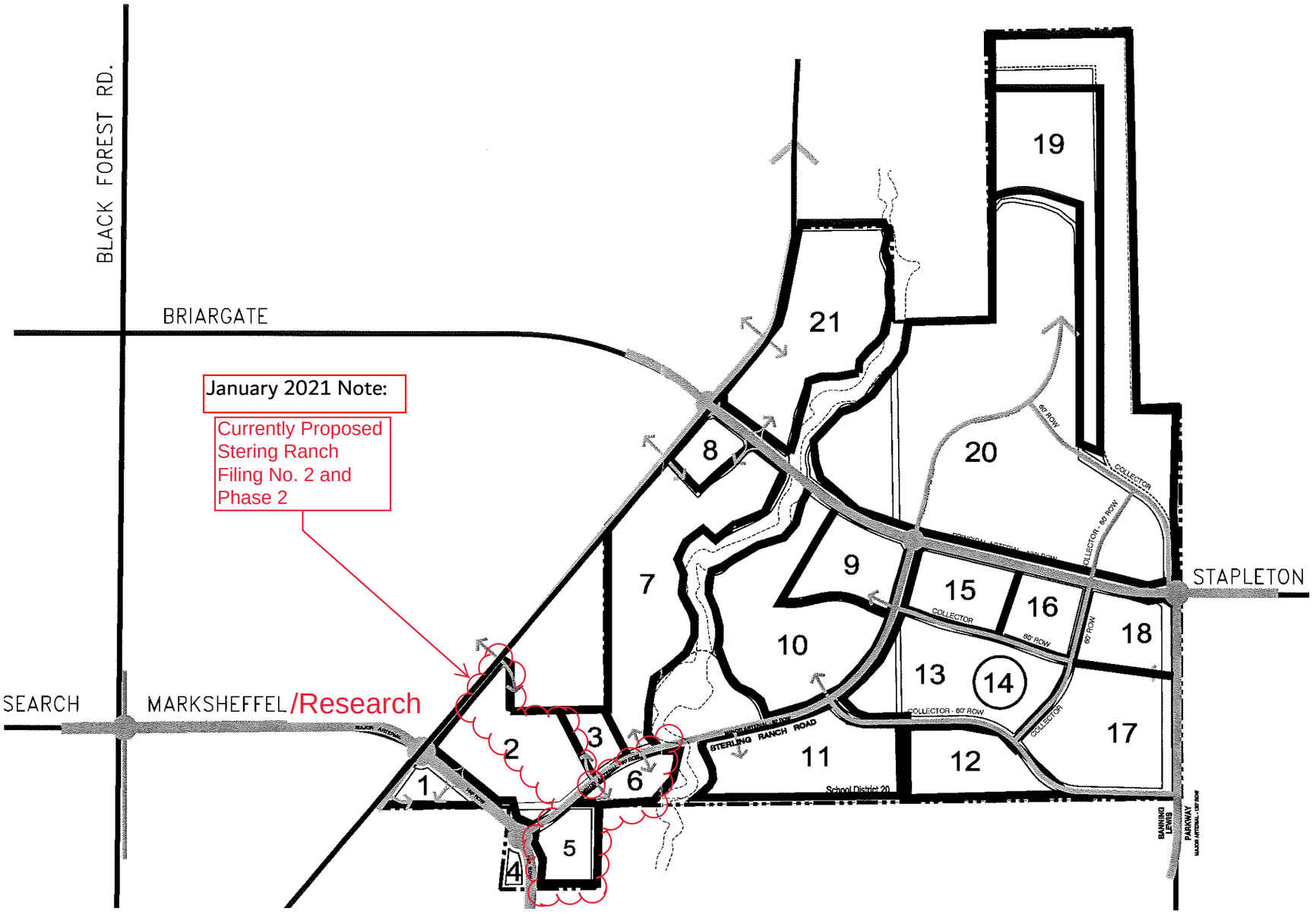
SECTION B

Study Area

Figure 1 shows the location of the Sterling Ranch development. The site is currently undeveloped land. Black Forest is located north of the site; large-lot residential developments are located northeast and south of the site; the Woodmen Heights development is located southwest of the site; the Highland Park, Silver Ponds, and The Lakes residential developments are located west of the site across Vollmer Road; the Barbarick light industrial development is located west of the site on the east side of Vollmer Road; and undeveloped land is located east and southeast of the site.

Figure 2 shows the currently proposed Master Plan for the site, including the proposed land use and acreage for each parcel. The development would contain residential, commercial, and educational uses. Based on the land uses and natural divisions such as streets and streams, traffic analysis zones (TAZs) were developed for use in this analysis. The TAZs are shown in Figure 3. Table 1 (located in Section D) shows the specific land use quantities by TAZ. Figure 4 shows the proposed phasing for the Master Plan.

The intersections analyzed in this report include all of the existing and future major intersections on Woodmen Road, Banning Lewis Parkway, Briargate Parkway, Marksheffel Road, Black Forest Road, and Research Parkway at which the Sterling Ranch development might have a significant measurable traffic impact.



Not to Scale

TRANSPORTATION CONSULTANTS, INC.

Traffic Analysis Zones

Sterling Ranch

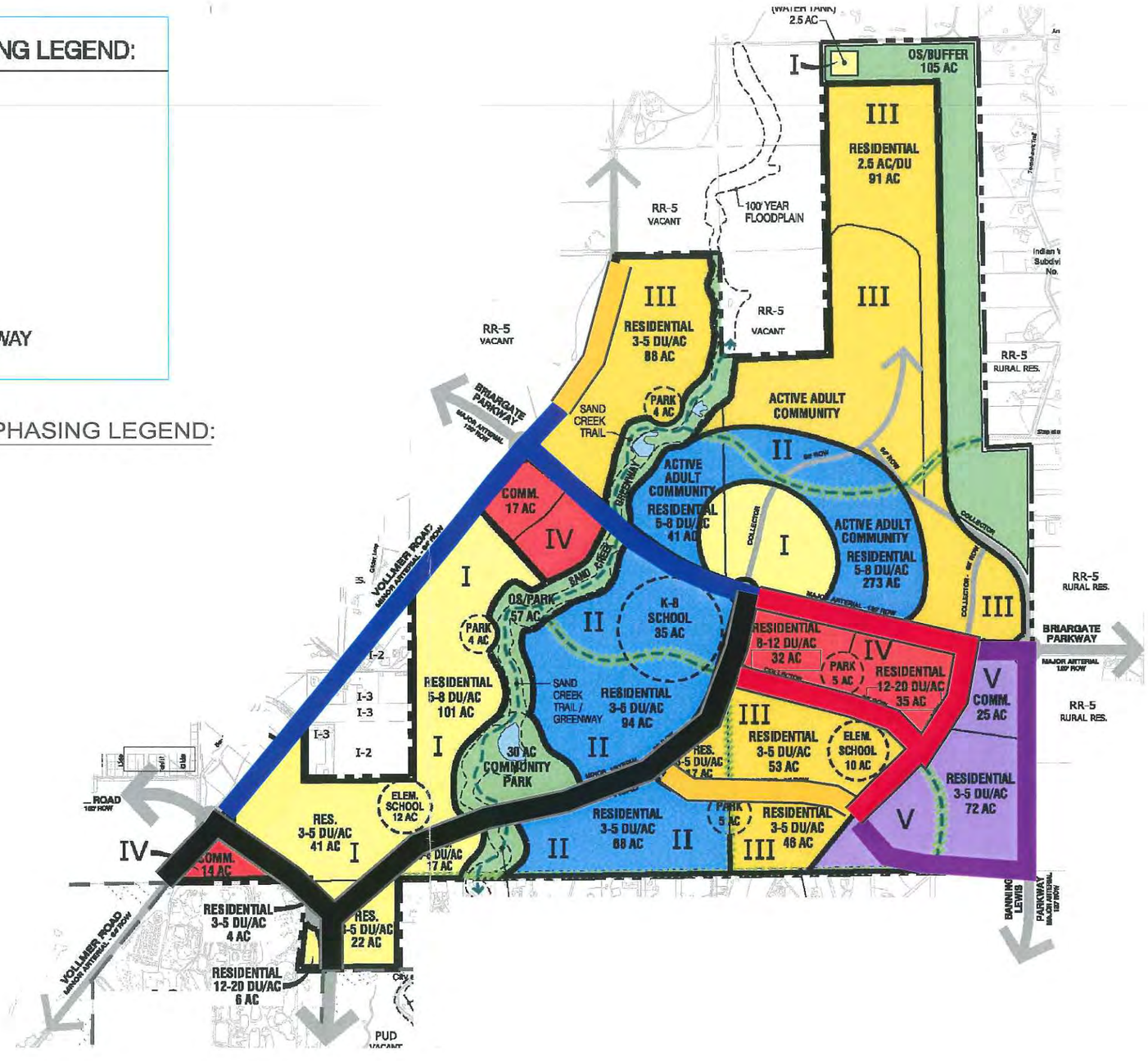
Figure 3
LSC # 074230

DEVELOPMENT PHASING LEGEND:

- I PHASE 1
- II PHASE 2
- III PHASE 3
- IV PHASE 4
- V PHASE 5
- OS / PARK / GREENWAY

TRANSPORTATION PHASING LEGEND:

- Phase 1
- Phase 2
- Phase 3
- Phase 4
- Phase 5



Phasing Plan

Sterling Ranch

Figure 4

LSC # 074230

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SECTION C

Roadway and Traffic Conditions

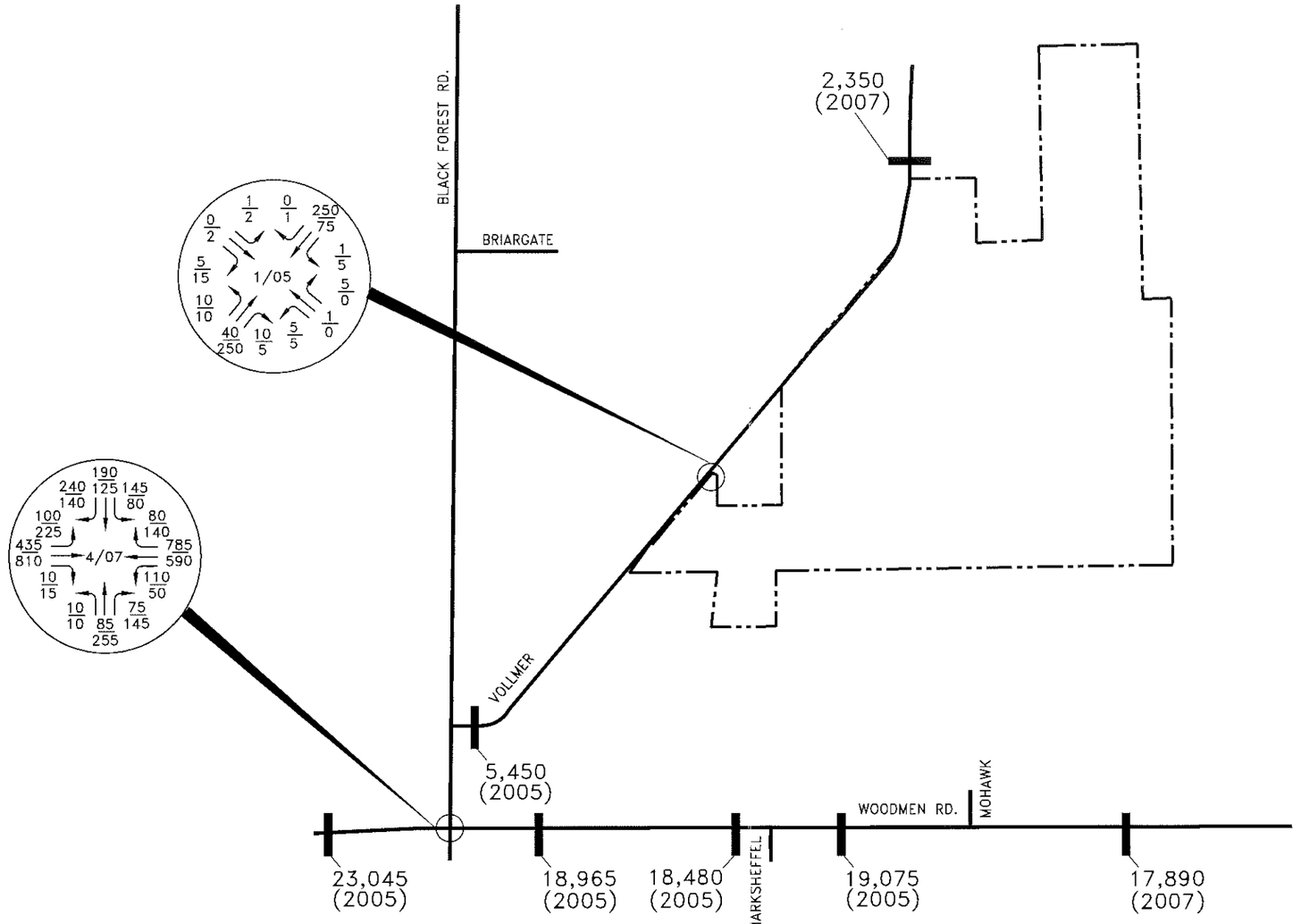
AREA ROADWAYS

The area roadways are shown on Figure 1. Listed below are the roadways in the vicinity of the site along with a brief description (including future plans, if any).

- **Briargate Parkway** is a six-lane, Principal Arterial that extends east from I-25 into the Wolf Ranch development. Briargate Parkway is planned to ultimately extend across Black Forest Road and Vollmer Road, through Sterling Ranch to Banning Lewis Parkway, where it will continue east as Stapleton Road. On the *El Paso County Major Transportation Corridors Plan (MTCP)* for the year 2030 and the *El Paso County Corridor Preservation Plan (CPP)* for the year 2050, Briargate Parkway/Stapleton Road is shown as a four-lane Principal Arterial east of Black Forest Road. The Sterling Ranch development plans to dedicate right-of-way to accommodate a future six-lane Principal Arterial, which exceeds El Paso County requirements.
- **Marksheffel Road** is a two-lane, Principal Arterial that extends north from the City of Fountain to Woodmen Road. Ultimately, Marksheffel Road is planned to be widened to six lanes and extended north and west from Woodmen Road to connect to Research Parkway at Black Forest Road. Marksheffel Road is shown as a six-lane Principal Arterial through the site on the *El Paso County MTCP* and the *El Paso County CPP*.
- **Vollmer Road** is a two-lane rural paved roadway extending north from Black Forest Road to north of Hodgen Road. Vollmer Road is classified as a two-lane Minor Arterial south of Hodgen Road on the *El Paso County MTCP* and the *El Paso County CPP*. Vollmer Road is proposed as a four-lane Urban Minor Arterial adjacent to the site.
- **Woodmen Road** is an east/west Expressway through the northern portion of the City of Colorado Springs and El Paso County. Woodmen Road is shown as a six-lane Expressway on the *El Paso County MTCP* and the *El Paso County CPP*. However, the current environmental assessment shows Woodmen Road as a four-lane Expressway.
- **Banning Lewis Parkway** is a planned north/south Freeway through Banning Lewis Ranch on the east side of Colorado Springs. North of Woodmen Road, Banning Lewis Parkway is classified as a four-lane Principal Arterial on the *El Paso County MTCP* and as a six-lane Expressway on the *El Paso County CPP*. The *El Paso County CPP* also shows an interchange at the Briargate Parkway/Stapleton Road/Banning Lewis Parkway intersection.

EXISTING TRAFFIC VOLUMES

Figure 5 shows existing traffic counts for the intersections of Woodmen Road/ Black Forest Road and Vollmer Road/Lochwinnoch Lane. The traffic volumes are from counts done by LSC. The traffic count reports are attached in Appendix A. Also included are average daily traffic (ADT) volumes on key roadway segments based on 2005 and 2007 El Paso County data.



Legend:

xxx/xxx am/pm —Weekday peak-hour traffic (vehicles per hour)
Counts by LSC

XX,XXX —Average weekday traffic (vehicles per day)
Counts by El Paso County

Not to Scale

TRANSPORTATION CONSULTANTS, INC.

Existing Traffic

Sterling Ranch

Figure 5
LSC # 074230

SECTION D

Trip Generation and Distribution

TRIP GENERATION

The traffic volumes expected to be generated by the Sterling Ranch development at full buildout have been estimated using the nationally published trip generation rates found in *Trip Generation, 7th Edition, 2003* by the Institute of Transportation Engineers (ITE). The average weekday and peak-hour vehicle-trip generation estimates have been developed by multiplying the trip generation rates by the land use quantities, as shown on Table 1.

Table 1 shows the land use quantities (dwelling units, square feet, students) for each TAZ at full buildout of the site. Applicable ITE trip generation rates were applied to the land use quantities in order to calculate the projected average daily and peak-hour vehicle-trip generation of the site.

Due to the size of the site and the mix of the land uses, not all of the vehicle-trips generated are expected to begin or end outside the site. A portion of the vehicle-trips generated will be internal trips (i.e., trips from home to the school or commercial developments and returning). The estimated amount of internal vehicle-trips is included on Table 1.

Table 1
Sterling Ranch
Buildout Trip Generation Estimates

TAZ	Land Use Code	Land Use Description	Acres	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 Daily	Internal Trips AM	Internal Trips PM	Total External Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	New External Trips Generated Pass-By Trips [2]	New External Trips Generated Average New Weekday Traffic
1	820	Shopping Center	14	152 KSF [3]	42.94	0.63	0.40	1.80	1.95	6,547	96	61	274	297	7%	7%	7%	6,088	89	57	255	276	34%	4,018
2	210	Single-Family Detached Housing	63	234 DU [4]	9.57	0.19	0.56	0.64	0.37	2,239	44	132	149	87	9%	19%	6%	2,045	35	106	139	82	0%	2,045
3	520	Elementary School	12	500 Students	1.29	0.23	0.19	0.00	0.01	645	116	95	1	5	60%	60%	60%	258	46	38	0	2	0%	258
4	220	Apartment	6	89 DU	6.72	0.10	0.41	0.40	0.22	598	9	36	36	19	9%	19%	6%	546	7	29	34	18	0%	546
5	210	Single-Family Detached Housing	22	82 DU	9.57	0.19	0.56	0.64	0.37	785	15	46	52	31	9%	19%	6%	717	12	37	49	29	0%	717
6	210	Single-Family Detached Housing	17	103 DU	9.57	0.19	0.56	0.64	0.37	986	19	58	66	38	9%	19%	6%	900	16	47	61	36	0%	900
7	210	Single-Family Detached Housing	101	611 DU	9.57	0.19	0.56	0.64	0.37	5,847	115	344	389	228	9%	19%	6%	5,341	93	278	364	214	0%	5,341
8	820	Shopping Center	17	185 KSF	42.94	0.63	0.40	1.80	1.95	7,949	116	74	333	361	7%	7%	7%	7,393	108	69	310	336	34%	4,879
9	522	Middle School/Junior High School	35	1,000 Students	1.62	0.29	0.24	0.08	0.07	1,620	292	239	78	72	60%	60%	60%	648	117	95	31	29	0%	648
10	210	Single-Family Detached Housing	94	350 DU	9.57	0.19	0.56	0.64	0.37	3,350	66	197	223	131	9%	19%	6%	3,059	53	159	208	122	0%	3,059
11	210	Single-Family Detached Housing	68	253 DU	9.57	0.19	0.56	0.64	0.37	2,421	47	142	161	95	9%	19%	6%	2,211	38	115	151	88	0%	2,211
12	210	Single-Family Detached Housing	46	171 DU	9.57	0.19	0.56	0.64	0.37	1,636	32	96	109	64	9%	19%	6%	1,495	26	78	102	60	0%	1,495
13	210	Single-Family Detached Housing	70	260 DU	9.57	0.19	0.56	0.64	0.37	2,488	49	146	165	97	9%	19%	6%	2,273	39	118	155	91	0%	2,273
14	520	Elementary School	10	500 Students	1.29	0.23	0.19	0.00	0.01	645	116	95	1	5	60%	60%	60%	258	46	38	0	2	0%	258
15	230	Residential Condominium/Townhouse	32	298 DU	5.86	0.07	0.37	0.35	0.17	1,746	22	109	104	51	9%	19%	6%	1,595	18	88	97	48	0%	1,595
16	220	Apartment	35	521 DU	6.72	0.10	0.41	0.40	0.22	3,501	53	213	210	113	9%	19%	6%	3,198	43	172	196	106	0%	3,198
17	210	Single-Family Detached Housing	72	268 DU	9.57	0.19	0.56	0.64	0.37	2,565	50	151	171	100	9%	19%	6%	2,343	41	122	160	94	0%	2,343
18	820	Shopping Center	25	272 KSF	42.94	0.63	0.40	1.80	1.95	11,690	171	109	490	531	7%	7%	7%	10,872	159	102	456	494	34%	7,176
19	210	Single-Family Detached Housing	91	34 DU	9.57	0.19	0.56	0.64	0.37	325	6	19	22	13	9%	19%	6%	297	5	15	20	12	0%	297
20	—	Active Adult Residential [5]	314	1,899 DU	5.10	0.10	0.29	0.25	0.14	9,685	185	555	474	267	9%	19%	6%	8,846	150	449	444	249	0%	8,846
21	210	Single-Family Detached Housing	88	327 DU	9.57	0.19	0.56	0.64	0.37	3,129	61	184	208	122	9%	19%	6%	2,858	50	149	195	114	0%	2,858
—	—	Utility Parcel	2	— —	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	Parks/Open Space	210	— —	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Buildout Total			**1,444**							**70,399**	**1,580**	**3,100**	**3,714**	**2,728**				**63,241**	**1,191**	**2,361**	**3,427**	**2,502**		**54,961**

Notes:
(1) Source: "Trip Generation, 7th Edition, 2003" by the Institute of Transportation Engineers (ITE)
(2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice, October, 1998" by ITE
(3) KSF = thousand square feet
(4) DU = dwelling unit
(5) Trip Generation Rate Source: *March 19, 2004 Santa Fe Springs Traffic Study* by Tri-Core Engineering (based on traffic counts at existing active adult communities)

Source: LSC Transportation Consultants, Inc.

TRIP DISTRIBUTION

The directional distribution of the site-generated traffic volumes on the adjacent roadway system is one of the most important factors in determining the traffic impacts of the site. The specific distribution estimates for the site are shown on Figure 6. Figure 6 shows the long-term buildout distributions of commercial and residential vehicle-trips assuming that all area roadways have been constructed.

The estimates were based on the following factors: the location of the site with respect to the regional population, employment, and activity centers; the land uses proposed for the site; the planned access to the site; and the existing and future roadway system serving the site.

SITE-GENERATED TRAFFIC ASSIGNMENT

The site-generated traffic volumes on the internal and external street networks are determined by applying the distribution percentages (from Figure 6) to the trip generation estimates (from Table 1). The average weekday and peak-hour site-generated traffic volumes for buildout are shown on Figure 7. A screen capture of the Traffix model developed for the site is provided in Appendix B, per the request of El Paso County staff.

ESTIMATED LAND USE COMPARISON

The TAZ and land use data input into the Pikes Peak Area Council of Governments (PPACG) 2030 Transportation Model has been obtained and reviewed by LSC. Although there is not a PPACG TAZ that exactly matches the boundary of the Sterling Ranch development, TAZ 238 should be an appropriate zone to use in roughly estimating the residential density assumed for the site in the PPACG model. The portion of the site east of the creek is contained within TAZ 238, representing about 72 percent of the site.

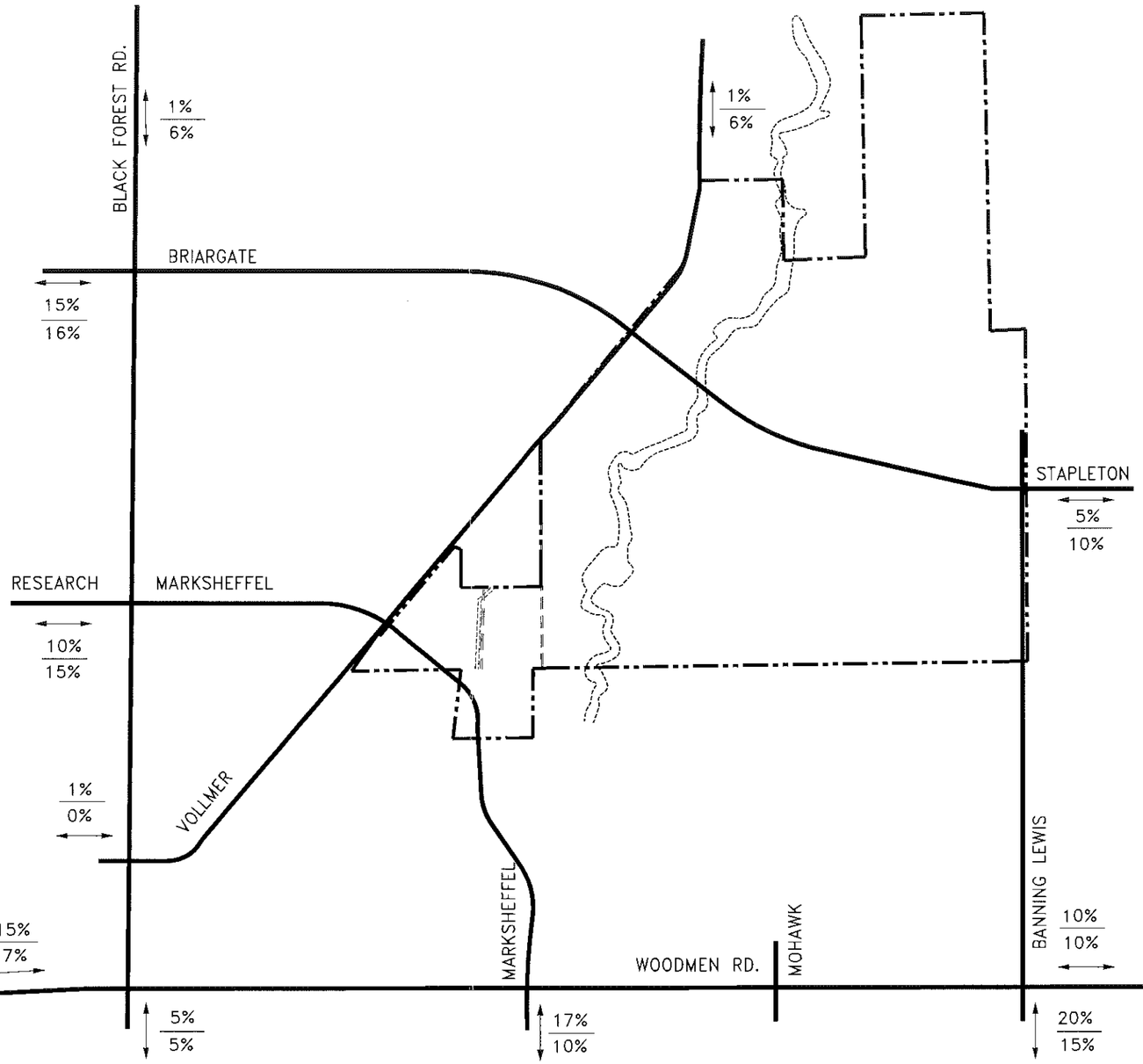
TAZ 238 has 2,413 households and is about 4,500 acres in size, resulting in a density of about 0.54 dwelling units per acre. The site is proposed to have 5,500 dwelling units and is 1,444 acres in size, resulting in a density of 3.8 dwelling

units per acre. Therefore, the site's residential density would be about seven times higher than what was assumed in the PPACG 2030 model.

It is very difficult to determine the amount of retail and office space assumed for the site in the PPACG model because the land use input is given in number of employees. Based on the site's proposed land uses however, it is apparent the PPACG model underestimated the amount of commercial land use within the area with just 383 employees in TAZ 238.

The recently adopted PPACG 2035 model much more closely matches the land uses proposed within Sterling Ranch. In the 2035 model, TAZ 238 is about 3,200 acres in size and contains 5,000 dwelling units, resulting in a density of about 1.55 dwelling units per acre. Therefore, the proposed density of Sterling Ranch is about 2.5 times higher than what was assumed in the PPACG 2035 model. Also, in the 2035 model, TAZ 238 contains 1,543 employees.

A significantly lower land use density, such as that assumed in the *El Paso County MTCP*, would not likely be capable of funding the approximately four miles of Arterials required through or adjacent to the site. The low density Sterling Ranch development would likely dedicate right-of-way and possibly construct two-lane roadways along the alignments to provide local access. By increasing the density to that proposed by the Sterling Ranch development, it is possible to have the vital Arterial connections constructed by the private sector and not with public funds.



Legend:

XX% —Directional distribution of residential/school site-generated traffic
XX% —Directional distribution of retail site-generated traffic

Not to Scale

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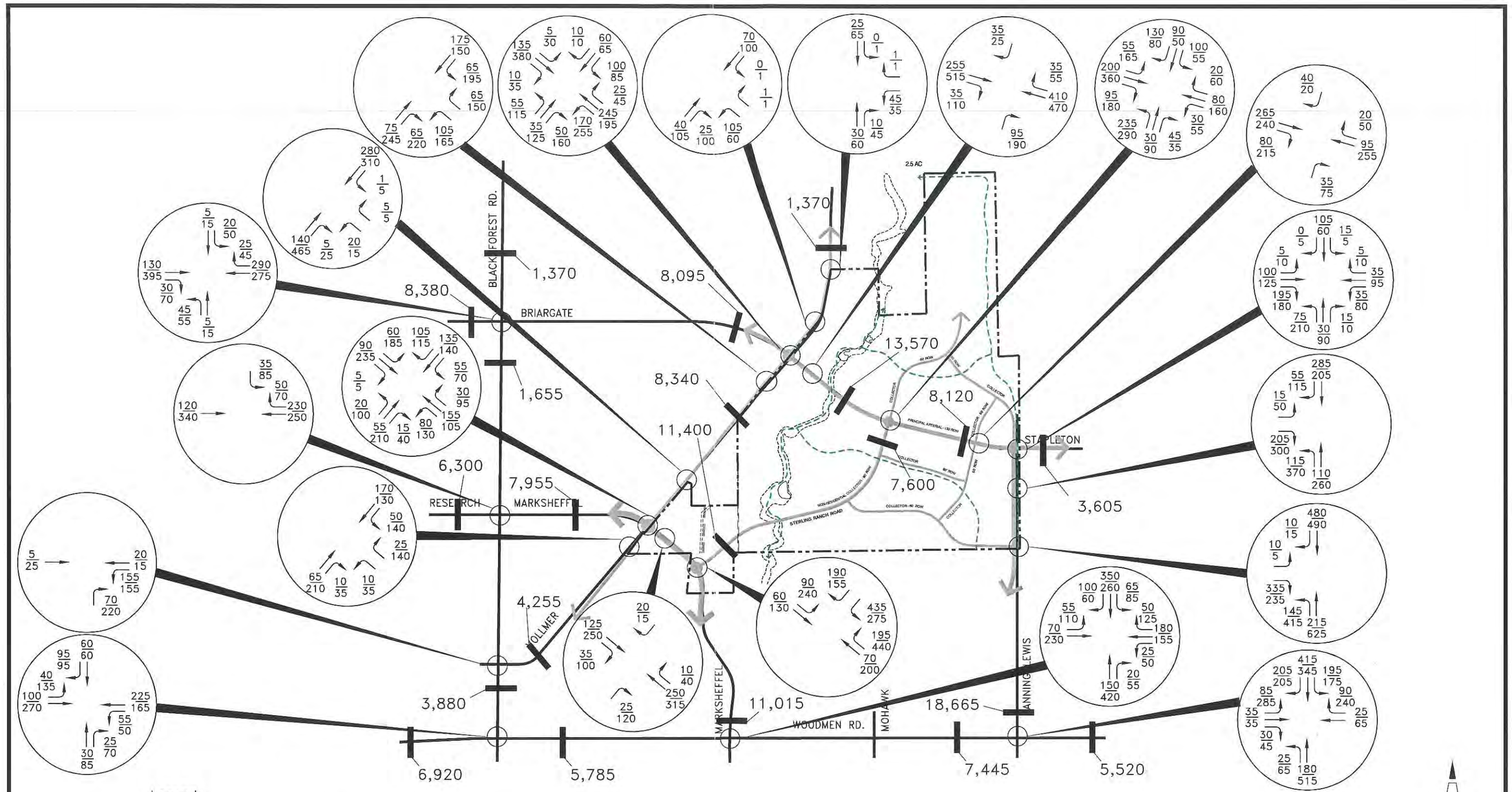
Buildout Long-Term Directional Distribution

Sterling Ranch

Figure 6
LSC # 074230



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Buildout Site-Generated Traffic

Sterling Ranch

Figure 7
LSC # 074230

SECTION E

Traffic Forecasts

2030 BACKGROUND TRAFFIC

Background traffic accounts for motorists traveling through the area and on the adjacent area transportation system unrelated to the site. The estimates of the 2030 background traffic volumes have been made using the PPACG 2030 Transportation Model, as well as traffic impact studies for other developments in the vicinity of the site, including Woodmen Heights and Wolf Ranch. The 2030 background traffic volumes are shown on Figure 8.

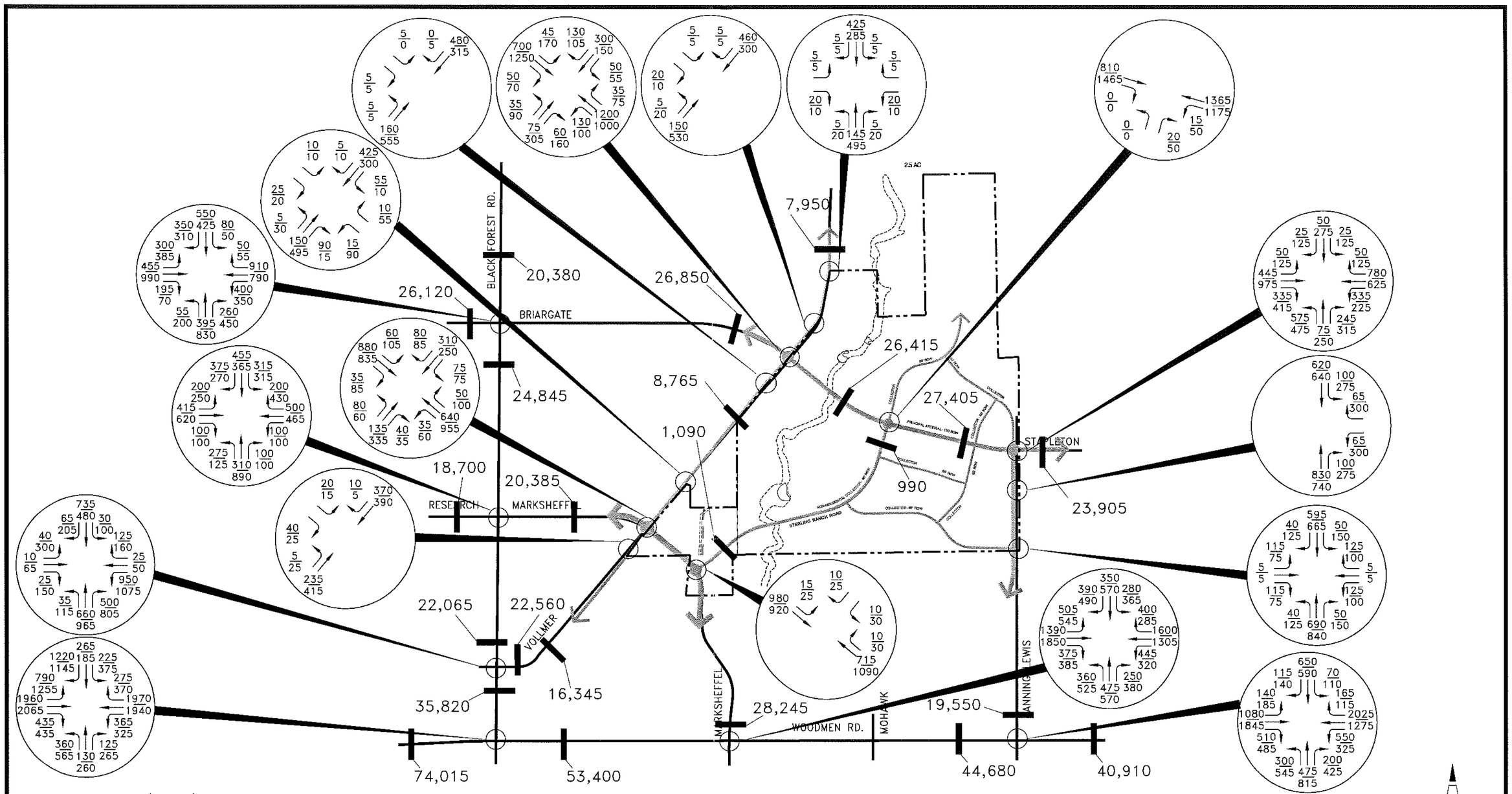
2030 TOTAL TRAFFIC

The 2030 total traffic volumes are the combination of the buildout site-generated traffic volumes (from Figure 7) plus the 2030 background traffic volumes (from Figure 8). The 2030 total traffic volumes are shown on Figure 9.

Figure 9 also shows the design ADT of the roadways next to each projected daily traffic volume. All of the projected daily traffic volumes are within the design ADT of the roadways, with the following exceptions.

The design ADT of the short section of Vollmer Road between Black Forest Road and Forest Meadows Avenue is projected to be exceeded by about seven percent. The level of service analysis shows acceptable operations can be achieved by providing appropriate auxiliary lanes.

El Paso County staff requested a design ADT for Woodmen Road of 72,000, which is expected to be exceeded by about 12 percent. The *El Paso County Engineering Criteria Manual (ECM)* does not include design ADT for six-lane roadways.



Legend:

$\frac{xxx}{xxx}\ \frac{am}{pm}$ –Weekday peak–hour traffic (vehicles per hour)

XX,XXX –Average weekday traffic (vehicles per day)

NOTE:
Assumes all arterials shown in the MTCP ore in place through the Sterling Ranch site. In this scenario, they would have to be constructed with public funds.

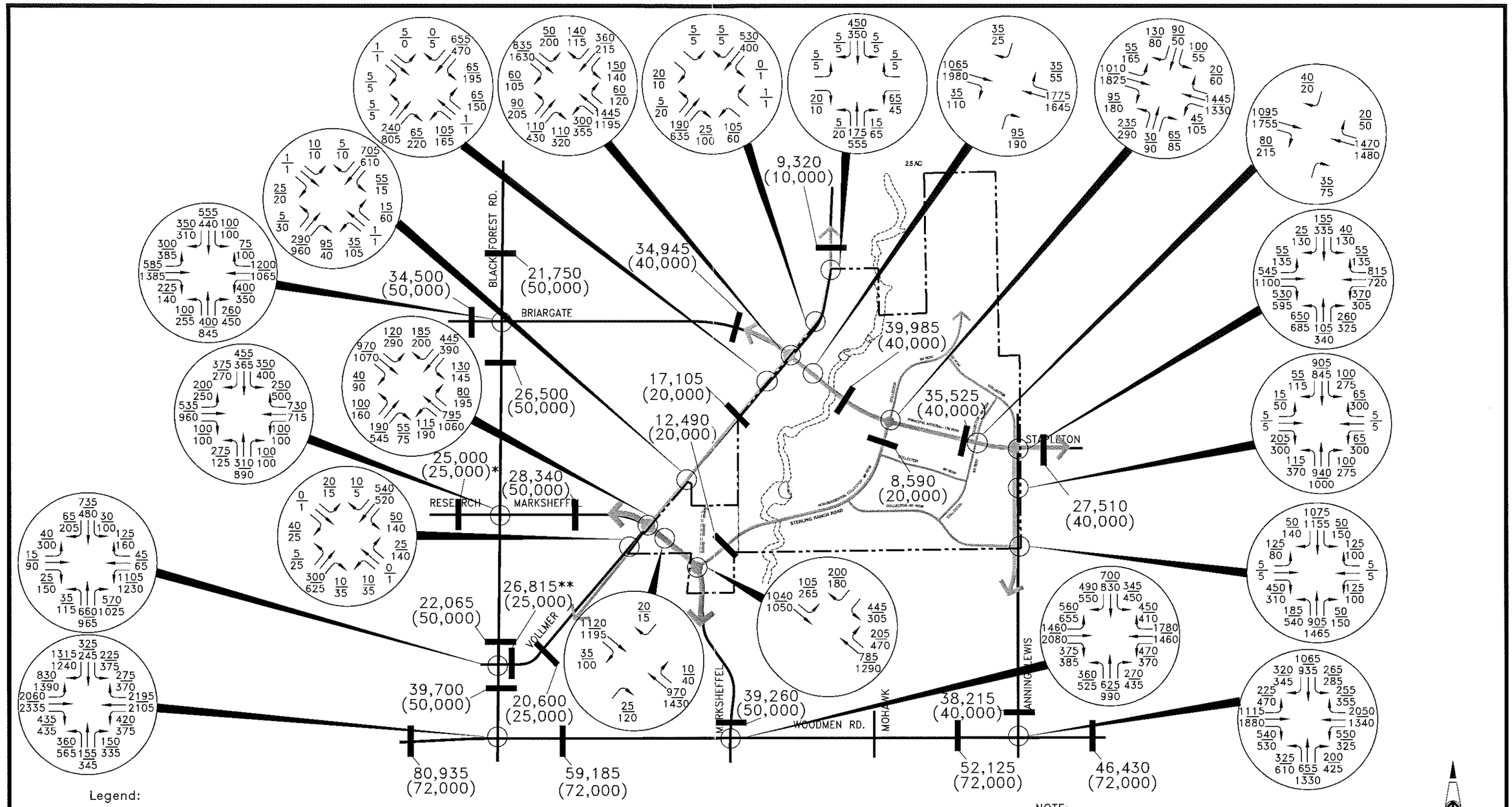
Not to Scale

TRANSPORTATION CONSULTANTS, INC.

2030 Background Traffic

Sterling Ranch

Figure 8
LSC # 074230



Legend:

$\frac{xxx}{xxx}\ \frac{am}{pm}$ –Weekday peak-hour traffic (vehicles per hour)

XX,XXX –Average weekday traffic (vehicles per day)

(XX,XXX)–Design ADT based on El Paso County or City of Colorado Springs standards, as applicable

*Although Research Parkway is classified as a Principal Arterial, the design ADT of a Minor Arterial is shown because Research Pkwy. is four lanes rather than six lanes due to the presence of roundabouts

** See text for details

NOTE:
This scenario assumes the arterials through/adjacent to the site are constructed by Sterling Ranch. This will save the County from the liability of funding a portion of the Marksheffel/Research, Briargate/Stapleton, and Banning Lewis Parkway alignments to help mitigate east-west Woodmen Road congestion.

Not to Scale

TRANSPORTATION CONSULTANTS, INC.

2030 Total Traffic

Sterling Ranch

Figure 9

LSC # 074230

SECTION F

Traffic Impacts

PROJECTED LEVELS OF SERVICE

Level of service (LOS) is a quantitative measure of the congestion or delay at an intersection. Level of service is reported on a scale from "A" to "F." LOS A indicates little congestion or delay. LOS F indicates a high level of congestion or delay.

The key intersections in the vicinity of the site have been analyzed to determine the projected levels of service after full buildout of the development based on the signalized and unsignalized method of analysis procedures outlined in the *Highway Capacity Manual, 2000 Edition* by the Transportation Research Board. The level of service analysis results are shown on Figures 10 and 11 for the 2030 background and 2030 total traffic volumes, respectively. The level of service reports are attached in Appendix C.

The Woodmen Road/Black Forest Road intersection is projected to operate at LOS D during the morning peak hour and LOS E during the afternoon peak hour based on the 2030 background traffic volumes, and LOS E during the morning peak hour and LOS F during the afternoon peak hour based on the 2030 total traffic volumes. The individual movements projected to operate at LOS E or F are the eastbound left-turn and westbound through movements. The reason for these poor levels of service is the very heavy traffic volume projected for the eastbound left-turn movement, at which the Sterling Ranch development is projected to contribute about five percent during the morning peak hour and about ten percent during the afternoon peak hour. The Sterling Ranch development is projected to contribute about eight percent of the combined 2030 morning and afternoon peak-hour traffic volumes for the entire intersection.

Some individual movements at the Woodmen Road/Marksheffel Road intersection are projected to operate at LOS E or F based on the 2030 background and 2030

total traffic volumes. The Sterling Ranch development is projected to contribute about 15 percent of the combined 2030 morning and afternoon peak-hour traffic volumes at the intersection.

Some individual movements at the Woodmen Road/Banning Lewis Parkway intersection are projected to operate at LOS E or F based on the 2030 background and 2030 total traffic volumes. The mitigation for these poor levels of service is the eventual conversion of the intersection to a grade separated interchange, as shown on the *El Paso County CPP* and the *Banning Lewis Ranch Master Plan*.

POTENTIAL MITIGATION ON WOODMEN ROAD

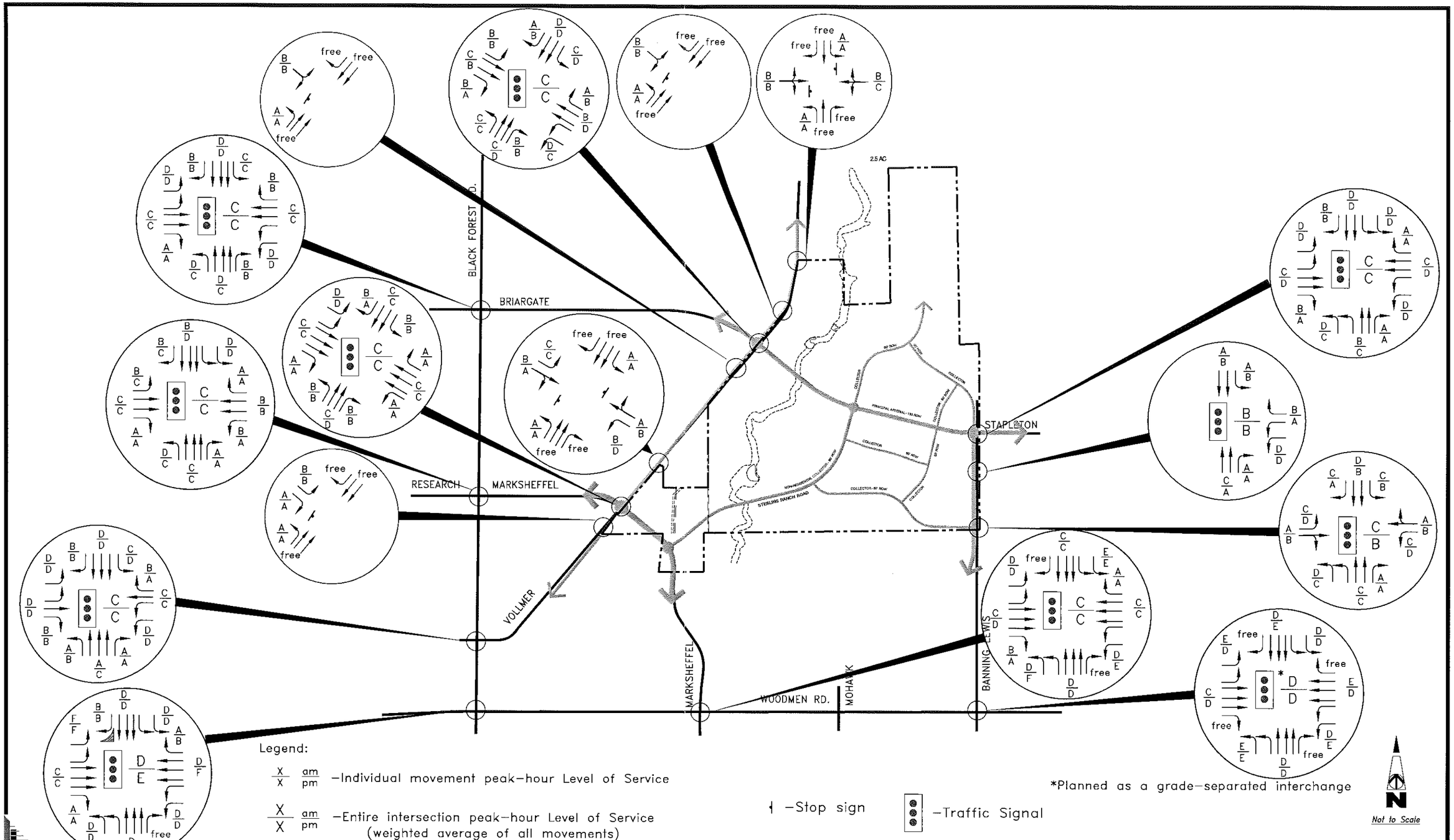
The development of the Sterling Ranch site is critical to future mitigation of the traffic volumes on Woodmen Road because the development would include the construction of several Arterial connections through or adjacent to the site and would provide the following regional benefits.

- The six-lane, Principal Arterial, south/west connection of Marksheffel Road to Research Parkway would be made through the site's southwest corner as part of the Sterling Ranch development and would be about one-half-mile in length.
- The four-lane, Principal Arterial, east/west connection of Briargate Parkway to Stapleton Drive would be made through the site in accordance with the *El Paso County MTCP*, *El Paso County CPP*, and estimated traffic projections. This connection would be constructed as part of the Sterling Ranch development and would be over 1.25 miles in length. To help mitigate any future congestion that may develop along the Woodmen Road corridor, the current Concept Plan shows a right-of-way dedication of 160 feet for the alignment, which could accommodate a future expansion by others to a six-lane Principal Arterial.
- The four-lane, Principal Arterial, northern terminus of Banning Lewis Parkway that connects with the future Briargate Parkway/Stapleton Drive alignment would be constructed along the site's eastern border as part of the Sterling Ranch development, and would be over one-half-mile in length.
- Vollmer Road would be upgraded to a four-lane Minor Arterial along the site's western border as part of the Sterling Ranch development, and would be over 1.75 miles in length.

Overall, the Sterling Ranch development would be constructing about four miles of Arterials through or adjacent to the site. These connections would not only pro-

vide access for the Sterling Ranch site but, more importantly, would also provide vital regional connectivity and help mitigate future east/west regional congestion (particularly on Woodmen Road).

The Sterling Ranch development's design team is scheduled to conduct a presentation for the Woodmen Road Metropolitan District Board on May 6, 2008 in order to explore the possibility of joining the Woodmen Road Metropolitan District to help address east/west congestion on Woodmen Road. An April 8, 2008 letter from the Woodmen Road Metropolitan District is attached in Appendix D.



2030 Background Lane Geometry, Traffic Control, and Levels of Service

Sterling Ranch

Figure 10

LSC # 074230

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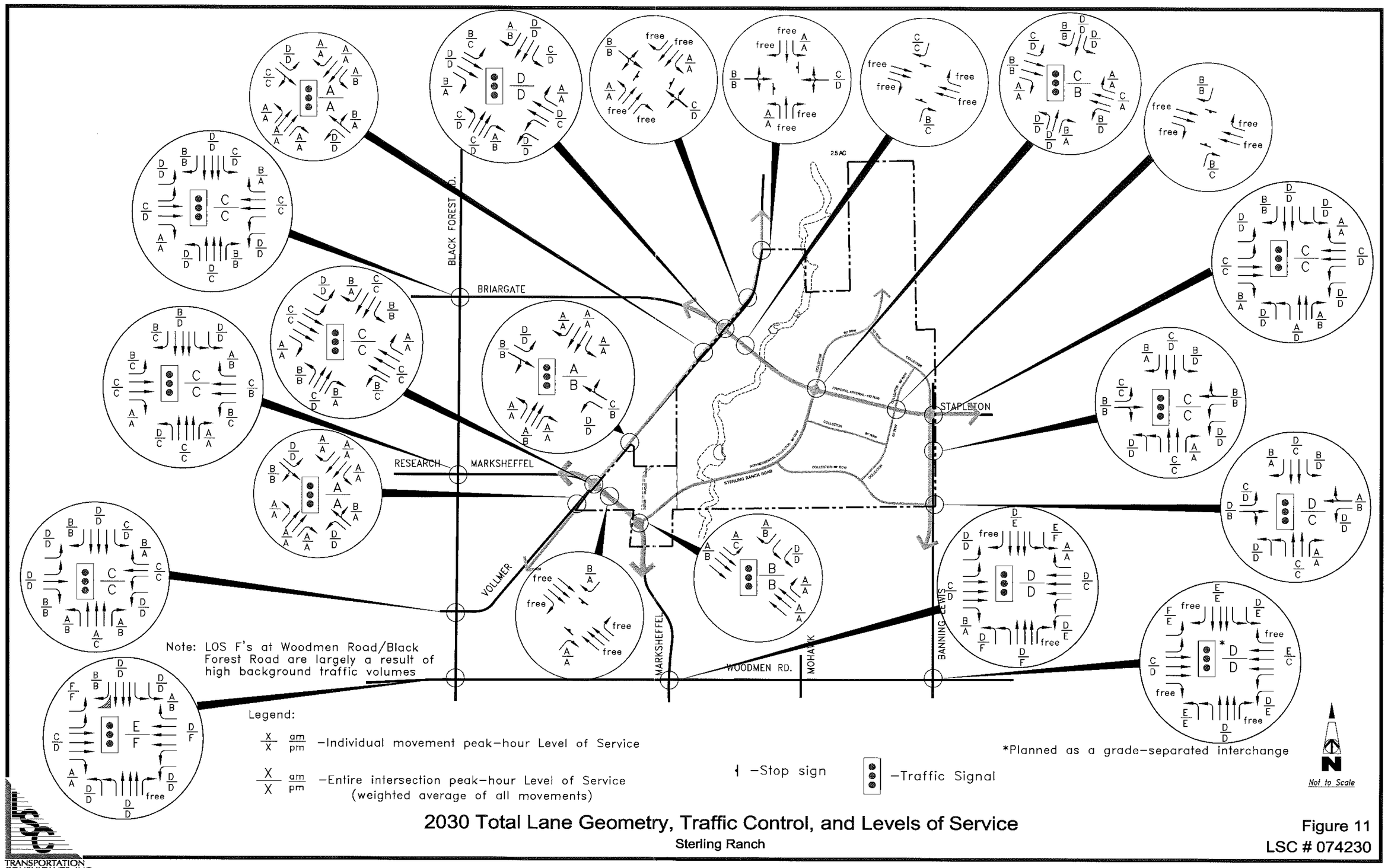


TRANSPORTATION CONSULTANTS, INC.

2030 Total Lane Geometry, Traffic Control, and Levels of Service

Sterling Ranch

Figure 11

LSC # 074230

SECTION G

Recommended Transportation System

FUNCTIONAL CLASSIFICATION

The year 2030 recommended functional classification of roads within the vicinity of Sterling Ranch is shown in Figure 12. They are generally consistent with the *El Paso County MTCP*.

RECOMMENDED NUMBER OF LANES

Based on the projected average weekday traffic, the projected peak-hour traffic, and the highway capacity analysis (LOS) at key intersections, the required number of through lanes for the buildout of Sterling Ranch are shown in Figure 12.

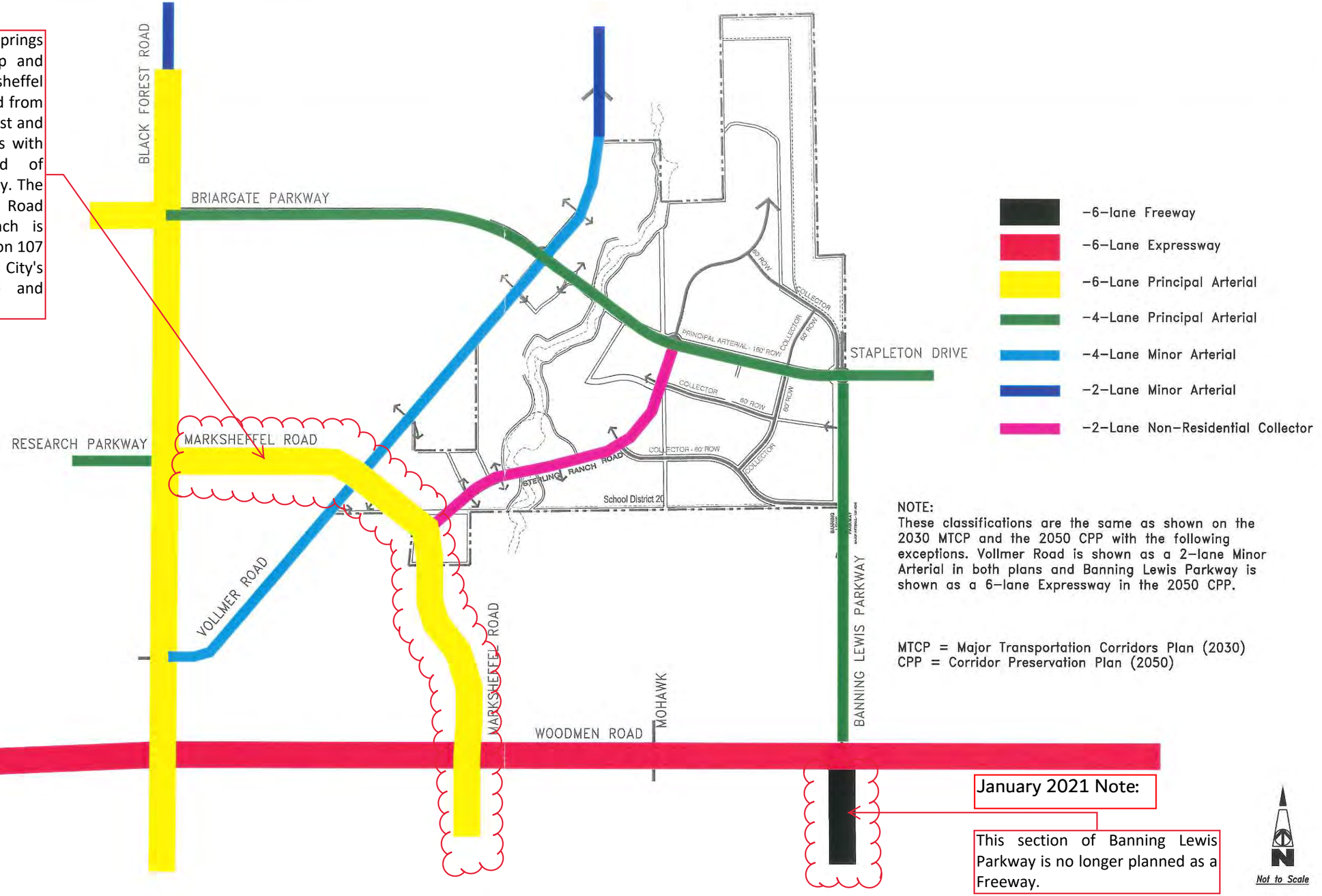
Briargate Parkway is shown to be four lanes through the site west of Banning Lewis Parkway on the *El Paso County MTCP* based on the projected traffic volumes for the year 2030. To further help mitigate the future east/west congestion on Woodmen Road, the Concept Plan shows a right-of-way dedication of 160 feet in order to allow a six-lane roadway to be built by others if necessary in the long term. This exceeds the requirements of the *El Paso County MTCP*, *El Paso County CPP*, and current El Paso County standards.

Marksheffel Road is recommended to be six lanes, with a transition to four lanes west of Black Forest Road as Research Parkway.

Vollmer Road is recommended to be expanded to four lanes from Black Forest Road to the site's northern boundary. However, the *El Paso County MTCP* shows the entire length of Vollmer Road as a two-lane Minor Arterial. Given the size and density of the surrounding developments, including the Sterling Ranch and Woodmen Heights developments, Vollmer Road will have to be expanded in order to accommodate the projected traffic volumes.

January 2021 Note:

The City of Colorado Springs intends to take ownership and maintenance of Marksheffel Road when it is constructed from Black Forest Road to the east and south to where it connects with the current north end of Marksheffel Road in the City. The section of Marksheffel Road adjacent to Sterling Ranch is planned to be constructed on 107 feet of right-of-way to the City's required cross section(s) and criteria.



NOTE:
These classifications are the same as shown on the 2030 MTCP and the 2050 CPP with the following exceptions. Vollmer Road is shown as a 2-lane Minor Arterial in both plans and Banning Lewis Parkway is shown as a 6-lane Expressway in the 2050 CPP.

MTCP = Major Transportation Corridors Plan (2030)
CPP = Corridor Preservation Plan (2050)

January 2021 Note:

This section of Banning Lewis Parkway is no longer planned as a Freeway.

Not to Scale

TRANSPORTATION CONSULTANTS, INC.

Proposed Roadway Functional Classifications

Sterling Ranch

Figure 12
LSC # 074230

ROADWAY IMPROVEMENTS SUMMARY

Table 2 summarizes the necessary on-site and off-site roadway improvements for Sterling Ranch. Roadway improvements that are the responsibility of the Pikes Peak Rural Transportation Authority (PPRTA) are shown in the PPRTA project list included as Appendix E.

INTERSECTION LANE CONFIGURATIONS

As part of the intersection analyses, the appropriate lane configurations have been determined. The number of through, left- and right-turn lanes that should be provided at each intersection are shown in the level of service Figures 10 and 11. The lane requirements are consistent with the corresponding functional classification. At a number of intersections, double left-turn lanes have been shown as a requirement to support the large number of turning movements while allowing for a maximum level of traffic signal "green time" on the major streets. These auxiliary left- and right-turn lanes can typically be accommodated within the standard right-of-way. Also shown is the recommended traffic control at each intersection. Intersections shown as being signalized in the ultimate condition may operate as unsignalized intersections prior to meeting traffic signal warrants.

INTERSECTION LOCATIONS AND DEVIATIONS

The standard intersection spacing is one-half-mile on Principal Arterials and one mile on Expressways. LSC has prepared three deviation request memoranda to discuss non-standard access spacing. Sterling Ranch was presented at the Major Thoroughfare Task Force (MTTF) in April 2008. The MTTF meeting minutes are included as Appendix F.

Copy of Table w/Note References and Printed Page of January 2021 Notes.

Table 2
Sterling Ranch
Roadway Improvements Summary

Improvement [1]	On/Off Site	Responsibility [2]
Widen Vollmer Road from two-lane rural to four-lane urban section from south to north property line	On	Sterling Ranch w/ cost recovery
Construct Marksheffel Road between south property line and Vollmer Road	On	2 lanes by Sterling w/ cost recovery and 2 lanes by PPRTA
Construct Stapleton Drive between Vollmer Road and Banning Lewis Parkway	On	Stapleton Drive District/PPRTA
Construct Banning Lewis Parkway between south property line and Stapleton Drive	On	Sterling Ranch w/ cost recovery
Construct Sterling Ranch Road and all other internal Collector roadways	On	Sterling Ranch
Widen Vollmer Road to 4 lane section from Cowpoke Road to south property line	Off	Woodmen Heights District
Construct Briargate Parkway between current terminus and Black Forest Road	Off	Wolf Ranch
Construct Briargate Parkway between Black Forest Road and Vollmer Road	Off	Stapleton Drive District/PPRTA
Construct Stapleton Drive between current terminus and Banning Lewis Parkway	Off	Stapleton Drive District/PPRTA
Construct Research Parkway between current terminus and Black Forest Road	Off	Wolf Ranch
Construct Marksheffel Road between Black Forest Road and Vollmer Road	Off	PPRTA
Construct Marksheffel Road between south property line and Woodmen Road	Off	Woodmen Heights District/PPRTA
Construct Banning Lewis Parkway between south property line and Woodmen Road	Off	Banning Lewis Ranch Companies
Widen Woodmen Road from four-lane to six-lane section from Powers Boulevard to US 24	Off	Woodmen Road Metro District/others
Widen Black Forest Road from two-lane to six-lane section from Woodmen Road to Baker Road	Off	Woodmen Heights District, Wolf Ranch, other adjacent properties

[1] These improvements include traffic signals and auxiliary lanes where necessary as indicated by future traffic studies
[2] Preliminary concept of responsibility – actual construction responsibility will be determined through subdivision applications and cost recovery agreements

Source: LSC Transportation Consultants, Inc.

Page: 33

Number: 1 Author: kdferrin Subject: Sticky Note Date: 1/28/2021 9:46:24 AM
See Table 4 Items 8 - 12

Number: 2 Author: kdferrin Subject: Sticky Note Date: 1/4/2021 10:35:31 AM
See Table 4 Items 3 & 4

Number: 3 Author: kdferrin Subject: Sticky Note Date: 1/28/2021 9:47:14 AM
See Table 4 Items 13-15

Number: 4 Author: kdferrin Subject: Sticky Note Date: 1/28/2021 9:47:30 AM
See Table 4 Item 18

Number: 5 Author: kdferrin Subject: Sticky Note Date: 1/4/2021 10:29:09 AM
See Table 4 Items 1 & 2

Number: 6 Author: kdferrin Subject: Sticky Note Date: 1/4/2021 11:22:41 AM
See Table 4 Item 7

Number: 7 Author: kdferrin Subject: Sticky Note Date: 1/28/2021 9:48:15 AM
See Table 4 Item 17

Number: 8 Author: kdferrin Subject: Sticky Note Date: 1/28/2021 9:48:48 AM
See Table 4 Item 17

Number: 9 Author: kdferrin Subject: Sticky Note Date: 1/4/2021 12:20:28 PM
See Table 4 Item 15

Number: 10 Author: kdferrin Subject: Sticky Note Date: 1/4/2021 12:20:45 PM
completed

Number: 11 Author: kdferrin Subject: Sticky Note Date: 1/4/2021 10:34:24 AM
See Table 4 Item 6

Number: 12 Author: kdferrin Subject: Sticky Note Date: 1/4/2021 10:35:08 AM
See Table 4 Item 5

Number: 13 Author: kdferrin Subject: Sticky Note Date: 1/28/2021 9:51:43 AM
See Table 4 Item 19

Number: 14 Author: kdferrin Subject: Sticky Note Date: 1/28/2021 9:51:51 AM
See Table 4 Item 20

Number: 15 Author: kdferrin Subject: Sticky Note Date: 1/28/2021 9:52:00 AM
See Table 4 Item 21

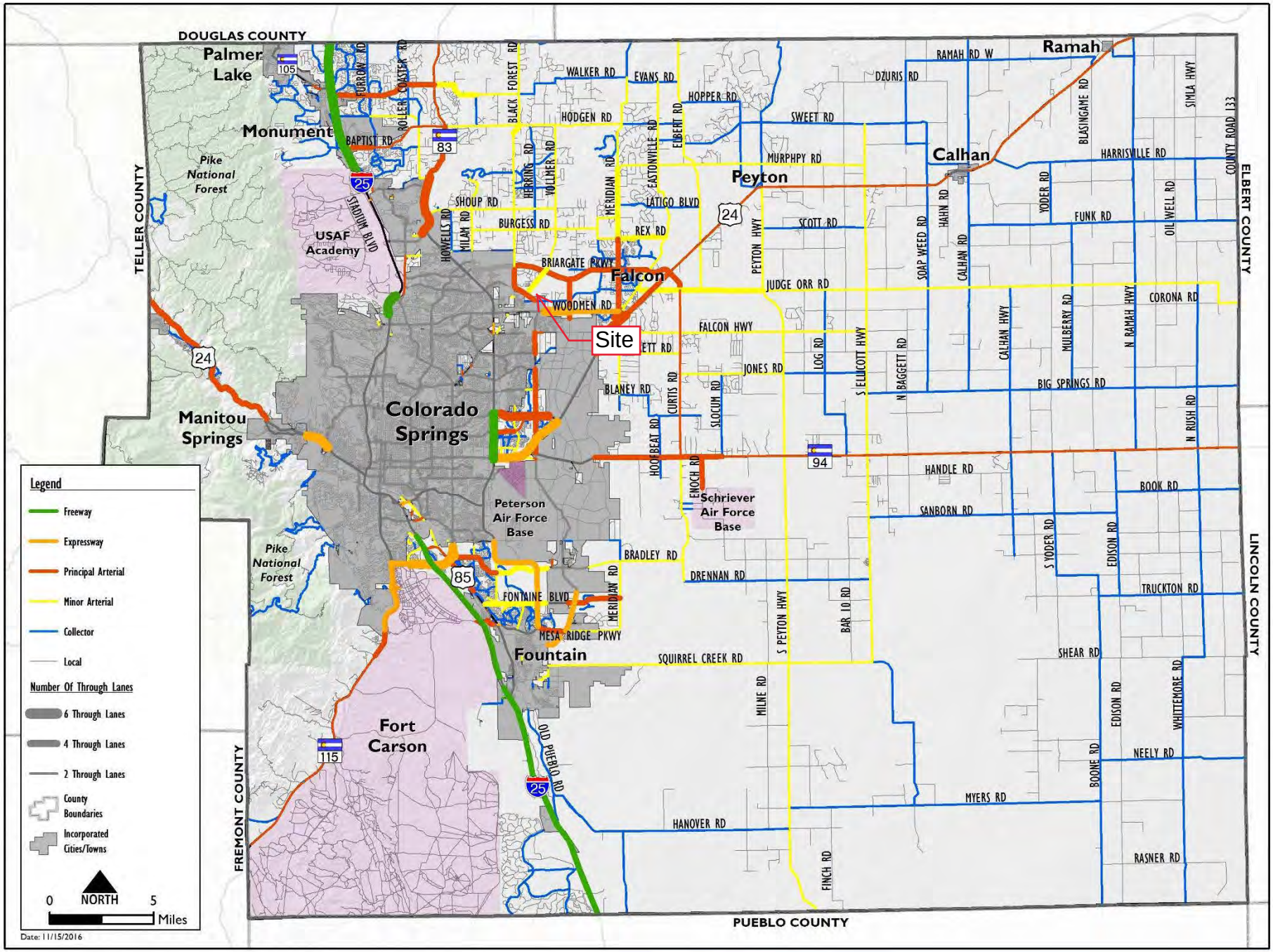
SECTION H

Conclusions and Recommendations

Sterling Ranch is a planned major development in El Paso County. As a single development, it will have a significant influence on traffic volumes and traffic patterns in northeastern Colorado Springs by providing key Arterial connections to help mitigate future east/west congestion on Woodmen Road. The recommended on-site roadway system would be adequate to meet the needs of the Sterling Ranch development, as well as the estimated background traffic volumes in the area.

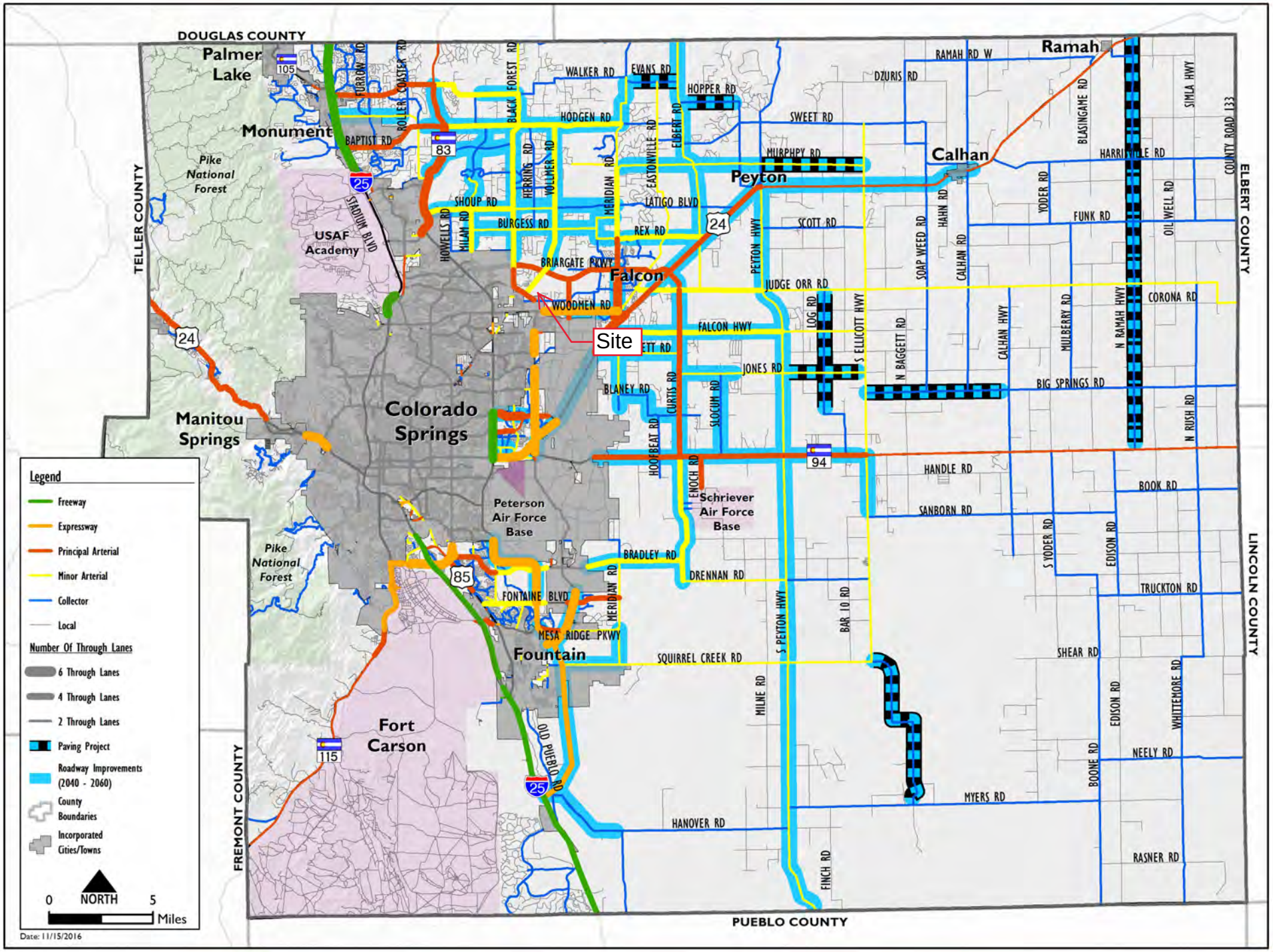
MTCP Maps

TRANSPORTATION
CONSULTANTS, INC.



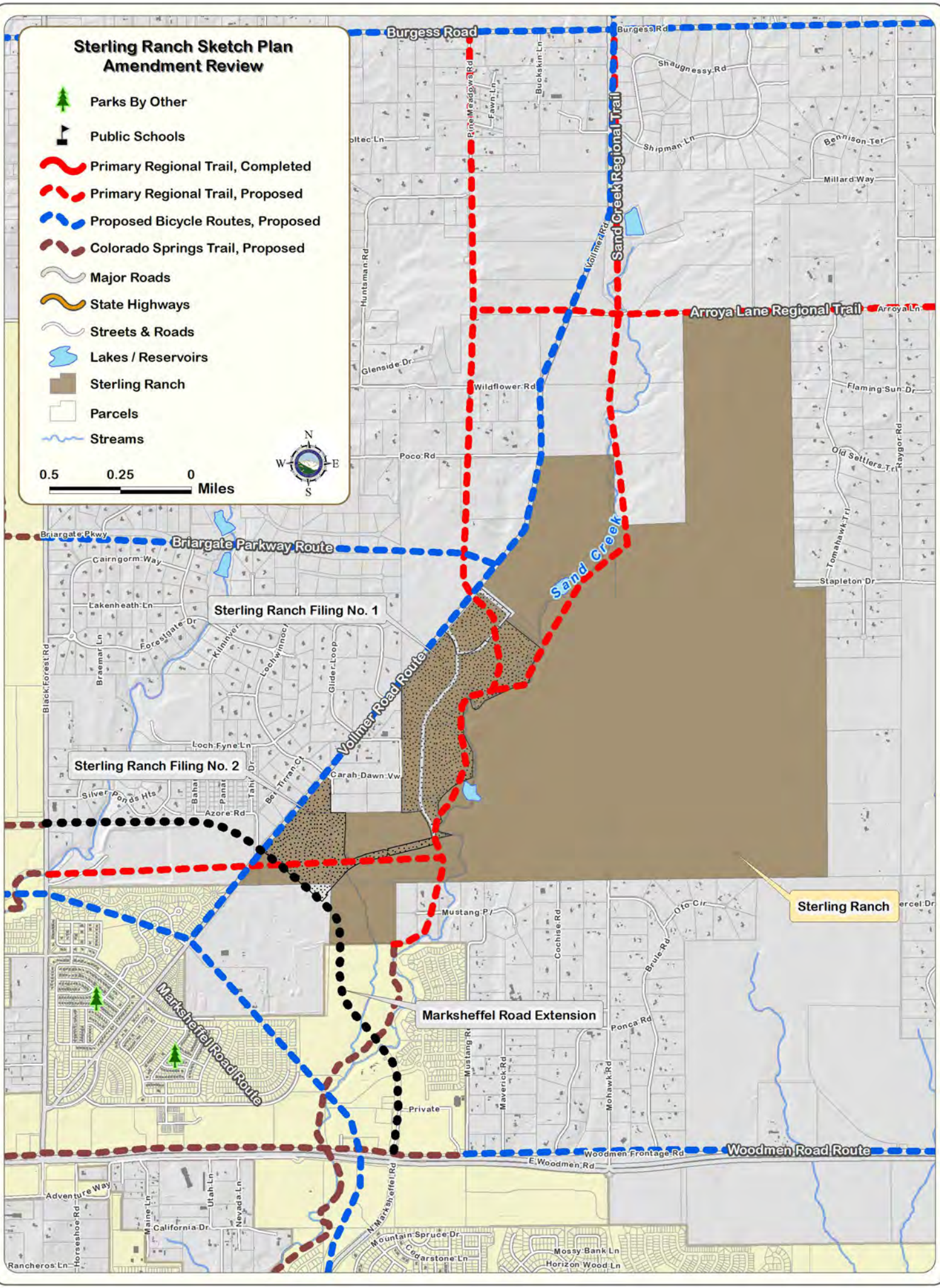
Map 14: 2040 Roadway Plan (Classification and Lanes)

Map 17: 2060 Corridor Preservation



Regional Trail Map

TRANSPORTATION
CONSULTANTS, INC.


Sterling Ranch Sketch Plan Amendment Review
Parks By Other
Public Schools
Primary Regional Trail, Completed
Primary Regional Trail, Proposed
Proposed Bicycle Routes, Proposed
Colorado Springs Trail, Proposed
Major Roads
State Highways
Streets & Roads
Lakes / Reservoirs
Sterling Ranch
Parcels
Streams
0.5 0.25 0 Miles
N
W
E
S
Burgess Road
Sand Creek Regional Trail
Arroya Lane Regional Trail
Briargate Parkway Route
Vollmer Road Route
Marksheffel Road Route
Woodmen Road Route
Sand Creek
Sterling Ranch Filing No. 1
Sterling Ranch Filing No. 2
Sterling Ranch
Marksheffel Road Extension
Private
Shaugnessy Rd
Shipman Ln
Millard Way
Wildflower Rd
Poco Rd
Flaming Sun Dr
Old Settlers Trl
Stapleton Dr
Cairngorm Way
Lakenheath Ln
Forestgate Dr
Loch Fyne Ln
Carah Dawn Vw
Azore Rd
Silver Ponds Hts
Mustang Pl
Ponca Rd
E Woodmen Rd
Woodmen Frontage Rd
Adventure Way
California Dr
Mountain Spruce Dr
Cedarstone Ln
Mossy Bank Ln
Horizon Wood Ln
Rancheros Ln

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

COUNTER MEASURES INC.

1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Location: VOLLMER ROAD N/O LOCHWINNOCH LN
City: COLORADO SPRINGS
County: EL PASO
Direction: NORTH/SOUTH

Site Code: 201614
Station ID: 20161

Start Time	16-Nov-20		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND
12:00 AM	*	*	3	5	4	7	3	5	*	*	3	6	*	*	*	*
01:00	*	*	1	1	3	4	1	5	*	*	2	3	*	*	*	*
02:00	*	*	0	1	1	1	4	2	*	*	2	1	*	*	*	*
03:00	*	*	3	3	2	5	3	3	*	*	3	4	*	*	*	*
04:00	*	*	10	3	16	3	12	3	*	*	13	3	*	*	*	*
05:00	*	*	47	8	48	9	50	7	*	*	48	8	*	*	*	*
06:00	*	*	96	49	96	35	103	31	*	*	98	38	*	*	*	*
07:00	*	*	**198**	116	173	108	**202**	133	*	*	**191**	119	*	*	*	*
08:00	*	*	180	**147**	**191**	144	169	138	*	*	180	143	*	*	*	*
09:00	*	*	157	115	175	122	181	117	*	*	171	118	*	*	*	*
10:00	*	*	128	125	155	**174**	155	145	*	*	146	148	*	*	*	*
11:00	*	*	169	140	168	173	158	**156**	*	*	165	**156**	*	*	*	*
12:00 PM	*	*	141	145	144	178	165	174	*	*	150	166	*	*	*	*
01:00	*	*	141	152	145	137	163	177	*	*	150	155	*	*	*	*
02:00	*	*	**176**	173	170	183	**171**	176	*	*	**172**	177	*	*	*	*
03:00	*	*	167	**208**	172	**217**	160	190	*	*	166	**205**	*	*	*	*
04:00	*	*	171	200	**180**	197	160	**193**	*	*	170	197	*	*	*	*
05:00	*	*	109	179	145	179	126	166	*	*	127	175	*	*	*	*
06:00	*	*	72	126	80	138	66	109	*	*	73	124	*	*	*	*
07:00	*	*	33	61	33	89	51	90	*	*	39	80	*	*	*	*
08:00	*	*	27	53	21	65	38	47	*	*	29	55	*	*	*	*
09:00	*	*	17	34	14	40	14	31	*	*	15	35	*	*	*	*
10:00	*	*	10	27	10	15	10	22	*	*	10	21	*	*	*	*
11:00	*	*	1	11	6	13	5	12	*	*	4	12	*	*	*	*
Total	0	0	2057	2082	2152	2236	2170	2132	0	0	2127	2149	0	0	0	0
Day	0		4139		4388		4302		0		4276		0		0	
AM Peak	-	-	07:00	08:00	08:00	10:00	07:00	11:00	-	-	07:00	11:00	-	-	-	-
Vol.	-	-	198	147	191	174	202	156	-	-	191	156	-	-	-	-
PM Peak	-	-	14:00	15:00	16:00	15:00	14:00	16:00	-	-	14:00	15:00	-	-	-	-
Vol.	-	-	176	208	180	217	171	193	-	-	172	205	-	-	-	-

Comb. Total	0	4139	4388	4302	0	4276	0	0

ADT ADT 4,276 AADT 4,276

COUNTER MEASURES INC.

1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Location: VOLLMER ROAD S-O POCO ROAD
City: COLORADO SPRINGS
County: EL PASO
Direction: NORTH/SOUTH

Site Code: 201606
Station ID: 201606

Start	16-Nov-20		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
Time	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND	NORTHBOUND	SOUTHBOUND
12:00 AM	*	*	5	2	3	2	4	2	*	*	4	2	*	*	*	*
01:00	*	*	1	1	2	1	4	0	*	*	2	1	*	*	*	*
02:00	*	*	1	0	0	1	0	0	*	*	0	0	*	*	*	*
03:00	*	*	2	1	4	2	2	2	*	*	3	2	*	*	*	*
04:00	*	*	1	5	2	7	1	8	*	*	1	7	*	*	*	*
05:00	*	*	4	34	7	34	4	37	*	*	5	35	*	*	*	*
06:00	*	*	27	71	27	76	23	82	*	*	26	76	*	*	*	*
07:00	*	*	89	**162**	82	145	95	**154**	*	*	89	**154**	*	*	*	*
08:00	*	*	**117**	152	111	**148**	107	143	*	*	112	148	*	*	*	*
09:00	*	*	85	123	94	136	83	136	*	*	87	132	*	*	*	*
10:00	*	*	92	102	126	123	109	129	*	*	109	118	*	*	*	*
11:00	*	*	99	128	**128**	125	**112**	121	*	*	**113**	125	*	*	*	*
12:00 PM	*	*	111	109	130	106	121	**131**	*	*	121	115	*	*	*	*
01:00	*	*	112	101	106	108	125	117	*	*	114	109	*	*	*	*
02:00	*	*	120	131	134	127	132	125	*	*	129	128	*	*	*	*
03:00	*	*	**180**	**132**	**159**	131	**154**	124	*	*	**164**	**129**	*	*	*	*
04:00	*	*	159	130	149	**139**	147	119	*	*	152	129	*	*	*	*
05:00	*	*	125	87	139	108	131	100	*	*	132	98	*	*	*	*
06:00	*	*	95	49	106	63	76	45	*	*	92	52	*	*	*	*
07:00	*	*	44	26	70	30	62	39	*	*	59	32	*	*	*	*
08:00	*	*	38	16	51	17	37	28	*	*	42	20	*	*	*	*
09:00	*	*	29	16	31	11	24	12	*	*	28	13	*	*	*	*
10:00	*	*	24	6	13	5	18	8	*	*	18	6	*	*	*	*
11:00	*	*	10	1	10	3	9	4	*	*	10	3	*	*	*	*
Total	0	0	1570	1585	1684	1648	1580	1666	0	0	1612	1634	0	0	0	0
Day	0		3155		3332		3246		0		3246		0		0	
AM Peak	-	-	08:00	07:00	11:00	08:00	11:00	07:00	-	-	11:00	07:00	-	-	-	-
Vol.	-	-	117	162	128	148	112	154	-	-	113	154	-	-	-	-
PM Peak	-	-	15:00	15:00	15:00	16:00	15:00	12:00	-	-	15:00	15:00	-	-	-	-
Vol.	-	-	180	132	159	139	154	131	-	-	164	129	-	-	-	-

Comb. Total	0	3155	3332	3246	0	3246	0	0

ADT ADT 3,244 AADT 3,244

LSC Transportation Consultants, Inc.

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

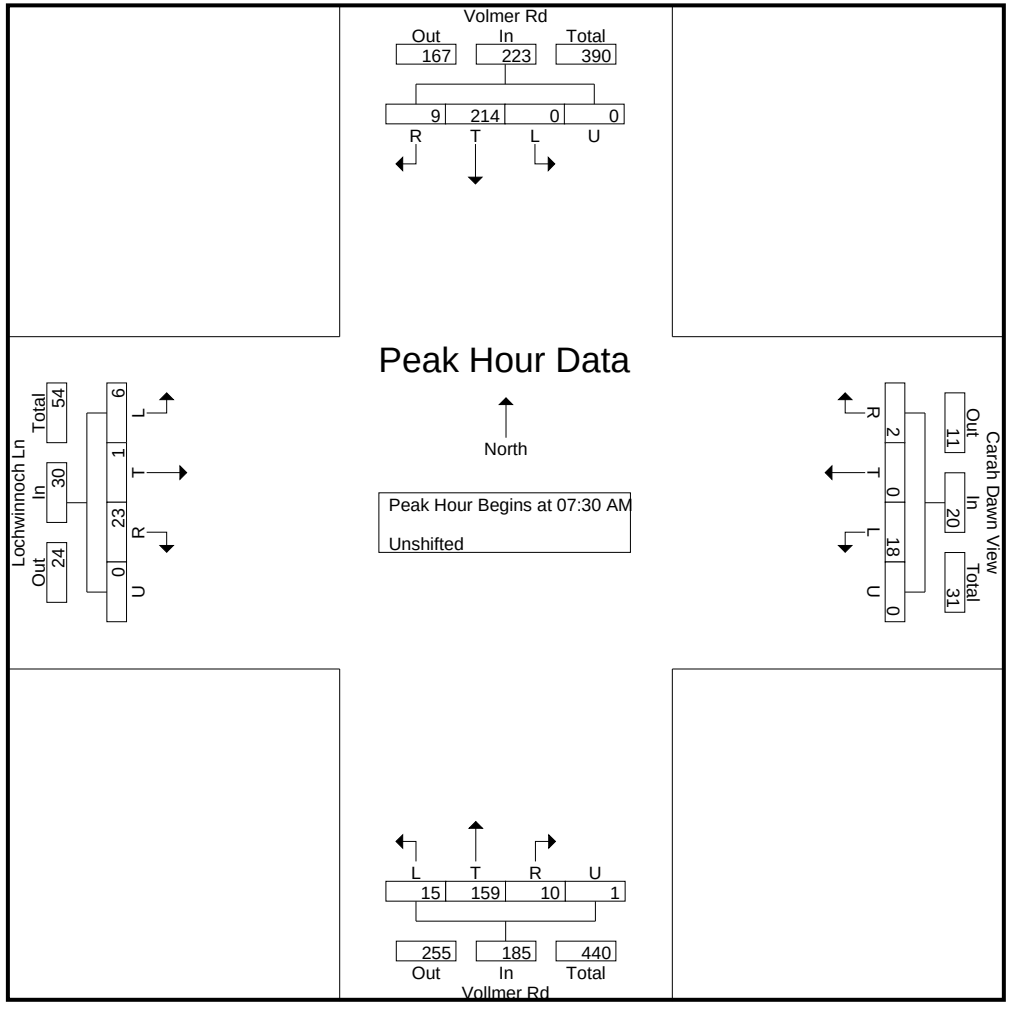
File Name : Vollmer Rd - Lochwinnoch Ln AM
Site Code : 00184660
Start Date : 11/3/2020
Page No : 1

Groups Printed- Unshifted

	Volmer Rd Southbound					Carah Dawn View Westbound					Vollmer Rd Northbound					Lochwinnoch Ln Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
07:00 AM	1	47	4	0	52	3	0	0	0	3	3	23	2	0	28	0	0	1	0	1	84
07:15 AM	0	42	4	0	46	0	0	0	0	0	3	26	1	0	30	1	0	5	0	6	82
07:30 AM	0	78	3	0	81	2	0	0	0	2	2	47	2	0	51	2	0	8	0	10	144
07:45 AM	0	66	3	0	69	7	0	1	0	8	5	42	4	0	51	0	0	8	0	8	136
Total	1	233	14	0	248	12	0	1	0	13	13	138	9	0	160	3	0	22	0	25	446
08:00 AM	0	43	1	0	44	6	0	1	0	7	3	29	3	1	36	3	1	1	0	5	92
08:15 AM	0	27	2	0	29	3	0	0	0	3	5	41	1	0	47	1	0	6	0	7	86
08:30 AM	0	50	3	0	53	4	0	1	0	5	3	35	7	0	45	0	0	7	0	7	110
08:45 AM	2	39	2	0	43	7	0	0	0	7	4	39	6	0	49	1	0	3	0	4	103
Total	2	159	8	0	169	20	0	2	0	22	15	144	17	1	177	5	1	17	0	23	391
Grand Total	3	392	22	0	417	32	0	3	0	35	28	282	26	1	337	8	1	39	0	48	837
Apprch %	0.7	94	5.3	0		91.4	0	8.6	0		8.3	83.7	7.7	0.3		16.7	2.1	81.2	0		
Total %	0.4	46.8	2.6	0	49.8	3.8	0	0.4	0	4.2	3.3	33.7	3.1	0.1	40.3	1	0.1	4.7	0	5.7	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Vollmer Rd - Lochwinnoch Ln AM
Site Code : 00184660
Start Date : 11/3/2020
Page No : 3



LSC Transportation Consultants, Inc.

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

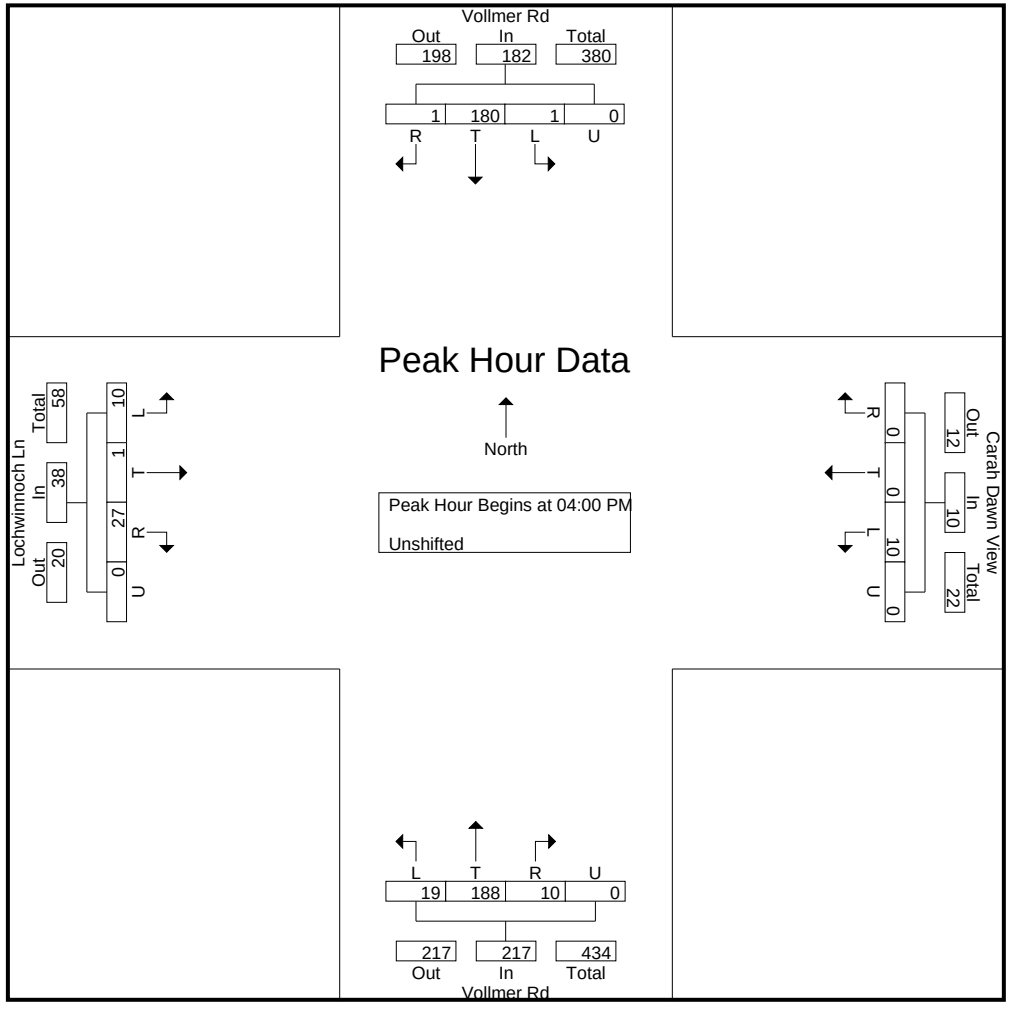
File Name : Vollmer Rd - Lochwinnoch Ln PM
Site Code : 00184660
Start Date : 11/3/2020
Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Carah Dawn View Westbound					Vollmer Rd Northbound					Lochwinnoch Ln 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	1	60	0	0	61	2	0	0	0	2	4	49	5	0	58	2	0	7	0	9	130
04:15 PM	0	41	0	0	41	4	0	0	0	4	4	53	3	0	60	1	1	5	0	7	112
04:30 PM	0	42	1	0	43	3	0	0	0	3	5	45	2	0	52	4	0	10	0	14	112
04:45 PM	0	37	0	0	37	1	0	0	0	1	6	41	0	0	47	3	0	5	0	8	93
Total	1	180	1	0	182	10	0	0	0	10	19	188	10	0	217	10	1	27	0	38	447
05:00 PM	0	39	2	1	42	4	0	0	0	4	2	49	0	0	51	1	0	5	0	6	103
05:15 PM	0	26	0	0	26	2	0	0	0	2	3	45	3	0	51	1	0	2	0	3	82
05:30 PM	0	41	0	0	41	1	0	0	0	1	3	45	4	0	52	3	0	0	0	3	97
05:45 PM	0	26	1	0	27	1	0	0	0	1	4	43	1	0	48	2	0	3	0	5	81
Total	0	132	3	1	136	8	0	0	0	8	12	182	8	0	202	7	0	10	0	17	363
Grand Total	1	312	4	1	318	18	0	0	0	18	31	370	18	0	419	17	1	37	0	55	810
Apprch %	0.3	98.1	1.3	0.3		100	0	0	0		7.4	88.3	4.3	0		30.9	1.8	67.3	0		
Total %	0.1	38.5	0.5	0.1	39.3	2.2	0	0	0	2.2	3.8	45.7	2.2	0	51.7	2.1	0.1	4.6	0	6.8	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Vollmer Rd - Lochwinnoch Ln PM
Site Code : 00184660
Start Date : 11/3/2020
Page No : 3



LSC Transportation Consultants, Inc.

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

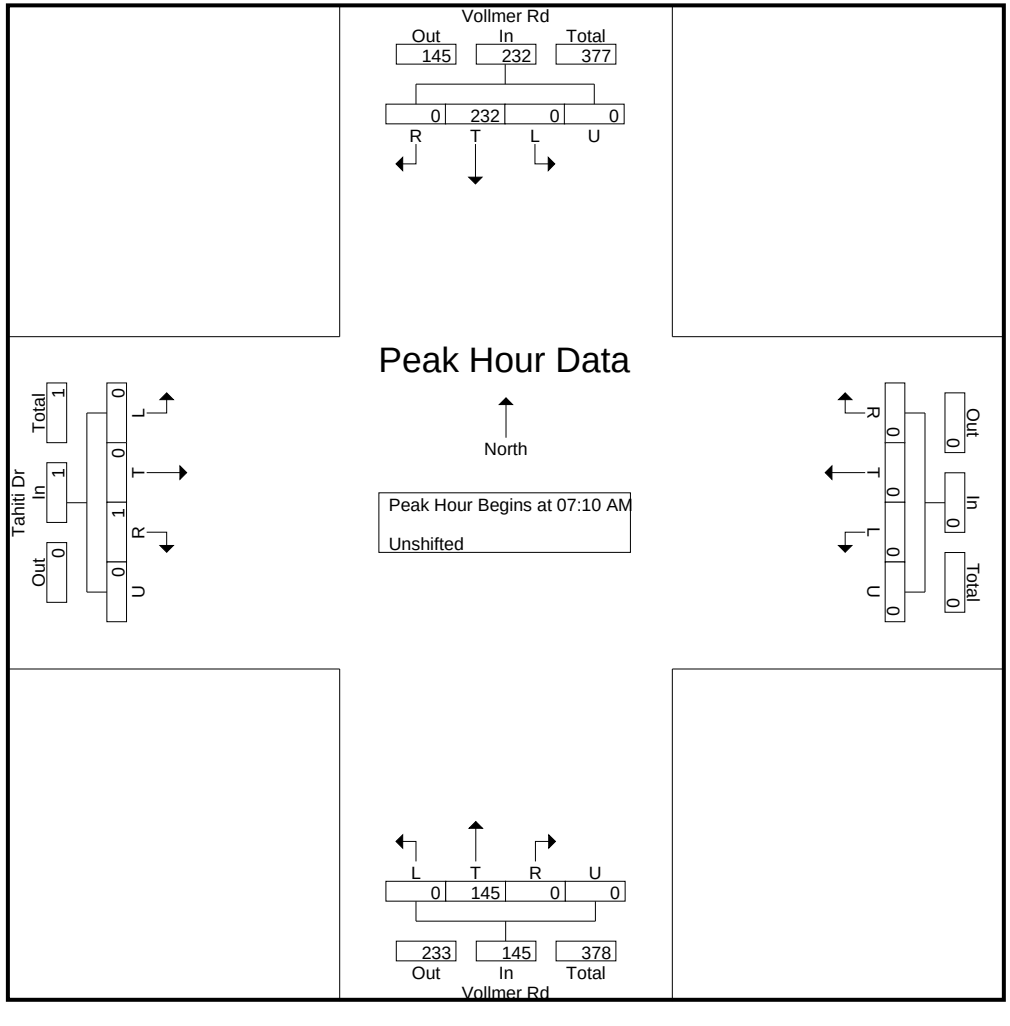
File Name : Vollmer Rd - Tahiti Dr AM
Site Code : 00184660
Start Date : 8/20/2020
Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Westbound					Vollmer Rd Northbound					Tahiti Dr Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
06:55 AM	0	46	0	0	46	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	71
07:10 AM	0	56	0	0	56	0	0	0	0	0	0	33	0	0	33	0	0	1	0	1	90
07:25 AM	0	68	0	0	68	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	102
07:40 AM	0	60	0	0	60	0	0	0	0	0	0	44	0	0	44	0	0	0	0	0	104
07:55 AM	0	48	0	0	48	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	82
08:10 AM	0	38	1	0	39	0	0	0	0	0	0	45	0	0	45	0	0	0	0	0	84
08:25 AM	0	67	0	0	67	0	0	0	0	0	0	30	0	0	30	0	0	0	0	0	97
08:40 AM	0	41	0	0	41	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	67
Grand Total	0	424	1	0	425	0	0	0	0	0	0	271	0	0	271	0	0	1	0	1	697
Apprch %	0	99.8	0.2	0		0	0	0	0		0	100	0	0		0	0	100	0		
Total %	0	60.8	0.1	0	61	0	0	0	0	0	0	38.9	0	0	38.9	0	0	0.1	0	0.1	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Vollmer Rd - Tahiti Dr AM
Site Code : 00184660
Start Date : 8/20/2020
Page No : 3



LSC Transportation Consultants, Inc.

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

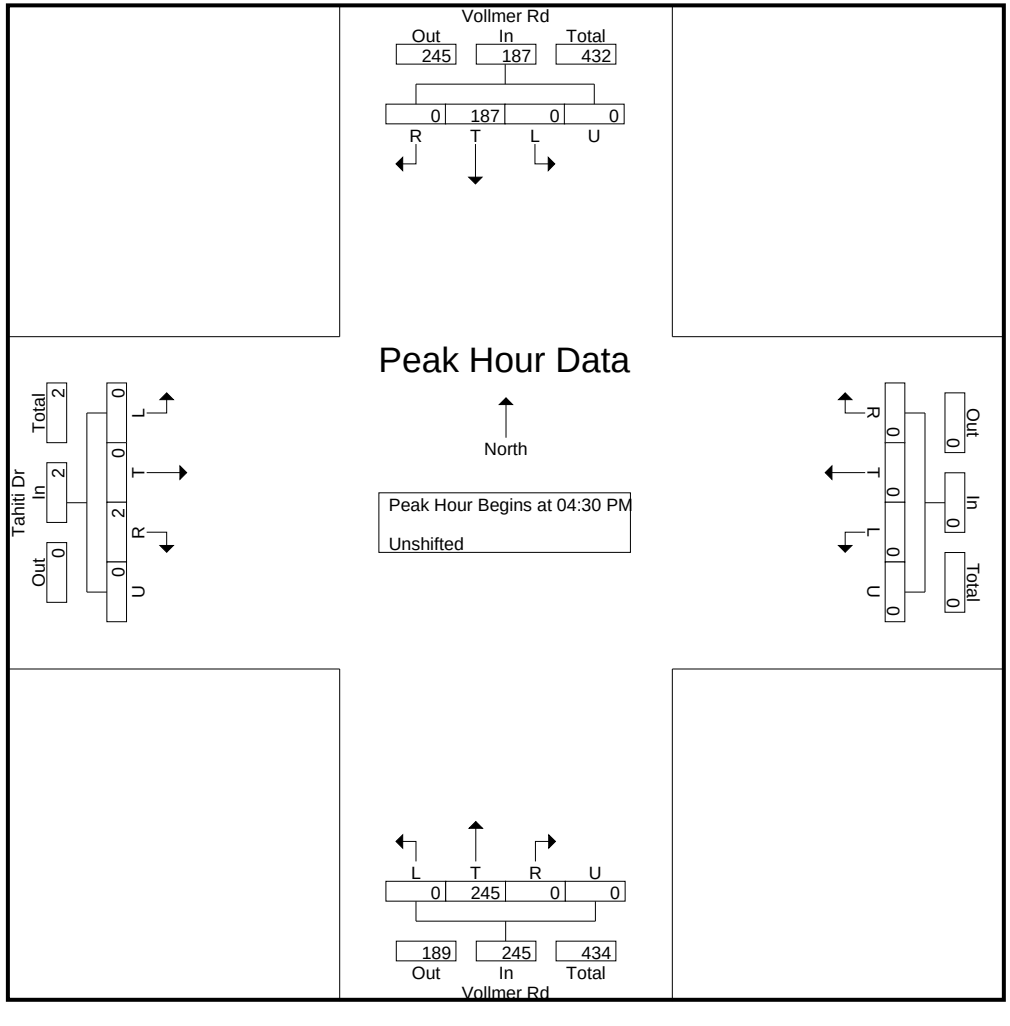
File Name : Vollmer Rd - Tahiti Dr PM
Site Code : 00184660
Start Date : 8/25/2020
Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Westbound					Vollmer Rd Northbound					Tahiti Dr Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
04:00 PM	0	40	0	0	40	0	0	0	0	0	0	64	0	0	64	0	0	1	0	1	105
04:15 PM	0	52	0	0	52	0	0	0	0	0	0	41	0	0	41	0	0	0	0	0	93
04:30 PM	0	53	0	0	53	0	0	0	0	0	0	65	0	0	65	0	0	0	0	0	118
04:45 PM	0	40	0	0	40	0	0	0	0	0	0	52	0	0	52	0	0	0	0	0	92
Total	0	185	0	0	185	0	0	0	0	0	0	222	0	0	222	0	0	1	0	1	408
05:00 PM	0	59	0	0	59	0	0	0	0	0	0	63	0	0	63	0	0	1	0	1	123
05:15 PM	0	35	0	0	35	0	0	0	0	0	0	65	0	0	65	0	0	1	0	1	101
05:30 PM	0	38	0	0	38	0	0	0	0	0	0	60	0	0	60	0	0	0	0	0	98
*** BREAK ***																					
Total	0	132	0	0	132	0	0	0	0	0	0	188	0	0	188	0	0	2	0	2	322
Grand Total	0	317	0	0	317	0	0	0	0	0	0	410	0	0	410	0	0	3	0	3	730
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	100	0		
Total %	0	43.4	0	0	43.4	0	0	0	0	0	0	56.2	0	0	56.2	0	0	0.4	0	0.4	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Vollmer Rd - Tahiti Dr PM
Site Code : 00184660
Start Date : 8/25/2020
Page No : 3



LSC Transportation Consultants, Inc.

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

File Name : Black Forest Rd - Vollmer Rd PM 12-19
Site Code : 00194990
Start Date : 12/5/2019
Page No : 1

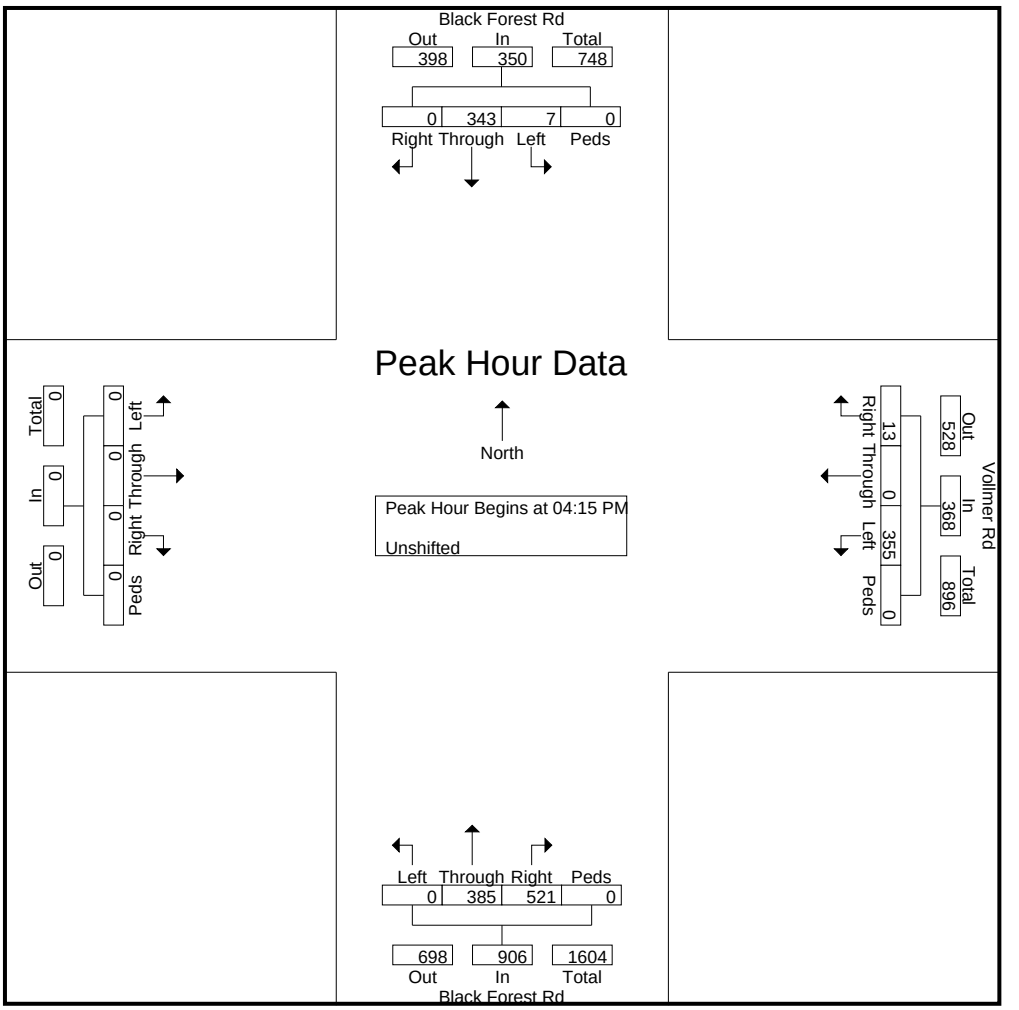
Groups Printed- Unshifted

	Black Forest Rd Southbound					Vollmer Rd Westbound					Black Forest Rd Northbound					Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
04:00 PM	3	100	0	0	103	95	0	2	0	97	0	81	119	0	200	0	0	0	0	0	400
04:15 PM	2	73	0	0	75	82	0	4	0	86	0	98	145	0	243	0	0	0	0	0	404
04:30 PM	1	94	0	0	95	92	0	0	0	92	0	74	125	0	199	0	0	0	0	0	386
04:45 PM	2	81	0	0	83	84	0	7	0	91	0	123	130	0	253	0	0	0	0	0	427
Total	8	348	0	0	356	353	0	13	0	366	0	376	519	0	895	0	0	0	0	0	1617
05:00 PM	2	95	0	0	97	97	0	2	0	99	0	90	121	0	211	0	0	0	0	0	407
05:15 PM	1	93	0	0	94	87	0	3	0	90	0	70	102	0	172	0	0	0	0	0	356
05:30 PM	2	69	0	0	71	82	0	1	0	83	0	88	130	0	218	0	0	0	0	0	372
05:45 PM	1	67	0	0	68	79	0	2	0	81	0	72	121	0	193	0	0	0	0	0	342
Total	6	324	0	0	330	345	0	8	0	353	0	320	474	0	794	0	0	0	0	0	1477
Grand Total	14	672	0	0	686	698	0	21	0	719	0	696	993	0	1689	0	0	0	0	0	3094
Apprch %	2	98	0	0		97.1	0	2.9	0		0	41.2	58.8	0		0	0	0	0		
Total %	0.5	21.7	0	0	22.2	22.6	0	0.7	0	23.2	0	22.5	32.1	0	54.6	0	0	0	0	0	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Black Forest Rd - Vollmer Rd PM 12-19
Site Code : 00194990
Start Date : 12/5/2019

	Black Forest Rd Southbound					Vollmer Rd Westbound					Black Forest Rd Northbound					Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	**2**	73	0	0	75	82	0	4	0	86	0	98	**145**	0	243	0	0	0	0	0	404
04:30 PM	1	94	0	0	95	92	0	0	0	92	0	74	125	0	199	0	0	0	0	0	386
04:45 PM	2	81	0	0	83	84	0	**7**	0	91	0	**123**	130	0	**253**	0	0	0	0	0	**427**
05:00 PM	2	**95**	0	0	**97**	**97**	0	2	0	**99**	0	90	121	0	211	0	0	0	0	0	407
Total Volume	7	343	0	0	350	355	0	13	0	368	0	385	521	0	906	0	0	0	0	0	1624
% App. Total	2	98	0	0		96.5	0	3.5	0		0	42.5	57.5	0		0	0	0	0		
PHF	.875	.903	.000	.000	.902	.915	.000	.464	.000	.929	.000	.783	.898	.000	.895	.000	.000	.000	.000	.000	.951



LSC Transportation Consultants, Inc.

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

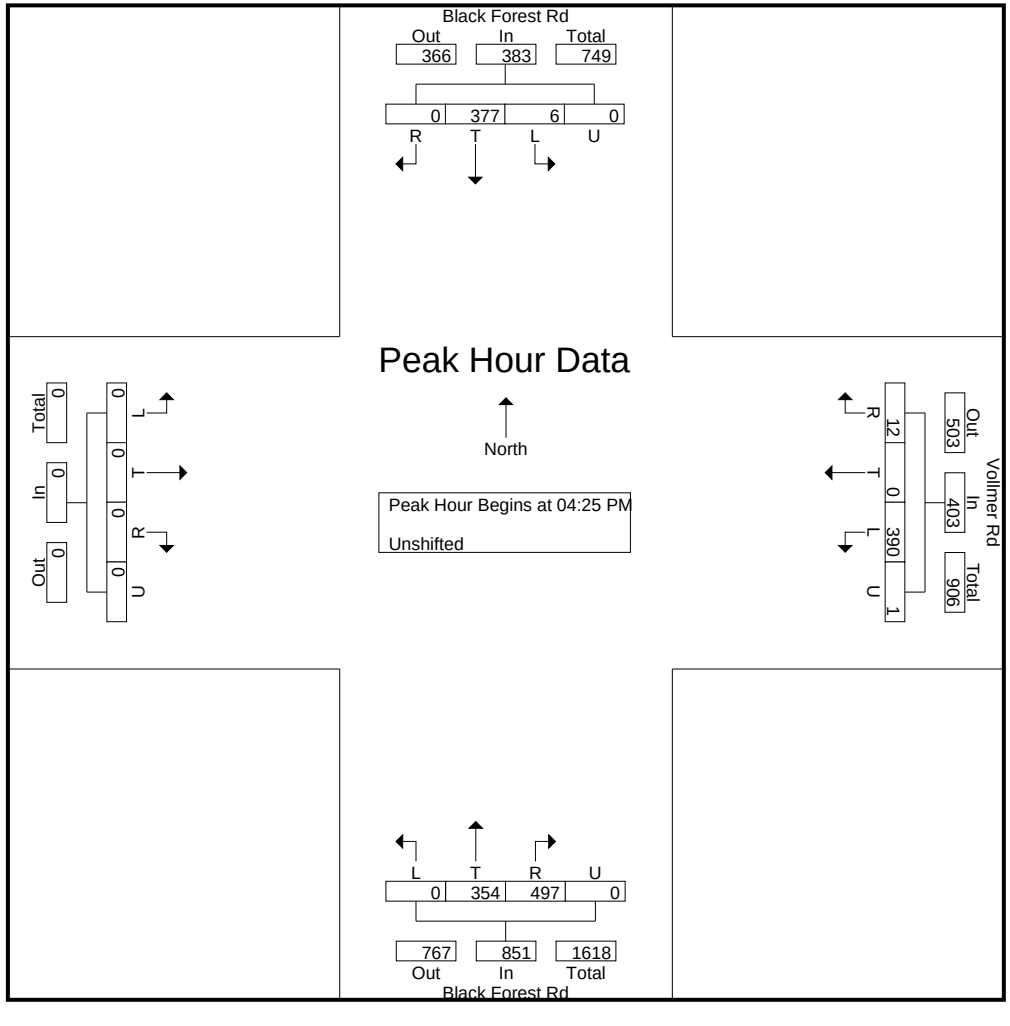
File Name : Black Forest Rd - Vollmer Rd PM
Site Code : 00204380
Start Date : 5/26/2020
Page No : 1

Groups Printed- Unshifted

	Black Forest Rd Southbound					Vollmer Rd Westbound					Black Forest Rd Northbound					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**
03:55 PM	1	91	0	0	92	86	0	5	0	91	0	68	111	0	179	0	0	0	0	0	362
04:10 PM	2	89	0	0	91	89	0	3	0	92	0	92	119	0	211	0	0	0	0	0	394
04:25 PM	2	100	0	0	102	88	0	5	1	94	0	103	126	0	229	0	0	0	0	0	425
04:40 PM	2	78	0	0	80	88	0	4	0	92	0	65	103	0	168	0	0	0	0	0	340
04:55 PM	0	107	0	0	107	116	0	1	0	117	0	79	128	0	207	0	0	0	0	0	431
05:10 PM	2	92	0	0	94	98	0	2	0	100	0	107	140	0	247	0	0	0	0	0	441
05:25 PM	1	84	0	0	85	87	0	2	2	91	0	77	129	0	206	0	0	0	0	0	382
05:40 PM	3	67	0	0	70	75	0	3	0	78	0	92	141	0	233	0	0	0	0	0	381
Grand Total	13	708	0	0	721	727	0	25	3	755	0	683	997	0	1680	0	0	0	0	0	3156
Apprch %	1.8	98.2	0	0		96.3	0	3.3	0.4		0	40.7	59.3	0		0	0	0	0		
Total %	0.4	22.4	0	0	22.8	23	0	0.8	0.1	23.9	0	21.6	31.6	0	53.2	0	0	0	0	0	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Black Forest Rd - Vollmer Rd PM
Site Code : 00204380
Start Date : 5/26/2020
Page No : 3



LSC Transportation Consultants, Inc.

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

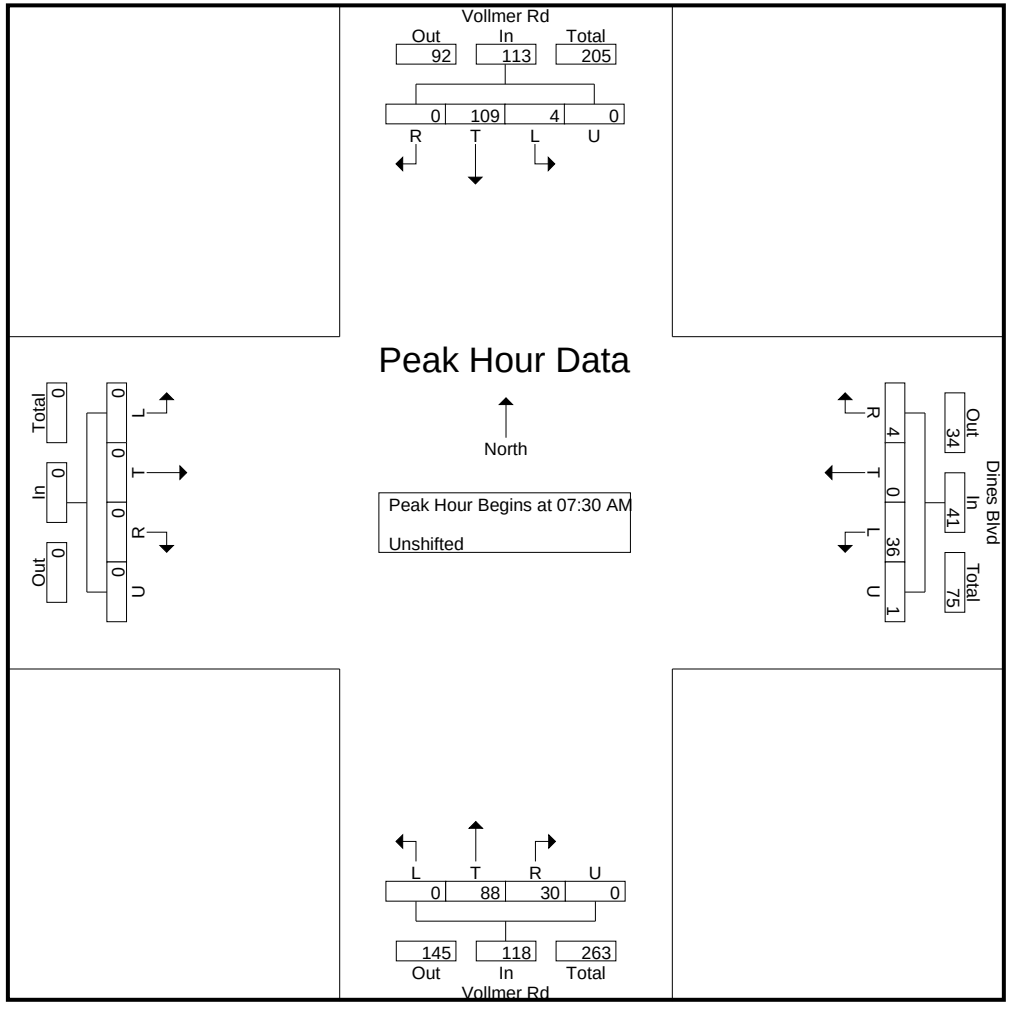
File Name : Vollmer Rd - Dines Blvd AM
Site Code : 00204380
Start Date : 5/27/2020
Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Dines Blvd Westbound					Vollmer Rd Northbound					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	1	30	0	0	31	2	0	1	0	3	0	4	3	0	7	0	0	0	0	0	41
06:45 AM	1	28	0	0	29	3	0	2	0	5	0	11	2	0	13	0	0	0	0	0	47
Total	2	58	0	0	60	5	0	3	0	8	0	15	5	0	20	0	0	0	0	0	88
07:00 AM	1	24	0	0	25	8	0	3	0	11	0	19	3	0	22	0	0	0	0	0	58
07:15 AM	1	29	0	0	30	4	0	0	0	4	0	26	5	0	31	0	0	0	0	0	65
07:30 AM	0	27	0	0	27	9	0	1	0	10	0	21	8	0	29	0	0	0	0	0	66
07:45 AM	0	33	0	0	33	8	0	3	1	12	0	21	6	0	27	0	0	0	0	0	72
Total	2	113	0	0	115	29	0	7	1	37	0	87	22	0	109	0	0	0	0	0	261
08:00 AM	1	25	0	0	26	7	0	0	0	7	0	23	6	0	29	0	0	0	0	0	62
08:15 AM	3	24	0	0	27	12	0	0	0	12	0	23	10	0	33	0	0	0	0	0	72
Grand Total	8	220	0	0	228	53	0	10	1	64	0	148	43	0	191	0	0	0	0	0	483
Apprch %	3.5	96.5	0	0		82.8	0	15.6	1.6		0	77.5	22.5	0		0	0	0	0		
Total %	1.7	45.5	0	0	47.2	11	0	2.1	0.2	13.3	0	30.6	8.9	0	39.5	0	0	0	0	0	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Vollmer Rd - Dines Blvd AM
Site Code : 00204380
Start Date : 5/27/2020
Page No : 3



LSC Transportation Consultants, Inc.

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

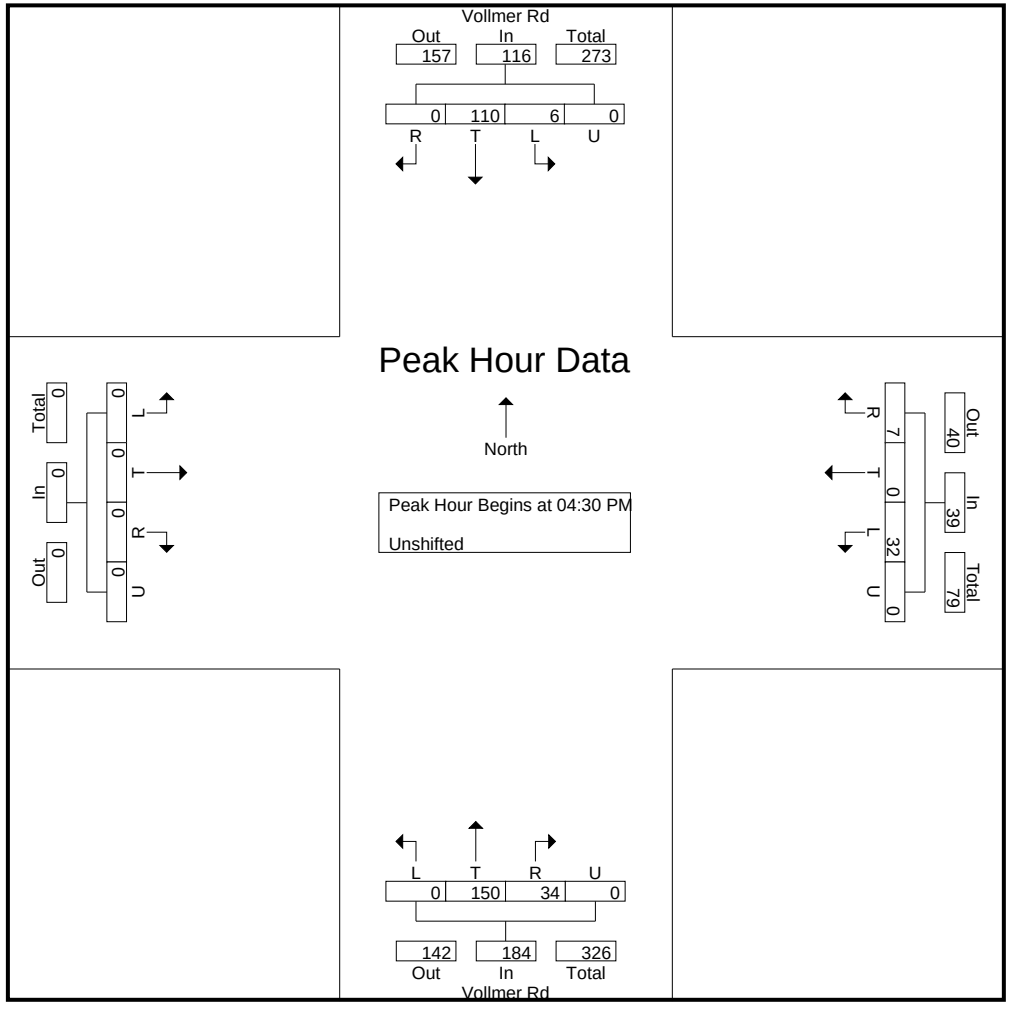
File Name : Vollmer Rd - Dines Blvd PM
Site Code : 00204380
Start Date : 5/27/2020
Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
04:00 PM	0	21	0	0	21	6	0	0	0	6	0	39	8	0	47	0	0	0	0	0	74
04:15 PM	1	29	0	0	30	9	0	1	1	11	0	30	9	0	39	0	0	0	0	0	80
04:30 PM	3	28	0	0	31	8	0	3	0	11	0	50	11	0	61	0	0	0	0	0	103
04:45 PM	0	23	0	0	23	4	0	0	0	4	0	35	12	0	47	0	0	0	0	0	74
Total	4	101	0	0	105	27	0	4	1	32	0	154	40	0	194	0	0	0	0	0	331
05:00 PM	2	26	0	0	28	13	0	0	0	13	0	31	4	0	35	0	0	0	0	0	76
05:15 PM	1	33	0	0	34	7	0	4	0	11	0	34	7	0	41	0	0	0	0	0	86
05:30 PM	1	20	0	0	21	7	0	2	0	9	0	43	13	0	56	0	0	0	0	0	86
05:45 PM	0	13	0	0	13	2	0	2	0	4	0	33	8	0	41	0	0	0	0	0	58
Total	4	92	0	0	96	29	0	8	0	37	0	141	32	0	173	0	0	0	0	0	306
Grand Total	8	193	0	0	201	56	0	12	1	69	0	295	72	0	367	0	0	0	0	0	637
Apprch %	4	96	0	0		81.2	0	17.4	1.4		0	80.4	19.6	0		0	0	0	0		
Total %	1.3	30.3	0	0	31.6	8.8	0	1.9	0.2	10.8	0	46.3	11.3	0	57.6	0	0	0	0	0	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Vollmer Rd - Dines Blvd PM
Site Code : 00204380
Start Date : 5/27/2020
Page No : 3



LSC Transportation Consultants, Inc.

LSC Transportation Consultants, Inc.

516 N. Tejon St.
Colorado Springs, CO
(719) 633-2868

File Name : Vollmer Rd-Lochwinnoch Ln AM
Site Code : 00000000
Start Date : 01/09/2014
Page No : 1

Groups Printed- Unshifted

	Vollmer RD From North				Bills Tool Rental Access From East				Vollmer Rd From South				LochwinnochLn From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	28	0	0	0	0	0	0	5	6	0	0	1	0	0	0	40
06:45 AM	0	34	0	0	0	0	0	0	10	2	0	0	3	1	0	0	50
Total	0	62	0	0	0	0	0	0	15	8	0	0	4	1	0	0	90
07:00 AM	1	47	0	0	6	0	1	0	3	5	0	0	8	0	0	0	71
07:15 AM	4	37	1	0	2	0	3	0	0	14	1	0	7	0	0	0	69
07:30 AM	0	34	0	0	3	0	1	0	2	10	2	0	5	0	0	0	57
07:45 AM	0	32	0	0	1	1	0	0	4	19	2	0	1	0	0	0	60
Total	5	150	1	0	12	1	5	0	9	48	5	0	21	0	0	0	257
08:00 AM	1	23	0	0	1	0	2	0	1	9	1	0	6	0	1	0	45
08:15 AM	1	43	0	0	0	0	1	0	1	20	1	0	7	0	1	0	75
Grand Total	7	278	1	0	13	1	8	0	26	85	7	0	38	1	2	0	467
Apprch %	2.4	97.2	0.3	0.0	59.1	4.5	36.4	0.0	22.0	72.0	5.9	0.0	92.7	2.4	4.9	0.0	
Total %	1.5	59.5	0.2	0.0	2.8	0.2	1.7	0.0	5.6	18.2	1.5	0.0	8.1	0.2	0.4	0.0	

PETRA for Windows

File Edit View Insert Format Tools Window Help

N:\Counts\Intersec3\Vollmer Rd-Lochwinnoch Ln PM.pwf

Start Date: 01/09/2014 Site Code: 00000000 Number of Intervals: 8
Start Time: 04:15 PM Displayed Group: 1 - Unshifted Interval Length: 15 Minutes

	Vollmer Rd From North				Bills Tool Rental Access From East				Vollmer Rd From South				Lochwinnoch Ln From West			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
04:15 PM	0	24	0	0	0	0	1	0	1	35	4	0	1	0	0	0
04:30 PM	1	12	2	0	0	0	0	0	0	48	5	0	1	0	0	0
04:45 PM	1	19	0	0	2	0	0	0	2	43	2	0	1	1	0	0
05:00 PM	0	16	0	0	1	0	4	0	0	38	5	0	1	0	0	0
05:15 PM	0	21	0	0	0	0	0	0	0	44	6	0	4	0	0	0
05:30 PM	1	21	0	0	0	0	0	0	1	40	4	0	3	0	0	0
05:45 PM	0	23	1	0	0	1	0	0	0	42	4	0	2	0	0	0
06:00 PM	0	17	0	0	0	0	0	0	0	36	5	0	3	0	1	0

Row Total: 66 Column Total: 3 NUM CAPS INS SCRL

Start PETRA for Windows 11:30 AM

COUNTER MEASURES INC.

1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Location: VOLLMER RD S/O POCO RD
City:
County: EL PASO
Direction: SOUTHBOUND-NORTHBOUND

Site Code: 092712
Station ID: 092712

Start	28-Sep-17	SB		NB		Combined		29-Sep	SB		NB		Combined	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Fri	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		0	25	1	16	1	41		*	*	*	*	*	*
12:15		0	12	0	25	0	37		*	*	*	*	*	*
12:30		1	12	1	26	2	38		*	*	*	*	*	*
12:45		0	18	0	18	0	36		*	*	*	*	*	*
01:00		0	24	0	16	0	40		*	*	*	*	*	*
01:15		0	16	0	23	0	39		*	*	*	*	*	*
01:30		0	25	2	29	2	54		*	*	*	*	*	*
01:45		0	17	0	20	0	37		*	*	*	*	*	*
02:00		1	21	0	34	1	55		*	*	*	*	*	*
02:15		0	22	2	23	2	45		*	*	*	*	*	*
02:30		0	21	1	28	1	49		*	*	*	*	*	*
02:45		0	14	0	37	0	51		*	*	*	*	*	*
03:00		0	40	0	28	0	68		*	*	*	*	*	*
03:15		0	15	1	27	1	42		*	*	*	*	*	*
03:30		0	24	2	30	2	54		*	*	*	*	*	*
03:45		3	18	0	31	3	49		*	*	*	*	*	*
04:00		1	19	1	25	2	44		*	*	*	*	*	*
04:15		3	18	1	30	4	48		*	*	*	*	*	*
04:30		0	30	0	25	0	55		*	*	*	*	*	*
04:45		6	18	0	30	6	48		*	*	*	*	*	*
05:00		7	19	4	32	11	51		*	*	*	*	*	*
05:15		4	13	0	28	4	41		*	*	*	*	*	*
05:30		19	15	3	30	22	45		*	*	*	*	*	*
05:45		5	16	2	30	7	46		*	*	*	*	*	*
06:00		20	12	6	37	26	49		*	*	*	*	*	*
06:15		16	14	6	18	22	32		*	*	*	*	*	*
06:30		27	16	9	33	36	49		*	*	*	*	*	*
06:45		18	20	4	12	22	32		*	*	*	*	*	*
07:00		14	4	16	15	30	19		*	*	*	*	*	*
07:15		27	2	14	16	41	18		*	*	*	*	*	*
07:30		22	6	12	19	34	25		*	*	*	*	*	*
07:45		16	4	21	16	37	20		*	*	*	*	*	*
08:00		20	4	12	21	32	25		*	*	*	*	*	*
08:15		26	3	16	14	42	17		*	*	*	*	*	*
08:30		23	5	14	15	37	20		*	*	*	*	*	*
08:45		16	5	18	14	34	19		*	*	*	*	*	*
09:00		34	4	27	17	61	21		*	*	*	*	*	*
09:15		19	7	11	4	30	11		*	*	*	*	*	*
09:30		16	6	12	13	28	19		*	*	*	*	*	*
09:45		18	4	12	6	30	10		*	*	*	*	*	*
10:00		21	3	10	7	31	10		*	*	*	*	*	*
10:15		18	4	28	1	46	5		*	*	*	*	*	*
10:30		28	0	15	2	43	2		*	*	*	*	*	*
10:45		28	1	16	1	44	2		*	*	*	*	*	*
11:00		21	1	13	1	34	2		*	*	*	*	*	*
11:15		13	0	18	1	31	1		*	*	*	*	*	*
11:30		15	1	14	3	29	4		*	*	*	*	*	*
11:45		14	0	20	3	34	3		*	*	*	*	*	*
Total		540	598	365	930	905	1528		0	0	0	0	0	0
Day Total		1138		1295		2433			0		0		0	
% Total		22.2%	24.6%	15.0%	38.2%				0.0%	0.0%	0.0%	0.0%		
Peak	-	08:15	02:15	08:15	05:15	08:15	02:45	-	-	-	-	-	-	-
Vol.	-	99	97	75	125	174	215	-	-	-	-	-	-	-
P.H.F.		0.728	0.606	0.694	0.845	0.713	0.790							

ADT	ADT 2,433	AADT 2,433

Levels of Service

TRANSPORTATION
CONSULTANTS, INC.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↕	
Traffic Vol, veh/h	6	1	23	18	0	2	15	159	10	0	214	9
Future Vol, veh/h	6	1	23	18	0	2	15	159	10	0	214	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	235	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	78	78	78	90	90	90	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	1	31	23	0	3	17	177	11	0	310	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	535	539	317	544	534	177	323	0	0	188	0	0
Stage 1	317	317	-	211	211	-	-	-	-	-	-	-
Stage 2	218	222	-	333	323	-	-	-	-	-	-	-
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	456	449	724	450	452	866	1237	-	-	1386	-	-
Stage 1	694	654	-	791	728	-	-	-	-	-	-	-
Stage 2	784	720	-	681	650	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	450	442	724	425	445	866	1237	-	-	1386	-	-
Mov Cap-2 Maneuver	450	442	-	425	445	-	-	-	-	-	-	-
Stage 1	684	654	-	779	717	-	-	-	-	-	-	-
Stage 2	770	709	-	651	650	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	13.5	0.6	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1237	-	-	633	448	1386	-	-
HCM Lane V/C Ratio	0.013	-	-	0.063	0.057	-	-	-
HCM Control Delay (s)	8	0	-	11.1	13.5	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	4	88	30	4	109
Future Vol, veh/h	36	4	88	30	4	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	89	89	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	5	99	34	5	131

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	240	99	0	0	133	0
Stage 1	99	-	-	-	-	-
Stage 2	141	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	748	957	-	-	1452	-
Stage 1	925	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	745	957	-	-	1452	-
Mov Cap-2 Maneuver	745	-	-	-	-	-
Stage 1	925	-	-	-	-	-
Stage 2	882	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	745	957	1452	-
HCM Lane V/C Ratio	-	-	0.058	0.005	0.003	-
HCM Control Delay (s)	-	-	10.1	8.8	7.5	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↕	
Traffic Vol, veh/h	10	1	27	10	0	0	19	188	10	1	180	1
Future Vol, veh/h	10	1	27	10	0	0	19	188	10	1	180	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	235	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	87	87	87	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	1	35	13	0	0	22	216	11	1	240	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	509	514	241	521	503	216	241	0	0	227	0	0
Stage 1	243	243	-	260	260	-	-	-	-	-	-	-
Stage 2	266	271	-	261	243	-	-	-	-	-	-	-
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	475	464	798	466	471	824	1326	-	-	1341	-	-
Stage 1	761	705	-	745	693	-	-	-	-	-	-	-
Stage 2	739	685	-	744	705	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	468	455	798	438	462	824	1326	-	-	1341	-	-
Mov Cap-2 Maneuver	468	455	-	438	462	-	-	-	-	-	-	-
Stage 1	747	704	-	731	680	-	-	-	-	-	-	-
Stage 2	725	672	-	710	704	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	13.5	0.7	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1326	-	-	662	438	1341	-	-
HCM Lane V/C Ratio	0.016	-	-	0.074	0.029	0.001	-	-
HCM Control Delay (s)	7.8	0	-	10.9	13.5	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	7	150	34	6	110
Future Vol, veh/h	32	7	150	34	6	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	75	75	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	9	200	45	7	133

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	347	200	0	0	245	0
Stage 1	200	-	-	-	-	-
Stage 2	147	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	650	841	-	-	1321	-
Stage 1	834	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	646	841	-	-	1321	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	875	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	646	841	1321	-
HCM Lane V/C Ratio	-	-	0.064	0.011	0.005	-
HCM Control Delay (s)	-	-	11	9.3	7.7	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	0	217	20	0	395
Future Vol, veh/h	75	0	217	20	0	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	235	235	-
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	88	0	255	24	0	465

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	488	255	0	0	279	0
Stage 1	255	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	524	783	-	-	1282	-
Stage 1	787	-	-	-	-	-
Stage 2	784	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	524	783	-	-	1282	-
Mov Cap-2 Maneuver	524	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	784	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	524	-	1282	-
HCM Lane V/C Ratio	-	-	0.168	-	-	-
HCM Control Delay (s)	-	-	13.3	0	0	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.6	-	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	23	128	22	8	229
Future Vol, veh/h	56	23	128	22	8	229
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
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	66	27	151	26	9	269

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	304	76	0	0	177	0
Stage 1	151	-	-	-	-	-
Stage 2	153	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	664	970	-	-	1396	-
Stage 1	861	-	-	-	-	-
Stage 2	859	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	660	970	-	-	1396	-
Mov Cap-2 Maneuver	660	-	-	-	-	-
Stage 1	861	-	-	-	-	-
Stage 2	854	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	660	970	1396	-
HCM Lane V/C Ratio	-	-	0.1	0.028	0.007	-
HCM Control Delay (s)	-	-	11.1	8.8	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	64	5	130	22	2	173
Future Vol, veh/h	64	5	130	22	2	173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	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	75	6	153	26	2	204

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	259	77	0	0	179	0
Stage 1	153	-	-	-	-	-
Stage 2	106	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	708	968	-	-	1394	-
Stage 1	859	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	707	968	-	-	1394	-
Mov Cap-2 Maneuver	707	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	906	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	707	968	1394	-
HCM Lane V/C Ratio	-	-	0.106	0.006	0.002	-
HCM Control Delay (s)	-	-	10.7	8.7	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	0	397	68	0	301
Future Vol, veh/h	49	0	397	68	0	301
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	235	235	-
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	58	0	467	80	0	354

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	644	467	0	0	547	0
Stage 1	467	-	-	-	-	-
Stage 2	177	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	421	595	-	-	1020	-
Stage 1	630	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	421	595	-	-	1020	-
Mov Cap-2 Maneuver	421	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	836	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	421	-	1020	-
HCM Lane V/C Ratio	-	-	0.137	-	-	-
HCM Control Delay (s)	-	-	14.9	0	0	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.5	-	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	15	287	77	26	189
Future Vol, veh/h	37	15	287	77	26	189
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	18	338	91	31	222

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	511	169	0	0	429	0
Stage 1	338	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	492	845	-	-	1127	-
Stage 1	694	-	-	-	-	-
Stage 2	840	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	478	845	-	-	1127	-
Mov Cap-2 Maneuver	478	-	-	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	816	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	478	845	1127	-
HCM Lane V/C Ratio	-	-	0.091	0.021	0.027	-
HCM Control Delay (s)	-	-	13.3	9.4	8.3	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	3	228	74	6	173
Future Vol, veh/h	42	3	228	74	6	173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	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	49	4	268	87	7	204

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	384	134	0	0	355	0
Stage 1	268	-	-	-	-	-
Stage 2	116	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	591	890	-	-	1200	-
Stage 1	753	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	587	890	-	-	1200	-
Mov Cap-2 Maneuver	587	-	-	-	-	-
Stage 1	753	-	-	-	-	-
Stage 2	891	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	587	890	1200	-
HCM Lane V/C Ratio	-	-	0.084	0.004	0.006	-
HCM Control Delay (s)	-	-	11.7	9.1	8	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	0	-

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	198	4	225	53	3	395
Future Vol, veh/h	198	4	225	53	3	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	235	235	-
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	233	5	265	62	4	465

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	506	265	0	0	327	0
Stage 1	265	-	-	-	-	-
Stage 2	241	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	511	773	-	-	1231	-
Stage 1	779	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	509	773	-	-	1231	-
Mov Cap-2 Maneuver	509	-	-	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	509	773	1231	-
HCM Lane V/C Ratio	-	-	0.458	0.006	0.003	-
HCM Control Delay (s)	-	-	17.9	9.7	7.9	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	2.4	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	8	221	8	0	398
Future Vol, veh/h	0	8	221	8	0	398
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	260	9	0	468

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	130	0	0	-	-
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	896	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	896	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	896	-
HCM Lane V/C Ratio	-	-	0.011	-
HCM Control Delay (s)	-	-	9.1	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	33	141	22	12	232
Future Vol, veh/h	56	33	141	22	12	232
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
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	66	39	166	26	14	273

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	331	83	0	0	192	0
Stage 1	166	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	638	960	-	-	1379	-
Stage 1	846	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	632	960	-	-	1379	-
Mov Cap-2 Maneuver	632	-	-	-	-	-
Stage 1	846	-	-	-	-	-
Stage 2	839	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	632	960	1379	-
HCM Lane V/C Ratio	-	-	0.104	0.04	0.01	-
HCM Control Delay (s)	-	-	11.4	8.9	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	64	5	152	22	2	180
Future Vol, veh/h	64	5	152	22	2	180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	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	75	6	179	26	2	212

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	289	90	0	0	205	0
Stage 1	179	-	-	-	-	-
Stage 2	110	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	678	950	-	-	1364	-
Stage 1	834	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	677	950	-	-	1364	-
Mov Cap-2 Maneuver	677	-	-	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	901	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	677	950	1364	-
HCM Lane V/C Ratio	-	-	0.111	0.006	0.002	-
HCM Control Delay (s)	-	-	11	8.8	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	50	173	0	0	29
Future Vol, veh/h	6	50	173	0	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
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	7	59	204	0	0	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	204	0	-	0	277	204
Stage 1	-	-	-	-	204	-
Stage 2	-	-	-	-	73	-
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	1368	-	-	-	713	837
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1368	-	-	-	709	837
Mov Cap-2 Maneuver	-	-	-	-	709	-
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	950	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1368	-	-	-	837
HCM Lane V/C Ratio	0.005	-	-	-	0.041
HCM Control Delay (s)	7.6	-	-	-	9.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	24	23	1	88	1	68	0	4	0	0	18
Future Vol, veh/h	4	24	23	1	88	1	68	0	4	0	0	18
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	205	-	155	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	28	27	1	104	1	80	0	5	0	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	105	0	0	55	0	0	155	145	28	161	172	105
Stage 1	-	-	-	-	-	-	38	38	-	107	107	-
Stage 2	-	-	-	-	-	-	117	107	-	54	65	-
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	1486	-	-	1550	-	-	812	746	1047	804	721	949
Stage 1	-	-	-	-	-	-	977	863	-	898	807	-
Stage 2	-	-	-	-	-	-	888	807	-	958	841	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1486	-	-	1550	-	-	792	743	1047	798	718	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	792	743	-	798	718	-
Stage 1	-	-	-	-	-	-	974	860	-	895	806	-
Stage 2	-	-	-	-	-	-	868	806	-	950	838	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	10	8.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	803	1486	-	-	1550	-	-	949
HCM Lane V/C Ratio	0.105	0.003	-	-	0.001	-	-	0.022
HCM Control Delay (s)	10	7.4	-	-	7.3	-	-	8.9
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	0	4	0	0	0	13	6	0	0	2	77
Future Vol, veh/h	24	0	4	0	0	0	13	6	0	0	2	77
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	255	-	-	0	-	-	-	-	-	-	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	0	5	0	0	0	15	7	0	0	2	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	0	5	0	0	107	60	-	-	62	1
Stage 1	-	-	-	-	-	-	59	59	-	-	1	-
Stage 2	-	-	-	-	-	-	48	1	-	-	61	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	-	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	-	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	-	4.018	3.318
Pot Cap-1 Maneuver	1622	-	-	1616	-	-	872	831	0	0	829	1084
Stage 1	-	-	-	-	-	-	953	846	0	0	895	-
Stage 2	-	-	-	-	-	-	965	895	0	0	844	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1622	-	-	1616	-	-	787	817	-	-	815	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	787	817	-	-	815	-
Stage 1	-	-	-	-	-	-	937	832	-	-	895	-
Stage 2	-	-	-	-	-	-	882	895	-	-	830	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.2	0	9.7	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	796	1622	-	-	1616	-	-	815	1084
HCM Lane V/C Ratio	0.028	0.017	-	-	-	-	-	0.003	0.084
HCM Control Delay (s)	9.7	7.3	-	-	0	-	-	9.4	8.6
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0	0.3

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	130	3	423	180	10	301
Future Vol, veh/h	130	3	423	180	10	301
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	235	235	-
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	153	4	498	212	12	354

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	699	498	0	0	710	0
Stage 1	498	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	390	571	-	-	887	-
Stage 1	610	-	-	-	-	-
Stage 2	814	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	385	571	-	-	887	-
Mov Cap-2 Maneuver	385	-	-	-	-	-
Stage 1	610	-	-	-	-	-
Stage 2	803	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.2	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	385	571	887	-
HCM Lane V/C Ratio	-	-	0.397	0.006	0.013	-
HCM Control Delay (s)	-	-	20.4	11.3	9.1	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.9	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	400	26	0	311
Future Vol, veh/h	0	5	400	26	0	311
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	6	471	31	0	366

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	236	0	0	-	-
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	766	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	766	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	766	-
HCM Lane V/C Ratio	-	-	0.008	-
HCM Control Delay (s)	-	-	9.7	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	21	295	77	40	200
Future Vol, veh/h	37	21	295	77	40	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	25	347	91	47	235

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	559	174	0	0	438	0
Stage 1	347	-	-	-	-	-
Stage 2	212	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	459	839	-	-	1118	-
Stage 1	687	-	-	-	-	-
Stage 2	803	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	440	839	-	-	1118	-
Mov Cap-2 Maneuver	440	-	-	-	-	-
Stage 1	687	-	-	-	-	-
Stage 2	769	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	440	839	1118	-
HCM Lane V/C Ratio	-	-	0.099	0.029	0.042	-
HCM Control Delay (s)	-	-	14.1	9.4	8.4	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	3	242	74	6	198
Future Vol, veh/h	42	3	242	74	6	198
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	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	49	4	285	87	7	233

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	416	143	0	0	372	0
Stage 1	285	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	565	879	-	-	1183	-
Stage 1	738	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	562	879	-	-	1183	-
Mov Cap-2 Maneuver	562	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	876	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	562	879	1183	-
HCM Lane V/C Ratio	-	-	0.088	0.004	0.006	-
HCM Control Delay (s)	-	-	12	9.1	8.1	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	171	114	1	0	19
Future Vol, veh/h	19	171	114	1	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	201	134	1	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	135	0	-	0	380	135
Stage 1	-	-	-	-	135	-
Stage 2	-	-	-	-	245	-
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	1449	-	-	-	622	914
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	796	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1449	-	-	-	613	914
Mov Cap-2 Maneuver	-	-	-	-	613	-
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	796	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1449	-	-	-	914
HCM Lane V/C Ratio	0.015	-	-	-	0.024
HCM Control Delay (s)	7.5	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

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	13	82	76	5	59	2	45	0	3	0	0	11
Future Vol, veh/h	13	82	76	5	59	2	45	0	3	0	0	11
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	205	-	155	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	96	89	6	69	2	53	0	4	0	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	71	0	0	185	0	0	215	209	96	255	297	70
Stage 1	-	-	-	-	-	-	126	126	-	82	82	-
Stage 2	-	-	-	-	-	-	89	83	-	173	215	-
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	1529	-	-	1390	-	-	742	688	960	698	615	993
Stage 1	-	-	-	-	-	-	878	792	-	926	827	-
Stage 2	-	-	-	-	-	-	918	826	-	829	725	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1529	-	-	1390	-	-	724	678	960	688	606	993
Mov Cap-2 Maneuver	-	-	-	-	-	-	724	678	-	688	606	-
Stage 1	-	-	-	-	-	-	869	784	-	917	824	-
Stage 2	-	-	-	-	-	-	902	823	-	818	718	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.6	10.3	8.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	735	1529	-	-	1390	-	-	993
HCM Lane V/C Ratio	0.077	0.01	-	-	0.004	-	-	0.013
HCM Control Delay (s)	10.3	7.4	-	-	7.6	-	-	8.7
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	0	14	0	0	0	8	4	0	0	6	57
Future Vol, veh/h	70	0	14	0	0	0	8	4	0	0	6	57
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	255	-	-	0	-	-	-	-	-	-	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	0	16	0	0	0	9	5	0	0	7	67

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	0	16	0	0	210	173	-	-	181	1
Stage 1	-	-	-	-	-	-	172	172	-	-	1	-
Stage 2	-	-	-	-	-	-	38	1	-	-	180	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	-	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	-	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	-	4.018	3.318
Pot Cap-1 Maneuver	1622	-	-	1602	-	-	747	720	0	0	713	1084
Stage 1	-	-	-	-	-	-	830	756	0	0	895	-
Stage 2	-	-	-	-	-	-	977	895	0	0	750	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1622	-	-	1602	-	-	669	683	-	-	677	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	669	683	-	-	677	-
Stage 1	-	-	-	-	-	-	788	717	-	-	895	-
Stage 2	-	-	-	-	-	-	909	895	-	-	712	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.1	0	10.5	8.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	674	1622	-	-	1602	-	-	677	1084
HCM Lane V/C Ratio	0.021	0.051	-	-	-	-	-	0.01	0.062
HCM Control Delay (s)	10.5	7.3	-	-	0	-	-	10.4	8.5
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0	0.2

Intersection	
Int Delay, s/veh	4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	120	82	217	78	85	363
Future Vol, veh/h	120	82	217	78	85	363
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	235	235	-
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	141	96	255	92	100	427

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	669	255	0	0	347	0
Stage 1	255	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	407	783	-	-	1210	-
Stage 1	787	-	-	-	-	-
Stage 2	636	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	373	783	-	-	1210	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	583	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	373	783	1210	-
HCM Lane V/C Ratio	-	-	0.378	0.123	0.083	-
HCM Control Delay (s)	-	-	20.4	10.2	8.2	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.7	0.4	0.3	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	11	292	7	0	448
Future Vol, veh/h	0	11	292	7	0	448
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	344	8	0	527

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	172	0	0	-	-
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	842	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	842	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	842	-
HCM Lane V/C Ratio	-	-	0.015	-
HCM Control Delay (s)	-	-	9.3	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	42	222	15	54	301
Future Vol, veh/h	37	42	222	15	54	301
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	49	261	18	64	354

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	566	131	0	0	279	0
Stage 1	261	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	454	894	-	-	1281	-
Stage 1	759	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	431	894	-	-	1281	-
Mov Cap-2 Maneuver	431	-	-	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	685	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	431	894	1281	-
HCM Lane V/C Ratio	-	-	0.101	0.055	0.05	-
HCM Control Delay (s)	-	-	14.3	9.3	8	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	61	5	244	20	1	293
Future Vol, veh/h	61	5	244	20	1	293
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	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	72	6	287	24	1	345

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	462	144	0	0	311	0
Stage 1	287	-	-	-	-	-
Stage 2	175	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	528	877	-	-	1246	-
Stage 1	736	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	527	877	-	-	1246	-
Mov Cap-2 Maneuver	527	-	-	-	-	-
Stage 1	736	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	527	877	1246	-
HCM Lane V/C Ratio	-	-	0.136	0.007	0.001	-
HCM Control Delay (s)	-	-	12.9	9.1	7.9	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	0	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	81	82	62	100	155	139
Future Vol, veh/h	81	82	62	100	155	139
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	-	-	0	235	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	95	96	73	118	182	164

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	191	0	-	0	311	37
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	238	-
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	1380	-	-	-	657	1027
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	779	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1380	-	-	-	612	1027
Mov Cap-2 Maneuver	-	-	-	-	612	-
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	779	-

Approach	EB	WB	SB
HCM Control Delay, s	3.9	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1380	-	-	-	612	1027
HCM Lane V/C Ratio	0.069	-	-	-	0.298	0.159
HCM Control Delay (s)	7.8	-	-	-	13.4	9.2
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	1.2	0.6

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	164	231	1	0	63
Future Vol, veh/h	17	164	231	1	0	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
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	20	193	272	1	0	74

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	273	0	-	0	506	273
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	233	-
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	1290	-	-	-	526	766
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	806	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1290	-	-	-	518	766
Mov Cap-2 Maneuver	-	-	-	-	518	-
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	806	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1290	-	-	-	766
HCM Lane V/C Ratio	0.016	-	-	-	0.097
HCM Control Delay (s)	7.8	-	-	-	10.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	136	28	97	45	19	135
Future Vol, veh/h	136	28	97	45	19	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
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	160	33	114	53	22	159

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	167	0	-	0	494	141
Stage 1	-	-	-	-	141	-
Stage 2	-	-	-	-	353	-
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	1411	-	-	-	535	907
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	711	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1411	-	-	-	475	907
Mov Cap-2 Maneuver	-	-	-	-	475	-
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	711	-

Approach	EB	WB	SB
HCM Control Delay, s	6.5	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1411	-	-	-	815
HCM Lane V/C Ratio	0.113	-	-	-	0.222
HCM Control Delay (s)	7.9	-	-	-	10.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.8

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	125	382	53	84	284
Future Vol, veh/h	58	125	382	53	84	284
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	235	235	-
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	68	147	449	62	99	334

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	814	449	0	0	511	0
Stage 1	449	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	331	609	-	-	1052	-
Stage 1	642	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	300	609	-	-	1052	-
Mov Cap-2 Maneuver	300	-	-	-	-	-
Stage 1	642	-	-	-	-	-
Stage 2	611	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	300	609	1052	-
HCM Lane V/C Ratio	-	-	0.227	0.241	0.094	-
HCM Control Delay (s)	-	-	20.5	12.8	8.8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.9	0.3	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	484	23	0	368
Future Vol, veh/h	0	7	484	23	0	368
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	569	27	0	433

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	285	0	0	-	-
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	712	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	712	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	712	-
HCM Lane V/C Ratio	-	-	0.012	-
HCM Control Delay (s)	-	-	10.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	21	406	52	39	268
Future Vol, veh/h	24	21	406	52	39	268
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
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	28	25	478	61	46	315

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	728	239	0	0	539	0
Stage 1	478	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	358	762	-	-	1025	-
Stage 1	590	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	342	762	-	-	1025	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	590	-	-	-	-	-
Stage 2	733	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	342	762	1025	-
HCM Lane V/C Ratio	-	-	0.083	0.032	0.045	-
HCM Control Delay (s)	-	-	16.5	9.9	8.7	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	3	359	67	2	267
Future Vol, veh/h	40	3	359	67	2	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	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	47	4	422	79	2	314

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	583	211	0	0	501	0
Stage 1	422	-	-	-	-	-
Stage 2	161	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	443	794	-	-	1059	-
Stage 1	629	-	-	-	-	-
Stage 2	851	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	442	794	-	-	1059	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	629	-	-	-	-	-
Stage 2	849	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	442	794	1059	-
HCM Lane V/C Ratio	-	-	0.106	0.004	0.002	-
HCM Control Delay (s)	-	-	14.1	9.6	8.4	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	0	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	62	75	120	124	80	63
Future Vol, veh/h	62	75	120	124	80	63
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	-	-	0	235	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	73	88	141	146	94	74

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	287	0	-	0	331	71
Stage 1	-	-	-	-	141	-
Stage 2	-	-	-	-	190	-
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	1272	-	-	-	638	977
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1272	-	-	-	602	977
Mov Cap-2 Maneuver	-	-	-	-	602	-
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	823	-

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1272	-	-	-	602	977
HCM Lane V/C Ratio	0.057	-	-	-	0.156	0.076
HCM Control Delay (s)	8	-	-	-	12.1	9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6	0.2

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	128	102	3	0	42
Future Vol, veh/h	58	128	102	3	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
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	68	151	120	4	0	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	124	0	-	0	409	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	287	-
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	1463	-	-	-	599	929
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1463	-	-	-	571	929
Mov Cap-2 Maneuver	-	-	-	-	571	-
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	762	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1463	-	-	-	929
HCM Lane V/C Ratio	0.047	-	-	-	0.053
HCM Control Delay (s)	7.6	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	98	66	10	6	39
Future Vol, veh/h	31	98	66	10	6	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
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	36	115	78	12	7	46

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	90	0	-	0	271	84
Stage 1	-	-	-	-	84	-
Stage 2	-	-	-	-	187	-
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	1505	-	-	-	718	975
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	845	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1505	-	-	-	701	975
Mov Cap-2 Maneuver	-	-	-	-	701	-
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	845	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1505	-	-	-	927
HCM Lane V/C Ratio	0.024	-	-	-	0.057
HCM Control Delay (s)	7.5	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	171	86	220	92	88	363
Future Vol, veh/h	171	86	220	92	88	363
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	235	235	-
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	201	101	259	108	104	427

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	681	259	0	0	367	0
Stage 1	259	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	400	779	-	-	1190	-
Stage 1	783	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	365	779	-	-	1190	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	575	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.9	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	365	779	1190	-
HCM Lane V/C Ratio	-	-	0.551	0.13	0.087	-
HCM Control Delay (s)	-	-	26.3	10.3	8.3	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	3.2	0.4	0.3	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	19	296	10	0	451
Future Vol, veh/h	0	19	296	10	0	451
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	348	12	0	531

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	174	0	0	-	-
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	839	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	839	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	839	-
HCM Lane V/C Ratio	-	-	0.027	-
HCM Control Delay (s)	-	-	9.4	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	52	234	15	58	304
Future Vol, veh/h	37	52	234	15	58	304
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	61	275	18	68	358

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	590	138	0	0	293	0
Stage 1	275	-	-	-	-	-
Stage 2	315	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	439	885	-	-	1265	-
Stage 1	747	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	415	885	-	-	1265	-
Mov Cap-2 Maneuver	415	-	-	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	674	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	415	885	1265	-
HCM Lane V/C Ratio	-	-	0.105	0.069	0.054	-
HCM Control Delay (s)	-	-	14.7	9.4	8	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	61	5	266	20	1	300
Future Vol, veh/h	61	5	266	20	1	300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	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	72	6	313	24	1	353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	492	157	0	0	337	0
Stage 1	313	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	506	861	-	-	1219	-
Stage 1	715	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	505	861	-	-	1219	-
Mov Cap-2 Maneuver	505	-	-	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	833	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	505	861	1219	-
HCM Lane V/C Ratio	-	-	0.142	0.007	0.001	-
HCM Control Delay (s)	-	-	13.3	9.2	8	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	0	-

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	98	82	62	124	228	194
Future Vol, veh/h	98	82	62	124	228	194
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	-	-	0	235	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	115	96	73	146	268	228

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	219	0	-	0	351	37
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	278	-
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	1348	-	-	-	620	1027
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	744	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1348	-	-	-	567	1027
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	744	-

Approach	EB	WB	SB
HCM Control Delay, s	4.3	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1348	-	-	-	567	1027
HCM Lane V/C Ratio	0.086	-	-	-	0.473	0.222
HCM Control Delay (s)	7.9	-	-	-	16.9	9.5
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.3	-	-	-	2.5	0.8

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	195	330	1	0	92
Future Vol, veh/h	26	195	330	1	0	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
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	31	229	388	1	0	108

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	389	0	-	0	680	389
Stage 1	-	-	-	-	389	-
Stage 2	-	-	-	-	291	-
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	-	-	-	417	659
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1170	-	-	-	406	659
Mov Cap-2 Maneuver	-	-	-	-	406	-
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	759	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1170	-	-	-	659
HCM Lane V/C Ratio	0.026	-	-	-	0.164
HCM Control Delay (s)	8.2	-	-	-	11.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	32	23	1	110	46	68	0	4	19	0	153
Future Vol, veh/h	140	32	23	1	110	46	68	0	4	19	0	153
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	205	-	155	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	165	38	27	1	129	54	80	0	5	22	0	180

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	183	0	0	65	0	0	616	553	38	542	553	156
Stage 1	-	-	-	-	-	-	368	368	-	158	158	-
Stage 2	-	-	-	-	-	-	248	185	-	384	395	-
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	1392	-	-	1537	-	-	403	441	1034	451	441	890
Stage 1	-	-	-	-	-	-	652	621	-	844	767	-
Stage 2	-	-	-	-	-	-	756	747	-	639	605	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1392	-	-	1537	-	-	292	388	1034	408	388	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	292	388	-	408	388	-
Stage 1	-	-	-	-	-	-	574	547	-	744	766	-
Stage 2	-	-	-	-	-	-	603	746	-	561	533	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.7	0	21.4	11.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	304	1392	-	-	1537	-	-	787
HCM Lane V/C Ratio	0.279	0.118	-	-	0.001	-	-	0.257
HCM Control Delay (s)	21.4	7.9	-	-	7.3	-	-	11.2
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.1	0.4	-	-	0	-	-	1

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	0	4	0	0	0	13	6	0	0	2	145
Future Vol, veh/h	52	0	4	0	0	0	13	6	0	0	2	145
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	255	-	-	0	-	-	-	-	-	-	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	61	0	5	0	0	0	15	7	0	0	2	171

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	0	5	0	0	213	126	-	-	128	1
Stage 1	-	-	-	-	-	-	125	125	-	-	1	-
Stage 2	-	-	-	-	-	-	88	1	-	-	127	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	-	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	-	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	-	4.018	3.318
Pot Cap-1 Maneuver	1622	-	-	1616	-	-	744	764	0	0	763	1084
Stage 1	-	-	-	-	-	-	879	792	0	0	895	-
Stage 2	-	-	-	-	-	-	920	895	0	0	791	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1622	-	-	1616	-	-	607	735	-	-	734	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	607	735	-	-	734	-
Stage 1	-	-	-	-	-	-	846	762	-	-	895	-
Stage 2	-	-	-	-	-	-	773	895	-	-	761	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.8	0	10.8	8.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	642	1622	-	-	1616	-	-	734	1084
HCM Lane V/C Ratio	0.035	0.038	-	-	-	-	-	0.003	0.157
HCM Control Delay (s)	10.8	7.3	-	-	0	-	-	9.9	8.9
HCM Lane LOS	B	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0	0.6

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	128	393	98	94	284
Future Vol, veh/h	91	128	393	98	94	284
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	235	235	-
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	107	151	462	115	111	334

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	851	462	0	0	577	0
Stage 1	462	-	-	-	-	-
Stage 2	389	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	314	599	-	-	995	-
Stage 1	633	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	279	599	-	-	995	-
Mov Cap-2 Maneuver	279	-	-	-	-	-
Stage 1	633	-	-	-	-	-
Stage 2	582	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	2.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	279	599	995	-
HCM Lane V/C Ratio	-	-	0.384	0.251	0.111	-
HCM Control Delay (s)	-	-	25.7	13	9.1	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.7	1	0.4	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	13	486	35	0	378
Future Vol, veh/h	0	13	486	35	0	378
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	15	572	41	0	445

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	286	0	0	-	-
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	711	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	711	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	711	-
HCM Lane V/C Ratio	-	-	0.022	-
HCM Control Delay (s)	-	-	10.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	27	414	52	53	279
Future Vol, veh/h	24	27	414	52	53	279
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
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	28	32	487	61	62	328

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	775	244	0	0	548	0
Stage 1	487	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	335	757	-	-	1018	-
Stage 1	583	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	315	757	-	-	1018	-
Mov Cap-2 Maneuver	315	-	-	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	690	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	315	757	1018	-
HCM Lane V/C Ratio	-	-	0.09	0.042	0.061	-
HCM Control Delay (s)	-	-	17.6	10	8.8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.2	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	3	374	67	2	292
Future Vol, veh/h	40	3	374	67	2	292
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	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	47	4	440	79	2	344

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	616	220	0	0	519	0
Stage 1	440	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	422	784	-	-	1043	-
Stage 1	616	-	-	-	-	-
Stage 2	837	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	421	784	-	-	1043	-
Mov Cap-2 Maneuver	421	-	-	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	835	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	421	784	1043	-
HCM Lane V/C Ratio	-	-	0.112	0.005	0.002	-
HCM Control Delay (s)	-	-	14.6	9.6	8.5	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	118	75	120	205	128	99
Future Vol, veh/h	118	75	120	205	128	99
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	-	-	0	235	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	139	88	141	241	151	116

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	382	0	-	0	463	71
Stage 1	-	-	-	-	141	-
Stage 2	-	-	-	-	322	-
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	1173	-	-	-	528	977
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1173	-	-	-	466	977
Mov Cap-2 Maneuver	-	-	-	-	466	-
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	707	-

Approach	EB	WB	SB
HCM Control Delay, s	5.2	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1173	-	-	-	466	977
HCM Lane V/C Ratio	0.118	-	-	-	0.323	0.119
HCM Control Delay (s)	8.5	-	-	-	16.4	9.2
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.4	-	-	-	1.4	0.4

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	89	234	166	4	0	61
Future Vol, veh/h	89	234	166	4	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
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	105	275	195	5	0	72

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	200	0	-	0	683	198
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	485	-
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	1372	-	-	-	415	843
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	619	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1372	-	-	-	383	843
Mov Cap-2 Maneuver	-	-	-	-	383	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	619	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1372	-	-	-	843
HCM Lane V/C Ratio	0.076	-	-	-	0.085
HCM Control Delay (s)	7.8	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	111	76	5	76	13	45	0	3	6	0	50
Future Vol, veh/h	46	111	76	5	76	13	45	0	3	6	0	50
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	205	-	155	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	131	89	6	89	15	53	0	4	7	0	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	104	0	0	220	0	0	377	355	131	395	437	97
Stage 1	-	-	-	-	-	-	239	239	-	109	109	-
Stage 2	-	-	-	-	-	-	138	116	-	286	328	-
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	1488	-	-	1349	-	-	580	571	919	565	513	959
Stage 1	-	-	-	-	-	-	764	708	-	896	805	-
Stage 2	-	-	-	-	-	-	865	800	-	721	647	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1488	-	-	1349	-	-	528	548	919	545	492	959
Mov Cap-2 Maneuver	-	-	-	-	-	-	528	548	-	545	492	-
Stage 1	-	-	-	-	-	-	736	683	-	864	802	-
Stage 2	-	-	-	-	-	-	808	797	-	692	624	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.4	12.4	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	1488	-	-	1349	-	-	887
HCM Lane V/C Ratio	0.104	0.036	-	-	0.004	-	-	0.074
HCM Control Delay (s)	12.4	7.5	-	-	7.7	-	-	9.4
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.2

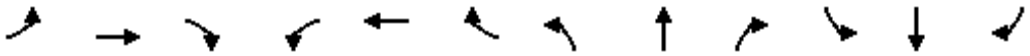
Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	106	0	14	0	0	0	8	4	0	0	6	85
Future Vol, veh/h	106	0	14	0	0	0	8	4	0	0	6	85
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	255	-	-	0	-	-	-	-	-	-	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	125	0	16	0	0	0	9	5	0	0	7	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	0	16	0	0	313	259	-	-	267	1
Stage 1	-	-	-	-	-	-	258	258	-	-	1	-
Stage 2	-	-	-	-	-	-	55	1	-	-	266	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	-	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	-	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	-	4.018	3.318
Pot Cap-1 Maneuver	1622	-	-	1602	-	-	640	645	0	0	639	1084
Stage 1	-	-	-	-	-	-	747	694	0	0	895	-
Stage 2	-	-	-	-	-	-	957	895	0	0	689	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1622	-	-	1602	-	-	542	595	-	-	590	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	595	-	-	590	-
Stage 1	-	-	-	-	-	-	689	641	-	-	895	-
Stage 2	-	-	-	-	-	-	862	895	-	-	636	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.5	0	11.6	8.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	559	1622	-	-	1602	-	-	590	1084
HCM Lane V/C Ratio	0.025	0.077	-	-	-	-	-	0.012	0.092
HCM Control Delay (s)	11.6	7.4	-	-	0	-	-	11.2	8.7
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0	0.3



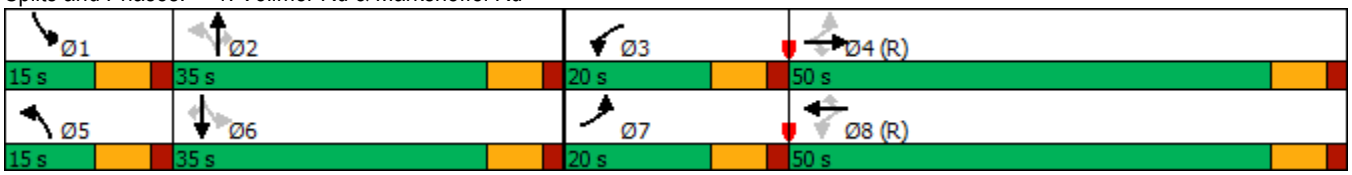
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	119	858	40	112	939	82	100	189	53	130	508	185
Future Volume (vph)	119	858	40	112	939	82	100	189	53	130	508	185
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	125	903	42	118	988	86	105	199	56	137	535	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	903	42	118	988	86	105	199	56	137	535	195

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	858	40	112	939	82	100	189	53	130	508	185
Future Volume (vph)	119	858	40	112	939	82	100	189	53	130	508	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0	23.0
Total Split (s)	20.0	50.0	50.0	20.0	50.0	50.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	41.7%	41.7%	16.7%	41.7%	41.7%	12.5%	29.2%	29.2%	12.5%	29.2%	29.2%
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
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)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effct Green (s)	56.3	46.4	46.4	55.7	46.1	46.1	35.8	28.0	28.0	36.2	28.2	28.2
Actuated g/C Ratio	0.47	0.39	0.39	0.46	0.38	0.38	0.30	0.23	0.23	0.30	0.24	0.24
v/c Ratio	0.50	0.66	0.06	0.43	0.73	0.12	0.43	0.24	0.11	0.35	0.64	0.37
Control Delay	22.3	33.5	0.1	20.0	23.8	0.3	32.6	38.3	0.5	30.4	45.6	7.4
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	22.3	33.5	0.1	20.0	23.8	0.3	32.6	38.3	0.5	30.4	45.6	7.4
LOS	C	C	A	C	C	A	C	D	A	C	D	A
Approach Delay		30.9			21.7			30.8			34.6	
Approach LOS		C			C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 76 (63%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 28.7	Intersection LOS: C
Intersection Capacity Utilization 75.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Vollmer Rd & Marksheffel Rd



Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	388	2	0	822
Future Vol, veh/h	0	1	388	2	0	822
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	408	2	0	865

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	204	0	0	-	-
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	803	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	803	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	803	-
HCM Lane V/C Ratio	-	-	0.001	-
HCM Control Delay (s)	-	-	9.5	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

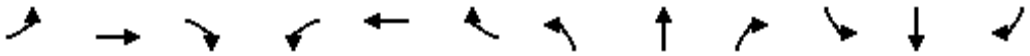
Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	65	300	46	25	725
Future Vol, veh/h	43	65	300	46	25	725
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	68	316	48	26	763

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	750	158	0	0	364	0
Stage 1	316	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	347	859	-	-	1191	-
Stage 1	712	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	339	859	-	-	1191	-
Mov Cap-2 Maneuver	452	-	-	-	-	-
Stage 1	712	-	-	-	-	-
Stage 2	607	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	452	859	1191	-
HCM Lane V/C Ratio	-	-	0.1	0.08	0.022	-
HCM Control Delay (s)	-	-	13.8	9.6	8.1	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.3	0.1	-



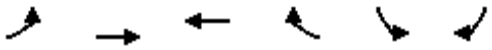
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	64	835	57	375	1480	73	83	143	139	107	318	128
Future Volume (vph)	64	835	57	375	1480	73	83	143	139	107	318	128
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	67	879	60	395	1558	77	87	151	146	113	335	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	879	60	395	1558	77	87	151	146	113	335	135

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	835	57	375	1480	73	83	143	139	107	318	128
Future Volume (vph)	64	835	57	375	1480	73	83	143	139	107	318	128
Turn Type	pm+pt	NA	Perm	Prot	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	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	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	55.0	55.0	25.0	60.0	60.0	10.0	30.0	30.0	10.0	30.0	30.0
Total Split (%)	16.7%	45.8%	45.8%	20.8%	50.0%	50.0%	8.3%	25.0%	25.0%	8.3%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	57.3	50.2	50.2	17.0	62.6	62.6	20.0	14.9	14.9	21.1	17.2	17.2
Actuated g/C Ratio	0.53	0.47	0.47	0.16	0.58	0.58	0.19	0.14	0.14	0.20	0.16	0.16
v/c Ratio	0.35	0.53	0.08	0.73	0.75	0.08	0.46	0.31	0.42	0.45	0.59	0.37
Control Delay	14.7	22.8	0.6	51.9	21.6	1.3	42.5	43.1	10.7	41.3	47.4	10.1
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	14.7	22.8	0.6	51.9	21.6	1.3	42.5	43.1	10.7	41.3	47.4	10.1
LOS	B	C	A	D	C	A	D	D	B	D	D	B
Approach Delay		20.9			26.7			30.6			37.6	
Approach LOS		C			C			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.3	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 27.2	Intersection LOS: C
Intersection Capacity Utilization 75.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Vollmer Rd & Briargate Pkwy



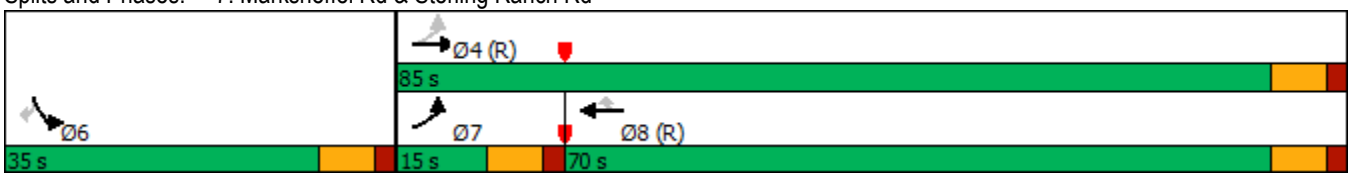
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	124	895	845	153	398	289
Future Volume (vph)	124	895	845	153	398	289
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	131	942	889	161	419	304
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	942	889	161	419	304

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	124	895	845	153	398	289
Future Volume (vph)	124	895	845	153	398	289
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	15.0	85.0	70.0	70.0	35.0	35.0
Total Split (%)	12.5%	70.8%	58.3%	58.3%	29.2%	29.2%
Yellow Time (s)	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Act Effct Green (s)	78.0	78.0	63.3	63.3	28.0	28.0
Actuated g/C Ratio	0.65	0.65	0.53	0.53	0.23	0.23
v/c Ratio	0.36	0.41	0.48	0.18	0.52	0.56
Control Delay	12.0	6.5	19.0	2.6	42.9	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	6.5	19.0	2.6	42.9	15.5
LOS	B	A	B	A	D	B
Approach Delay		7.1	16.5		31.4	
Approach LOS		A	B		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 66 (55%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 16.8	Intersection LOS: B
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Marksheffel Rd & Sterling Ranch Rd



Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	262	632	6	15	54
Future Vol, veh/h	15	262	632	6	15	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	276	665	6	16	57

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	671	0	-	0	976	668
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	308	-
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	919	-	-	-	279	458
Stage 1	-	-	-	-	510	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	919	-	-	-	274	458
Mov Cap-2 Maneuver	-	-	-	-	274	-
Stage 1	-	-	-	-	501	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	919	-	-	-	400
HCM Lane V/C Ratio	0.017	-	-	-	0.182
HCM Control Delay (s)	9	-	-	-	16
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	63	215	543	100	51	96
Future Vol, veh/h	63	215	543	100	51	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	226	572	105	54	101

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	677	0	-	0	983	625
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	358	-
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	915	-	-	-	276	485
Stage 1	-	-	-	-	534	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	915	-	-	-	256	485
Mov Cap-2 Maneuver	-	-	-	-	256	-
Stage 1	-	-	-	-	496	-
Stage 2	-	-	-	-	707	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	21.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	915	-	-	-	370
HCM Lane V/C Ratio	0.072	-	-	-	0.418
HCM Control Delay (s)	9.2	-	-	-	21.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	2

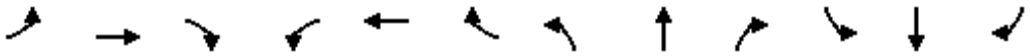
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	242	568	13	25	74
Future Vol, veh/h	23	242	568	13	25	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	255	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	255	598	14	26	78

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	612	0	-	0	908	605
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	303	-
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	967	-	-	-	306	498
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	749	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	967	-	-	-	298	498
Mov Cap-2 Maneuver	-	-	-	-	298	-
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	967	-	-	-	298	498
HCM Lane V/C Ratio	0.025	-	-	-	0.088	0.156
HCM Control Delay (s)	8.8	-	-	-	18.2	13.6
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	0.6



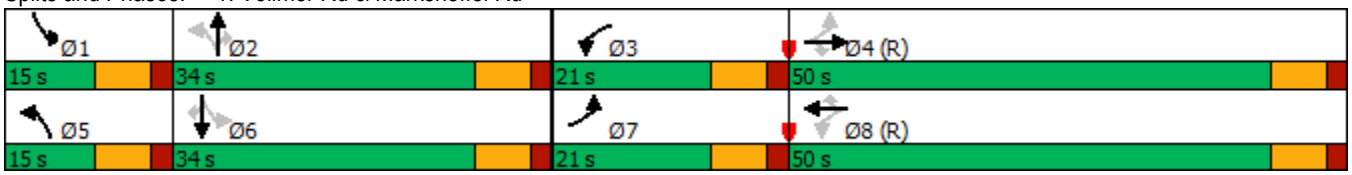
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	286	911	90	183	740	195	160	591	133	144	332	290
Future Volume (vph)	286	911	90	183	740	195	160	591	133	144	332	290
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	301	959	95	193	779	205	168	622	140	152	349	305
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	959	95	193	779	205	168	622	140	152	349	305

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	286	911	90	183	740	195	160	591	133	144	332	290
Future Volume (vph)	286	911	90	183	740	195	160	591	133	144	332	290
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0	23.0
Total Split (s)	21.0	50.0	50.0	21.0	50.0	50.0	15.0	34.0	34.0	15.0	34.0	34.0
Total Split (%)	17.5%	41.7%	41.7%	17.5%	41.7%	41.7%	12.5%	28.3%	28.3%	12.5%	28.3%	28.3%
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
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)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effct Green (s)	59.0	45.1	45.1	55.0	43.1	43.1	35.0	27.0	27.0	35.0	27.0	27.0
Actuated g/C Ratio	0.49	0.38	0.38	0.46	0.36	0.36	0.29	0.22	0.22	0.29	0.22	0.22
v/c Ratio	0.84	0.72	0.14	0.69	0.61	0.29	0.53	0.78	0.29	0.75	0.44	0.52
Control Delay	39.9	36.2	0.4	45.1	20.9	1.7	36.5	51.6	5.2	53.1	42.0	7.6
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	39.9	36.2	0.4	45.1	20.9	1.7	36.5	51.6	5.2	53.1	42.0	7.6
LOS	D	D	A	D	C	A	D	D	A	D	D	A
Approach Delay		34.5			21.5			41.9			31.1	
Approach LOS		C			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 76 (63%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 31.9	Intersection LOS: C
Intersection Capacity Utilization 83.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Vollmer Rd & Marksheffel Rd



Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	1064	9	0	767
Future Vol, veh/h	0	1	1064	9	0	767
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1120	9	0	807

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	560	0	0	-	-
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	472	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	472	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	472	-
HCM Lane V/C Ratio	-	-	0.002	-
HCM Control Delay (s)	-	-	12.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

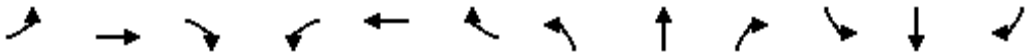
Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	121	169	850	140	48	621
Future Vol, veh/h	121	169	850	140	48	621
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	178	895	147	51	654

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1324	448	0	0	1042	0
Stage 1	895	-	-	-	-	-
Stage 2	429	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	147	558	-	-	663	-
Stage 1	359	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	136	558	-	-	663	-
Mov Cap-2 Maneuver	259	-	-	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.6	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	259	558	663	-
HCM Lane V/C Ratio	-	-	0.492	0.319	0.076	-
HCM Control Delay (s)	-	-	31.6	14.4	10.9	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	2.5	1.4	0.2	-



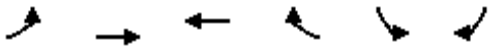
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	212	1447	104	345	1210	90	202	447	370	113	220	111
Future Volume (vph)	212	1447	104	345	1210	90	202	447	370	113	220	111
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	223	1523	109	363	1274	95	213	471	389	119	232	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	1523	109	363	1274	95	213	471	389	119	232	117

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	1447	104	345	1210	90	202	447	370	113	220	111
Future Volume (vph)	212	1447	104	345	1210	90	202	447	370	113	220	111
Turn Type	pm+pt	NA	Perm	Prot	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	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	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	52.0	52.0	28.0	60.0	60.0	20.0	28.0	28.0	12.0	20.0	20.0
Total Split (%)	16.7%	43.3%	43.3%	23.3%	50.0%	50.0%	16.7%	23.3%	23.3%	10.0%	16.7%	16.7%
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	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	64.2	50.9	50.9	17.5	55.1	55.1	32.6	20.8	20.8	20.9	13.9	13.9
Actuated g/C Ratio	0.55	0.44	0.44	0.15	0.47	0.47	0.28	0.18	0.18	0.18	0.12	0.12
v/c Ratio	0.78	0.98	0.14	0.70	0.76	0.11	0.66	0.74	0.73	0.63	0.55	0.32
Control Delay	43.9	52.7	0.3	54.8	29.5	0.6	45.1	53.2	20.1	50.5	54.1	2.3
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	43.9	52.7	0.3	54.8	29.5	0.6	45.1	53.2	20.1	50.5	54.1	2.3
LOS	D	D	A	D	C	A	D	D	C	D	D	A
Approach Delay		48.6			33.2			39.6			40.2	
Approach LOS		D			C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 40.7	Intersection LOS: D
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Vollmer Rd & Briargate Pkwy



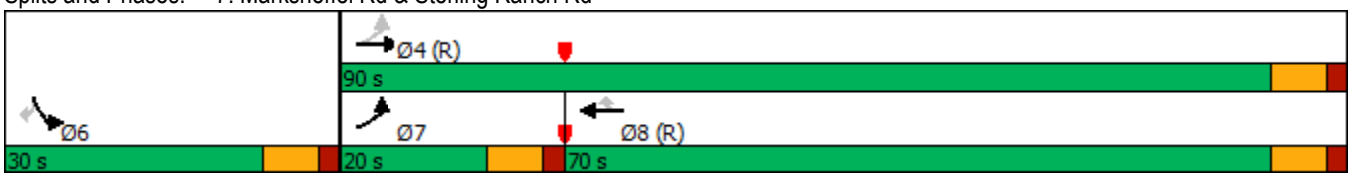
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	233	957	932	411	253	186
Future Volume (vph)	233	957	932	411	253	186
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	245	1007	981	433	266	196
Shared Lane Traffic (%)						
Lane Group Flow (vph)	245	1007	981	433	266	196

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	233	957	932	411	253	186
Future Volume (vph)	233	957	932	411	253	186
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	20.0	90.0	70.0	70.0	30.0	30.0
Total Split (%)	16.7%	75.0%	58.3%	58.3%	25.0%	25.0%
Yellow Time (s)	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Act Effct Green (s)	83.0	83.0	64.8	64.8	23.0	23.0
Actuated g/C Ratio	0.69	0.69	0.54	0.54	0.19	0.19
v/c Ratio	0.63	0.41	0.51	0.41	0.40	0.43
Control Delay	29.6	6.0	19.0	2.6	44.7	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	6.0	19.0	2.6	44.7	8.7
LOS	C	A	B	A	D	A
Approach Delay		10.6	14.0		29.4	
Approach LOS		B	B		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 66 (55%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 63.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Marksheffel Rd & Sterling Ranch Rd



Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	580	399	9	6	40
Future Vol, veh/h	65	580	399	9	6	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	611	420	9	6	42

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	429	0	-	0	1172	425
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	747	-
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	1130	-	-	-	213	629
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1130	-	-	-	200	629
Mov Cap-2 Maneuver	-	-	-	-	200	-
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1130	-	-	-	491
HCM Lane V/C Ratio	0.061	-	-	-	0.099
HCM Control Delay (s)	8.4	-	-	-	13.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	572	392	22	24	17
Future Vol, veh/h	14	572	392	22	24	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	602	413	23	25	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	436	0	-	0	1057	425
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	632	-
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	1124	-	-	-	249	629
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	530	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1124	-	-	-	246	629
Mov Cap-2 Maneuver	-	-	-	-	246	-
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	530	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1124	-	-	-	329
HCM Lane V/C Ratio	0.013	-	-	-	0.131
HCM Control Delay (s)	8.2	-	-	-	17.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4

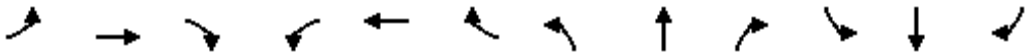
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	72	524	356	28	15	58
Future Vol, veh/h	72	524	356	28	15	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	255	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	552	375	29	16	61

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	404	0	-	0	1094	390
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	704	-
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	1155	-	-	-	237	658
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	490	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1155	-	-	-	221	658
Mov Cap-2 Maneuver	-	-	-	-	221	-
Stage 1	-	-	-	-	639	-
Stage 2	-	-	-	-	490	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1155	-	-	-	221	658
HCM Lane V/C Ratio	0.066	-	-	-	0.071	0.093
HCM Control Delay (s)	8.3	-	-	-	22.5	11
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	0.3



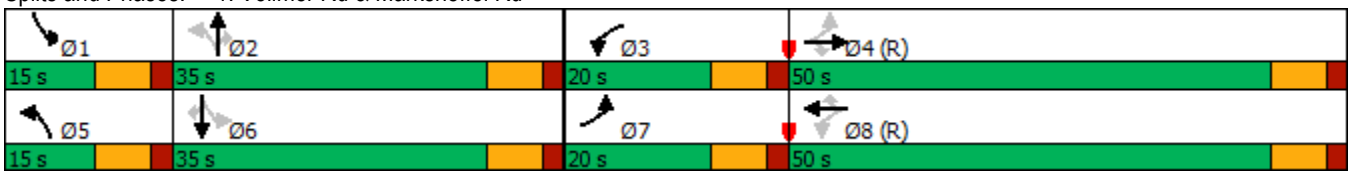
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	120	865	40	128	962	83	100	190	56	130	508	185
Future Volume (vph)	120	865	40	128	962	83	100	190	56	130	508	185
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	126	911	42	135	1013	87	105	200	59	137	535	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	911	42	135	1013	87	105	200	59	137	535	195

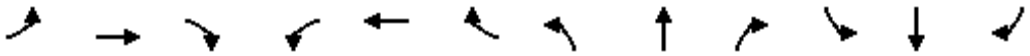
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	865	40	128	962	83	100	190	56	130	508	185
Future Volume (vph)	120	865	40	128	962	83	100	190	56	130	508	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0	23.0
Total Split (s)	20.0	50.0	50.0	20.0	50.0	50.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	41.7%	41.7%	16.7%	41.7%	41.7%	12.5%	29.2%	29.2%	12.5%	29.2%	29.2%
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
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)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effct Green (s)	55.7	45.9	45.9	56.3	46.1	46.1	35.8	28.0	28.0	36.2	28.2	28.2
Actuated g/C Ratio	0.46	0.38	0.38	0.47	0.38	0.38	0.30	0.23	0.23	0.30	0.24	0.24
v/c Ratio	0.52	0.67	0.06	0.49	0.74	0.12	0.43	0.24	0.12	0.35	0.64	0.37
Control Delay	23.2	34.3	0.1	23.5	24.8	0.3	32.6	38.3	0.5	30.4	45.6	7.4
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	23.2	34.3	0.1	23.5	24.8	0.3	32.6	38.3	0.5	30.4	45.6	7.4
LOS	C	C	A	C	C	A	C	D	A	C	D	A
Approach Delay		31.7			22.9			30.6			34.6	
Approach LOS		C			C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 76 (63%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 29.2	Intersection LOS: C
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Vollmer Rd & Marksheffel Rd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	126	911	42	135	1013	87	105	200	59	137	535	195
v/c Ratio	0.52	0.67	0.06	0.49	0.74	0.12	0.43	0.24	0.12	0.35	0.64	0.37
Control Delay	23.2	34.3	0.1	23.5	24.8	0.3	32.6	38.3	0.5	30.4	45.6	7.4
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	23.2	34.3	0.1	23.5	24.8	0.3	32.6	38.3	0.5	30.4	45.6	7.4
Queue Length 50th (ft)	48	306	0	40	180	0	55	66	0	73	197	0
Queue Length 95th (ft)	82	395	0	m97	242	m0	97	101	0	123	259	60
Internal Link Dist (ft)		980			1279			4998			785	
Turn Bay Length (ft)	535		235	435		235	400		235	380		235
Base Capacity (vph)	288	1352	706	318	1360	709	245	826	495	390	832	521
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.67	0.06	0.42	0.74	0.12	0.43	0.24	0.12	0.35	0.64	0.37

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	389	4	0	823
Future Vol, veh/h	0	5	389	4	0	823
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	409	4	0	866

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	205	0	0	-	-
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	802	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	802	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	802	-
HCM Lane V/C Ratio	-	-	0.007	-
HCM Control Delay (s)	-	-	9.5	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

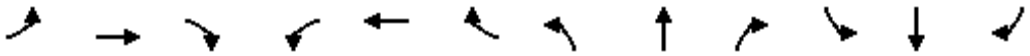
Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	69	304	46	26	725
Future Vol, veh/h	43	69	304	46	26	725
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	73	320	48	27	763

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	756	160	0	0	368	0
Stage 1	320	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	344	857	-	-	1187	-
Stage 1	709	-	-	-	-	-
Stage 2	619	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	336	857	-	-	1187	-
Mov Cap-2 Maneuver	449	-	-	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	605	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	449	857	1187	-
HCM Lane V/C Ratio	-	-	0.101	0.085	0.023	-
HCM Control Delay (s)	-	-	13.9	9.6	8.1	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.3	0.1	-



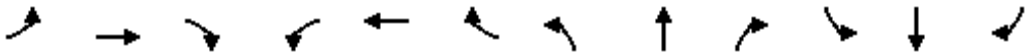
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	64	835	58	375	1480	73	89	144	140	107	318	128
Future Volume (vph)	64	835	58	375	1480	73	89	144	140	107	318	128
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	67	879	61	395	1558	77	94	152	147	113	335	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	879	61	395	1558	77	94	152	147	113	335	135

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	835	58	375	1480	73	89	144	140	107	318	128
Future Volume (vph)	64	835	58	375	1480	73	89	144	140	107	318	128
Turn Type	pm+pt	NA	Perm	Prot	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	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	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	55.0	55.0	25.0	60.0	60.0	10.0	30.0	30.0	10.0	30.0	30.0
Total Split (%)	16.7%	45.8%	45.8%	20.8%	50.0%	50.0%	8.3%	25.0%	25.0%	8.3%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	57.3	50.2	50.2	17.0	62.6	62.6	20.0	14.9	14.9	21.1	17.2	17.2
Actuated g/C Ratio	0.53	0.47	0.47	0.16	0.58	0.58	0.19	0.14	0.14	0.20	0.16	0.16
v/c Ratio	0.35	0.53	0.08	0.73	0.75	0.08	0.49	0.31	0.42	0.45	0.59	0.37
Control Delay	14.7	22.8	0.7	51.9	21.6	1.3	44.0	43.1	10.8	41.3	47.4	10.1
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	14.7	22.8	0.7	51.9	21.6	1.3	44.0	43.1	10.8	41.3	47.4	10.1
LOS	B	C	A	D	C	A	D	D	B	D	D	B
Approach Delay		20.9			26.7			31.2			37.6	
Approach LOS		C			C			C			D	

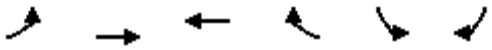
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.3	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 27.3	Intersection LOS: C
Intersection Capacity Utilization 75.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Vollmer Rd & Briargate Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	67	879	61	395	1558	77	94	152	147	113	335	135
v/c Ratio	0.35	0.53	0.08	0.73	0.75	0.08	0.49	0.31	0.42	0.45	0.59	0.37
Control Delay	14.7	22.8	0.7	51.9	21.6	1.3	44.0	43.1	10.8	41.3	47.4	10.1
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	14.7	22.8	0.7	51.9	21.6	1.3	44.0	43.1	10.8	41.3	47.4	10.1
Queue Length 50th (ft)	14	222	0	135	421	0	53	50	0	64	117	0
Queue Length 95th (ft)	34	322	5	197	609	11	100	83	56	116	168	54
Internal Link Dist (ft)		1429			663			934			1169	
Turn Bay Length (ft)	385		235	485		235	435		235	385		235
Base Capacity (vph)	327	1657	799	643	2064	968	190	828	483	253	828	473
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.53	0.08	0.61	0.75	0.08	0.49	0.18	0.30	0.45	0.40	0.29

Intersection Summary



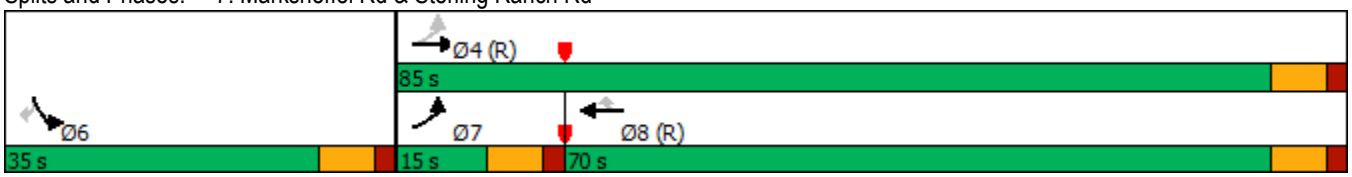
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	135	895	845	168	446	328
Future Volume (vph)	135	895	845	168	446	328
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	142	942	889	177	469	345
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	942	889	177	469	345

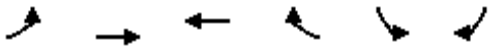
Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	135	895	845	168	446	328
Future Volume (vph)	135	895	845	168	446	328
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	15.0	85.0	70.0	70.0	35.0	35.0
Total Split (%)	12.5%	70.8%	58.3%	58.3%	29.2%	29.2%
Yellow Time (s)	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Act Effct Green (s)	78.0	78.0	63.2	63.2	28.0	28.0
Actuated g/C Ratio	0.65	0.65	0.53	0.53	0.23	0.23
v/c Ratio	0.39	0.41	0.48	0.19	0.59	0.64
Control Delay	14.1	6.6	19.1	2.6	44.3	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	6.6	19.1	2.6	44.3	20.0
LOS	B	A	B	A	D	B
Approach Delay		7.6	16.3		34.0	
Approach LOS		A	B		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 66 (55%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 61.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Marksheffel Rd & Sterling Ranch Rd





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	142	942	889	177	469	345
v/c Ratio	0.39	0.41	0.48	0.19	0.59	0.64
Control Delay	14.1	6.6	19.1	2.6	44.3	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	6.6	19.1	2.6	44.3	20.0
Queue Length 50th (ft)	23	81	221	0	167	79
Queue Length 95th (ft)	m74	120	275	34	223	185
Internal Link Dist (ft)		1279	842		558	
Turn Bay Length (ft)	510				300	235
Base Capacity (vph)	367	2300	1864	918	801	542
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.41	0.48	0.19	0.59	0.64

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	22	282	697	9	22	76
Future Vol, veh/h	22	282	697	9	22	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	205	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	297	734	9	23	80

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	743	0	-	0	1082	739
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	343	-
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	864	-	-	-	241	417
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	864	-	-	-	234	417
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	459	-
Stage 2	-	-	-	-	719	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	864	-	-	-	355
HCM Lane V/C Ratio	0.027	-	-	-	0.291
HCM Control Delay (s)	9.3	-	-	-	19.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	223	15	7	559	102	41	5	19	59	2	107
Future Vol, veh/h	66	223	15	7	559	102	41	5	19	59	2	107
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	205	-	155	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	69	235	16	7	588	107	43	5	20	62	2	113

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	695	0	0	251	0	0	1086	1082	235	1050	1045	642
Stage 1	-	-	-	-	-	-	373	373	-	656	656	-
Stage 2	-	-	-	-	-	-	713	709	-	394	389	-
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	901	-	-	1314	-	-	194	217	804	205	229	474
Stage 1	-	-	-	-	-	-	648	618	-	454	462	-
Stage 2	-	-	-	-	-	-	423	437	-	631	608	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	901	-	-	1314	-	-	138	199	804	184	210	474
Mov Cap-2 Maneuver	-	-	-	-	-	-	138	199	-	184	210	-
Stage 1	-	-	-	-	-	-	598	570	-	419	460	-
Stage 2	-	-	-	-	-	-	319	435	-	563	561	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.1	34.7	32.5
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	188	901	-	-	1314	-	-	302
HCM Lane V/C Ratio	0.364	0.077	-	-	0.006	-	-	0.586
HCM Control Delay (s)	34.7	9.3	-	-	7.8	-	-	32.5
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.6	0.2	-	-	0	-	-	3.5

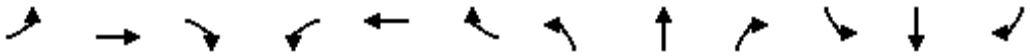
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	274	2	4	580	13	13	2	10	25	1	75
Future Vol, veh/h	25	274	2	4	580	13	13	2	10	25	1	75
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	255	-	-	255	-	-	-	-	-	-	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	288	2	4	611	14	14	2	11	26	1	79

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	625	0	0	290	0	0	1007	974	289	974	968	618
Stage 1	-	-	-	-	-	-	341	341	-	626	626	-
Stage 2	-	-	-	-	-	-	666	633	-	348	342	-
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	956	-	-	1272	-	-	219	252	750	231	254	489
Stage 1	-	-	-	-	-	-	674	639	-	472	477	-
Stage 2	-	-	-	-	-	-	449	473	-	668	638	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	956	-	-	1272	-	-	179	244	750	221	246	489
Mov Cap-2 Maneuver	-	-	-	-	-	-	179	244	-	221	246	-
Stage 1	-	-	-	-	-	-	656	622	-	459	476	-
Stage 2	-	-	-	-	-	-	374	472	-	639	621	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	20	16.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	266	956	-	-	1272	-	-	222	489
HCM Lane V/C Ratio	0.099	0.028	-	-	0.003	-	-	0.123	0.161
HCM Control Delay (s)	20	8.9	-	-	7.8	-	-	23.5	13.8
HCM Lane LOS	C	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.4	0.6



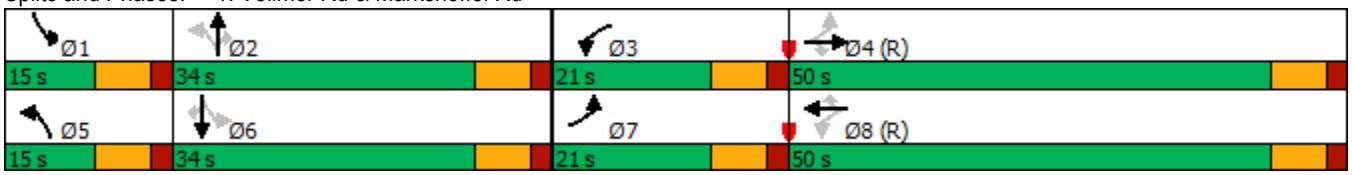
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	290	942	90	195	757	196	160	595	150	145	332	290
Future Volume (vph)	290	942	90	195	757	196	160	595	150	145	332	290
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	305	992	95	205	797	206	168	626	158	153	349	305
Shared Lane Traffic (%)												
Lane Group Flow (vph)	305	992	95	205	797	206	168	626	158	153	349	305

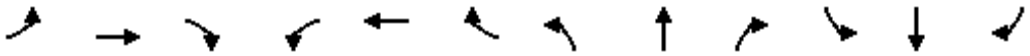
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	942	90	195	757	196	160	595	150	145	332	290
Future Volume (vph)	290	942	90	195	757	196	160	595	150	145	332	290
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0	23.0
Total Split (s)	21.0	50.0	50.0	21.0	50.0	50.0	15.0	34.0	34.0	15.0	34.0	34.0
Total Split (%)	17.5%	41.7%	41.7%	17.5%	41.7%	41.7%	12.5%	28.3%	28.3%	12.5%	28.3%	28.3%
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
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)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effct Green (s)	58.5	44.5	44.5	55.5	43.0	43.0	35.0	27.0	27.0	35.0	27.0	27.0
Actuated g/C Ratio	0.49	0.37	0.37	0.46	0.36	0.36	0.29	0.22	0.22	0.29	0.22	0.22
v/c Ratio	0.87	0.76	0.14	0.74	0.63	0.29	0.53	0.79	0.33	0.76	0.44	0.52
Control Delay	44.4	37.8	0.4	52.9	21.4	1.7	36.5	51.9	7.2	54.1	42.0	7.6
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	44.4	37.8	0.4	52.9	21.4	1.7	36.5	51.9	7.2	54.1	42.0	7.6
LOS	D	D	A	D	C	A	D	D	A	D	D	A
Approach Delay		36.7			23.4			41.8			31.3	
Approach LOS		D			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 76 (63%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 33.1	Intersection LOS: C
Intersection Capacity Utilization 84.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Vollmer Rd & Marksheffel Rd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	992	95	205	797	206	168	626	158	153	349	305
v/c Ratio	0.87	0.76	0.14	0.74	0.63	0.29	0.53	0.79	0.33	0.76	0.44	0.52
Control Delay	44.4	37.8	0.4	52.9	21.4	1.7	36.5	51.9	7.2	54.1	42.0	7.6
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	44.4	37.8	0.4	52.9	21.4	1.7	36.5	51.9	7.2	54.1	42.0	7.6
Queue Length 50th (ft)	128	355	0	105	116	0	93	241	0	84	123	0
Queue Length 95th (ft)	#278	441	1	#189	147	14	150	311	51	#150	170	74
Internal Link Dist (ft)		980			1279			4998			785	
Turn Bay Length (ft)	535		235	435		235	400		235	380		235
Base Capacity (vph)	350	1312	690	299	1269	699	315	796	483	202	796	592
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.76	0.14	0.69	0.63	0.29	0.53	0.79	0.33	0.76	0.44	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	1064	17	0	767
Future Vol, veh/h	0	5	1064	17	0	767
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	1120	18	0	807

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	560	0	0	-	-
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	472	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	472	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	472	-
HCM Lane V/C Ratio	-	-	0.011	-
HCM Control Delay (s)	-	-	12.7	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

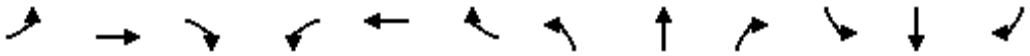
Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	121	171	854	140	53	621
Future Vol, veh/h	121	171	854	140	53	621
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	205	0	-	235	285	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	180	899	147	56	654

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1338	450	0	0	1046	0
Stage 1	899	-	-	-	-	-
Stage 2	439	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	144	556	-	-	661	-
Stage 1	358	-	-	-	-	-
Stage 2	617	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	132	556	-	-	661	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	565	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.8	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	256	556	661	-
HCM Lane V/C Ratio	-	-	0.498	0.324	0.084	-
HCM Control Delay (s)	-	-	32.2	14.5	10.9	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	2.6	1.4	0.3	-



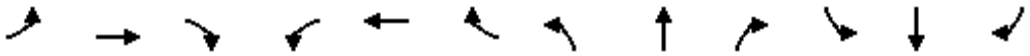
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	212	1447	108	345	1210	90	206	448	371	113	221	111
Future Volume (vph)	212	1447	108	345	1210	90	206	448	371	113	221	111
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	223	1523	114	363	1274	95	217	472	391	119	233	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	1523	114	363	1274	95	217	472	391	119	233	117

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	1447	108	345	1210	90	206	448	371	113	221	111
Future Volume (vph)	212	1447	108	345	1210	90	206	448	371	113	221	111
Turn Type	pm+pt	NA	Perm	Prot	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	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	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	52.0	52.0	28.0	60.0	60.0	20.0	28.0	28.0	12.0	20.0	20.0
Total Split (%)	16.7%	43.3%	43.3%	23.3%	50.0%	50.0%	16.7%	23.3%	23.3%	10.0%	16.7%	16.7%
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	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	64.2	50.9	50.9	17.5	55.1	55.1	32.6	20.9	20.9	20.8	13.8	13.8
Actuated g/C Ratio	0.55	0.44	0.44	0.15	0.47	0.47	0.28	0.18	0.18	0.18	0.12	0.12
v/c Ratio	0.78	0.98	0.14	0.70	0.76	0.11	0.67	0.74	0.74	0.63	0.55	0.32
Control Delay	43.9	52.7	0.4	54.8	29.5	0.6	45.7	53.3	20.4	50.9	54.3	2.3
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	43.9	52.7	0.4	54.8	29.5	0.6	45.7	53.3	20.4	50.9	54.3	2.3
LOS	D	D	A	D	C	A	D	D	C	D	D	A
Approach Delay		48.5			33.2			39.9			40.4	
Approach LOS		D			C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 40.8	Intersection LOS: D
Intersection Capacity Utilization 85.2%	ICU Level of Service E
Analysis Period (min) 15	

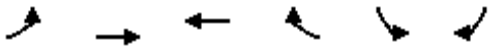
Splits and Phases: 4: Vollmer Rd & Briargate Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	223	1523	114	363	1274	95	217	472	391	119	233	117
v/c Ratio	0.78	0.98	0.14	0.70	0.76	0.11	0.67	0.74	0.74	0.63	0.55	0.32
Control Delay	43.9	52.7	0.4	54.8	29.5	0.6	45.7	53.3	20.4	50.9	54.3	2.3
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	43.9	52.7	0.4	54.8	29.5	0.6	45.7	53.3	20.4	50.9	54.3	2.3
Queue Length 50th (ft)	96	603	0	139	428	0	136	181	60	70	90	0
Queue Length 95th (ft)	#218	#836	0	184	521	4	210	241	179	#126	133	0
Internal Link Dist (ft)		1429			663			934			1169	
Turn Bay Length (ft)	385		235	485		235	435		235	385		235
Base Capacity (vph)	311	1548	805	680	1677	831	333	701	554	188	457	378
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.98	0.14	0.53	0.76	0.11	0.65	0.67	0.71	0.63	0.51	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



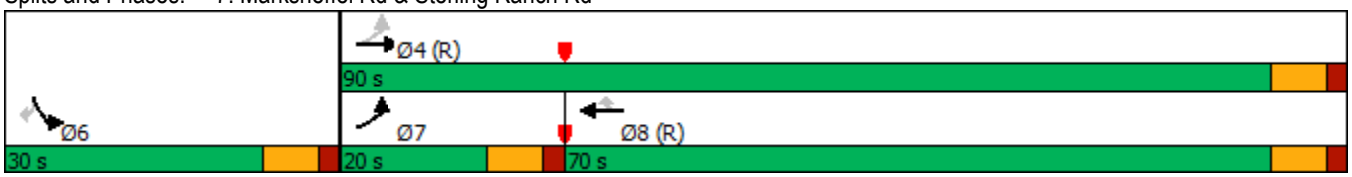
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	283	957	932	476	289	216
Future Volume (vph)	283	957	932	476	289	216
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	298	1007	981	501	304	227
Shared Lane Traffic (%)						
Lane Group Flow (vph)	298	1007	981	501	304	227

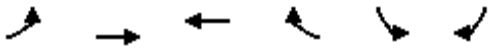
Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	283	957	932	476	289	216
Future Volume (vph)	283	957	932	476	289	216
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	20.0	90.0	70.0	70.0	30.0	30.0
Total Split (%)	16.7%	75.0%	58.3%	58.3%	25.0%	25.0%
Yellow Time (s)	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Act Effct Green (s)	83.0	83.0	63.9	63.9	23.0	23.0
Actuated g/C Ratio	0.69	0.69	0.53	0.53	0.19	0.19
v/c Ratio	0.75	0.41	0.52	0.47	0.46	0.47
Control Delay	38.7	6.4	19.6	2.8	45.7	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	6.4	19.6	2.8	45.7	8.7
LOS	D	A	B	A	D	A
Approach Delay		13.8	13.9		29.9	
Approach LOS		B	B		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 66 (55%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 16.4	Intersection LOS: B
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Marksheffel Rd & Sterling Ranch Rd





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	298	1007	981	501	304	227
v/c Ratio	0.75	0.41	0.52	0.47	0.46	0.47
Control Delay	38.7	6.4	19.6	2.8	45.7	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	6.4	19.6	2.8	45.7	8.7
Queue Length 50th (ft)	149	89	253	0	108	0
Queue Length 95th (ft)	m233	160	312	51	153	68
Internal Link Dist (ft)		1279	842		558	
Turn Bay Length (ft)	510				300	235
Base Capacity (vph)	408	2447	1883	1077	657	486
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.41	0.52	0.47	0.46	0.47

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	93	665	447	13	8	57
Future Vol, veh/h	93	665	447	13	8	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	205	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	700	471	14	8	60

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	485	0	-	0	1374	478
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	896	-
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	1078	-	-	-	160	587
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	399	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1078	-	-	-	145	587
Mov Cap-2 Maneuver	-	-	-	-	145	-
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	399	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1078	-	-	-	427
HCM Lane V/C Ratio	0.091	-	-	-	0.16
HCM Control Delay (s)	8.7	-	-	-	15
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6

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	27	583	63	17	400	31	34	1	11	29	1	25
Future Vol, veh/h	27	583	63	17	400	31	34	1	11	29	1	25
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	205	-	155	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	614	66	18	421	33	36	1	12	31	1	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	454	0	0	680	0	0	1157	1160	614	1184	1210	438
Stage 1	-	-	-	-	-	-	670	670	-	474	474	-
Stage 2	-	-	-	-	-	-	487	490	-	710	736	-
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	1107	-	-	912	-	-	173	195	492	166	183	619
Stage 1	-	-	-	-	-	-	446	455	-	571	558	-
Stage 2	-	-	-	-	-	-	562	549	-	424	425	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1107	-	-	912	-	-	159	186	492	156	175	619
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	186	-	156	175	-
Stage 1	-	-	-	-	-	-	435	444	-	557	547	-
Stage 2	-	-	-	-	-	-	526	538	-	403	414	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	30.3	25
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	190	1107	-	-	912	-	-	237
HCM Lane V/C Ratio	0.255	0.026	-	-	0.02	-	-	0.244
HCM Control Delay (s)	30.3	8.3	-	-	9	-	-	25
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1	0.1	-	-	0.1	-	-	0.9

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	539	10	8	381	28	5	2	5	15	3	62
Future Vol, veh/h	75	539	10	8	381	28	5	2	5	15	3	62
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	255	-	-	255	-	-	-	-	-	-	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	79	567	11	8	401	29	5	2	5	16	3	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	430	0	0	578	0	0	1197	1177	573	1166	1168	416
Stage 1	-	-	-	-	-	-	731	731	-	432	432	-
Stage 2	-	-	-	-	-	-	466	446	-	734	736	-
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	1129	-	-	996	-	-	163	191	519	171	193	637
Stage 1	-	-	-	-	-	-	413	427	-	602	582	-
Stage 2	-	-	-	-	-	-	577	574	-	412	425	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1129	-	-	996	-	-	136	176	519	158	178	637
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	176	-	158	178	-
Stage 1	-	-	-	-	-	-	384	397	-	560	577	-
Stage 2	-	-	-	-	-	-	511	569	-	377	395	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.2	23.4	15.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	208	1129	-	-	996	-	-	161	637
HCM Lane V/C Ratio	0.061	0.07	-	-	0.008	-	-	0.118	0.102
HCM Control Delay (s)	23.4	8.4	-	-	8.6	-	-	30.3	11.3
HCM Lane LOS	C	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.4	0.3

Crash History

TRANSPORTATION
CONSULTANTS, INC.

Year	Month	Day	Accident Time	Total Vehicles	Number Killed	Number Injured	FIP	At Intersection Indicator	Reference Point Name	Reference Point At Name	Feet From Reference Point	Direction	Road Condition Code[1]	Lighting Condition Code[2]	Adverse Weather Condition Code[3]	AccidentNarrative
2018	4	7	7:52:00 AM	1	0	1	Injury	FALSE	VOLLMER RD	GLIDER LP	3696	N	11	01	03	Vehicle 1 was southbound on Vollmer Road. Vehicle 1 spun out of control for an unknown distance before leaving the road to the left. Vehicle 1 travelled 55 feet off road before colliding with a fence. At the point of impact Vehicle 1 rolled one time for 47 feet coming to final rest on all four wheels facing north.
2018	10	5	6:05:00 PM	1	0	0	Property	FALSE	VOLLMER ROAD	GLIDER LP	76	N	01	01	00	Vehicle#1 was traveling north on Vollmer Road near Glider Loop. Vehicle#1 ran off the right side, impacted a fence and rolled .5 times coming to rest on it's roof facing east.
2019	9	29	2:30:00 PM	1	0	0	Property	FALSE	VOLLMER RD	GLIDER LP	4224	N	01	01	05	Vehicle # 1 was traveling northbound Vollmer Road .8 miles north of Glider Loop. Vehicle # 1's right side tires dropped off the right side of the roadway as it entered a sharp left curve. Vehicle #1 lost control on the roadway for approximately 131' before it traveled approximately 100' off the right side of the roadway. Vehicle # 1 collided its rear with a barbed-wire fence. Vehicle # 1 was moved prior to investigation.
2019	11	14	9:21:00 PM	1	0	1	Injury	FALSE	VOLLMER RD	GLIDER PL	1320	N	01	04	00	Vehicle 1 was southbound on Vollmer Road south of Burgess Road. Vehicle 1 was travelling in excessive speed, when it failed to negotiate a right hand bend in the roadway. Vehicle left heavy left side tire skids marks for 115.8 feet in the northbound lane, afterwhich it traveled for 59.4 across the southbound lane. Vehicle 1 ran off the right side of the road for 130.9 feet where it began to overturn, airborne for 20.7 feet, colliding with the ground, traveled another 25.9 feet and rolled another 52.2 feet where it came to final rest facing east on its right side 23.9 feet from the west road edge.
2018	4	14	8:50:00 AM	1	0	0	Property	FALSE	VOLLMER RD	TAHITI DR	350	N	11	01	05	Vehicle 1 was northbound on Vollmer Road. Vehicle 1 spun out of control on the icy road while rotating clockwise. Vehicle 1 travelled off road to the right for 35 feet, before rolling 1/4 time for 12 feet. Vehicle 1 came to final rest on it's driver's side facing southeast.

Notes:
(1) Road Condition Code 01 = Dry, 11 = Icy W/ Visible Icy Road Treatment
(2) Lighting Condition Code 01 = Daylight, 04 = Dark - Unlighted
(3) Adverse Weather Condition Code 00 = None, 03 = Fog, 05 = Wind

TRAFFIC ACCIDENT REPORT

OVERLAY A

A. LOCATION

01. On Roadway
02. Ran Off Left Side
03. Ran Off Right Side
04. Ran Off 'T' Intersection
05. Vehicle Crossed Center Median Into Opposing Lanes
06. On Private Property

B. HARMFUL EVENT SEQUENCE

NON-COLLISION ACCIDENT
01. Overturning
02. Other Non-Collision

COLLISION WITH PEDESTRIAN
03. School Age To / From School
04. Pedestrian on Toy Motorized Veh.
05. All Other Peds

COLLISION WITH MOTOR VEHICLE IN TRANSPORT
06. Front to Front
07. Front to Rear
08. Front to Side
09. Rear to Side
10. Rear to Rear
11. Side to Side-Same Direction
12. Side to Side-Opposite Direction

COLLISION WITH OTHER VEHICLE
13. Parked Motor Vehicle
14. Railway Vehicle/Light Rail
15. Bicycle
16. Road Maintenance Equipment

COLLISION WITH ANIMAL
17. Domestic Animal
18. Wild Animal

COLLISION WITH OBJECT
19. Light Pole / Utility Pole
20. Traffic Signal Pole
21. Sign
22. Guard Rail
23. Cable Rail
24. Concrete Highway Barrier
25. Bridge Structure
26. Vehicle Debris or Cargo
27. Culvert or Headwall
28. Embankment
29. Curb
30. Delineator Post
31. Fence
32. Tree
33. Large Rocks or Boulder
34. Railroad Crossing Equipment
35. Barricade
36. Wall or Building
37. Crash Cushion / Traffic Barrel
38. Mailbox
39. Other Fixed Object (Specify in Narrative)
40. Other Object (Specify in Narrative)

1st
2nd
MOST

C. APPROACH/OVERTAKING TURN

01. Approach Turn
02. Overtaking Turn
03. Not Applicable

D. ROAD DESCRIPTION

01. At Intersection
02. Driveway Access Related
03. Intersection Related
04. Non-Intersection
05. Alley Related
06. Roundabout
07. Highway Interchange
08. Parking Lot

E. ROAD CONTOUR

01. Straight On-Level
02. Straight On-Grade
03. Curve On-Level
04. Curve On-Grade
05. Hillcrest

F. ROAD SURFACE

01. Concrete
02. Blacktop
03. Brick or Block
04. Gravel, Slag or Stone
05. Dirt
06. Other (Describe in Narrative)
07. Unknown

G. ROAD CONDITION

01. Dry
02. Wet
03. Muddy
04. Snowy
05. Icy
06. Slushy
07. Foreign Material
08. Dry W/Visible Icy Road Treatment
09. Wet W/Visible Icy Road Treatment
10. Snowy W/Visible Icy Road Treatment
11. Icy W/Visible Icy Road Treatment
12. Slushy W/Visible Icy Road Treatment

H. LIGHTING CONDITION

01. Daylight
02. Dawn or Dusk
03. Dark - Lighted
04. Dark - Unlighted

J. ADVERSE WEATHER CONDITION

00. None
01. Rain
02. Snow / Sleet / Hail
03. Fog
04. Dust
05. Wind

K. VEHICLE / VEHICLE COMBINATION

FMC (Overlay C) Required
01. Vehicle / Vehicle Combination (10,001 lbs. and over)
02. School Bus (all school buses)
03. Non-school Bus (9 occupants or more including driver) in commerce
04. Transit Bus

GVWR 10,000 lbs. or Less
05. Passenger Car / Passenger Van
06. Passenger Car / Passenger Van W/ Trailer
07. Pickup Truck / Utility Van
08. Pickup Truck / Utility Van W/Trailer
09. SUV
10. SUV W/Trailer
11. Motor Home
12. Motorcycle
13. Bicycle
14. Motorized Bicycle
15. Farm Equipment
16. Hit & Run Unknown
17. Light Rail
18. Other (Describe in Narrative)

L. DIRECTION OF TRAVEL – PRIOR TO IMPACT

01. North
02. Northeast
03. East
04. Southeast
05. South
06. Southwest
07. West
08. Northwest

M. VEHICLE MOVEMENT – PRIOR TO IMPACT

01. Going Straight
02. Slowing
03. Stopped in Traffic
04. Making Right Turn
05. Making Left Turn
06. Making U-Turn
07. Passing
08. Backing
09. Entering / Leaving Parked Position
10. Parked
11. Changing Lanes
12. Avoiding Object in Roadway
13. Weaving
14. Spun Out of Control
15. Drove Wrong Way
16. Other (Describe in Narrative)

N. ROADWAY SPEED LIMIT - Vehicles Only

Traffic Unit #1 or _____

Traffic Unit #2 or _____

P. ESTIMATED VEHICLE SPEED - Vehicles Only

Traffic Unit #1 or _____

Traffic Unit #2 or _____

Q. DRIVER ACTIONS (Officer Opinion Only)

00. No Action
01. Exceeded Safe/ Posted Speed
02. Impeded Traffic
03. Failed to Yield ROW
04. Disregard Stop Sign
05. Failed to Stop at Signal
06. Disregarded Other Device
07. Improper Turn
08. Turned from Wrong Lane or Position
09. Other Improper Turns
10. Lane Violation
11. Improper Passing on Left
12. Improper Passing on Right
13. Followed Too Closely
14. Improper Backing
15. Signaling Violation
16. Reckless Driving
17. Careless Driving (if used, block R can not be coded "00")

R. DRIVER - MOST APPARENT HUMAN CONTRIBUTING FACTOR (Officer Opinion Only)

00. No Apparent Contributing Factor
01. Asleep at the Wheel
02. Driver Fatigue
03. Illness / Medical
04. Driver Inexperience
05. Aggressive Driving
06. Driver Unfamiliar With Area
07. Driver Emotionally Upset
08. Evading Law Enforcement Officer
09. Physical Disability
10. DUI, DWAI, DUID
11. Distracted / Passenger
12. Distracted / Cell Phone
13. Distracted / Radio
14. Distracted / Other i.e. Food, Objects, Pet, etc.
15. Other Factor (Describe in Narrative)

S. BY PEDESTRIAN ACTION (Officer Opinion Only)

01. Cross Against Signal
02. Cross / Enter at Intersection
03. Cross / Enter NOT at Intersection
04. Standing in Roadway
05. Playing in Roadway
06. Soliciting Rides
07. Walking in Roadway in Direction of Traffic
08. Walking in Roadway Against Direction of Traffic
09. Entering / Exiting Vehicle
10. Pushing / Working on Vehicle
11. Lying in Roadway
12. Other (Describe in Narrative)

T. VEHICLE DEFECT / CONDITION (Officer Opinion Only)

00. No Vehicle Defects
01. Defective Head Light(s)
02. Defective Brake/Tail Light(s)
03. Defective Signaling Device
04. Brakes Defective/Out of Adjustment
05. Defective Tires
06. Sudden Tire Failure
07. Improper Tires for Conditions
08. Mechanical Failure
09. Obstructed Window(s)
10. Improper Load
11. Spilled Load – Commercial Aggregate
12. Spilled Load – Commercial Non- Aggregate
13. Spilled Load – Other
14. Parking Violation
15. Other Defect(s) (Describe in Narrative)

Approved Sterling Ranch Deviations

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.:

P	U	D	0	9	0	0	5

General Property Information:
Address of Subject Property (Street Number/Name): 8715 Vollmer Road
Tax Schedule ID(s) #: 5233000006

Legal Description of Property: E2, E2SW4, SW4SW4; that part of E2NW4 LY SELY of CO Road W/MR Section 33-12-65

Subdivision or Project Name: Sterling Ranch Phases 1-3

Section of ECM from Which Deviation is Sought: 2.3.2 & 2.2.5.B.1 Principal Arterial Access Spacing

Specific Criteria from Which a Deviation is Sought: One-half-mile access spacing on Principal Arterials

Proposed Nature and Extent of Deviation: Allow a three-quarter movement site access (south side) to future Stapleton Drive about 750 feet east of Vollmer Road.

Applicant Information:
Applicant: Morley-Bentley Investments, LLC - Jim Morley Email Address: jmorley3870@aol.com
Applicant is: __X___ Owner _____ Consultant _____ Contractor
Mailing Address: 20 Boulder Crescent, 1st Floor, Colorado Springs State: CO
Telephone Number: 719-471-1742 Fax Number:_____

Engineer Information:
Engineer: Jeffrey C. Hodsdon, P.E., PTOE Email Address: Jeff@LSCTrans.com
Company Name: LSC Transportation Consultants, Inc.
Mailing Address: 516 North Tejon Street, Colorado Springs 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: 2.3.2 & 2.2.5.B.1 Principal Arterial Access Spacing

Specific Criteria from Which a Deviation is Sought: One-half-mile access spacing on Principal Arterials

Proposed Nature and Extent of Deviation: Allow a three-quarter movement site access (south side) to Stapleton Drive about 750 feet east of Vollmer Road.

Reason for the Requested Deviation: See attached "Sterling Ranch Phases 1-3 Stapleton Drive Deviation Request Memorandum" dated July 2, 2014 by LSC.

Comparison of Proposed Deviation to ECM Standard: ECM Standard: One-half-mile access spacing on Principal Arterials. The proposed deviation would allow a three-quarter movement access on Stapleton Drive 750 feet east of Vollmer Road. The access is not proposed to be full-movement. The access spacing allowed is one-half-mile spacing. The requested access as a three-quarter movement access would allow eastbound right-in and right-out turning movements and westbound left-in turning movements.

Applicable Regional or National Standards used as Basis: Not applicable

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.	See attached "Sterling Ranch Phases 1-3 Stapleton Drive Deviation Request Memorandum" dated July 2, 2014 by LSC.
☐ 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.	See attached "Sterling Ranch Phases 1-3 Stapleton Drive Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will achieve the intended result with a comparable or superior design and quality of improvement.	See attached "Sterling Ranch Phases 1-3 Stapleton Drive Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will not adversely affect safety or operations.	See attached "Sterling Ranch Phases 1-3 Stapleton Drive Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will not adversely affect maintenance and its associated cost.	See attached "Sterling Ranch Phases 1-3 Stapleton Drive Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will not adversely affect aesthetic appearance.	See attached "Sterling Ranch Phases 1-3 Stapleton Drive Deviation Request Memorandum" dated July 2, 2014 by LSC

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.

Jim Morley
Signature of owner (or authorized representative) — Date 7/23/14

Signature of applicant (if different from owner) — Date

Jeffrey C. Hodsdon, P.E., PTOE
Signature of Engineer — Date 7/2/14

Engineer's Seal

COLORADO LICENSED
JEFFREY C. HODSDON
31684
PROFESSIONAL ENGINEER

Review and Recommendation:
APPROVED by the ECM Administrator

_____ Date 7-29-14

This request has been determined to have met the criteria for approval. A deviation from Section _____ 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.

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.:

P	U	D	0	9	0	0	5

General Property Information:
Address of Subject Property (Street Number/Name): 8715 Vollmer Road
Tax Schedule ID(s) #: 5233000006

Legal Description of Property: E2, E2SW4, SW4SW4; that part of E2NW4 LY SELY of CO Road W/MR Section 33-12-65
Subdivision or Project Name: Sterling Ranch Phases 1-3

Section of ECM from Which Deviation is Sought: 2.3.2 & 2.2.5.B.1 Principal Arterial Access Spacing

Specific Criteria from Which a Deviation is Sought: One-half-mile access spacing on Principal Arterials

Proposed Nature and Extent of Deviation: Allow Sterling Ranch Road (a Non-Residential Collector) to access Marksheffel Road (a Principal Arterial) about 1,350 feet southeast of the planned Marksheffel Road/Vollmer Road intersection.

Applicant Information:
Applicant: Morley-Bentley Investments, LLC - Jim Morley Email Address: jmorley3870@aol.com
Applicant is: __X___ Owner _____ Consultant _____ Contractor
Mailing Address: 20 Boulder Crescent, 1st Floor, Colorado Springs State: __CO__ Postal Code: __80903__
Telephone Number:__ 719-471-1742 Fax Number:_____

Engineer Information:
Engineer: Jeffrey C. Hodsdon, PE, PTOE Email Address: jeff@LSCtrans.com
Company Name: LSC Transportation Consultants, Inc.
Mailing Address: 516 North Tejon Street, Colorado Springs 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: 2.3.2 & 2.2.5.B.1 Principal Arterial Access Spacing

Specific Criteria from Which a Deviation is Sought: One-half-mile access spacing on Principal Arterials

Proposed Nature and Extent of Deviation: Allow Sterling Ranch Road (a Non-Residential Collector) to access Marksheffel Road (a Principal Arterial) about 1,350 feet southeast of the planned Marksheffel Road/Vollmer Road intersection.

Reason for the Requested Deviation: See attached "July 2, 2014 Sterling Ranch Phases 1-3 Marksheffel Road Deviation Request Memorandum" by LSC

Comparison of Proposed Deviation to ECM Standard: ECM Standard: one-half-mile access spacing on Principal Arterials. Proposed Deviation: 1,350-foot access spacing on Marksheffel Road between Sterling Ranch Road and Vollmer Road

Applicable Regional or National Standards used as Basis: Access location is consistent with access management plan approved for Marksheffel Road.

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.	See attached "July 2, 2014 Sterling Ranch Phases 1-3 Marksheffel Road Deviation Request Memorandum" by LSC
☐ 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.	See attached "July 2, 2014 Sterling Ranch Phases 1-3 Marksheffel Road Deviation Request Memorandum" by LSC
The deviation will achieve the intended result with a comparable or superior design and quality of improvement.	See attached "July 2, 2014 Sterling Ranch Phases 1-3 Marksheffel Road Deviation Request Memorandum" by LSC
The deviation will not adversely affect safety or operations.	See attached "July 2, 2014 Sterling Ranch Phases 1-3 Marksheffel Road Deviation Request Memorandum" by LSC
The deviation will not adversely affect maintenance and its associated cost.	See attached "July 2, 2014 Sterling Ranch Phases 1-3 Marksheffel Road Deviation Request Memorandum" by LSC
The deviation will not adversely affect aesthetic appearance.	See attached "July 2, 2014 Sterling Ranch Phases 1-3 Marksheffel Road Deviation Request Memorandum" by LSC

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.

Jim Morley
Signature of owner (or authorized representative) Date 7/23/14

Signature of applicant (if different from owner) Date

Jeffrey C. Hodsdon, PE, PTOE
Signature of Engineer Date 7/2/14

Engineer's Seal

COLORADO LICENSED
JEFFREY C. HODSDON
31684
PROFESSIONAL ENGINEER

Review and Recommendation:
APPROVED by the ECM Administrator

Date 7-29-14

This request has been determined to have met the criteria for approval. A deviation from Section _____ 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.

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.:

S	P	0	9	0	0	5	

General Property Information:
Address of Subject Property (Street Number/Name): 8715 Vollmer Road
Tax Schedule ID(s) #: 5200000364; 365; 231

Legal Description of Property: PT SE4SE4 LY South of Vollmer Road EX RD W/MR Section 32-12-65

Subdivision or Project Name: Sterling Ranch Phases 1-3

Section of ECM from Which Deviation is Sought: 2.3.2 & 2.2.5.C Urban Minor Arterial Access Criteria

Specific Criteria from Which a Deviation is Sought: One-quarter-mile access spacing on Minor Arterials

Proposed Nature and Extent of Deviation: Allow site access on Vollmer Road about 875 feet north of the planned Marksheffel Road and about 885 feet south of Lochwinnoch Lane

Applicant Information:
Applicant: Morley-Bentley Investments, LLC - Jim Morley Email Address: jmorley3870@aol.com
Applicant is: __X___ Owner _____ Consultant _____ Contractor
Mailing Address: 20 Boulder Crescent, 1st Floor, Colorado Springs State: CO Postal Code: 80903
Telephone Number: 719-471-1742 Fax Number:_____

Engineer Information:
Engineer: Jeffrey C. Hodsdon, P.E., PTOE Email Address: Jeff@LSCTrans.com
Company Name: LSC Transportation Consultants, Inc.
Mailing Address: 516 North Tejon Street, Colorado Springs 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: 2.3.2 & 2.2.5.C Urban Minor Arterial Access Criteria

Specific Criteria from Which a Deviation is Sought: One-quarter-mile access spacing on Minor Arterials

Proposed Nature and Extent of Deviation: Allow site access on Vollmer Road about 875 feet north of the planned Marksheffel Road and about 885 feet south of Lochwinnoch Lane

Reason for the Requested Deviation: See attached "Sterling Ranch Phases 1-3 South Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC

Comparison of Proposed Deviation to ECM Standard: ECM Standard: One-quarter-mile access spacing on Minor Arterials
Proposed Deviation: 875-foot access spacing on Vollmer Road between the site access and Marksheffel Road and 885-foot access spacing on Vollmer Road between the site access and Lochwinnoch Lane

Applicable Regional or National Standards used as Basis:

El Paso County Procedures Manual
Procedure # R-FM-051-07
Issue Date: 12/31/07
Revision Issued: 00/00/00

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.	See attached "Sterling Ranch Phases 1-3 South Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC
☐ 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.	See attached "Sterling Ranch Phases 1-3 South Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will achieve the intended result with a comparable or superior design and quality of improvement.	See attached "Sterling Ranch Phases 1-3 South Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will not adversely affect safety or operations.	See attached "Sterling Ranch Phases 1-3 South Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will not adversely affect maintenance and its associated cost.	See attached "Sterling Ranch Phases 1-3 South Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will not adversely affect aesthetic appearance.	See attached "Sterling Ranch Phases 1-3 South Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC

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.

Jim Morley
Signature of owner (or authorized representative) — Date 7/23/14

Signature of applicant (if different from owner) — Date

Jeffrey C. Hodsdon, P.E., PTOE
Signature of Engineer — Date 7/2/14

Engineer's Seal

COLORADO LICENSED
JEFFREY C. HODSDON
31684
PROFESSIONAL ENGINEER

Review and Recommendation:
APPROVED by the ECM Administrator

Date 7-29-14

This request has been determined to have met the criteria for approval. A deviation from Section _____ 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.

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.:

S	P	0	9	0	0	5	

General Property Information:
Address of Subject Property (Street Number/Name): 8715 Vollmer Road
Tax Schedule ID(s) #: 5233000006

Legal Description of Property: E2, E2SW4, SW4SW4; that part of E2NW4 LY SELY of CO Road W/MR Section 33-12-65

Subdivision or Project Name: Sterling Ranch Phases 1-3

Section of ECM from Which Deviation is Sought: 2.3.2 & 2.2.5.C Urban Minor Arterial Access Criteria

Specific Criteria from Which a Deviation is Sought: One-quarter-mile access spacing on Minor Arterials

Proposed Nature and Extent of Deviation: Allow site access on Vollmer Road about 1,000 feet south of Stapleton Drive

Applicant Information:
Applicant: Morley-Bentley Investments, LLC - Jim Morley Email Address: jmorley3870@aol.com
Applicant is: __X___ Owner _____ Consultant _____ Contractor
Mailing Address: 20 Boulder Crescent, 1st Floor, Colorado Springs State: CO Postal Code: 80903
Telephone Number: 719-471-1742 Fax Number:_____

Engineer Information:
Engineer: Jeffrey C. Hodsdon, P.E., PTOE Email Address: Jeff@LSCTrans.com
Company Name: LSC Transportation Consultants, Inc.
Mailing Address: 516 North Tejon Street, Colorado Springs 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: 2.3.2 & 2.2.5.C Urban Minor Arterial Access Criteria

Specific Criteria from Which a Deviation is Sought: One-quarter-mile access spacing on Minor Arterials

Proposed Nature and Extent of Deviation: Allow site access on Vollmer Road about 1,000 feet south of Stapleton Drive

Reason for the Requested Deviation: See attached "Sterling Ranch Phases 1-3 North Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC

Comparison of Proposed Deviation to ECM Standard: ECM Standard: One-quarter-mile access spacing on Minor Arterials
Proposed Deviation: 1,000-foot access spacing on Vollmer Road between the site access and Stapleton Drive

Applicable Regional or National Standards used as Basis: Not applicable

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.	See attached "Sterling Ranch Phases 1-3 North Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC.
☐ 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.	See attached "Sterling Ranch Phases 1-3 North Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will achieve the intended result with a comparable or superior design and quality of improvement.	See attached "Sterling Ranch Phases 1-3 North Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will not adversely affect safety or operations.	See attached "Sterling Ranch Phases 1-3 North Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will not adversely affect maintenance and its associated cost.	See attached "Sterling Ranch Phases 1-3 North Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC
The deviation will not adversely affect aesthetic appearance.	See attached "Sterling Ranch Phases 1-3 North Vollmer Road Deviation Request Memorandum" dated July 2, 2014 by LSC

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.

Jim Morley
Signature of owner (or authorized representative) — Date 7/23/14

Signature of applicant (if different from owner) — Date

Jeffrey C. Hodsdon, P.E., PTOE
Signature of Engineer — Date 7/2/14

Engineer's Seal

Review and Recommendation:
APPROVED by the ECM Administrator

_____ Date 7-29-14

This request has been determined to have met the criteria for approval. A deviation from Section _____ 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.

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.:

S	P	1	4	-	0	1	5

General Property Information:
Address of Subject Property (Street Number/Name):
Tax Schedule ID(s) #: 52330-00-006/52000-00-231/52000-00-364/53000-00-222/53000-00-173
Legal Description of Property: See Attached

Subdivision or Project Name: Sterling Ranch
Subdivision Filing No. 1

Section of ECM from Which Deviation is Sought: SD_2-3 Urban Non Residential Collector Roadway Standard Cross Section Drawing.

Specific Criteria from Which a Deviation is Sought: The use of a median entry feature (see attached exhibit) in the center area shown on the standard cross section as painted median.

Proposed Nature and Extent of Deviation: The proposed median entry feature (see attached exhibit) would be installed with the initial street construction. The standard cross section does not allow for a raised median or an entry structure in the ROW.

Applicant Information:
Applicant: SR Land, LLC; Gary Schnurr
Email Address: jmorley3870@aol.com
Applicant is: __X___ Owner _____ Consultant _____ Contractor
Mailing Address: 20 Boulder Crescent COLORADO SPRINGS
State: CO Postal Code: 80903
Telephone Number: (719) 471-1742
Fax Number:_____

Engineer Information:
Engineer: Virgil Sanchez, P.E.
Email Address: virgils@mscivil.com
Company Name: M&S Civil Consultants
Mailing Address: 102 E. Pikes Peak Ave. Ste 306, Colorado Springs
State: CO Postal Code: 80901
Registration Number: 37160
State of Registration: Colorado
Telephone Number: (719) 955-5485
Fax Number: (719) 444-8427

Explanation of Request (Attached diagrams, figures and other documentation to clarify request):
Section of ECM from Which Deviation is Sought: SD_2-3 Urban Non Residential Collector Roadway Standard Cross Section Drawing.

Specific Criteria from Which a Deviation is Sought: The use of a median entry feature (see attached exhibit) in the center area shown on the standard cross section as painted median.
Proposed Nature and Extent of Deviation: The proposed median entry feature (see attached exhibit) would be installed with the initial street construction, extending about 550 feet east of Marksheffel Road to the intersection of Bynum Drive and then continuing east an additional 200 feet of median for transitional purposes.

Reason for the Requested Deviation: The applicant would like to install the entry feature shown in the attached exhibit to create a sense of arrival into the Sterling Ranch residential community.

Comparison of Proposed Deviation to ECM Standard: ECM 2.5.6.J states "raised medians may be placed in minor arterial, collector, and all local roadways. If medians are included, they shall be placed in the public right-of-way, and they must meet the following standards for design:" The criteria for approval below addresses the required elements within ECM section 2.5.6.J. The ECM standard does not address structures within the raised median, therefore additional justification is provided.

Application Consideration:

CHECK IF APPLICATION MEETS CRITERIA FOR CONSIDERATION	**JUSTIFICATION**
☑ The ECM standard is inapplicable to a particular situation.	The use of a median entry feature (see attached exhibit) in the center area shown on the standard cross section as painted median is not specifically addressed in the ECM. This deviation addresses the applicant's request relative to criteria within ECM section 2.5.6.J which states "raised medians may be placed in minor arterial, collector, and all local roadways. If medians are included, they shall be placed in the public right-of-way, and they must meet the following standards for design:"
☐ 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.	
☐ 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.	This deviation is not financially based. It is more expensive to construct this entry structure.
The deviation will achieve the intended result with a comparable or superior design and quality of improvement.	The applicant would like to install the entry feature shown in the attached exhibit to create a sense of arrival into the Sterling Ranch residential community.
The deviation will not adversely affect safety or operations.	ECM 2.5.6.J states "raised medians may be placed in minor arterial, collector, and all local roadways. If medians are included, they shall be placed in the public right-of-way, and they must meet the following standards for design:" 1. No Obstruction- "The medians may not obstruct the design vehicle turns." The median island and entry feature would be placed in a location where design vehicle turns would not be obstructed. The construction of this entry feature would not adversely affect safety or operations. 2. Visibility - The medians must be placed such that the required visibility in the intersection is not obstructed.

	The median island and entry feature would be placed in a location where the required ECM intersection sight distance would not be obstructed. 3. Undiminished Use - Medians must be placed so they do not diminish the intersection use. The median island and entry feature would not be diminishing. 4. Alignment - Lanes on one side of the intersection must align with the correct lanes on the opposite side of the intersection. The median island and entry feature would be constructed such that the through lanes both east and westbound would align through the intersection of Bynum Drive. 5. Median Maintenance - Maintenance of median landscape will be limited at the discretion of the ECM Administrator. The maintenance would be the responsibility of the Sterling Ranch Metro District. 6. Public Use - The ECM Administrator may use these islands for roadway signing and may choose to remove the median if it is deemed necessary by the ECM. The applicant understands the ECM administrator has the authority to install signs within the median island as necessary and that the median island and entry feature may be removed it is shown to be a safety problem. 7. Additional Right-of-Way - Any additional right-of-way necessary to accommodate the medians shall be provided. The SD_2-3 Urban Non Residential Collector Roadway Standard Cross Section Drawing requires a 80' ROW, whereas for the median entry way feature a 100' ROW is proposed and shall transition to an 80' ROW east of the proposed median.
The deviation will not adversely affect maintenance and its associated cost.	The County will not need to maintain the median entry feature. This will be the responsibility of the Sterling Ranch Metro District.
The deviation will not adversely affect aesthetic appearance.	The entry feature design will be attractive - otherwise it wouldn't be a worthwhile addition.

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: 3/10/15

Signature of applicant (if different from owner) — Date

Signature of Engineer — Date: 3-16-15

Engineer's Seal

COLORADO REGISTERED
VIRGIL A. SANDERS
37160
3-16-15
PROFESSIONAL ENGINEER

Review and Recommendation:
APPROVED by the ECM Administrator

_____ Date 3-17-15

This request has been determined to have met the criteria for approval. A deviation from Section SP 2-3 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:

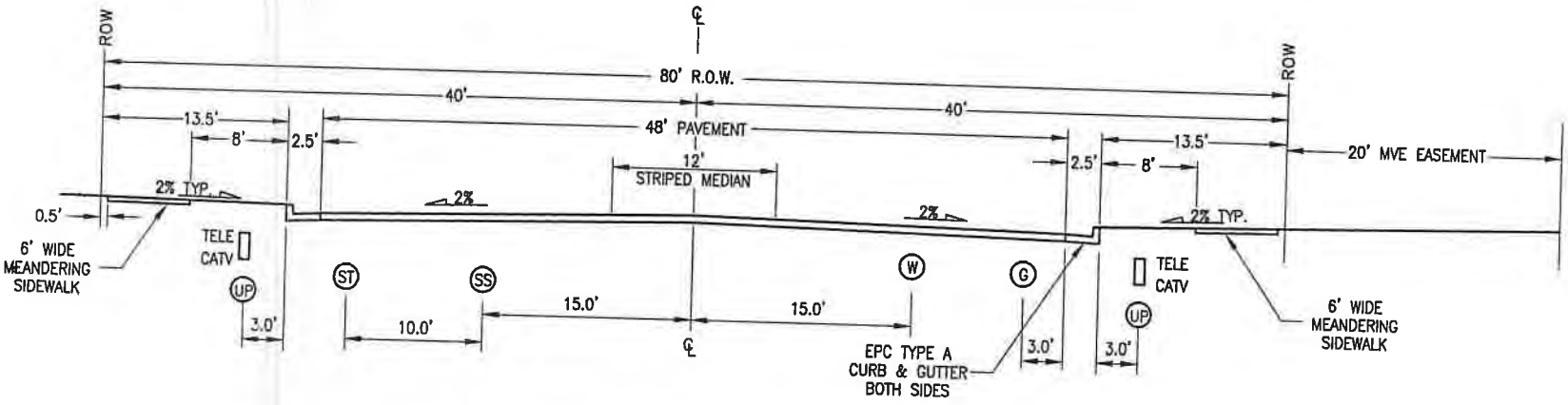
_____

_____

_____

_____

____ Additional comments or information are attached.

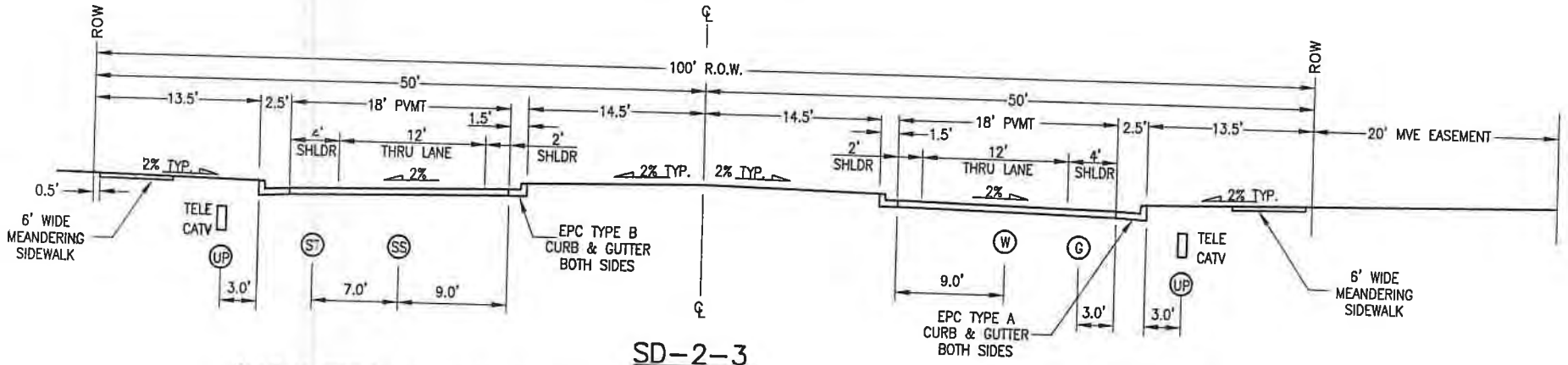


SD-2-3

URBAN NON-RESIDENTIAL COLLECTOR CROSS SECTION

SCALE: NTS

STERLING RANCH ROAD



SD-2-3

(MODIFIED) URBAN NON-RESIDENTIAL COLLECTOR CROSS SECTION

SCALE: NTS

STERLING RANCH ROAD (ENTRY)

CIVIL CONSULTANTS, INC.

102 E. Pikes Peak Avenue, STE 306
Colorado Springs, CO 80903
Mail to: PO Box 1360
Colorado Springs, CO 80901
v 719.955.5485
f 719.444.8427

M&S JOB NO. 09-001
PRELIMINARY PLAN
STERLING RANCH
JANUARY 27, 2015

A PORTION OF LAND LYING WITHIN THE SOUTHEAST QUARTER OF SECTION 32 AND SECTION 33, TOWNSHIP 12 SOUTH, RANGE 65 WEST AND A PORTION OF THE NORTHWEST QUARTER OF SECTION 4 AND THE NORTHEAST QUARTER OF SECTION 5, TOWNSHIP 13 SOUTH, RANGE 65 WEST, BOTH OF THE 6TH P.M., EL PASO COUNTY, COLORADO, DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: BEARINGS ARE BASED ON THE NORTH LINE OF THE NORTHEAST QUARTER OF SECTION 27, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M., MONUMENTED AT ITS WEST END BY A 3 ¼" ALUMINUM CAP STAMPED 2006 ESI PLS 10376, AND AT ITS EAST END BY A 2 ¼" ALUMINUM CAP STAMPED PLS 4842, THE LINE BETWEEN THEM IS ASSUMED TO BEAR N89°05'36"E.

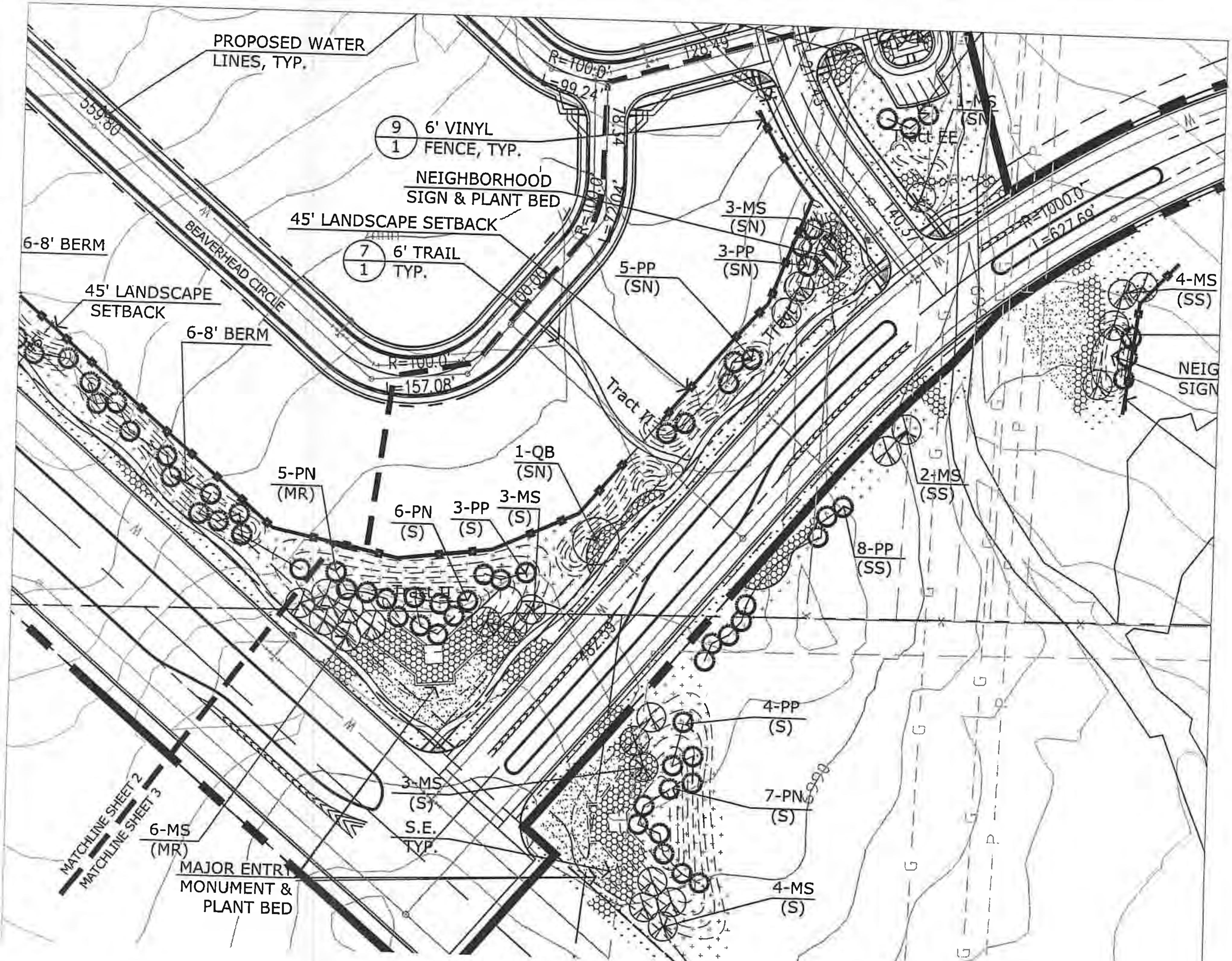
BEGINNING AT THE POINT OF INTERSECTION OF THE SOUTHEASTERLY RIGHT OF WAY LINE OF VOLLMER ROAD WITH THE WEST LINE OF THE EAST HALF OF THE NORTHWEST QUARTER OF SAID SECTION 33; THENCE N 39°33'48" E ON SAID SOUTHEASTERLY LINE OF VOLLMER ROAD, 2355.81 FEET TO THE FUTURE NORTHEASTERLY LINE OF BRIARGATE PARKWAY; THENCE ALONG THE NORTHEASTERLY LINE S50°26'12" E, 810.00 FEET; THENCE S 39°33'48" W, 130.00 FEET TO A POINT ON THE FUTURE SOUTHWESTERLY LINE OF SAID BRIARGATE PARKWAY; THENCE ALONG SAID SOUTHWESTERLY LINE S 50°26'12" E, 766.13 FEET;
THENCE S 39°33'48" W, 15.00 FEET;
THENCE S 14°40'14" E, 112.26 FEET;
THENCE S 42°37'17" W, 138.57 FEET;
THENCE S 31°50'18" W, 229.19 FEET;
THENCE S 00°14'13" W, 243.48 FEET;
THENCE S 59°31'52" W, 178.71 FEET;
THENCE S 87°30'37" W, 117.08 FEET;
THENCE S 65°02'48" W, 632.56 FEET;
THENCE S 40°27'16" W, 150.60 FEET;
THENCE S 50°58'40" W, 94.24 FEET;
THENCE N 50°40'25" W, 72.52 FEET;
THENCE N 19°39'33" W, 163.51 FEET;
THENCE N 88°53'18" W, 56.14 FEET;

THENCE S 13°28’59” W, 371.46 FEET;
THENCE S 04°22’24” E, 296.69 FEET;
THENCE S 26°06’12” E, 393.42 FEET;
THENCE S 02°44’27” W, 452.46 FEET;
THENCE S 65°39’18” W, 252.42 FEET;
THENCE S 60°18’33” W, 166.84 FEET;
THENCE S 46°04’45” W, 252.38 FEET;
THENCE S 35°47’33” W, 139.61 FEET;
THENCE S 00°53’19” E, 131.63 FEET;
THENCE S 15°27’56” E, 241.77 FEET;
THENCE S 46°52’24” W, 128.28 FEET;
THENCE S 17°53’47” E, 105.91 FEET;
THENCE S 76°13’42” E, 278.31 FEET TO A POINT ON THE FUTURE NORTH LINE OF STERLING RANCH ROAD; THENCE ALONG SAID FUTURE NORTH LINE S 76°19’20” W, 306.51 FEET;
THENCE S 13°40’40” E, 80.00 FEET TO A POINT ON THE FUTURE SOUTH LINE OF SAID STERLING RANCH ROAD;
THENCE ALONG SAID SOUTH LINE S 76°19’20” W, 1369.09 FEET;
THENCE 402.26 FEET ON THE ARC OF A 960.00 FOOT RADIUS TANGENTIAL CURVE TO THE LEFT, HAVING A CENTRAL ANGLE OF 24°00'30” AND A CHORD THAT BEARS S 64°19'05” W, 399.33 FEET;
THENCE S 41°03’23” W, 60.83 FEET;
THENCE 138.53 FEET ON THE ARC OF A 950.00 FOOT RADIUS NON-TANGENTIAL CURVE TO THE LEFT, HAVING A CENTRAL ANGLE OF 08°21'18" AND A CHORD THAT BEARS S 44°32'10” W, 138.41 FEET;
THENCE S 40°21’31” W, 402.59 FEET;
THENCE S 49°38’29” E, 36.00 FEET TO A POINT ON THE FUTURE NORTHEASTERLY LINE OF MARKSHEFFEL ROAD;
THENCE S 40°21’31” W, 160.00 FEET TO A POINT ON THE SOUTHWESTERLY LINE OF SAID MARKSHEFFEL ROAD;
THENCE ALONG SAID SOUTHWESTERLY LINE N 49°38’29” W, 1460.04 FEET TO A POINT ON THE SOUTHEASTERLY LINE OF SAID VOLLMER ROAD; THENCE ALONG SAID SOUTHEASTERLY LINE N 40°15’29” E, 1808.28 FEET; THENCE S 49°23'02” E, 19.51 FEET;
THENCE 87.22 FEET ON THE ARC OF A 116.28 FOOT RADIUS NON-TANGENTIAL CURVE TO THE LEFT, HAVING A CENTRAL ANGLE OF 42°58'40” AND A CHORD THAT BEARS S 70°52'23” E, 85.19 FEET TO THE WESTERLY LINE OF SAID SECTION 33; THENCE S 00°08'10” E ON SAID WESTERLY LINE, 631.32 FEET TO A POINT ON THE SOUTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 33; THENCE N 89°17'25” E ALONG SAID SOUTH LINE A DISTANCE OF 279.65;
THENCE S 00°42’35” E, 241.35 FEET;
THENCE S 02°02’55” W, 130.48 FEET;
THENCE S 05°37’53” W, 90.96 FEET;
THENCE S 01°55’19” W, 307.22 FEET;
THENCE N 73°29’47” E, 11.27 FEET;
THENCE S 16°30’13” E, 200.14 FEET TO A POINT ON SAID FUTURE NORTH LINE OF STERLING RANCH ROAD;

THENCE 368.93 FEET ON THE ARC OF A 1040.00 FOOT RADIUS NON-TANGENTIAL CURVE TO THE RIGHT, HAVING A CENTRAL ANGLE OF 20°19'30" AND A CHORD THAT BEARS N 66°09'35" E, 367.00 FEET;
THENCE N 76°19'20" E ALONG SAID NORTH LINE, A DISTANCE OF 1284.09 FEET;
THENCE N 13°40'40" W, 218.90 FEET;
THENCE 134.76 FEET ON THE ARC OF A 420.00 FOOT RADIUS TANGENTIAL CURVE TO THE LEFT, HAVING A CENTRAL ANGLE OF 18°23'00" AND A CHORD THAT BEARS N 22°52'10" W, 134.18 FEET;
THENCE N 32°03'40" W, 152.06 FEET;
THENCE 85.14 FEET ON THE ARC OF A 595.00 FOOT RADIUS TANGENTIAL CURVE TO THE RIGHT, HAVING A CENTRAL ANGLE OF 8°11'54" AND A CHORD THAT BEARS N 27°57'43" W, 85.07 FEET;
THENCE S 83°22'30" W, 194.64 FEET;
THENCE S 80°21'06" W, 59.99 FEET;
THENCE S 85°53'10" W, 59.92 FEET;
THENCE S 85°09'36" W, 54.23 FEET;
THENCE N 04°50'24" W, 20.00 FEET TO THE WEST LINE OF THE EAST HALF OF THE WEST HALF OF SAID SECTION 33;
THENCE ALONG SAID WEST LINE N 00°07'25" W, A DISTANCE OF 2414.11 FEET TO THE POINT OF BEGINNING; CONTAINING A CALCULATED AREA OF 7,939,381 SQUARE FEET (182.26 ACRES) MORE OR LESS.

SPENCER J. BARRON
COLORADO REGISTERED PROFESSIONAL
LAND SURVEYOR NO. 38141

DESCRIPTION PREPARED BY:
M&S CIVIL CONSULTANTS, INC.
102 EAST PIKES PEAK AVENUE, SUITE 306
COLORADO SPRINGS, CO 80903


PROPOSED WATER LINES, TYP.
9/1 6' VINYL FENCE, TYP.
NEIGHBORHOOD SIGN & PLANT BED
45' LANDSCAPE SETBACK
7/1 6' TRAIL TYP.
6-8' BERM
45' LANDSCAPE SETBACK
6-8' BERM
BEAVERHEAD CIRCLE
559.80
R=100.0'
L=99.24'
128.49
78.54
R=100.0'
L=172.04'
100.00
R=100.0'
L=157.08'
140.37
R=1000.0'
L=627.69'
482.39
1-MS (SN)
Tract EE
3-MS (SN)
3-PP (SN)
5-PP (SN)
Tract II
Tract JJ
4-MS (SS)
NEIG SIGN
2-MS (SS)
8-PP (SS)
1-QB (SN)
5-PN (MR)
6-PN (S)
3-PP (S)
3-MS (S)
4-PP (S)
7-PN (S)
4-MS (S)
3-MS (S)
S.E. TYP.
6-MS (MR)
MAJOR ENTRY MONUMENT & PLANT BED
MATCHLINE SHEET 2
MATCHLINE SHEET 3
6990