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Sterling Ranch East Filing No. 4
Traffic Impact Study
(LSC #S244300)
June 25, 2026

Traffic Engineer's Statement

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



Developer's Statement

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

A handwritten signature in blue ink, appearing to be 'M. L. L. v.p.', written over a horizontal line.

6/25/2026
Date

Sterling Ranch East Filing No. 4

Traffic Impact Study

Prepared for:
Loren J. Moreland
Vice President/ Project Manager
Classic SRJ
2138 Flying Horse Club Drive
Colorado Springs, CO 80921

JUNE 25, 2026

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

LSC #S244300



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June 25, 2026

Loren J. Moreland
Vice President/ Project Manager
Classic SRJ
2138 Flying Horse Club Drive
Colorado Springs, CO 80921

RE: Sterling Ranch East
Filing No. 4
Traffic Impact Study
El Paso County, Colorado
LSC #S244300

Dear Mr. Moreland:

LSC Transportation Consultants, Inc. has prepared this Traffic Impact Study for the proposed Sterling Ranch East Filing No. 3. As shown in Figure 1, the site is located north of Briargate Parkway and east of the future Sterling Ranch Road in El Paso County, Colorado.

REPORT CONTENTS

The preparation of this report included the following:

- A list of previous Sterling Ranch traffic reports and the context of this project;
- The existing roadway and traffic conditions in the site's vicinity including the roadway widths, surface conditions, lane geometries, traffic controls, posted speed limits, and crash history;
- A summary of the proposed land use and access plan;
- Existing traffic-volume data;
- Estimates of projected short-term and long-term baseline traffic volumes;
- The projected average weekday and peak-hour vehicle trips to be generated by the proposed future development;
- The assignment of the projected site-generated traffic volumes to the area roadways;
- The projected short-term and long-term total traffic volumes on the area roadways;
- The projected levels of service at the key intersections within the study area;
- Signal-warrant threshold analysis;
- The recommended street classifications;
- Findings and recommendations for study-area roadways and intersections, including number of lanes, auxiliary turn lanes, intersection traffic control, etc.; and
- The project's obligation to the County roadway improvement fee program.

RECENT TRAFFIC REPORTS

The master traffic impact study (MTIS) by LSC for the entire Sterling Ranch development is dated March 17, 2023 ([SKP224](#)). LSC also prepared a technical memorandum for the Sterling Ranch Amendment #3 dated January 17, 2024 ([SKP235](#), [P239](#), [P2310](#), and [P2311](#)) and for Sterling Ranch Amendment #4 dated November 18, 2024 ([SKP241](#)). Appendix Table 1, which includes a list of other traffic studies within Sterling Ranch and in the vicinity of area of study completed within the past five years (that LSC is aware of), is attached for reference.

El Paso County completed a study of the Briargate Stapleton Corridor as part of a Pikes Peak Rural Transportation Authority (PPRTA) study. The final version of the *Briargate-Stapleton Corridor Study* by Wilson & Company was published December 7, 2023.

STUDY AREA

Figure 1 shows the location of the Sterling Ranch East Filing No. 4 relative to the overall Sterling Ranch Sketch Plan Area. As shown in Figure 1, the site is located generally in the middle of the Sketch Plan Area adjacent to the future extension of Sterling Ranch Road and north of Briargate Parkway.

Land Use

Figure 2 shows the proposed Sterling Ranch East Filing No. 4 site plan. The site is planned to be developed with 238 residential dwelling units. This is consistent with the land use assumed for this area in the 2023 MTIS.

Pedestrian Plan

Attached 5-foot-wide concrete sidewalks are planned on all of the internal local streets and will connect to the existing sidewalks within the Retreat at TimberRidge development to the north. Detached sidewalks will also be provided along Sterling Ranch Road. The multi-use paved shoulder on Sterling Ranch Road will accommodate bicycles.

Although there are no proposed regional trails within the boundary of the site, multiple community trails are included for circulation and recreational use throughout the overall Sterling Ranch development.

There are no existing schools within two miles of the site. However, there are multiple future school sites in the area, including a future K-8 school site south of the site on the southwest corner of Briargate Parkway/Sterling Ranch Road. No information or plans are available for the school sites and a separate site-specific traffic impact study including pedestrian plans will be required to be approved prior to school site development.

Proposed Access Points

Figure 2 shows the proposed access plan. One full-movement access point (Vancouver Street) is proposed to Sterling Ranch Road (Urban Minor Collector) aligning with the approved access for Sterling Ranch East Filing No. 6. An additional connection is planned on the north end of the site through the Retreat at TimberRidge Filing No. 1 via the existing Buffalo Valley Trail. This connection was shown in the Retreat at Timber Ridge Updated Traffic Impact Analysis (PCD File No: [PUD-17-003](#)) dated January 25, 2018. A future connection is also planned on the east side of the site. This connection is planned to be constructed as a temporary cul-de-sac until the Sterling Ranch East area east of the site is developed.

Sight Distance Analysis

Figure 3 shows a sight-distance analysis at the proposed intersection of Vancouver Street (Urban Local)/Sterling Ranch Road (Urban Residential Collector). 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 intersection is 445 feet. As shown in Figure 3, this intersection will meet the criteria.

REPORT SCENARIOS

Short-Term Scenario

The short-term scenario includes the roadway segments to be added in the short term only. This scenario includes the Sterling Ranch East Filing No. 4 area (“the site”) as well as traffic to be generated in the short term by buildout of Homestead at Sterling Ranch, Branding Iron at Sterling Ranch, Sterling Ranch Filings 2-4, Copper Chase at Sterling Ranch, Homestead North at Sterling Ranch Filings 1-3, the Retreat at TimberRidge Filings 1-4, the approved filings within Sterling Ranch East Preliminary Plan 1 (Sterling Ranch East Filings 1, 2, and 3), Sterling Ranch East Filing 5, Sterling Ranch East Filing 6, Sterling Ranch East Filing 8, and the Villages at Sterling Ranch East. The short-term scenario also assumes some of the existing traffic from the Retreat at TimberRidge Filing No. 1 north of the site will be shifted to use the new connection through the Sterling Ranch East Filing No. 4.

Note that the short-term scenario assumes no traffic due to the future school sites within the Sterling Ranch East Preliminary Plan 1. Trips projected from these other short-term developments outside of the Sterling Ranch East Filing No. 4 boundary are included as short-term “background traffic” in this report.

Long-Term Scenario

The long-term scenario is essentially the same as the 2045 long-term scenario contained in the approved TIS for Villages at Sterling Ranch subdivision plat, dated April 24, 2025 and *the Sterling*

Ranch Sketch Plan Amendment #4 and Sterling Ranch East Filing No. 7 Site Rezone Traffic Impact Study by LSC dated November 18, 2024 with additional detail added for this application.

The study area of this report is more focused than the Sketch Plan. Included is analysis of the Arterial/Arterial and Arterial/Collector intersections adjacent to the existing, approved, and currently proposed areas within the Sterling Ranch Sketch Plan Area (Briargate Parkway/Vollmer Road [#4], Briargate Parkway/Sterling Ranch Road [#5], Research Parkway/Marksheffel Road/Vollmer Road [#12], and Marksheffel Road/Sterling Ranch Road [#13]), and new analysis of Arterial/Local and Collector/Local intersections adjacent to the site (Sterling Ranch Road/Idaho Falls Drive [#308] and Sterling Ranch Road/Vancouver Street [#309]). The report also includes updated analysis of Vollmer Road/Burgess Road [#1] that was recently converted to all-way, stop-sign control

EXISTING ROAD AND TRAFFIC CONDITIONS

The adjacent streets are shown in Figure 1 and are described below. Excerpts from the 2024 *El Paso County Major Transportation Corridors Plan (MTCP) 2045 Roadway Functional Classifications (Figure 22)* and 2065 *Corridor Preservation Plan (Figure 39)* with the site location identified on them have been attached to this report. The 2045 and 2065 *Through Lane Requirements* (Figures 23 and 40, respectively) are also reflected in 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. Note: the new *Connect COS* City of Colorado Springs transportation plan shows Vollmer as a Principal Arterial. The 2024 *MTCP* shows Vollmer Road as an Urban – Major Collector in the vicinity of the site. The South Vollmer Road improvements ([CDR2116](#)) which provided two through lanes in each direction on Vollmer Road in the vicinity of Marksheffel Road were recently completed.

The North Vollmer Road improvements ([CDR217](#)), which provided two through lanes in each direction on Vollmer Road in the vicinity of Briargate Parkway were recently completed.

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 four-lane Principal Arterial through the site on the El Paso County *MTCP*. The City of Colorado Springs has taken ownership and maintenance of Marksheffel Road.

The section of Marksheffel Road adjacent to Sterling Ranch has been constructed on 107 feet of right-of-way to the City's required cross section(s) and criteria. The section of Marksheffel Road

southeast of Sterling Ranch Road was completed in November 2024 and Marksheffel Road is now open between Woodmen Road and Vollmer Road.

Briargate Parkway is a 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. The segment of Briargate Parkway between Vollmer Road and Sterling Ranch Road was recently constructed to its full-lane cross section ([CDR 221](#)).

Sterling Ranch Road is an Urban Non-Residential Collector shown extending through the Sterling Ranch development between Marksheffel Road and the north end of the Sketch Plan area (Arroya Road). Sterling Ranch Road has been constructed between Marksheffel Road and Briargate Parkway. Sections north of Briargate Parkway are planned in the short-term Sterling Ranch East Filings No. 2, Sterling Ranch East Filing No. 6, and/or Sterling Ranch East Filing No. 8.

Buffalo Valley Trail is an existing Urban Local street north of the site that extends from the north boundary of the currently-proposed Sterling Ranch East through the existing Retreat at TimberRidge Filing No. 1.

Existing Traffic Volumes

Figure 4a shows the existing peak-hour traffic volumes at the key study-area intersections. The peak-hour traffic volumes shown are based on manual turning-movement counts by LSC Transportation Consultants in March 2025. The traffic-count sheets are attached.

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 1 shows the level of service delay ranges.

Table 1: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) ⁽¹⁾
A	10.0 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 existing study-area intersections have been analyzed based on the unsignalized-intersection analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The results of the analysis are shown in Figure 4b.

All movements at the two-way, stop-sign-controlled intersections of Briargate/Vollmer, Marksheffel/Vollmer and Marksheffel/Sterling Ranch are currently operating at LOS C or better during the peak hours.

Safety and Accident Analysis

LSC requested three-year crash history data from the Colorado State Patrol (CSP) for Vollmer Road and Marksheffel Road adjacent to the Sterling Ranch Sketch Plan area. CSP reported no crashes on these sections of road within the last three years.

BASELINE CONDITIONS

Baseline 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. Baseline traffic (for a specified horizon year) includes the through traffic and the traffic generated by nearby developments (existing and planned, including traffic generated by existing and planned developments within the greater Sterling Ranch overall development) but assumes zero traffic generated by land uses within the site (the Sterling Ranch East Filing No. 8 boundary area).

Short-Term Baseline Scenario Conditions

Please refer to the description of the short-term scenario above. Figures 5a shows the projected volumes for the short-term baseline scenario.

Note: the short-term baseline scenario assumes only the following approved subdivisions to be developed and generating trips (in the short term): Sterling Ranch East Preliminary Plan 1 (Filing Nos 1, 2, and 3), Villages at Sterling Ranch, Sterling Ranch East Filing No. 5, Sterling Ranch East Filing No. 6 and Sterling Ranch East Filing No. 8. No potential future traffic generation due to future school sites within Sterling Ranch East Preliminary Plan 1 are included in the volumes shown in Figures 5a and 5b. The short-term scenario also assumes some of the existing traffic from the Retreat at TimberRidge Filing No. 1 north of the site will be shifted to use the new connection through the Sterling Ranch East Filing No. 4.

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

Long-Term Baseline Scenario Conditions

Figure 7a shows the projected 2045 baseline daily traffic volumes on key street segments at the key area intersections and the projected 2045 peak-hour baseline 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 long-term scenario also assumes some of the existing traffic from the Retreat at TimberRidge Filing No. 1 north of the site will be shifted to use the new connection through the Sterling Ranch East Filing No. 4 and assumes a neighborhood connection on the east side of the site.

The 2045 baseline traffic volumes are estimates by LSC, primarily taken from the recently-prepared and approved TIS for Villages at Sterling Ranch subdivision plat, dated April 24, 2025. The 2045 baseline daily traffic volumes assume buildout of the land uses within the Sterling Ranch Master Plan that were not included in the short-term scenario, including the preliminary estimates of future traffic to be generated by the Sterling Ranch school sites. The estimates of future school trip generation and traffic volumes at intersections are only preliminary estimates because no school site plans/student enrollment numbers etc. are available.

Figure 7b shows the lane geometry, traffic control, and level of service at the key area intersections, based on the 2045 baseline volumes.

TRIP GENERATION

The SRE Filing No. 4 (site-generated) vehicle trips were estimated using the nationally-published trip-generation rates from *Trip Generation, 12th Edition, 2025* by the Institute of Transportation Engineers (ITE). Table 2 shows the trip-generation estimates. Table 2 also shows the trip-generation estimate assumed for the same area in the Sterling Ranch MTIS for comparison. Note that the trip-generation estimate in the Sterling Ranch MTIS was based on the trip-generation rates from the 11th edition of *Trip Generation*.

Sterling Ranch East Filing No. 4 is projected to generate about 2,163 new external vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. This is about 81 **fewer** vehicle trips per day than were assumed for the same area in the MTIS. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 45 vehicles would enter and 122 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 137 vehicles would enter and 84 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 an important factor in determining the site's traffic impacts. The distribution estimates for short-term and long-term residential-related traffic are shown in Figure 7. The short-term directional-distribution estimate assumes the short-term roadway network shown in Figure 3 only and the long-term directional-distribution estimate assumes buildout of the roadway network. The directional-distribution estimates are based, in part, on the estimates contained in the Amendment #4 Sketch Plan MTIS report. Factors include: 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.

When the distribution percentages (from Figure 7) are applied to the new, external trip-generation estimates (from Table 2), the resulting site-generated traffic volumes can be determined. Figure 8 shows the short-term site-generated traffic volumes. Figure 9 shows the long-term residential site-generated traffic volumes assuming buildout of the area roadway network.

TOTAL TRAFFIC

Short-Term Total Traffic

Figure 10a shows the projected short-term total daily traffic volumes on key street segments and the projected short-term-total peak-hour traffic volumes at the key study-area intersections. These volumes are the sum of the short-term-baseline traffic volumes (from Figures 5a) and the short-term site-generated traffic volumes (from Figure 8).

Figure 10b shows the level of service analysis results for the key area intersections based on the projected short-term total volumes. The figure also shows the general intersection lane geometry and intersection traffic control used in the analysis.

2045 Total Traffic

Figure 11a shows the projected 2045 total daily traffic volumes on key street segments and the projected 2045 total peak-hour traffic volumes at the key study-area intersections. These volumes are the sum of the 2045 baseline traffic volumes (from Figure 6a) and the long-term site-generated traffic volumes (from Figure 9).

Figure 11b shows the level of service analysis results for the key area intersections, based on the projected 2045 total volumes. The figure also shows the general intersection lane geometry and intersection traffic control used in the analysis.

SIGNAL WARRANT ANALYSIS

The intersections of Marksheffel/Vollmer and Marksheffel/Sterling Ranch were analyzed to determine if the thresholds for Four-Hour and/or Eight-Hour Vehicular-Volume Traffic-Signal Warrant thresholds would be reached or exceeded, based on the projected short-term peak-hour traffic volumes and the criteria contained in the *Manual of Uniform Traffic Control Devices 11th* Edition, December 2023 (*MUTCD*).

Table 3 shows the results of the analysis for the intersection of Marksheffel/Vollmer. Based on the projected short-term-total traffic volumes, only four of the hours analyzed are projected to meet the criteria for an Eight-Hour Vehicular-Volume Warrant and none of hours analyzed are projected to meet the criteria for a Four-Hour Vehicular-Volume Traffic-Signal Warrant. This analysis indicates that traffic-signal warrant(s) will **not** likely be met in the short term.

Table 4 shows the results of the analysis for the intersection of Marksheffel/Sterling Ranch. Based on the projected short-term total traffic volumes, only seven of the eight hours analyzed are projected to meet the criteria for an Eight-Hour Vehicular-Volume Warrant. However, nine of the hours analyzed are projected to meet the criteria for a Four-Hour Vehicular-Volume Traffic-Signal Warrant. This analysis indicates that a traffic-signal warrant will likely be met in the short term.

LEVEL OF SERVICE ANALYSIS

The key area future signalized intersections have been analyzed to determine the projected intersection levels of service for short-term and 2045 baseline and total traffic scenarios for the morning and afternoon peak-hour periods using Synchro Version 11. The key area future stop-sign-controlled and modern-roundabout-controlled intersections have been analyzed, based on the unsignalized-intersection analysis procedures from the *Highway Capacity Manual 6th Edition*. Figures 4b, 5b, 6b, 10b and 11b show the level of service analysis results. The level of service reports are attached.

Intersection #4: Vollmer Road/Briargate Parkway

The intersection of Vollmer/Briargate could operate at a satisfactory level of service (LOS C or better) in the short term as a stop-sign-controlled intersection.

By 2045, it was assumed Briargate Parkway would be extended west to Black Forest Road and East to Towner Avenue and that the intersection of Vollmer/Briargate will be converted to traffic-signal control. The intersection of Vollmer/Briargate is projected to operate at an overall LOS C during the peak hours as a signalized intersection, based on the projected 2045 total traffic volumes shown in Figure 11a and the lane geometry shown in Figure 11b.

Intersection #5: Briargate Parkway/Sterling Ranch Road

The intersection of Briargate/Sterling Ranch is projected to operate at LOS C or better for all movements in the short term as a stop-sign-controlled intersection.

By 2045, it was assumed Briargate Parkway would be extended west to Black Forest Road and East to Towner Avenue and that the intersection of Briargate/Sterling Ranch will be converted to traffic-signal control. The intersection of Briargate/Sterling Ranch is projected to operate at an overall LOS C during the peak hours as a signalized intersection, based on the projected 2045 total traffic volumes shown in Figure 11b and the lane geometry shown in Figure 11c.

Intersection #12: Marksheffel Road/Vollmer Road

Based on the projected short-term total traffic volumes, the westbound left-turn movement at the intersection of Marksheffel/Vollmer is projected to operate at LOS F during the morning and afternoon peak hours. This intersection is planned as a future signalized intersection. However, as discussed in the Signal Warrant Analysis section above, traffic-signal warrant(s) may not be met in the short term. It is not uncommon for the minor movements at a stop-sign-controlled intersection to operate at LOS E or F as the traffic volumes approach the levels needed to meet vehicular-volume traffic-signal warrants.

By 2045, it was assumed that Marksheffel Road would be constructed west to Briargate Parkway and that the intersection of Marksheffel/Vollmer will be converted to traffic-signal control. The intersection of Marksheffel/Vollmer is projected to operate at an overall LOS C or better during the peak hours as a signalized intersection, based on the projected 2045 total traffic volumes shown in Figure 11a and the lane geometry shown in Figure 11b.

Intersection #13: Marksheffel Road/Sterling Ranch Road

The final section of Marksheffel Road between Vollmer Road and Woodmen Road was recently opened. Based on the projected short-term total traffic volumes, the southbound left-turn movement is projected to operate at LOS F during the morning and afternoon peak hours if it remains stop-sign controlled. As discussed in the Signal Warrant Analysis section above, this intersection is expected to meet a Four-Hour Vehicular-Volume Traffic-Signal Warrant following buildout of the Sterling Ranch parcels assumed in the short-term baseline scenario. If this intersection is converted to signal control, it is projected to operate at an overall LOS C or better during the peak hours, through 2045.

Intersection #309: Sterling Ranch Road/Vancouver Street

The intersection of Sterling Ranch/Vancouver Street is projected to operate at LOS C or better for all movements as a stop-sign-controlled intersection, based on the projected short-term and 2045 total traffic volumes.

ROADWAY FUNCTIONAL CLASSIFICATIONS AND LANEAGE

Figure 12 shows the recommended functional classifications for streets within SRE Filing No. 4. The figure also shows, for reference, the functional classification and number of through lanes for Sterling Ranch Road adjacent to the site and nearby Briargate Parkway.

RECOMMENDED IMPROVEMENTS

Intersection Improvements

Figures 10b and 11b show the intersection traffic control and lane-schematic diagrams for the **short-** and **long-**term total traffic scenarios, respectively. The intersection diagrams indicate with arrows where exclusive auxiliary turn lanes should be provided.

Auxiliary Turn Lanes

The following auxiliary turn-lane improvement will be needed with Sterling Ranch East Filing No. 4. The recommended improvement is based on the short-term and 2045 total traffic

volumes shown in Figures 11b and 12b and the criteria contained in the El Paso County *Engineering Criteria Manual (ECM)*.

- A northeast-bound left-turn lane on Sterling Ranch Road approaching Vancouver Street. A center painted median is part of the standard Urban Minor Collector cross section.

Intersection Traffic Control Upgrades (Future Traffic Signals)

The figures show intersections as stop-sign controlled or as signalized intersections.

For intersections shown with future traffic signal control, please refer to the escrow section and Table 6 for the site-generated estimate percent impact of Filing 4 contributing to the warrant threshold volumes. The nearest intersection – Briargate/Sterling Ranch Road is included, as are other offsite intersections along Vollmer Road and Marksheffel Road.

Roadway Segment Improvements

Table 5 is the **overall** list of Sterling Ranch/Sterling Ranch East area roadway-segment improvements. Please refer to Figure 13, which provides a graphic/map of the roadway-segments by identifier number and timing (short-, intermediate-, and long-term). These recommendations are consistent with the LSC MTIS for the Sterling Ranch Sketch Plan Amendment #4, dated February 18, 2024 ([SKP224](#)).

Notes specific to **SRE Filing No. 4** have been added to Table 5 and Figure 13.

DEVIATION REQUESTS

No [traffic-related] deviations to the criteria contained in the *El Paso County Engineering Criteria Manual (ECM)* are planned to be submitted as part of this application.

AREA MTCP 2045 ROADWAY IMPROVEMENT PROJECTS

The *El Paso County 2024 Major Transportation Corridors Plan Update* identified the following roadway improvement projects within the study area:

- 158: Vollmer Road from Marksheffel Road to Burgess Road as an Urban Major Collector I
- 166: Stapleton Drive from west of Vollmer Road to Towner Avenue as a 4-Lane Urban Principal Arterial
- 329: Stapleton Drive/Briargate Parkway: from Black Forest Road to west of Vollmer Road and a 4-Lane Urban Principal Arterial

ESCROW ANALYSIS

Table 6 shows the impact of site-generated traffic expressed as a percentage of 2045 total morning and afternoon peak-hour traffic volumes that contribute to the Four-Hour Vehicular-Volume Traffic-Signal-Warrant minor-approach volumes at the intersections of Briargate Parkway/Sterling Ranch Road (#5), Marksheffel Road/Research Parkway/Vollmer Road (#12), and Marksheffel Road/Sterling Ranch Road (#13). These percentages could be used as basis for a fair-share contribution towards the future signalization of these intersections.

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 5 mil PID, which has a per-lot upfront building permit fee of \$1,974 per single-family dwelling unit. The total building permit fee amount for the 238 residential dwelling units would be \$469,812. 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, 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 East Filing No. 4 is projected to generate about 2,163 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 45 vehicles would enter and 122 vehicles would exit the site. During the afternoon peak hour about 137 vehicles would enter and 84 vehicles would exit the site.

Level of Service

- The intersections of Vollmer/Briargate and Briargate/Sterling Ranch are projected to operate at a satisfactory level of service as stop-sign-controlled intersections in the short-term future. By 2045, these intersections will likely need to be converted to traffic-signal control. As signalized intersections, all movements are projected to operate at LOS D or better during the peak hours, based on the projected 2045 total traffic volumes.
- Some of the movements at the intersections of Marksheffel Road/Vollmer Road and Marksheffel Road/Sterling Ranch Road are projected to operate at LOS E or LOS F during the peak hours, if they remain stop-sign controlled in the short-term future. Once

signalized, all movements at these intersections are projected to operate at LOS D or better, based on the projected short-term and 2045 total traffic volumes.

- The intersection of Sterling Ranch Road/Vancouver Street is projected to operate at an acceptable level of service as a stop-sign-controlled full-movement intersection.

Recommended Improvements

Intersection and roadway-segment improvements are recommended. Please refer to the "Roadway Improvements" section above for details. Also, roadway improvements are detailed in Table 5.

Escrow Analysis

Table 6 shows the impact of Sterling Ranch East Filing No. 4 (site-generated) traffic expressed as a percentage of 2045 total morning and afternoon peak-hour traffic volumes that contribute to the Four-Hour Vehicular-Volume Traffic-Signal-Warrant minor-approach volumes at the intersections of Briargate Parkway/Sterling Ranch Road (#5), Marksheffel Road/Research Parkway/Vollmer Road (#12), and Marksheffel Road/Sterling Ranch Road (#13). These percentages could be used as basis for a fair-share contribution towards the future signalization of these intersections.

* * * * *

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By Jeffrey C. Hodsdon, P.E.
Principal

JCH/KDF:jas

Enclosures: Tables 2-6
Figures 1-13
Traffic Count Reports
Level of Service Reports
Appendix Table 1
MTCP Maps
Crash History

Tables 2-6

Table 2: Trip Generation Estimate

ITE Code	ITE Land Use	Quantity	Unit	Daily	Trip Generation Rates ⁽¹⁾				Daily	Total Trips Generated			
					AM Peak Hour		PM Peak Hour			AM Peak Hour		PM Peak Hour	
					In	Out	In	Out		In	Out	In	Out
Trip Generation Estimate Based on the Currently Proposed Land Use													
210	Single-Family Detached Housing	238	DU	9.09	0.19	0.51	0.58	0.35	2,163	45	122	137	84
FOR REFERENCE/ COMPARISON/CONFORMANCE CHECK													
Trip Generation Estimate For the Same Parcel (TAZ 19) From the Sterling Ranch Sketch Plan Amendment #4 Master Traffic Impact Study (SKP 241) November 18, 2024													
210	Single-Family Detached Housing	238	DU	9.43	0.18	0.53	0.59	0.35	2,244	42	125	141	83
	Change (Decrease)	0	DU						-81	3	-3	-4	1
Notes:													
(1) Source: "Trip Generation, 12th Edition, 2025" by the Institute of Transportation Engineers (ITE)													
(2) DU = Dwelling Unit													
Source: LSC Transportation Consultants, Inc.													
Jun-26													

Table 3: Traffic Signal Warrant Analysis
Scenario: Short-Term Total Traffic
Marksheffel Road/Vollmer Road

Warrant Analysis ⁽¹⁾																							
Sterling Ranch East Fil 4 Background Traffic Generated Traffic Short-Term Total Traffic												Warrant 1: Eight-Hour Vehicular-Volume Evaluation				Warrant 2: Four-Hour Vehicular-Volume Evaluation							
												Warrant Thresholds				Warrant Threshold Met?				Short-Term Background		Short-Term Total	
																Short-Term Background		Short-Term Total		Warrant Threshold Minor Minimum	Warrant Threshold Met? WB	Warrant Threshold Minor Minimum	Warrant Threshold Met? WB
																Condition A	Condition B	Condition A	Condition B				
Hour	Major ⁽²⁾ Vollmer	Minor ⁽³⁾ Marksheffel	Major Vollmer	Minor Marksheffel	Major Vollmer	Minor Marksheffel	Major	Minor	Major	Minor	Condition A	Condition B	Condition A	Condition B	Minimum	WB	Minimum	WB					
Short-Term Total Traffic ⁽⁴⁾																							
12-1 AM	47	3	5	0	52	3	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No					
1-2 AM	19	3	2	0	21	3	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No					
2-3 AM	14	0	2	0	16	0	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No					
3-4 AM	27	3	2	0	29	3	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No					
4-5 AM	51	11	3	0	54	11	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No					
5-6 AM	115	28	5	0	120	28	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No					
6-7 AM	449	82	15	0	464	82	600	150	900	75	No	No	No	No	366	No	358	No					
7-8 AM	919	142	30	0	949	142	600	150	900	75	No	Yes	No	Yes	170	No	163	No					
8-9 AM	833	120	35	0	868	120	600	150	900	75	No	No	No	No	192	No	183	No					
9-10 AM	680	75	30	0	710	75	600	150	900	75	No	No	No	No	258	No	245	No					
10-11 AM	693	75	39	0	732	75	600	150	900	75	No	No	No	No	253	No	234	No					
11-12 PM	869	71	51	0	920	71	600	150	900	75	No	No	No	No	183	No	170	No					
12-1 PM	703	72	48	0	751	72	600	150	900	75	No	No	No	No	249	No	225	No					
1-2 PM	719	76	53	0	772	76	600	150	900	75	No	No	No	No	241	No	214	No					
2-3 PM	812	79	61	0	873	79	600	150	900	75	No	No	No	No	197	No	182	No					
3-4 PM	911	77	74	0	985	77	600	150	900	75	No	Yes	No	Yes	172	No	154	No					
4-5 PM	1022	96	92	0	1114	96	600	150	900	75	No	Yes	No	Yes	143	No	117	No					
5-6 PM	972	95	90	0	1062	95	600	150	900	75	No	Yes	No	Yes	157	No	131	No					
6-7 PM	582	76	75	0	657	76	600	150	900	75	No	No	No	No	299	No	267	No					
7-8 PM	513	55	54	0	567	55	600	150	900	75	No	No	No	No	334	No	307	No					
8-9 PM	401	40	55	0	456	40	600	150	900	75	No	No	No	No	Low Volume	No	362	No					
9-10 PM	259	31	39	0	298	31	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No					
10-11 PM	137	14	19	0	156	14	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No					
11-12 AM	58	9	11	0	69	9	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No					
Numbers of Hours the Warrant Thresholds Are Met												0	4	0	4		0		0				
Warrant Met?												No		No			No		No				
Notes:																							
(1) Thresholds are based on 2 or more lanes on the major approach and 1 lane on the minor approach (Warrant evaluation assuming the westbound left turn only for the minor street)																							
(2) The major-street traffic includes all movements (left, through, and right)																							
(3) The minor-street traffic includes only the left turns from the minor street																							
(5) Off-peak-hour traffic volumes are based on the projected peak-hour traffic volumes, 72-hour machine counts conducted on Vollmer Road in April 2024 and vehicle time-of-day distribution data for single-family residential published by the Institute of Transportation Engineers																							
Source: LSC Transportation Consultants, Inc.																							
Jun-20																							

Table 4: Traffic Signal Warrant Analysis
Scenario: Short-Term Total Traffic
Marksheffel Road/Sterling Ranch Road

Warrant Analysis ⁽¹⁾																			
Warrant 1: Eight-Hour Vehicular-Volume Evaluation												Warrant 2: Four-Hour Vehicular-Volume Evaluation							
Sterling Ranch Filing No. 4							Warrant Threshold Met?								Short-Term Background		Short-Term Total		
Short-Term Background Traffic		Generated Traffic		Short-Term Total Traffic		Warrant Thresholds				Short-Term Background		Short-Term Total		Warrant Threshold Minor Minimum	Warrant Threshold Met?	Warrant Threshold Minor Minimum	Warrant Threshold Met?		
Major ⁽²⁾ Marksheffel	Minor ⁽⁴⁾ Sterling Ranch	Major Marksheffel	Minor Sterling Ranch	Major Marksheffel	Minor Sterling Ranch	Condition A		Condition B		Condition A	Condition B	Condition A	Condition B						
Hour						Major	Minor	Major	Minor	Condition A	Condition B	Condition A	Condition B						
Short-Term Total Traffic ⁽⁴⁾																			
12-1 AM	52	12	2	1	54	13	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
1-2 AM	21	12	1	1	22	13	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
2-3 AM	19	0	1	0	20	0	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
3-4 AM	22	12	1	1	23	13	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
4-5 AM	37	49	1	2	38	51	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
5-6 AM	69	123	2	6	71	129	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
6-7 AM	236	363	6	18	242	381	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
7-8 AM	474	628	11	31	485	659	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
8-9 AM	494	529	13	26	507	555	600	150	900	75	No	No	No	No	Low Volume	No	337	Yes	
9-10 AM	417	332	11	16	428	348	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
10-11 AM	505	332	14	16	519	348	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
11-12 PM	643	314	19	16	662	330	600	150	900	75	Yes	No	Yes	No	273	Yes	265	Yes	
12-1 PM	534	326	18	16	552	342	600	150	900	75	No	No	No	No	323	Yes	314	Yes	
1-2 PM	572	343	19	17	591	360	600	150	900	75	No	No	No	No	Low Volume	No	295	Yes	
2-3 PM	663	360	23	17	686	377	600	150	900	75	Yes	No	Yes	No	265	Yes	256	Yes	
3-4 PM	786	349	28	17	814	366	600	150	900	75	Yes	No	Yes	No	207	Yes	197	Yes	
4-5 PM	952	436	34	21	986	457	600	150	900	75	Yes	Yes	Yes	Yes	162	Yes	154	Yes	
5-6 PM	928	430	33	21	961	451	600	150	900	75	Yes	Yes	Yes	Yes	168	Yes	160	Yes	
6-7 PM	728	343	28	17	756	360	600	150	900	75	Yes	No	Yes	No	Low Volume	No	222	Yes	
7-8 PM	544	250	20	12	564	262	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
8-9 PM	526	180	20	9	546	189	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
9-10 PM	372	140	15	7	387	147	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
10-11 PM	183	64	7	3	190	67	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
11-12 AM	104	41	4	2	108	43	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
Numbers of Hours the Warrant Thresholds Are Met												6	2	6	2				
Warrant Met?												No		No					

Table 5
Roadway Segment Improvements
Sterling Ranch East With Callout Notes Specific to Filing No. 4
Sterling Ranch East Filing No. 4
(Page 1 of 2)

Segment ID ⁽¹⁾ (See Figure 14 for map)	Improvement Description	Timing	Design ADT (vpd)	Projected 2045 ADT (vpd)	Responsibility
V1 (Short-Term) Northbound	UPDATE (November 2023): It is our understanding that a meeting(s) with JR Engineering/the applicant, City staff and County staff were held, that a short-term/interim improvement to segment V1 will not be required. The original LSC recommendation for this segment was for restriping. However, City staff indicated that the striped bike lane in the southbound direction needs to remain.	Updated November 2023 - It is our understanding that following a meeting with the City of Colorado Springs and El Paso County, a V1 interim shoulder improvement will no longer be required.	5,500 (Directional northbound)	15,710	N/A
V1 (Short-Term) Southbound			10,000 (Directional southbound)		
V1	Improve Vollmer Road between Dry Needle Place and the Sterling Ranch south boundary to a standard 4-Lane Urban Minor Arterial Cross Section (Add a second northbound through lane and painted center median) ⁽²⁾ 8/22/2024 Note: the 2024 MTCP shows Vollmer Road as an Urban – Major Collector	Intermediate-Term Future	20,000		Updated November 2023 Adjacent parcel owner which could potentially include: “Pioneer Landscape Center Parcel” (5300000742) (redevelopment is unlikely in the foreseeable future) “Schmidt Parcel” west of Vollmer Rd (5200000571) - The triangular parcels southeast of Vollmer/Marksheffel (5232400001 and 5232400003)
V2	Improve Vollmer Road between the Sterling Ranch south boundary to Lochwinnoch Lane/Sterling property boundary to a standard 4-Lane Urban Minor Arterial Cross Section ⁽²⁾ 8/22/2024 Note: the 2024 MTCP shows Vollmer Road as an Urban – Major Collector	<u>Completed</u>	20,000 (Note: Existing Capacity 8,000 ⁽³⁾)	17,115	Sterling Ranch
V3	Short Term: Improve Vollmer Road from Lochwinnoch Lane to Sterling Ranch boundary (northeast of Glider Loop) to provide 36’ of pavement (existing pavement 1 approx. 23.38’) and stripe for one through lane and plus a 6’ paved, striped outside shoulder in each direction ⁽²⁾	Updated November 2023 – Future as required due to net increase traffic demand. The construction documents have been approved.	11,000 (Note: Existing Capacity 8,000)	17,015	Sterling Ranch
	Long Term: Improve Vollmer Road from Lochwinnoch Lane to Sterling Ranch boundary (northeast of Glider Loop) to a standard 4-Lane Urban Minor Arterial Cross Section ⁽²⁾ 8/22/2024 Note: the 2024 MTCP shows Vollmer Road as an Urban – Major Collector	Long-Term Future	20,000		By others - pursuant to the recent development agreement between Sterling Ranch and EPC.
V4	Improve Vollmer Road from Sterling Ranch boundary (northeast of Glider Loop) to Briargate Parkway to a standard 4-Lane Urban Minor Arterial Cross Section ⁽²⁾ Update November 2023 - with transition section to the existing two-lane section to the south as shown on the Vollmer North CDs. Improvements consist of curb and gutter on west side (as most of the east side is already built) and repaving.	<u>Completed</u>	20,000	16,155	Sterling Ranch
V5	Improve Vollmer Road from Briargate Parkway to Jane Kirkham Drive to a standard 4-Lane Urban Minor Arterial Cross Section ⁽²⁾ 8/22/2024 Note: the 2024 MTCP shows Vollmer Road as an Urban – Major Collector	<u>Completed</u>	20,000	11,515	Sterling Ranch
V6	Improve Vollmer Road from Jane Kirkham Drive to Sam Bass Drive to a standard 4-Lane Urban Minor Arterial Cross Section ⁽²⁾ 8/22/2024 Note: the 2024 MTCP shows Vollmer Road as an Urban – Major Collector	<u>Completed</u>	20,000	11,245	Sterling Ranch
V7	Improve Vollmer Road between Sam Bass Drive and Poco Road to a 4-lane Urban Minor Arterial but with necessary lane transitions, redirect tapers, etc. south of Poco to adequately transition between the 4-Lane Urban Minor Arterial Cross Section and the 2-Lane Rural Arterial Cross Section north of Poco Road. 8/22/2024 Note: the 2024 MTCP shows Vollmer Road as an Urban – Major Collector	<u>Completed</u>	20,000	11,010	Sterling Ranch
V8	Improve Vollmer Road from Poco Road to Burgess Road to a 2-Lane Urban – Major Collector Cross Section ⁽²⁾	Long-Term Future	20,000	11,395	El Paso County
Part 1/2 of this table (see Part 2 on next page)					
Notes:					
(1) See Figure 14					
(2) 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 <i>El Paso Engineering Criteria Manual</i> an appropriate taper ratio for a roadway with a design speed of 40 miles per hour is 20:1					
(3) Source: Table 20 <i>Road Impact Fee Study Updated</i> November 16, 2016					
<i>Source: LSC Transportation Consultants, Inc. (April 2026)</i>					

Table 5
Roadway Segment Improvements
Sterling Ranch East With Callout Notes Specific to Filing No. 4
Sterling Ranch East Filing No. 4
(Page 2 of 2)

Segment ID ⁽¹⁾ (See Figure 14 for map)	Improvement Description	Timing	Design ADT (vpd)	Projected 2045 ADT (vpd)	Responsibility
SR1	Construct Sterling Ranch Road as an Urban Major Collector from Marksheffel Road to Dines Boulevard	<u>Completed</u>	20,000	14,470	Sterling Ranch
SR2	Construct Sterling Ranch Road as an Urban Major Collector from Dines Boulevard to Briargate Parkway	Short-Term – Currently Under Construction	20,000	9,805	Sterling Ranch
SR3	Construct Sterling Ranch Road as an Urban Minor Collector from Briargate Parkway to Vancouver Street	Short-Term – With SRE Filing No. 4	10,000	8,345	Sterling Ranch
SR4	Construct Sterling Ranch Road from Vancouver Street north to Appleton Drive	Short-Term - with SRE Filing 6	10,000	6,910	Sterling Ranch
SR5	Construct Sterling Ranch Road from Appleton Drive north to ultimate north terminus	Intermediate-Term Future	10,000	4,330	Sterling Ranch
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	<u>Completed</u>	40,000	23,015	Sterling Ranch
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. NOTE: With the completion of this improvement, the connection between Vollmer Road and Woodmen Road will be completed	<u>Completed</u>	40,000	28,210	Sterling Ranch
M3	Construct Marksheffel Road between the south boundary of the Sterling Ranch Master Plan Area and Woodmen Road (Note this segment is located within the City of Colorado Springs)	<u>Completed</u> (by Others)	40,000	24,525	Others (Completed)
M4	Construct Marksheffel Road between Black Forest Road and Vollmer Road	Long-Term Future	40,000	27,910	Others
B1	Construct the full section of Briargate Parkway (4-Lane Principal Arterial) between Vollmer Road and Wheatland Drive	<u>Completed</u>	40,000	24,125	Sterling Ranch
B2	Construct Briargate Parkway (full section) as a 4-Lane Principal Arterial between Wheatland Drive and Sterling Ranch Road	<u>Completed</u>	40,000	25,180	Sterling Ranch
B3	Construct Briargate Parkway as a 4-Lane Principal Arterial between Sterling Ranch Road and Sioux Falls Way	Short-Term - with SRE Filing 6	40,000	21,965	Sterling Ranch
B4	Construct Briargate Parkway as a 4-Lane Principal Arterial between Sioux Falls Way and Banning Lewis Parkway	Intermediate Term	40,000	21,235	Sterling Ranch
B5	Construct Stapleton Road as a 4-Lane Principal Arterial between Banning Lewis Parkway and Meridian Road (including upgrade of existing rural two-lane segment between Towner and Meridian)	Long-Term Future	40,000	17,655	Others
B6	Construct Briargate Parkway 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	24,340	Others
BL1	Construct Banning Lewis Parkway as a 4-Lane Principal Arterial between the south Sterling Ranch boundary and Briargate Pkwy	Long-Term Future	40,000	20,320	Future - TBD with the future preliminary plan for that area - potentially, financial assurances for half-section, west-side half-section or full-section w/ cost recover may be required
BL2	Construct Banning Lewis Parkway as a 4-Lane Principal Arterial between Woodmen Road and the south Sterling Ranch boundary (Note this segment will be located within the City of Colorado Springs)	Long-Term Future	40,000	28,480	Others
W1	Widen Woodmen Road from 4-lane to 6-lane section from Powers Boulevard to US 24	Long-Term Future	72,000	66,690	Others
Part 2/2 of this table					
Notes:					
(1) See Figure 14					
(2) 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 <i>El Paso Engineering Criteria Manual</i> , an appropriate taper ratio for a roadway with a design speed of 40 miles per hour is 20:1					
(3) Source: Table 20 <i>Road Impact Fee Study Updated</i> November 16, 2016					
<i>Source: LSC Transportation Consultants, Inc. (April 2026)</i>					

**Table 6: Traffic Signal Escrow Calculations
With Callout Notes Specific to Filing No. 4**

Notes:

(1) Traffic Volumes That Contribute to the Four-Hour and Eight-Hour Vehicular Volume Traffic Signal Warrant Minor Street Volume

(2) Intersections No. 12 and 13 are City of Colorado Springs intersections. The City may modify this formula (or use their own formula) for signal participation based on City-standard methodology.

Source: LSC Transportation Consultants, Inc.

Figures 1-13

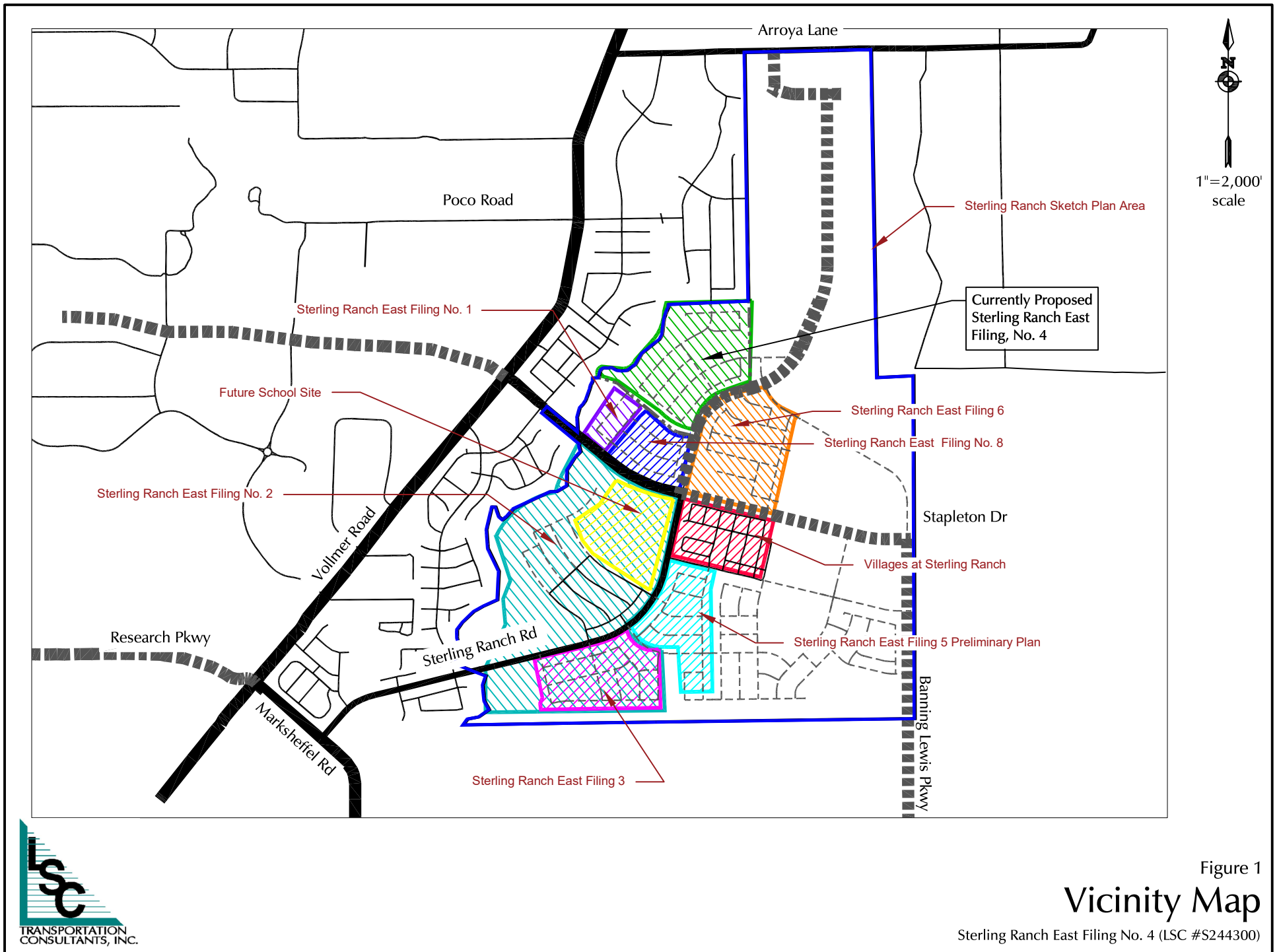


Figure 1
Vicinity Map

Sterling Ranch East Filing No. 4 (LSC #S244300)

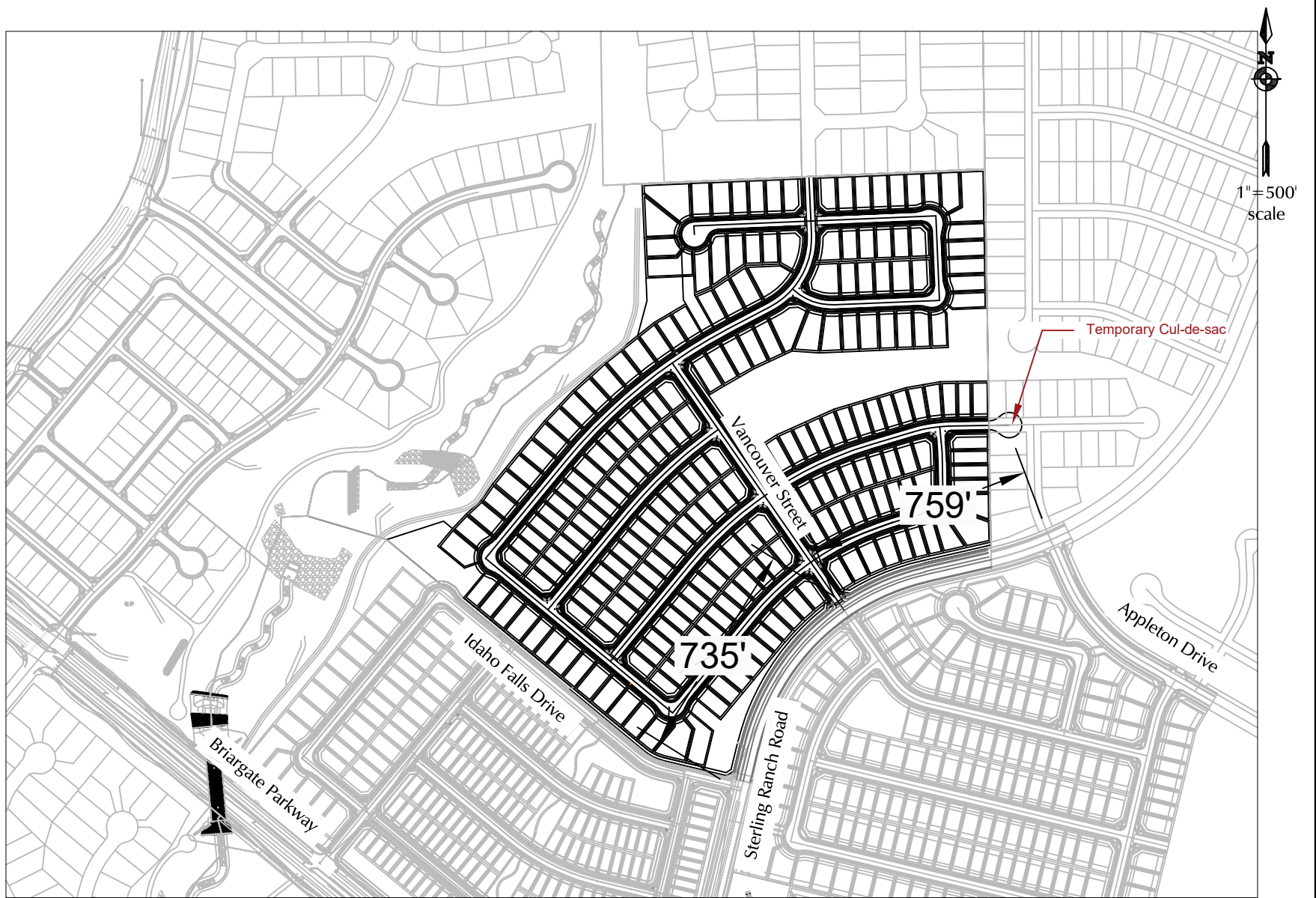


Figure 2
Site Plan

Sterling Ranch East Filing No. 4 (LSC #S244300)



Figure 3

LEGEND:

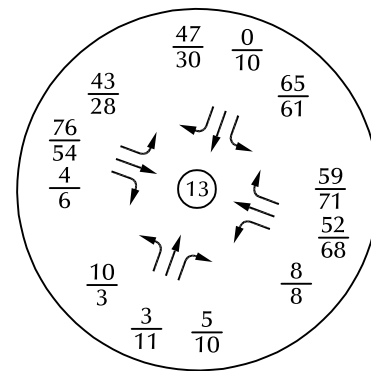
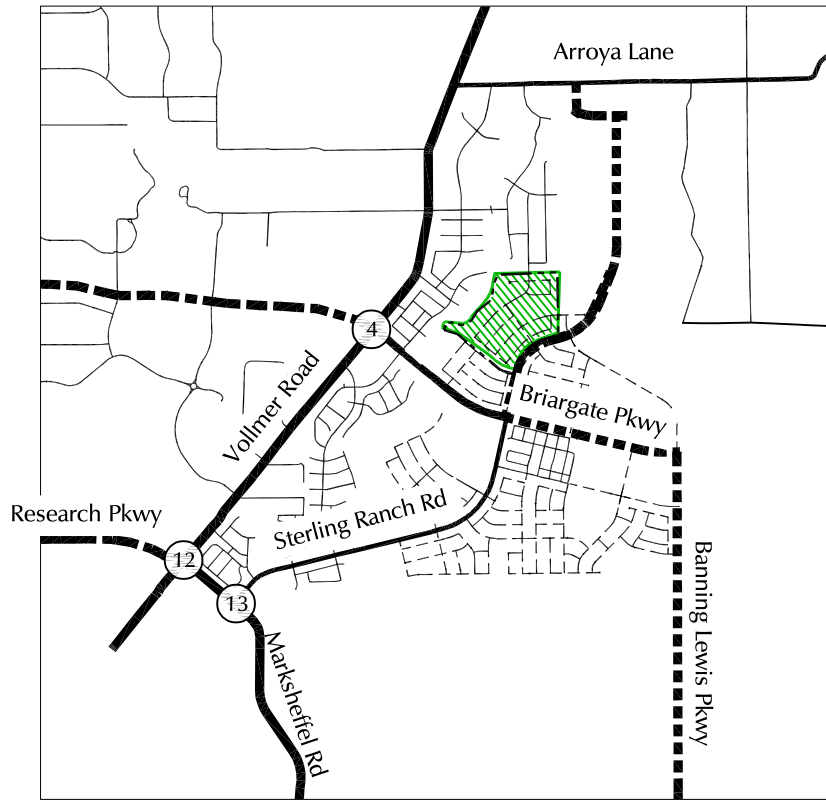
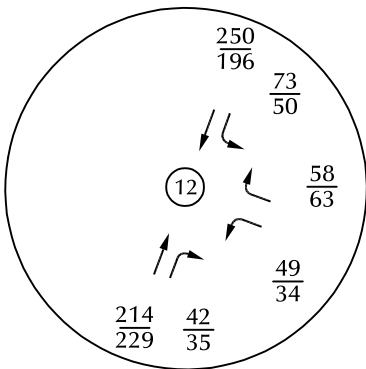
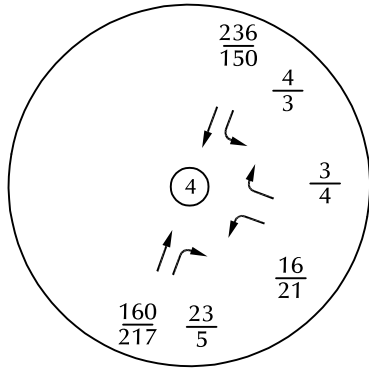
- ECM Required Intersection Sight Distance (445' from Table 2-21 based on a Design Speed of 40 mph)

Sight-Distance Analysis Sterling Ranch Road/Idaho Falls Drive

Sterling Ranch East Filing No. 4 (LSC #S244300)



1"=4,000'
scale



LEGEND:

$\frac{XX}{XX}$ = $\frac{\text{AM Peak-Hour Traffic (Veh/Hr)}}{\text{PM Peak-Hour Traffic (Veh/Hr)}}$

*Counts by LSC March 2024

**Counts by LSC March 2025 (These traffic counts were conducted about 4 months after the completion of Marksheffel Road between Vollmer Road and Woodmen Road)

— Existing Roadway
--- Future Roadway

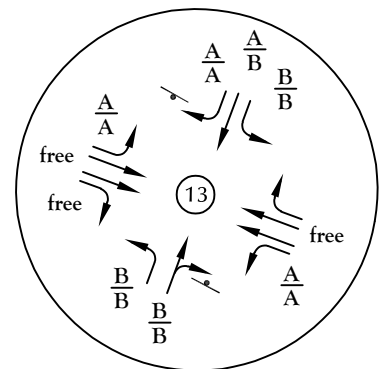
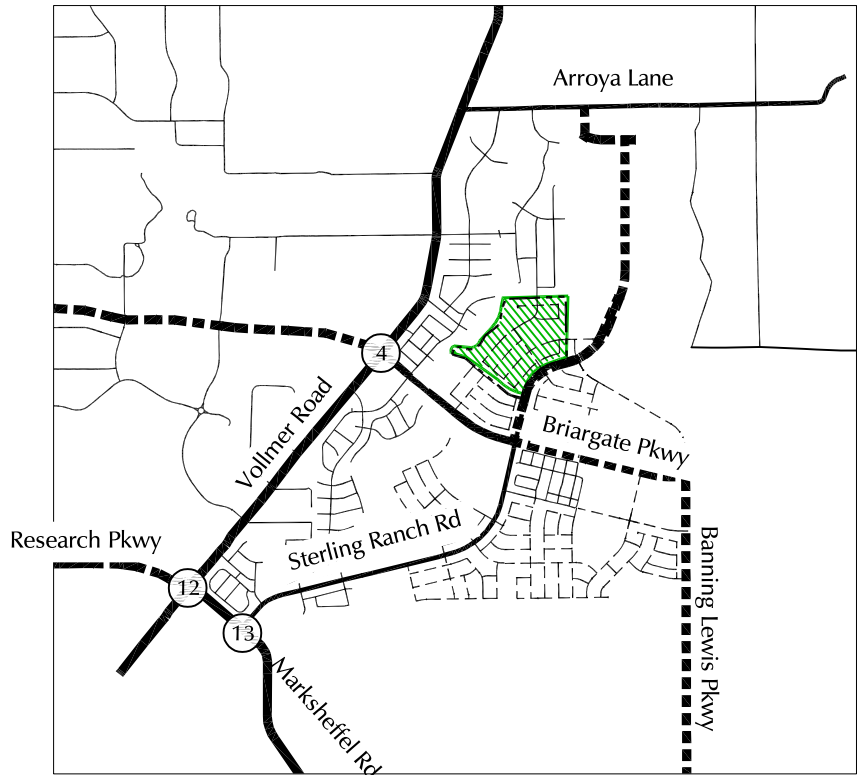
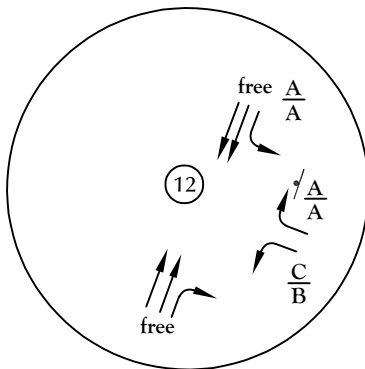
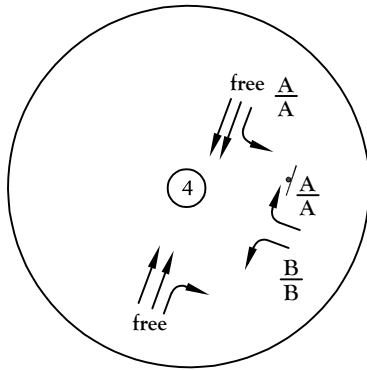


Figure 4a
Existing Peak-Hour
Traffic

Sterling Ranch East Filing No. 4 (LSC #S244300)



1"=4,000'
scale



LEGEND:



= Stop Sign

$\frac{A}{B}$

= $\frac{\text{AM Individual Movement Peak-Hour LOS}}{\text{PM Individual Movement Peak-Hour LOS}}$



Existing Roadway

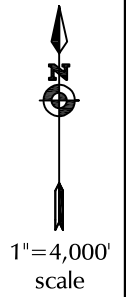
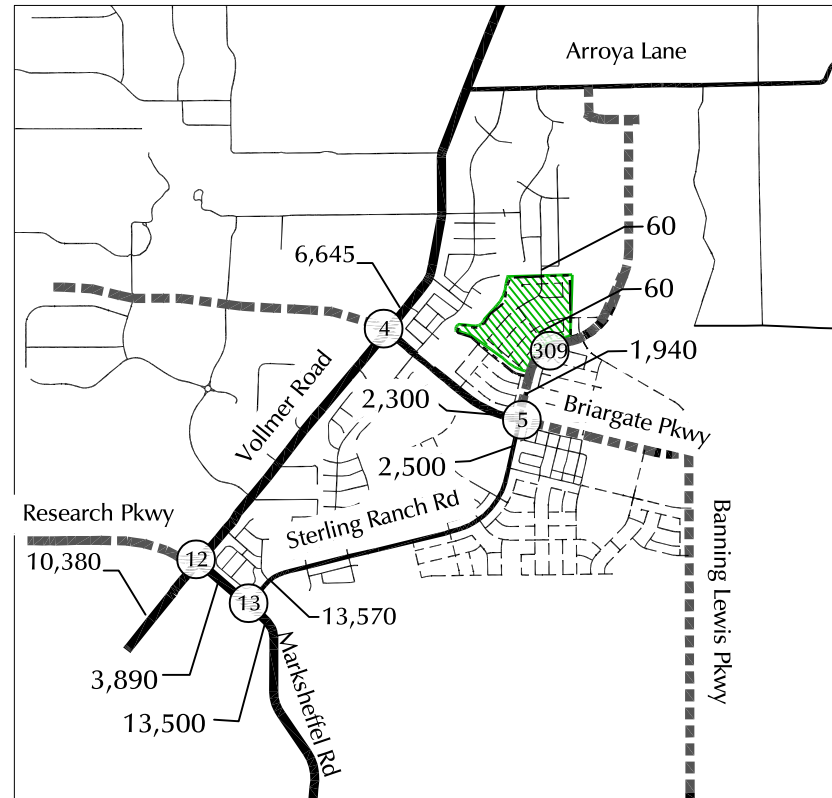
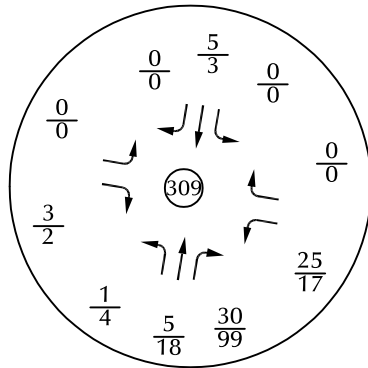
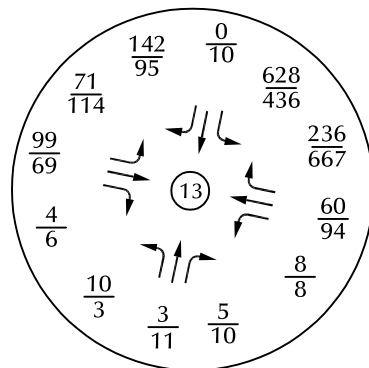
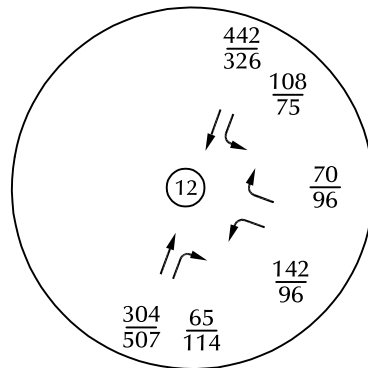
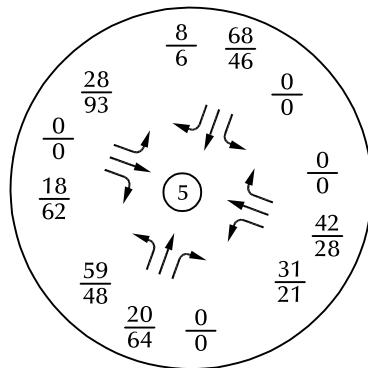
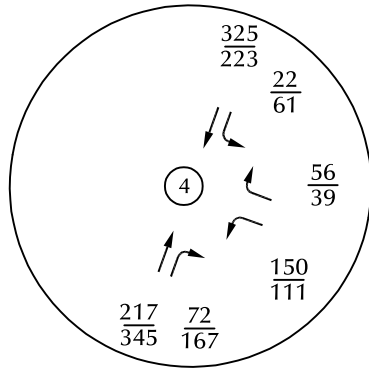


Future Roadway



Figure 4b
2025 Existing Traffic,
Lane Geometry, Traffic
Control, and LOS

Sterling Ranch East Filing No. 4 (LSC #S244300)



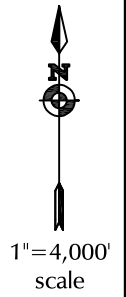
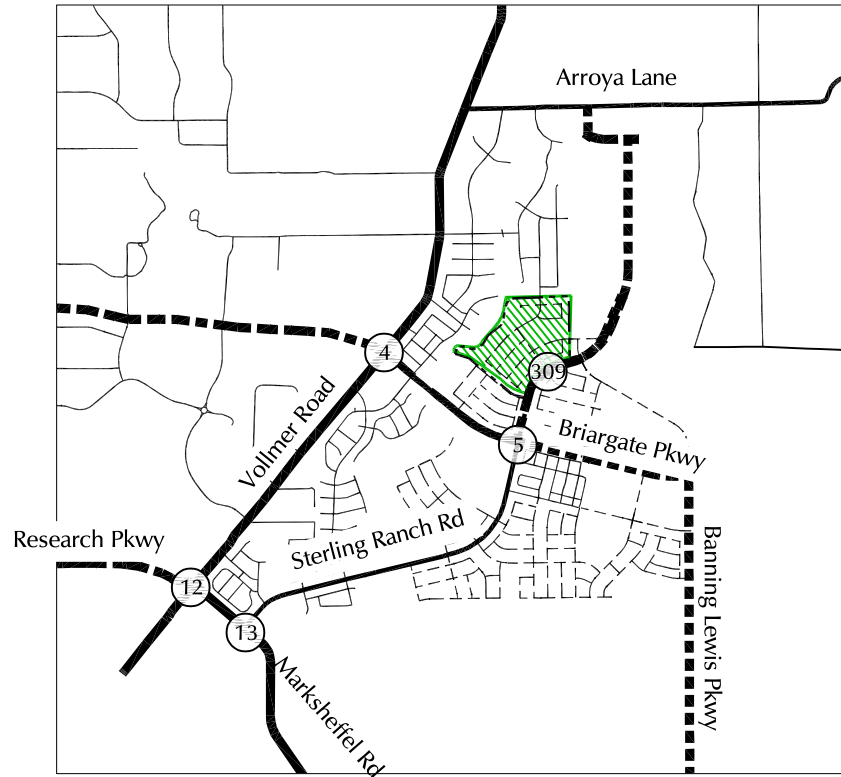
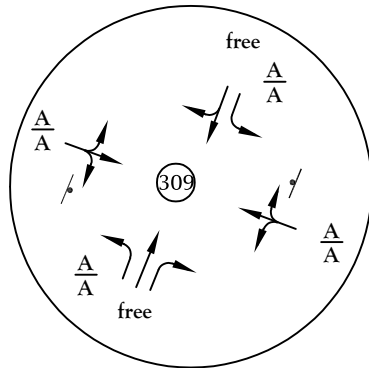
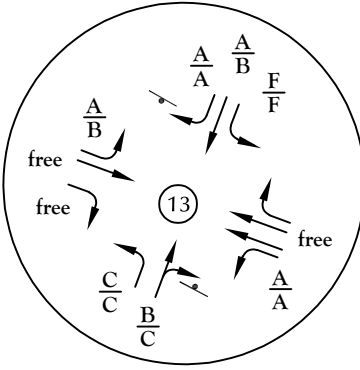
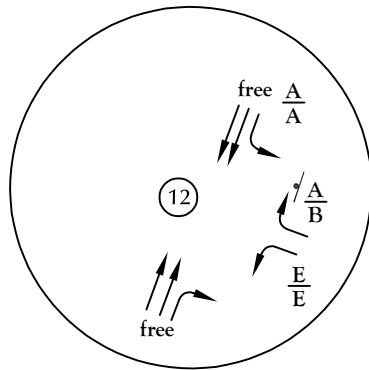
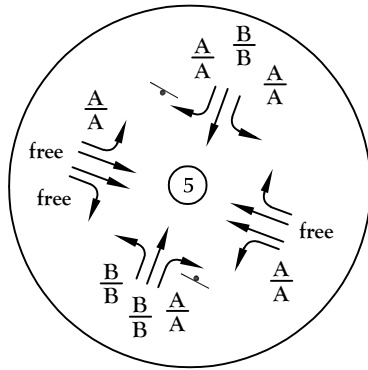
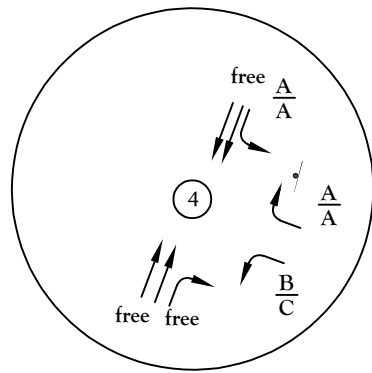
LEGEND:

XX = AM Peak-Hour Traffic (Veh/Hr)
XX = PM Peak-Hour Traffic (Veh/Hr)

— Existing Roadway
--- Future Roadway

Figure 5a Short-Term Background Traffic

Sterling Ranch East Filing No. 4 (LSC #S244300)



LEGEND:

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

— Existing Roadway
- - - Future Roadway

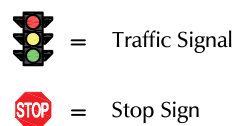
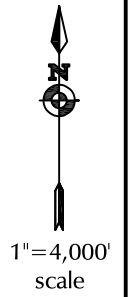
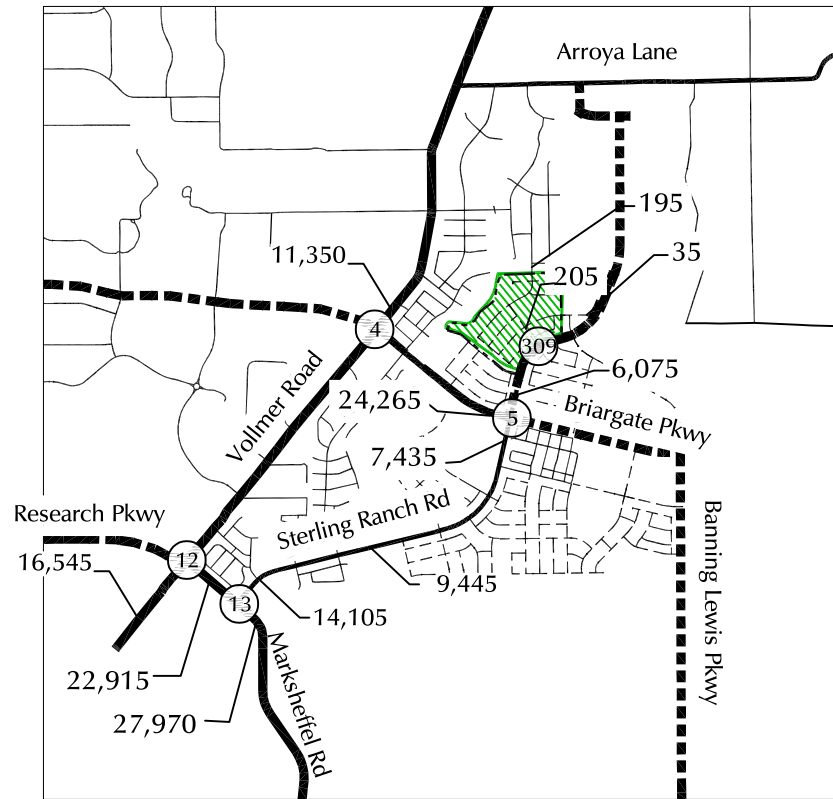
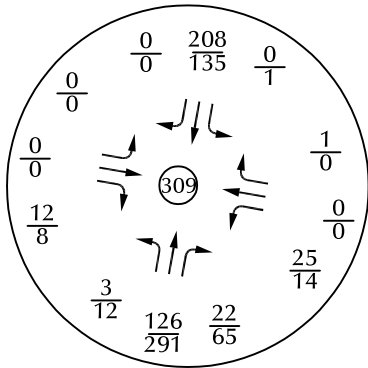
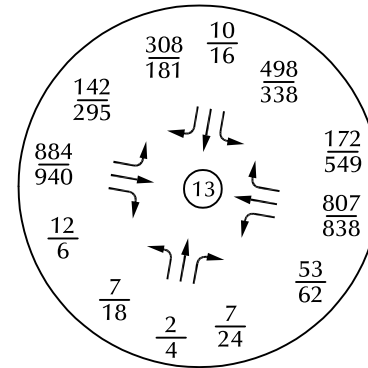
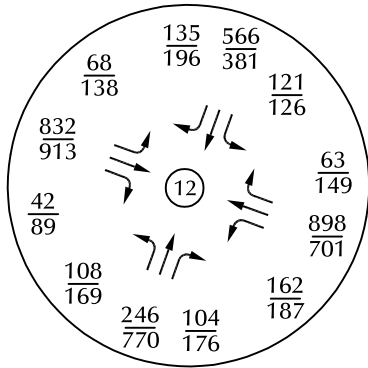
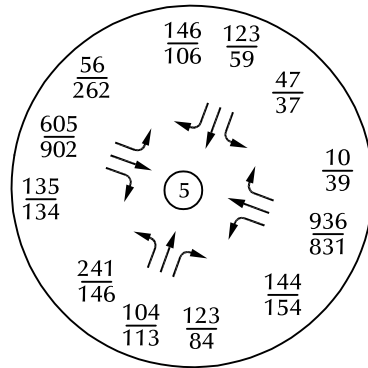
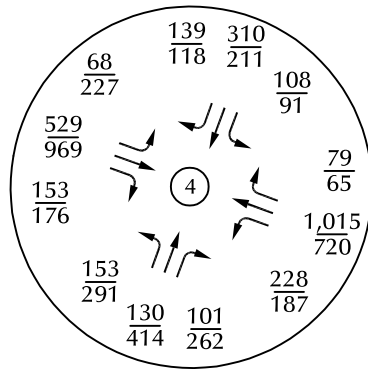


Figure 5b
Short-Term Background
Lane Geometry, Traffic
Control, and LOS

Sterling Ranch East Filing No. 4 (LSC #S244300)



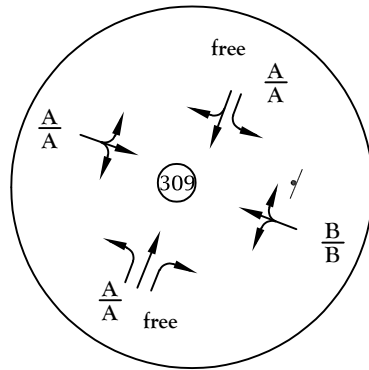
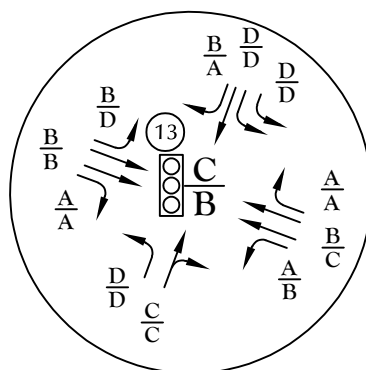
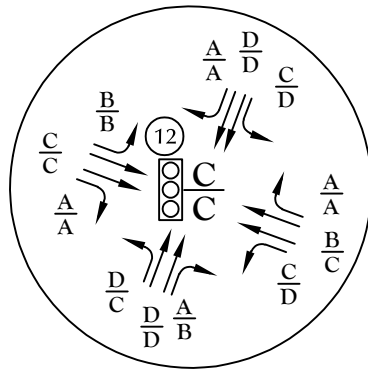
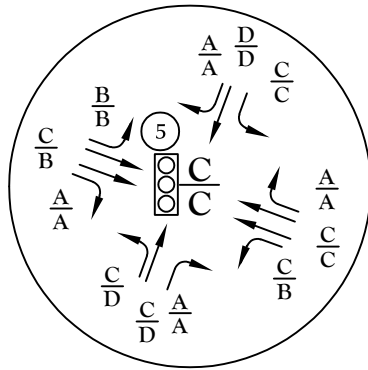
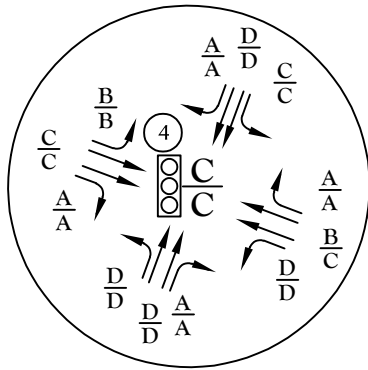
LEGEND:

XX = AM Peak-Hour Traffic (Veh/Hr)
XX = PM Peak-Hour Traffic (Veh/Hr)

— Existing Roadway
--- Future Roadway

Figure 6a 2045 Background Traffic

Sterling Ranch East Filing No. 4 (LSC #S244300)

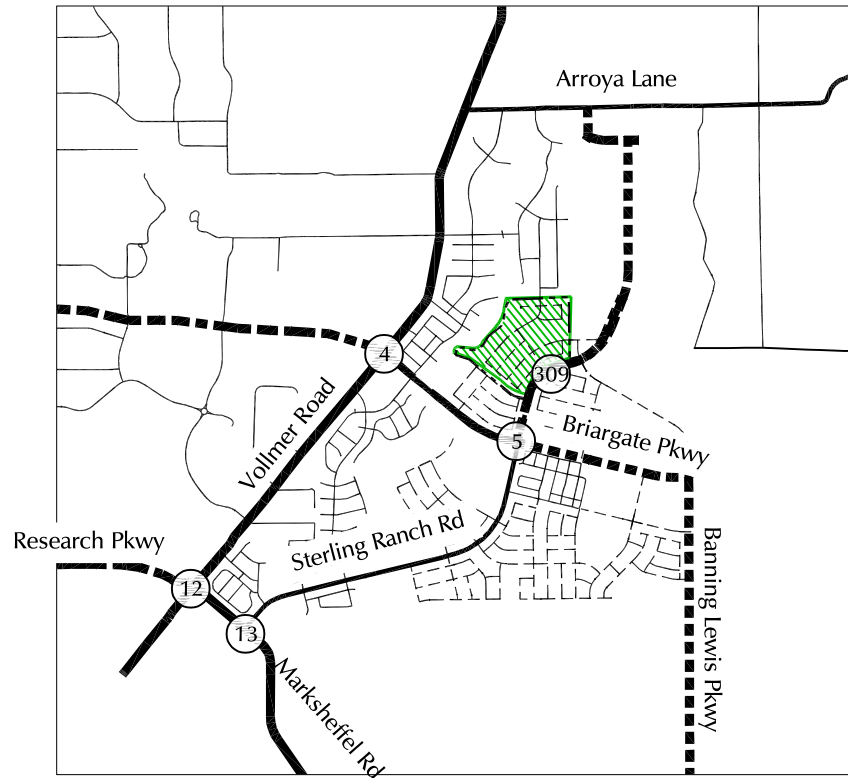


LEGEND:

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

— Existing Roadway
 - - - Future Roadway

 = Traffic Signal
 = Stop Sign

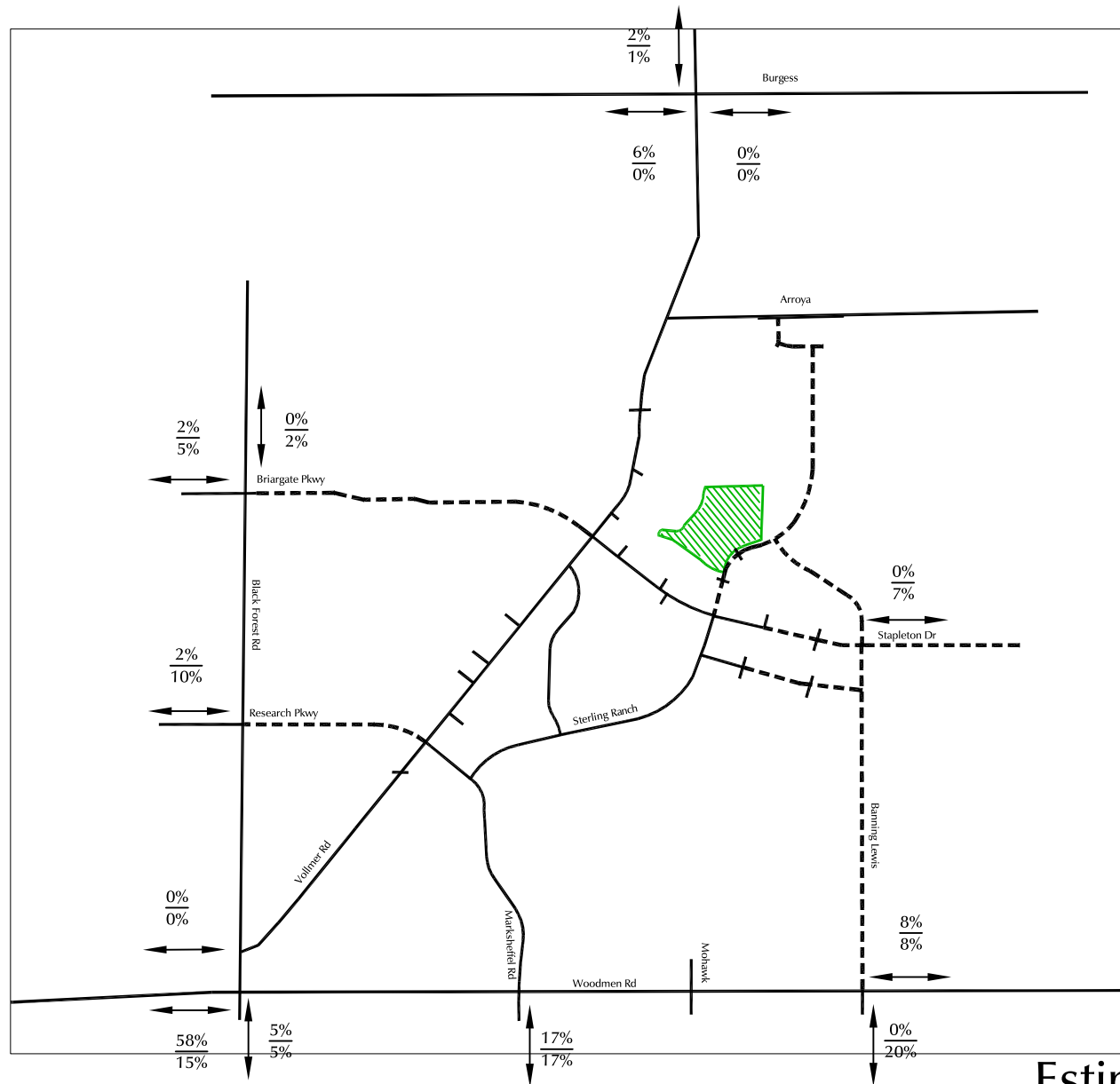



 1" = 4,000'
 scale



Figure 6b
 2045 Background
 Lane Geometry, Traffic
 Control, and LOS

Sterling Ranch East Filing No. 4 (LSC #S244300)

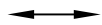


1" = 4,000'
scale

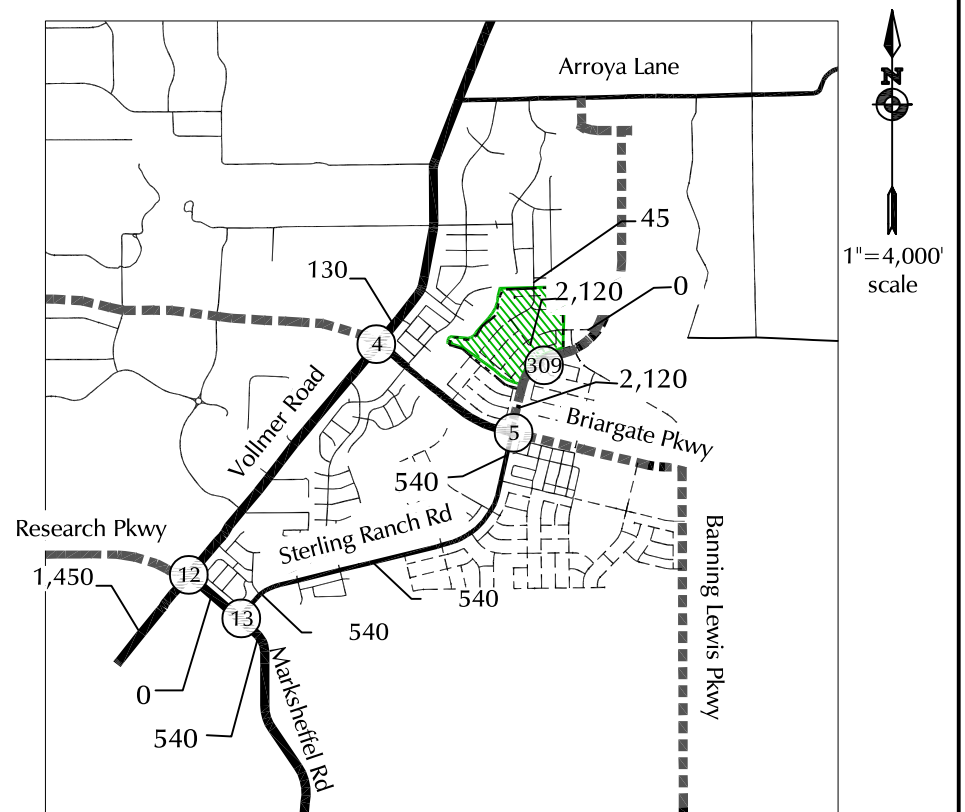
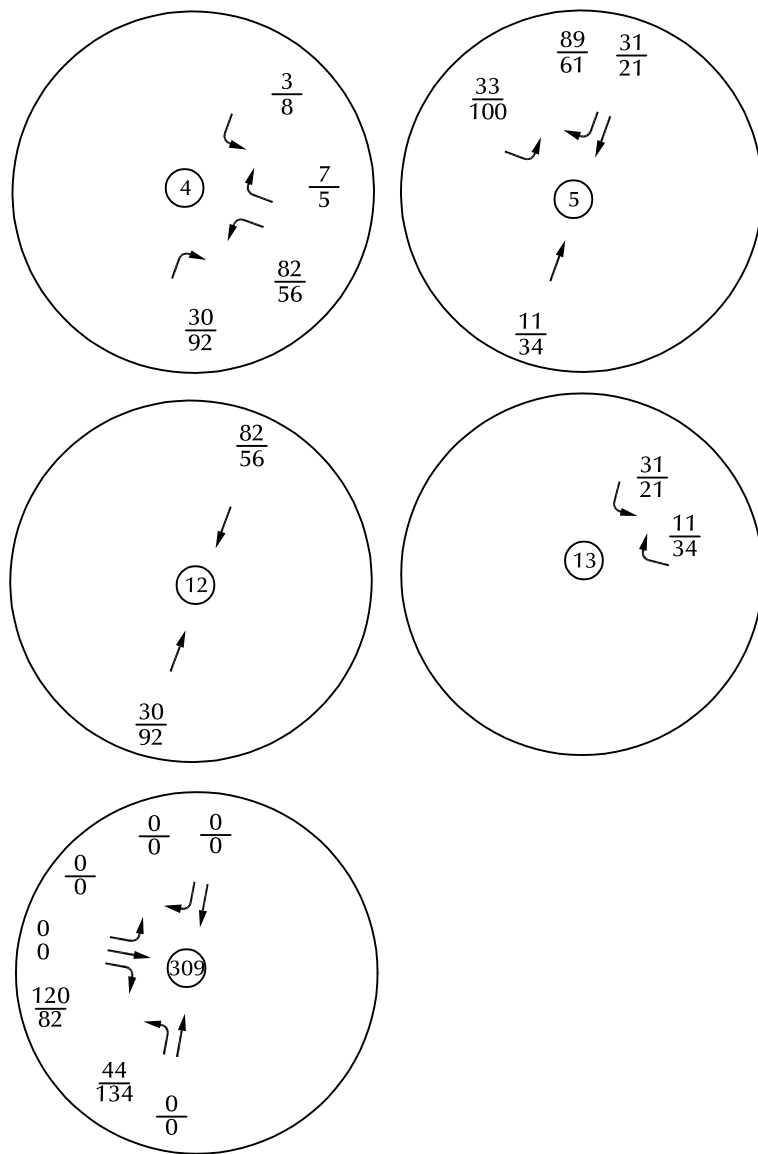
Figure 7
Estimated Directional
Distribution of
Site-Generated Traffic

Sterling Ranch East Filing No. 4 (LSC #S244300)

LEGEND:



XX% = Percent of Short-Term Trips
XX% = Percent of Buildout Long-Term Trips



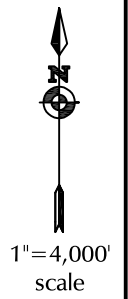
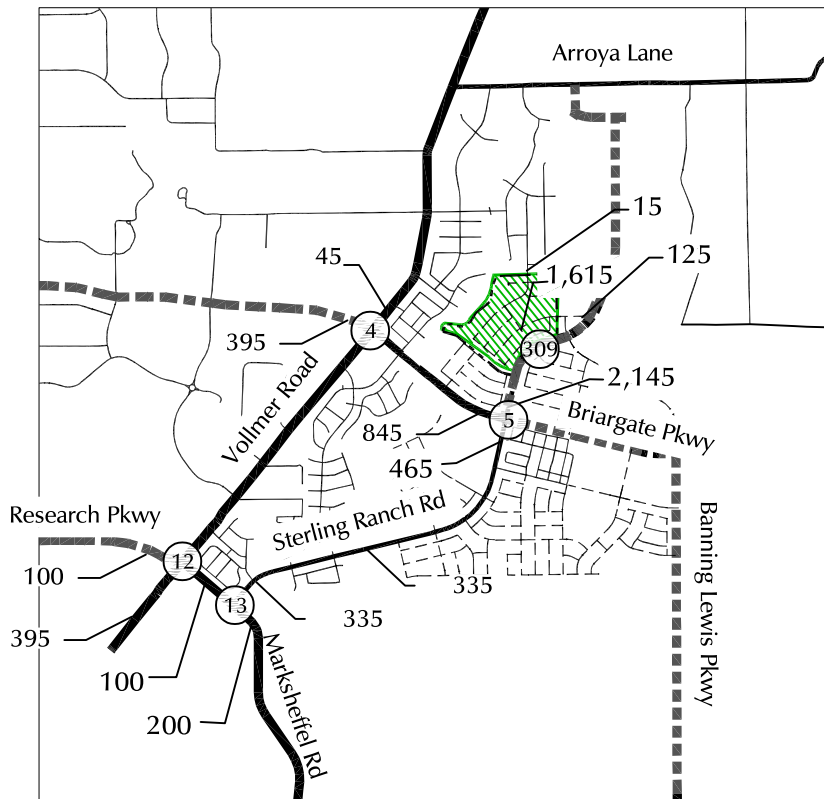
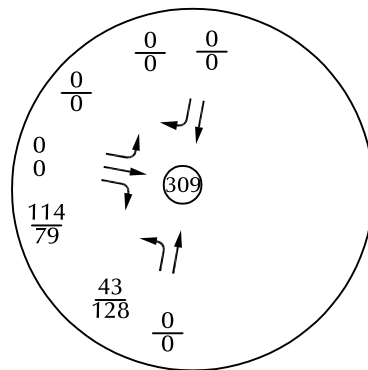
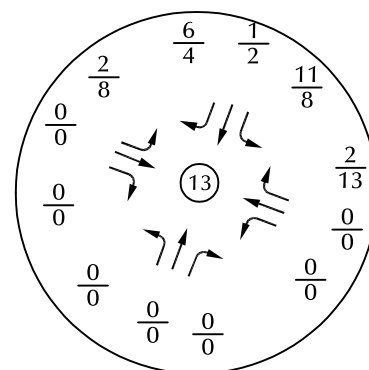
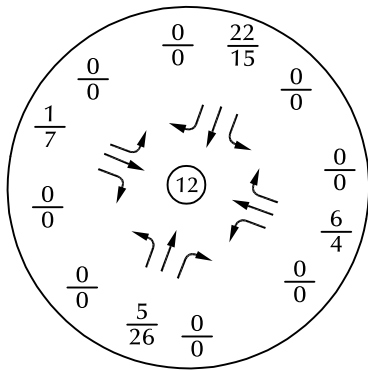
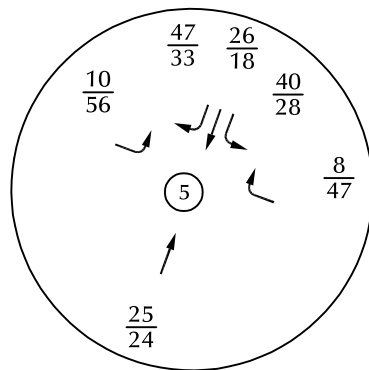
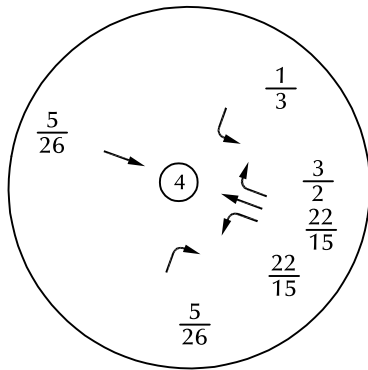
LEGEND:

$\frac{XX}{XX}$ = $\frac{\text{AM Peak-Hour Traffic (Veh/Hr)}}{\text{PM Peak-Hour Traffic (Veh/Hr)}}$

— Existing Roadway
--- Future Roadway

Figure 8 Short-Term Site-Generated Traffic

Sterling Ranch East Filing No. 4 (LSC #S244300)



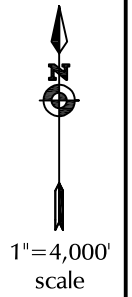
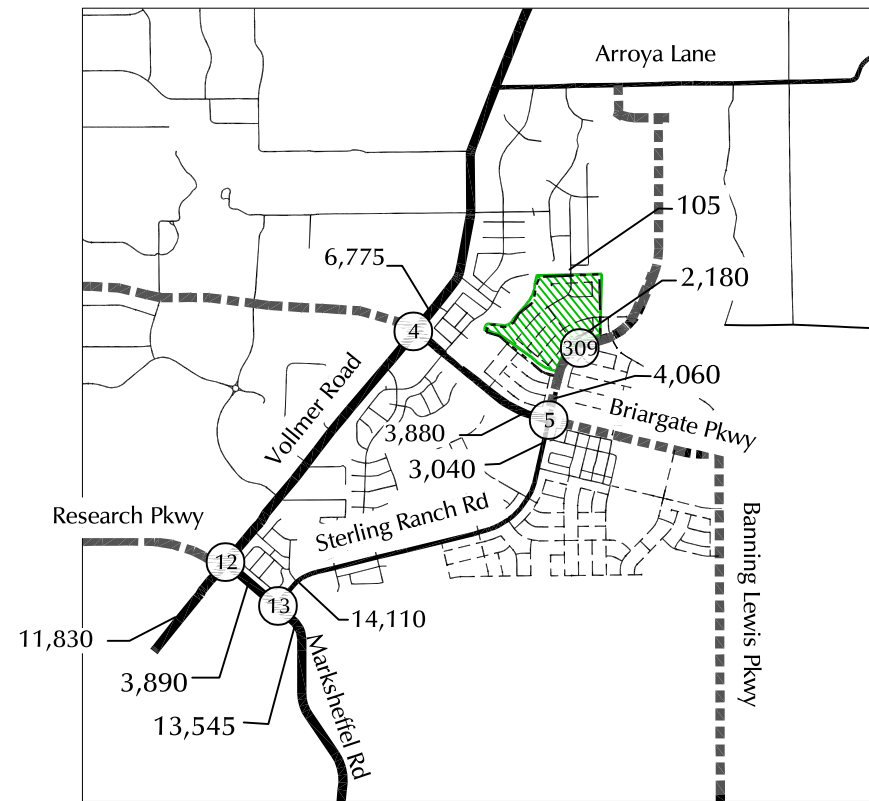
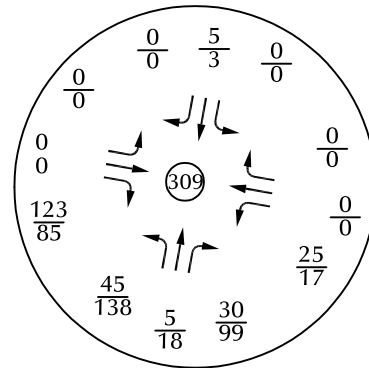
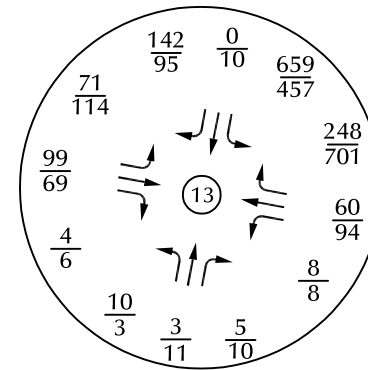
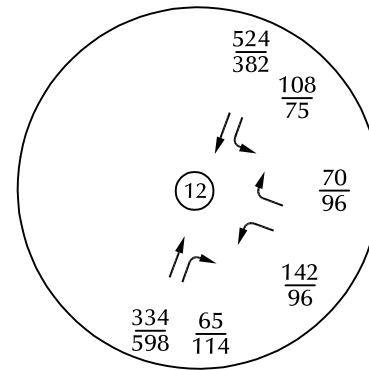
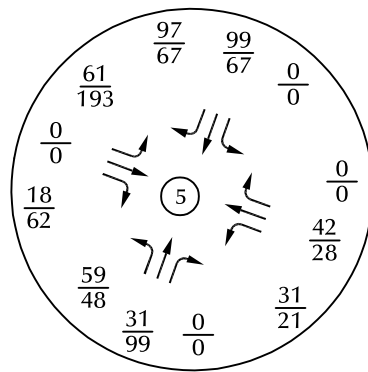
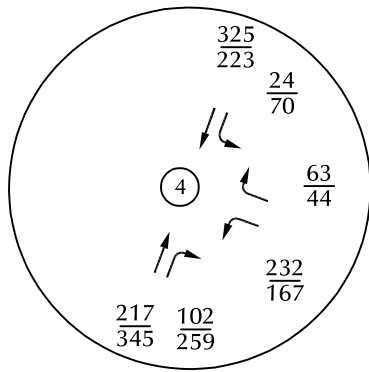
LEGEND:

$\frac{XX}{XX}$ = $\frac{\text{AM Peak-Hour Traffic (Veh/Hr)}}{\text{PM Peak-Hour Traffic (Veh/Hr)}}$

— Existing Roadway
 --- Future Roadway

Figure 9
 Long-Term Site-Generated Traffic

Sterling Ranch East Filing No. 4 (LSC #S244300)



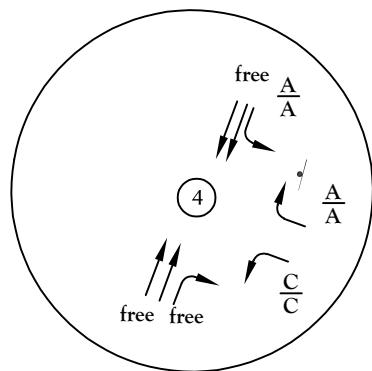
LEGEND:

XX = AM Peak-Hour Traffic (Veh/Hr)
XX = PM Peak-Hour Traffic (Veh/Hr)

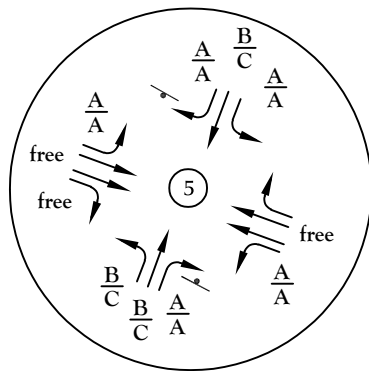
— Existing Roadway
--- Future Roadway

Figure 10a Short-Term Total Traffic

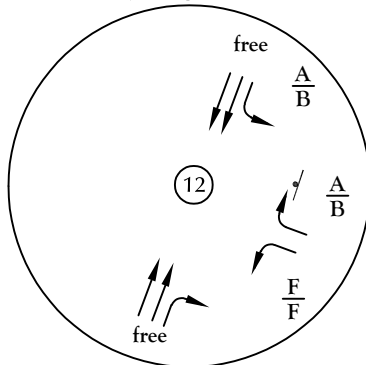
Sterling Ranch East Filing No. 4 (LSC #S244300)



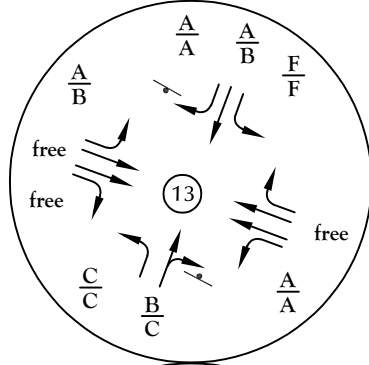
Stop-Sign Controlled



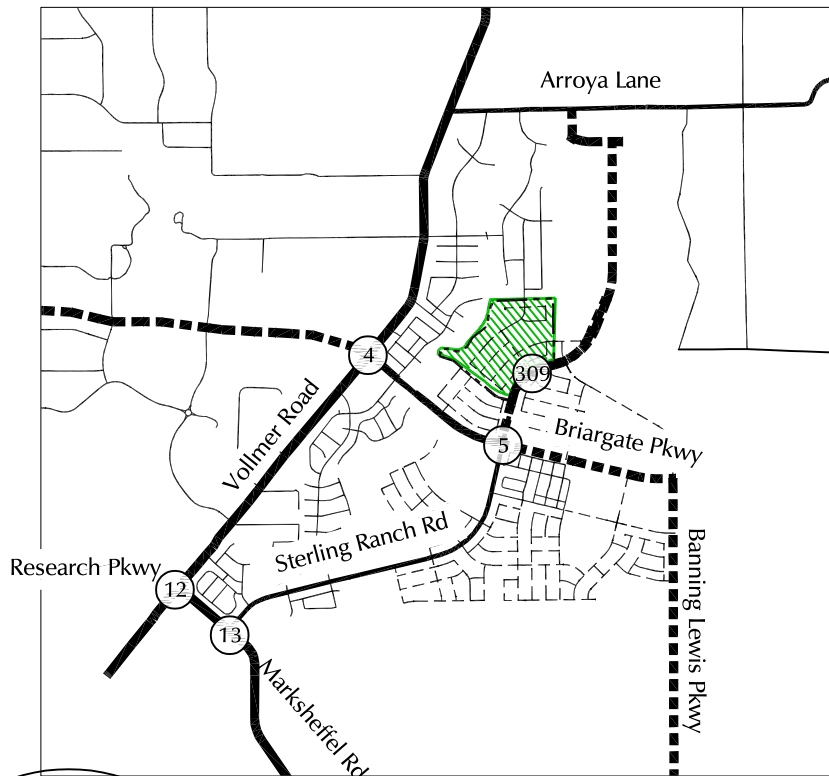
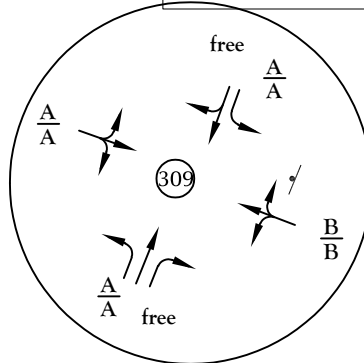
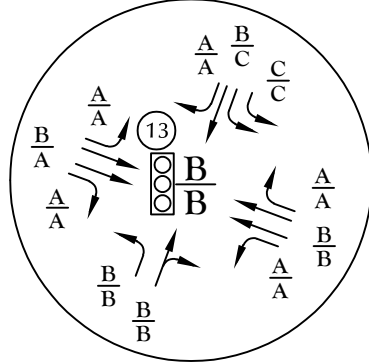
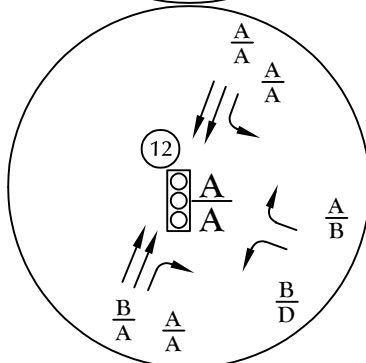
Stop-Sign Controlled



Signal Controlled



Signal Controlled



1"=4,000'
scale



LEGEND:

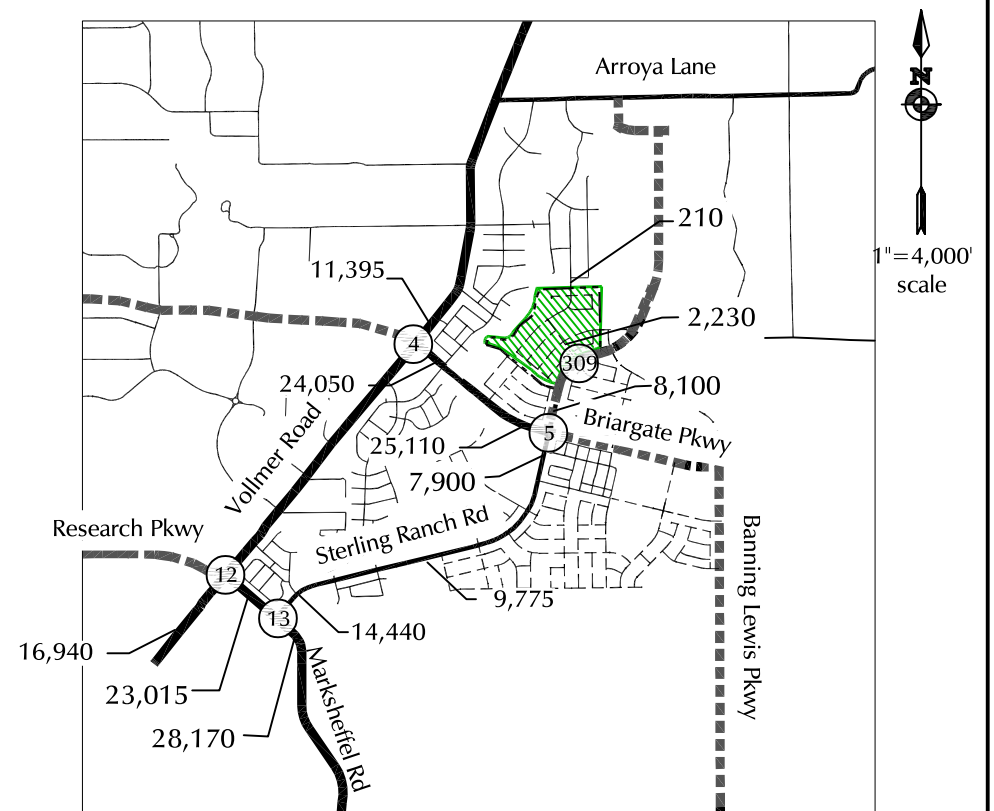
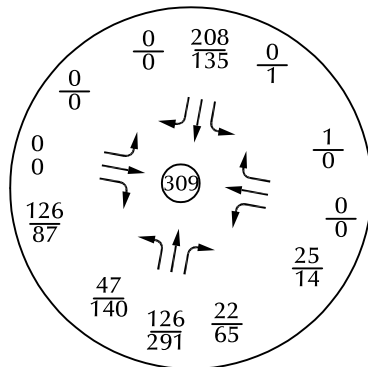
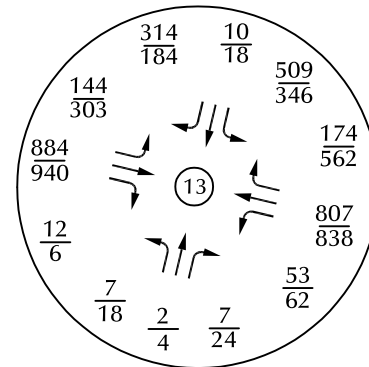
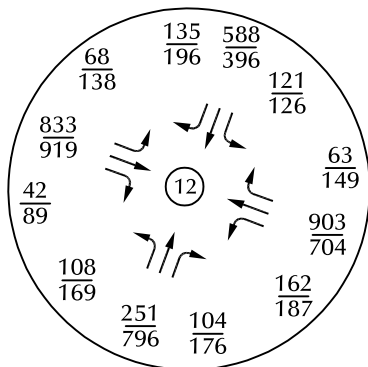
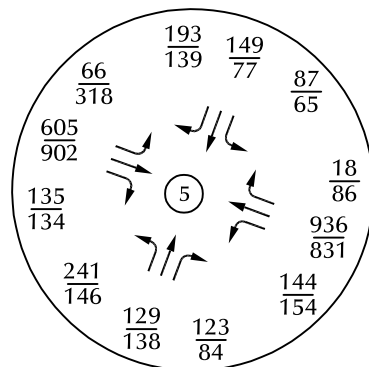
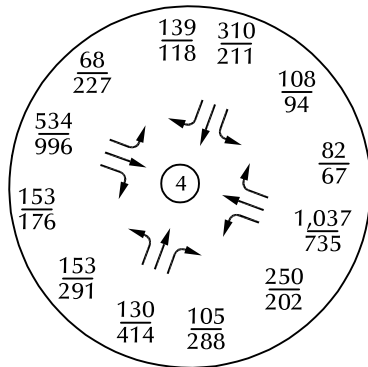
$\frac{A}{B}$ = AM Individual Movement Peak-Hour LOS
PM Individual Movement Peak-Hour LOS
 $\frac{C}{D}$ = AM Entire Intersection Peak-Hour Level of Service
PM Entire Intersection Peak-Hour Level of Service

 = Yield Sign
 = Traffic Signal
 = Stop Sign

— Existing Roadway
--- Future Roadway

Figure 10b Short-Term Total Lane Geometry, Traffic Control, and LOS

Sterling Ranch East Filing No. 4 (LSC #S244300)



LEGEND:

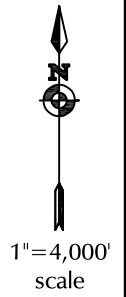
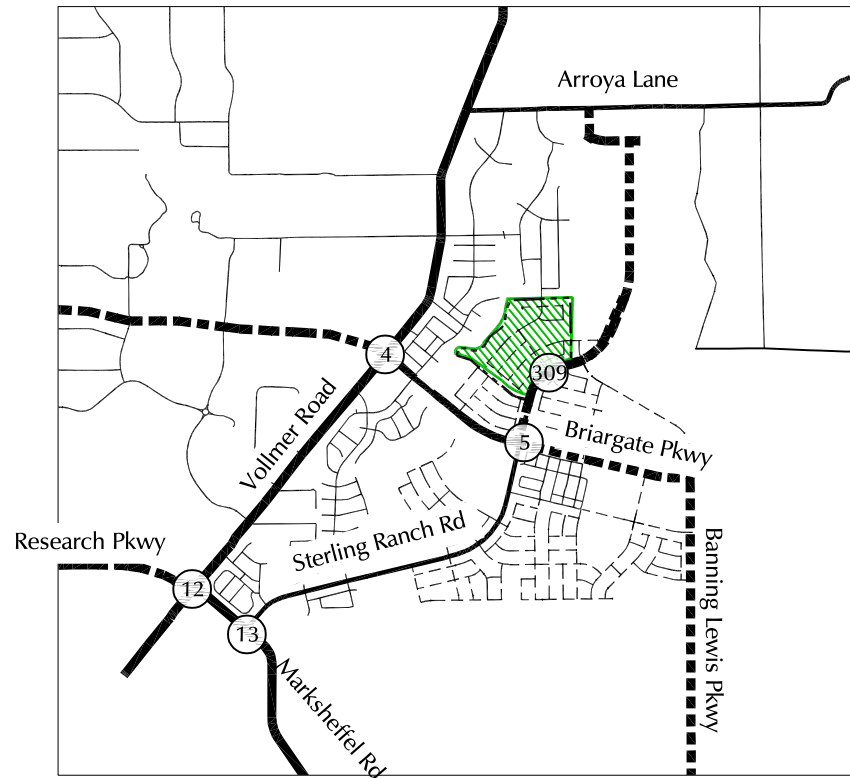
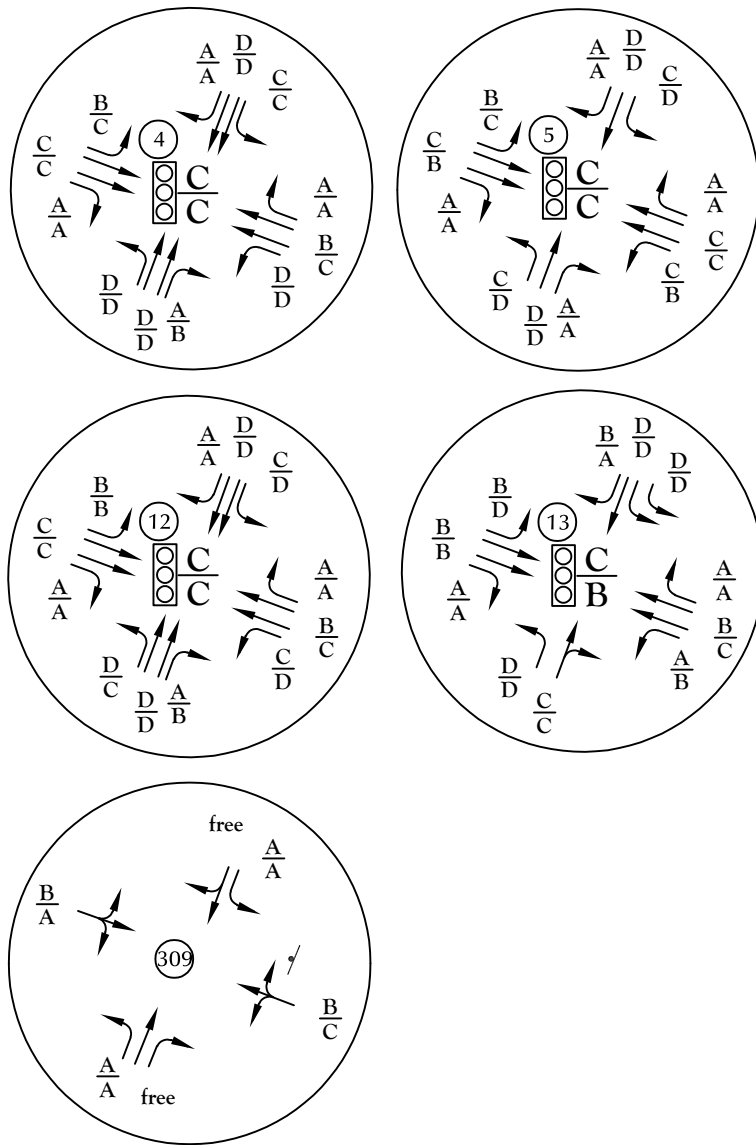
$\frac{XX}{XX}$ = AM Peak-Hour Traffic (Veh/Hr)
PM Peak-Hour Traffic (Veh/Hr)

— Existing Roadway
--- Future Roadway

Figure 11a

2045 Total Traffic

Sterling Ranch East Filing No. 4 (LSC #S244300)



LEGEND:

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

— Existing Roadway
--- Future Roadway



= Traffic Signal



= Yield Sign



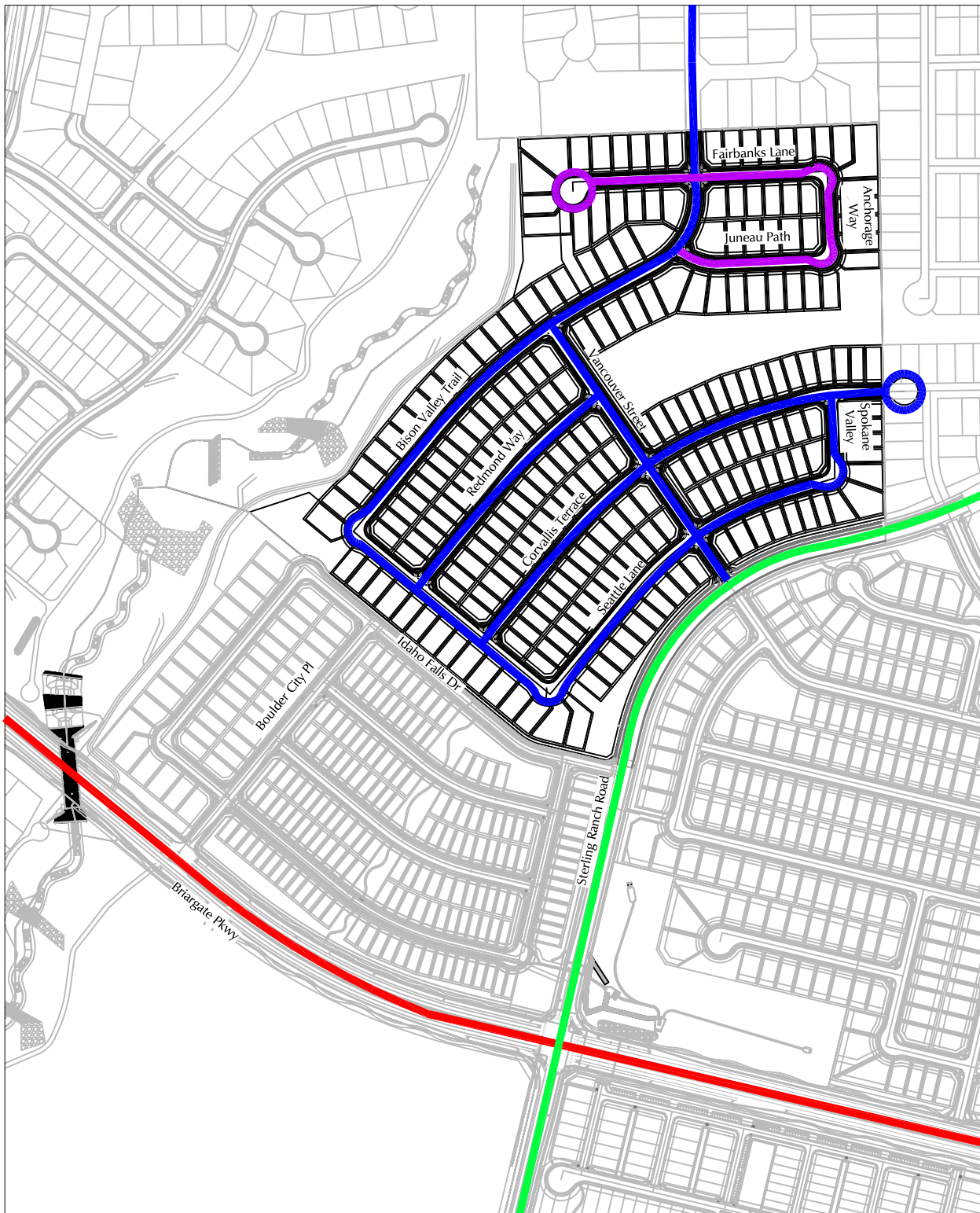
= Stop Sign



= Roundabout

Figure 11b
2045 Total
Lane Geometry, Traffic
Control, and LOS

Sterling Ranch East Filing No. 4 (LSC #S244300)

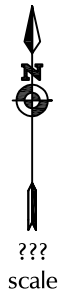
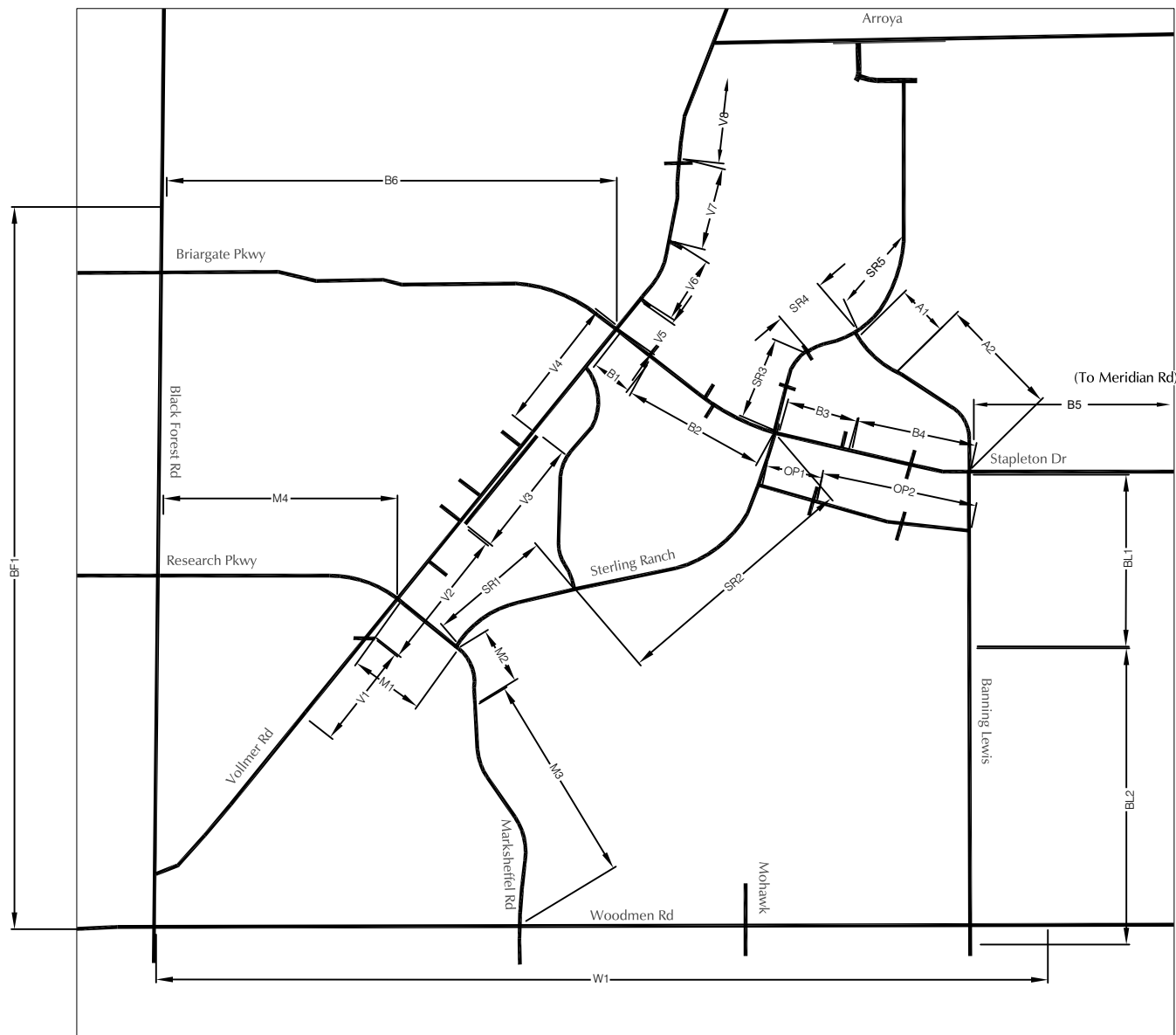


1"=500'
scale

- 4-Lane Urban Principal Arterial
- 4-Lane Urban Principal Arterial (future)
- Urban Non-Residential Collector
- Urban Local
- Urban Local (Low Volume)



Figure 12
Roadway Classification
Sterling Ranch East Filing No. 4 (LSC #S244300)



V1, B4, SR3, etc - Segment Identifier*

*See Table 6 for recommended roadway segment improvements for each segment.

Figure 13
Roadway Improvement
Segments*

Sterling Ranch East Filing No. 4 (LSC #S244300)

Traffic Counts

LSC Transportation Consultants, Inc.

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

File Name : Vollmer Rd - Briargate Pkwy AM

Site Code : S244580

Start Date : 3/6/2025

Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Briargate Pkwy Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30	0	27	0	0	27	0	0	2	0	2	0	16	0	0	16	0	0	0	0	0	45
06:45	0	36	0	0	36	1	0	4	0	5	4	29	0	0	33	0	0	0	0	0	74
Total	0	63	0	0	63	1	0	6	0	7	4	45	0	0	49	0	0	0	0	0	119
07:00	0	43	0	0	43	1	0	3	0	4	6	25	0	0	31	0	0	0	0	0	78
07:15	0	72	2	0	74	0	0	3	0	3	3	24	0	0	27	0	0	0	0	0	104
07:30	0	57	0	0	57	2	0	6	0	8	3	39	0	0	42	0	0	0	0	0	107
07:45	0	58	1	0	59	0	0	5	0	5	11	48	0	0	59	0	0	0	0	0	123
Total	0	230	3	0	233	3	0	17	0	20	23	136	0	0	159	0	0	0	0	0	412
08:00	0	49	1	0	50	1	0	2	0	3	6	49	0	0	55	0	0	0	0	0	108
08:15	0	38	0	0	38	1	0	4	0	5	5	44	0	0	49	0	0	0	0	0	92
Grand Total	0	380	4	0	384	6	0	29	0	35	38	274	0	0	312	0	0	0	0	0	731
Apprch %	0	99	1	0		17.1	0	82.9	0		12.2	87.8	0	0		0	0	0	0		
Total %	0	52	0.5	0	52.5	0.8	0	4	0	4.8	5.2	37.5	0	0	42.7	0	0	0	0	0	

LSC Transportation Consultants, Inc.

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

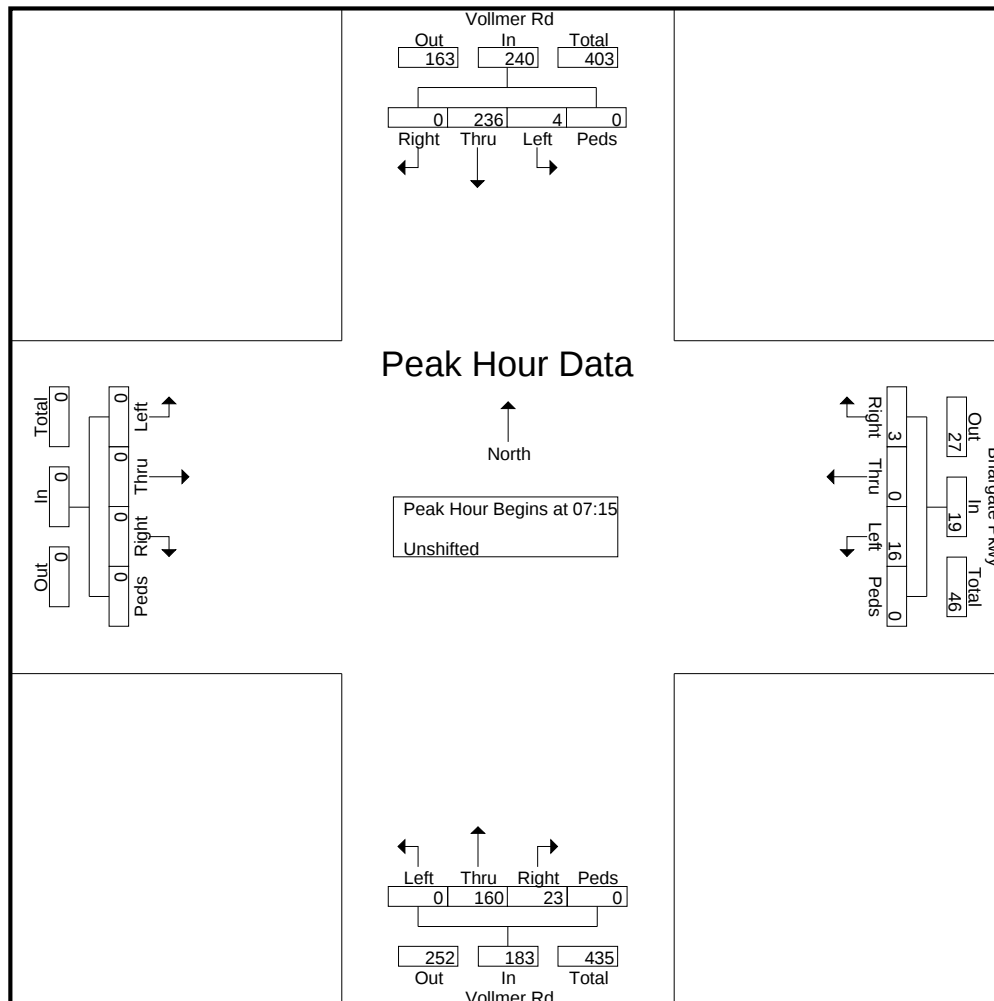
File Name : Vollmer Rd - Briargate Pkwy AM

Site Code : S244580

Start Date : 3/6/2025

Page No : 2

	Vollmer Rd Southbound					Briargate Pkwy Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	72	2	0	74	0	0	3	0	3	3	24	0	0	27	0	0	0	0	0	104
07:30	0	57	0	0	57	2	0	6	0	8	3	39	0	0	42	0	0	0	0	0	107
07:45	0	58	1	0	59	0	0	5	0	5	11	48	0	0	59	0	0	0	0	0	123
08:00	0	49	1	0	50	1	0	2	0	3	6	49	0	0	55	0	0	0	0	0	108
Total Volume	0	236	4	0	240	3	0	16	0	19	23	160	0	0	183	0	0	0	0	0	442
% App. Total	0	98.3	1.7	0		15.8	0	84.2	0		12.6	87.4	0	0		0	0	0	0		
PHF	.000	.819	.500	.000	.811	.375	.000	.667	.000	.594	.523	.816	.000	.000	.775	.000	.000	.000	.000	.000	.898



LSC Transportation Consultants, Inc.

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

File Name : Vollmer Rd - Briargate Pkwy PM

Site Code : S244580

Start Date : 3/6/2025

Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Briargate Blvd Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
16:00	0	27	2	0	29	0	0	5	0	5	0	35	0	0	35	0	0	0	0	0	69
16:15	0	36	0	0	36	0	0	3	0	3	4	50	0	0	54	0	0	0	0	0	93
16:30	0	37	2	0	39	2	0	7	0	9	2	46	0	0	48	0	0	0	0	0	96
16:45	0	31	0	0	31	1	0	9	0	10	1	45	0	0	46	0	0	0	0	0	87
Total	0	131	4	0	135	3	0	24	0	27	7	176	0	0	183	0	0	0	0	0	345
17:00	0	39	1	0	40	1	0	4	0	5	0	58	0	0	58	0	0	0	0	0	103
17:15	0	43	0	0	43	0	0	1	0	1	2	68	0	0	70	0	0	0	0	0	114
17:30	0	30	2	0	32	0	0	2	0	2	3	58	0	0	61	0	0	0	0	0	95
17:45	0	26	1	0	27	0	0	5	0	5	5	36	0	0	41	0	0	0	0	0	73
Total	0	138	4	0	142	1	0	12	0	13	10	220	0	0	230	0	0	0	0	0	385
Grand Total	0	269	8	0	277	4	0	36	0	40	17	396	0	0	413	0	0	0	0	0	730
Apprch %	0	97.1	2.9	0		10	0	90	0		4.1	95.9	0	0		0	0	0	0		
Total %	0	36.8	1.1	0	37.9	0.5	0	4.9	0	5.5	2.3	54.2	0	0	56.6	0	0	0	0	0	

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719-633-2868

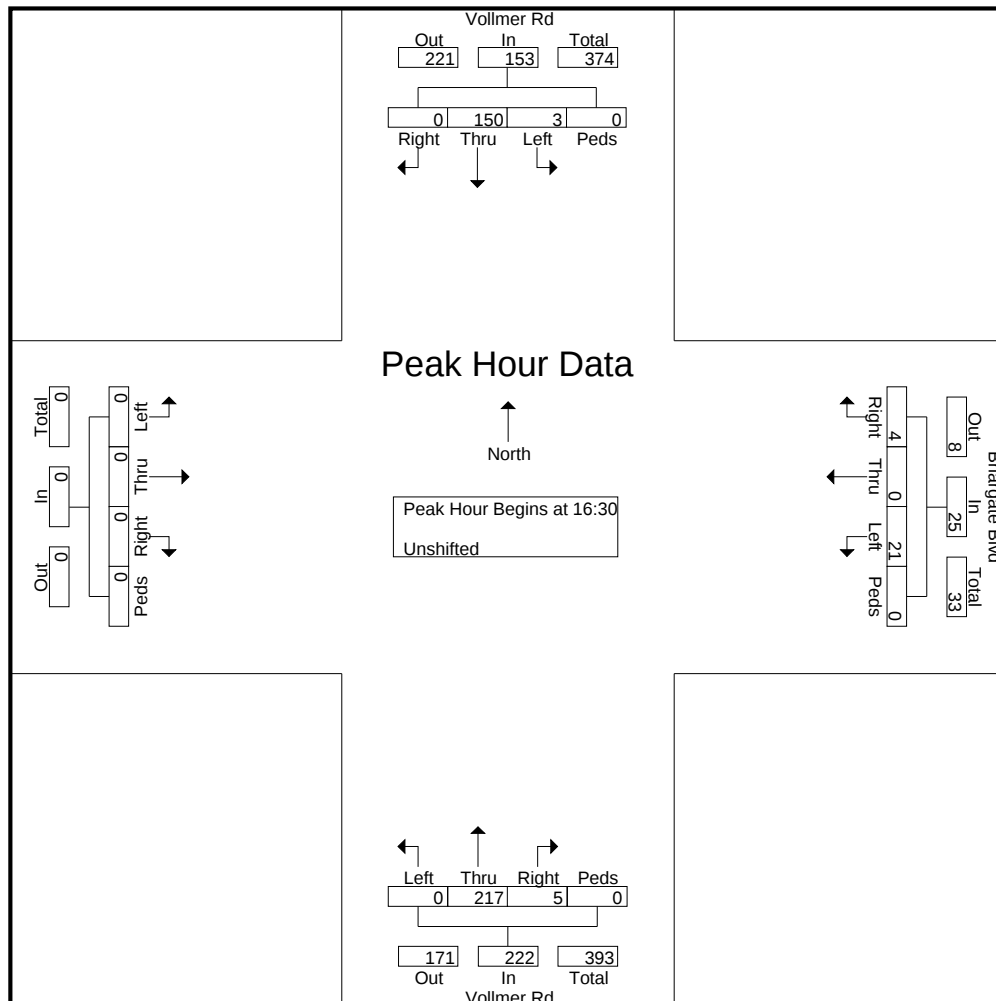
File Name : Vollmer Rd - Briargate Pkwy PM

Site Code : S244580

Start Date : 3/6/2025

Page No : 2

	Vollmer Rd Southbound					Briargate Blvd Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	0	37	2	0	39	2	0	7	0	9	2	46	0	0	48	0	0	0	0	0	96
16:45	0	31	0	0	31	1	0	9	0	10	1	45	0	0	46	0	0	0	0	0	87
17:00	0	39	1	0	40	1	0	4	0	5	0	58	0	0	58	0	0	0	0	0	103
17:15	0	43	0	0	43	0	0	1	0	1	2	68	0	0	70	0	0	0	0	0	114
Total Volume	0	150	3	0	153	4	0	21	0	25	5	217	0	0	222	0	0	0	0	0	400
% App. Total	0	98	2	0		16	0	84	0		2.3	97.7	0	0		0	0	0	0		
PHF	.000	.872	.375	.000	.890	.500	.000	.583	.000	.625	.625	.798	.000	.000	.793	.000	.000	.000	.000	.000	.877



LSC Transportation Consultants, Inc.

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

File Name : Vollmer Rd - Marksheffel Rd AM

Site Code : S244580

Start Date : 3/6/2025

Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Marksheffel Rd Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30	0	14	3	0	17	2	0	0	0	2	3	4	0	0	7	0	0	0	0	0	26
06:35	0	15	5	0	20	0	0	2	0	2	0	10	0	0	10	0	0	0	0	0	32
06:40	0	6	3	0	9	1	0	3	0	4	3	8	0	0	11	0	0	0	0	0	24
06:45	0	7	7	0	14	4	0	1	0	5	4	12	0	0	16	0	0	0	0	0	35
06:50	0	14	4	0	18	5	0	3	0	8	2	3	0	0	5	0	0	0	0	0	31
06:55	0	12	2	0	14	5	0	2	0	7	4	10	0	0	14	0	0	0	0	0	35
Total	0	68	24	0	92	17	0	11	0	28	16	47	0	0	63	0	0	0	0	0	183
07:00	0	19	4	0	23	2	0	4	0	6	1	6	0	0	7	0	0	0	0	0	36
07:05	0	20	6	0	26	2	0	1	0	3	2	16	0	0	18	0	0	0	0	0	47
07:10	0	13	6	0	19	4	0	5	0	9	2	4	0	0	6	0	0	0	0	0	34
07:15	0	15	11	0	26	3	0	5	0	8	2	3	0	0	5	0	0	0	0	0	39
07:20	0	30	10	0	40	3	0	3	0	6	1	16	0	0	17	0	0	0	0	0	63
07:25	0	25	4	0	29	2	0	3	0	5	4	8	0	0	12	0	0	0	0	0	46
07:30	0	24	8	0	32	3	0	7	0	10	2	19	0	0	21	0	0	0	0	0	63
07:35	0	23	7	0	30	10	0	6	0	16	2	11	0	0	13	0	0	0	0	0	59
07:40	0	22	6	0	28	5	0	5	0	10	3	10	0	0	13	0	0	0	0	0	51
07:45	0	26	7	0	33	2	0	3	0	5	1	21	0	0	22	0	0	0	0	0	60
07:50	0	22	4	0	26	8	0	8	0	16	2	27	0	0	29	0	0	0	0	0	71
07:55	0	17	3	1	21	7	0	3	0	10	9	15	0	0	24	0	0	0	0	0	55
Total	0	256	76	1	333	51	0	53	0	104	31	156	0	0	187	0	0	0	0	0	624
08:00	0	18	10	0	28	6	0	1	0	7	10	27	0	0	37	0	0	0	0	0	72
08:05	0	19	8	0	27	3	0	5	0	8	3	17	0	0	20	0	0	0	0	0	55
08:10	0	10	3	0	13	5	0	3	0	8	4	21	0	0	25	0	0	0	0	0	46
08:15	0	14	3	0	17	4	0	2	0	6	1	22	0	0	23	0	0	0	0	0	46
08:20	0	17	6	0	23	5	0	1	0	6	1	22	0	0	23	0	0	0	0	0	52
08:25	0	10	3	0	13	2	0	2	0	4	3	15	0	0	18	0	0	0	0	0	35
Grand Total	0	412	133	1	546	93	0	78	0	171	69	327	0	0	396	0	0	0	0	0	1113
Apprch %	0	75.5	24.4	0.2		54.4	0	45.6	0		17.4	82.6	0	0		0	0	0	0		
Total %	0	37	11.9	0.1	49.1	8.4	0	7	0	15.4	6.2	29.4	0	0	35.6	0	0	0	0	0	

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719-633-2868

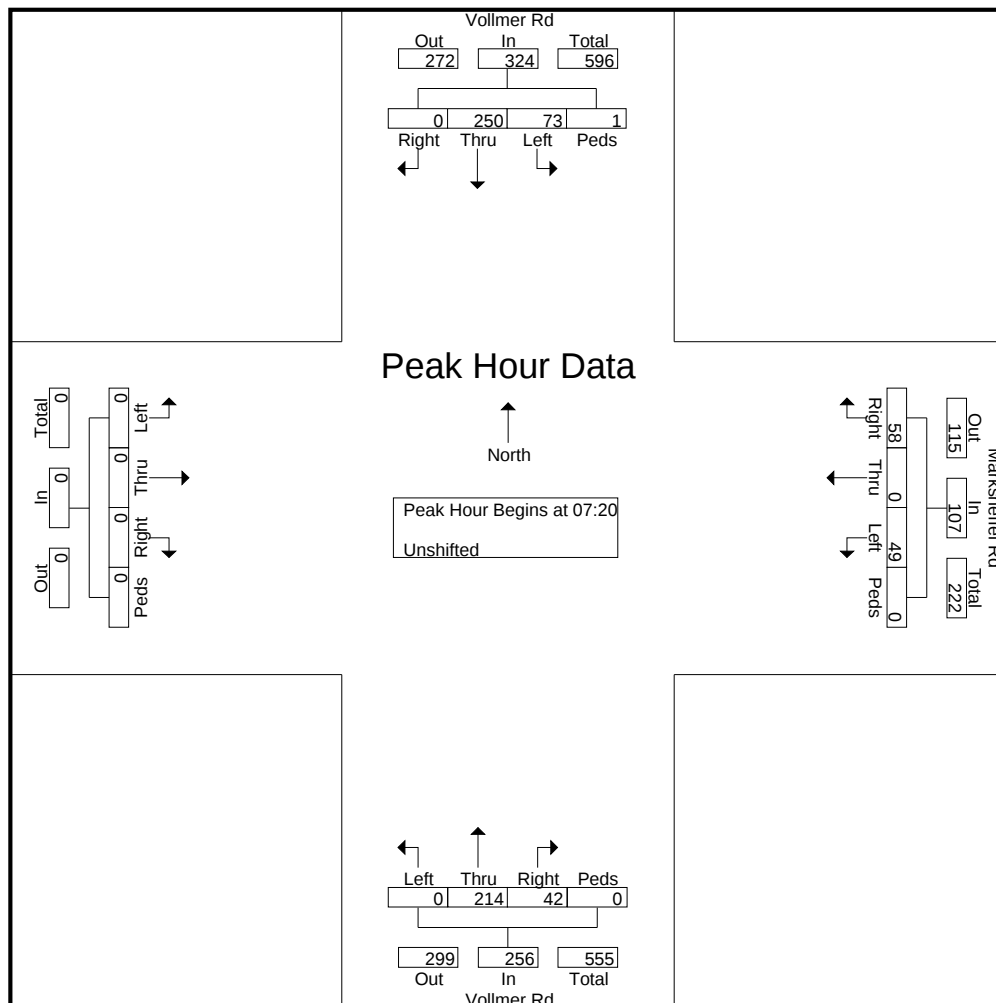
File Name : Vollmer Rd - Marksheffel Rd AM

Site Code : S244580

Start Date : 3/6/2025

Page No : 2

	Vollmer Rd Southbound					Marksheffel Rd Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:25 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:20																					
07:20	0	30	10	0	40	3	0	3	0	6	1	16	0	0	17	0	0	0	0	0	63
07:25	0	25	4	0	29	2	0	3	0	5	4	8	0	0	12	0	0	0	0	0	46
07:30	0	24	8	0	32	3	0	7	0	10	2	19	0	0	21	0	0	0	0	0	63
07:35	0	23	7	0	30	10	0	6	0	16	2	11	0	0	13	0	0	0	0	0	59
07:40	0	22	6	0	28	5	0	5	0	10	3	10	0	0	13	0	0	0	0	0	51
07:45	0	26	7	0	33	2	0	3	0	5	1	21	0	0	22	0	0	0	0	0	60
07:50	0	22	4	0	26	8	0	8	0	16	2	27	0	0	29	0	0	0	0	0	71
07:55	0	17	3	1	21	7	0	3	0	10	9	15	0	0	24	0	0	0	0	0	55
08:00	0	18	10	0	28	6	0	1	0	7	10	27	0	0	37	0	0	0	0	0	72
08:05	0	19	8	0	27	3	0	5	0	8	3	17	0	0	20	0	0	0	0	0	55
08:10	0	10	3	0	13	5	0	3	0	8	4	21	0	0	25	0	0	0	0	0	46
08:15	0	14	3	0	17	4	0	2	0	6	1	22	0	0	23	0	0	0	0	0	46
Total Volume	0	250	73	1	324	58	0	49	0	107	42	214	0	0	256	0	0	0	0	0	687
% App. Total	0	77.2	22.5	0.3		54.2	0	45.8	0		16.4	83.6	0	0		0	0	0	0		
PHF	.000	.694	.608	.083	.675	.483	.000	.510	.000	.557	.350	.660	.000	.000	.577	.000	.000	.000	.000	.000	.795



LSC Transportation Consultants, Inc.

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

File Name : Vollmer Rd - Marksheffel Rd PM

Site Code : S224580

Start Date : 3/6/2025

Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Marksheffel Rd Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
16:00	0	10	3	0	13	7	0	1	0	8	3	9	0	0	12	0	0	0	0	0	33
16:05	0	18	6	0	24	5	0	3	0	8	5	19	0	0	24	0	0	0	0	0	56
16:10	0	14	2	0	16	3	0	4	0	7	8	15	0	0	23	0	0	0	0	0	46
16:15	0	8	9	0	17	6	0	3	0	9	4	20	0	0	24	0	0	0	0	0	50
16:20	0	11	4	0	15	5	0	3	0	8	2	12	0	0	14	0	0	0	0	0	37
16:25	0	11	4	0	15	11	0	1	0	12	5	24	0	0	29	0	0	0	0	0	56
16:30	0	17	4	0	21	6	0	3	0	9	2	14	0	0	16	0	0	0	0	0	46
16:35	0	21	8	0	29	4	0	9	0	13	4	14	0	0	18	0	0	0	0	0	60
16:40	0	19	3	0	22	4	0	2	0	6	1	26	0	0	27	0	0	0	0	0	55
16:45	0	14	1	0	15	9	0	2	0	11	2	13	0	0	15	0	0	0	0	0	41
16:50	0	13	3	0	16	5	0	3	0	8	2	22	0	0	24	0	0	0	0	0	48
16:55	0	21	4	0	25	4	0	1	0	5	3	8	0	0	11	0	0	0	0	0	41
Total	0	177	51	0	228	69	0	35	0	104	41	196	0	0	237	0	0	0	0	0	569
17:00	0	15	5	0	20	4	0	3	0	7	4	25	0	0	29	0	0	0	0	0	56
17:05	0	11	8	1	20	8	0	0	0	8	4	16	0	0	20	0	0	0	0	0	48
17:10	0	17	4	0	21	6	0	1	0	7	2	20	0	0	22	0	0	0	0	0	50
17:15	0	13	7	0	20	5	0	2	0	7	5	15	0	0	20	0	0	0	0	0	47
17:20	0	17	2	0	19	4	0	3	0	7	3	28	0	1	32	0	0	0	0	0	58
17:25	0	22	3	0	25	4	0	2	0	6	5	21	0	0	26	0	0	0	0	0	57
17:30	0	13	2	0	15	6	0	6	0	12	0	21	0	0	21	0	0	0	0	0	48
17:35	0	10	7	0	17	8	0	5	0	13	5	21	0	0	26	0	0	0	0	0	56
17:40	0	13	2	0	15	4	0	1	0	5	2	20	0	0	22	0	0	0	0	0	42
17:45	0	11	5	0	16	5	0	3	0	8	5	22	0	0	27	0	0	0	0	0	51
17:50	0	16	3	0	19	5	0	7	0	12	2	14	0	0	16	0	0	0	0	0	47
17:55	0	13	2	0	15	1	0	2	0	3	3	18	0	0	21	0	0	0	0	0	39
Total	0	171	50	1	222	60	0	35	0	95	40	241	0	1	282	0	0	0	0	0	599
Grand Total	0	348	101	1	450	129	0	70	0	199	81	437	0	1	519	0	0	0	0	0	1168
Apprch %	0	77.3	22.4	0.2		64.8	0	35.2	0		15.6	84.2	0	0.2		0	0	0	0		
Total %	0	29.8	8.6	0.1	38.5	11	0	6	0	17	6.9	37.4	0	0.1	44.4	0	0	0	0	0	

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2504 E. Pikes Peak Ave, Suite 304
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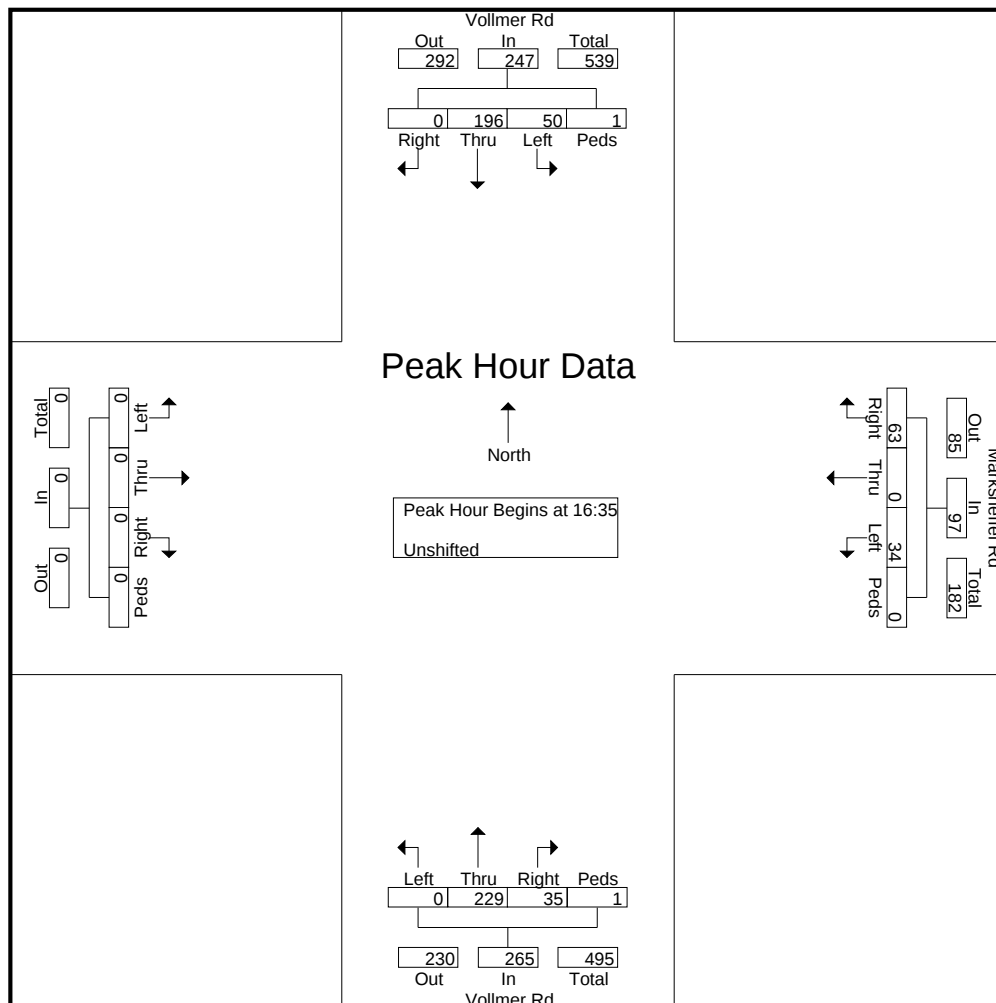
File Name : Vollmer Rd - Marksheffel Rd PM

Site Code : S224580

Start Date : 3/6/2025

Page No : 2

	Vollmer Rd Southbound					Marksheffel Rd Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:55 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:35																					
16:35	0	21	8	0	29	4	0	9	0	13	4	14	0	0	18	0	0	0	0	0	60
16:40	0	19	3	0	22	4	0	2	0	6	1	26	0	0	27	0	0	0	0	0	55
16:45	0	14	1	0	15	9	0	2	0	11	2	13	0	0	15	0	0	0	0	0	41
16:50	0	13	3	0	16	5	0	3	0	8	2	22	0	0	24	0	0	0	0	0	48
16:55	0	21	4	0	25	4	0	1	0	5	3	8	0	0	11	0	0	0	0	0	41
17:00	0	15	5	0	20	4	0	3	0	7	4	25	0	0	29	0	0	0	0	0	56
17:05	0	11	8	1	20	8	0	0	0	8	4	16	0	0	20	0	0	0	0	0	48
17:10	0	17	4	0	21	6	0	1	0	7	2	20	0	0	22	0	0	0	0	0	50
17:15	0	13	7	0	20	5	0	2	0	7	5	15	0	0	20	0	0	0	0	0	47
17:20	0	17	2	0	19	4	0	3	0	7	3	28	0	1	32	0	0	0	0	0	58
17:25	0	22	3	0	25	4	0	2	0	6	5	21	0	0	26	0	0	0	0	0	57
17:30	0	13	2	0	15	6	0	6	0	12	0	21	0	0	21	0	0	0	0	0	48
Total Volume	0	196	50	1	247	63	0	34	0	97	35	229	0	1	265	0	0	0	0	0	609
% App. Total	0	79.4	20.2	0.4		64.9	0	35.1	0		13.2	86.4	0	0.4		0	0	0	0		
PHF	.000	.742	.521	.083	.710	.583	.000	.315	.000	.622	.583	.682	.000	.083	.690	.000	.000	.000	.000	.000	.846



LSC Transportation Consultants, Inc.

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

File Name : Sterling Rannch Rd - Marksheffel Rd AM

Site Code : S224580

Start Date : 3/6/2025

Page No : 1

Groups Printed- Unshifted

	Sterling Ranch Rd Southbound					Marksheffel Rd Westbound					Industrial Access Northbound					Marksheffel Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30	3	0	13	0	16	13	6	2	0	21	0	0	0	0	0	2	12	5	0	19	56
06:45	5	0	8	0	13	16	14	3	0	33	0	6	0	0	6	2	17	5	0	24	76
Total	8	0	21	0	29	29	20	5	0	54	0	6	0	0	6	4	29	10	0	43	132
07:00	8	0	17	0	25	17	11	0	0	28	2	4	0	0	6	3	12	5	0	20	79
07:15	10	0	17	0	27	8	6	1	0	15	3	0	3	0	6	1	24	4	0	29	77
07:30	16	0	15	0	31	16	19	4	0	39	1	1	2	0	4	1	20	9	0	30	104
07:45	9	0	18	0	27	18	15	1	1	35	0	2	3	0	5	1	13	12	0	26	93
Total	43	0	67	0	110	59	51	6	1	117	6	7	8	0	21	6	69	30	0	105	353
08:00	12	0	15	0	27	17	12	2	0	31	1	0	2	0	3	1	19	18	0	38	99
08:15	3	1	12	0	16	15	13	3	0	31	1	1	1	0	3	3	11	3	0	17	67
Grand Total	66	1	115	0	182	120	96	16	1	233	8	14	11	0	33	14	128	61	0	203	651
Apprch %	36.3	0.5	63.2	0		51.5	41.2	6.9	0.4		24.2	42.4	33.3	0		6.9	63.1	30	0		
Total %	10.1	0.2	17.7	0	28	18.4	14.7	2.5	0.2	35.8	1.2	2.2	1.7	0	5.1	2.2	19.7	9.4	0	31.2	

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719-633-2868

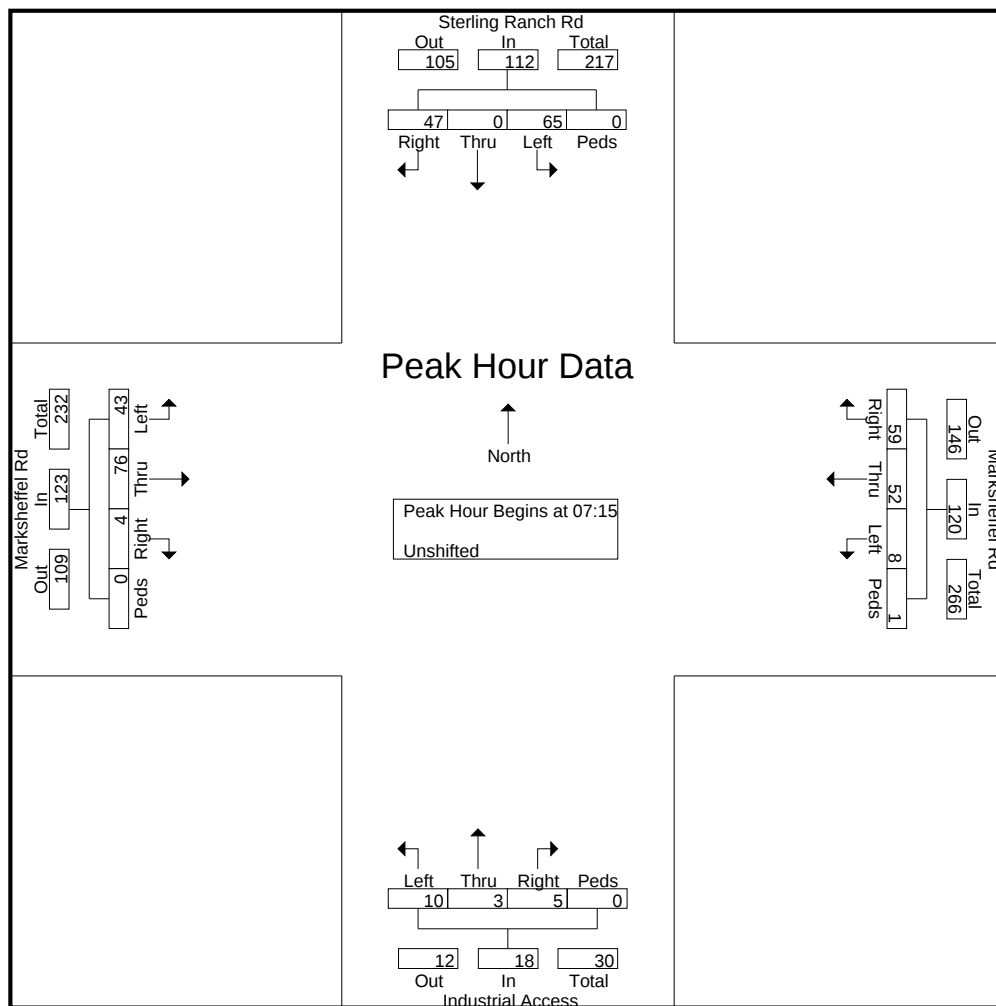
File Name : Sterling Ranch Rd - Marksheffel Rd AM

Site Code : S224580

Start Date : 3/6/2025

Page No : 2

	Sterling Ranch Rd Southbound					Marksheffel Rd Westbound					Industrial Access Northbound					Marksheffel Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	10	0	17	0	27	8	6	1	0	15	3	0	3	0	6	1	24	4	0	29	77
07:30	16	0	15	0	31	16	19	4	0	39	1	1	2	0	4	1	20	9	0	30	104
07:45	9	0	18	0	27	18	15	1	1	35	0	2	3	0	5	1	13	12	0	26	93
08:00	12	0	15	0	27	17	12	2	0	31	1	0	2	0	3	1	19	18	0	38	99
Total Volume	47	0	65	0	112	59	52	8	1	120	5	3	10	0	18	4	76	43	0	123	373
% App. Total	42	0	58	0		49.2	43.3	6.7	0.8		27.8	16.7	55.6	0		3.3	61.8	35	0		
PHF	.734	.000	.903	.000	.903	.819	.684	.500	.250	.769	.417	.375	.833	.000	.750	1.0 0	.792	.597	.000	.809	.897



LSC Transportation Consultants, Inc.

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

File Name : Sterling Rannch Rd - Marksheffel Rd PM

Site Code : S224580

Start Date : 3/6/2025

Page No : 1

Groups Printed- Unshifted

	Sterling Ranch Rd Southbound					Marksheffel Rd Westbound					Industrial Access Northbound					Marksheffel Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
16:00	5	6	20	0	31	14	13	5	0	32	5	7	0	0	12	0	12	10	0	22	97
16:15	9	0	16	0	25	18	23	2	0	43	2	2	0	0	4	2	17	10	0	29	101
16:30	10	1	20	0	31	14	17	1	0	32	1	1	1	0	3	0	18	6	0	24	90
16:45	6	3	5	0	14	25	15	0	0	40	2	1	2	0	5	4	7	2	0	13	72
Total	30	10	61	0	101	71	68	8	0	147	10	11	3	0	24	6	54	28	0	88	360
17:00	3	2	17	0	22	20	19	1	0	40	1	2	0	0	3	0	16	7	0	23	88
17:15	4	12	20	0	36	13	14	1	0	28	1	0	2	0	3	1	17	8	0	26	93
17:30	8	0	25	0	33	11	20	3	0	34	13	0	3	0	16	0	13	7	0	20	103
17:45	11	0	14	0	25	14	10	0	0	24	4	0	1	0	5	0	9	10	0	19	73
Total	26	14	76	0	116	58	63	5	0	126	19	2	6	0	27	1	55	32	0	88	357
Grand Total	56	24	137	0	217	129	131	13	0	273	29	13	9	0	51	7	109	60	0	176	717
Apprch %	25.8	11.1	63.1	0		47.3	48	4.8	0		56.9	25.5	17.6	0		4	61.9	34.1	0		
Total %	7.8	3.3	19.1	0	30.3	18	18.3	1.8	0	38.1	4	1.8	1.3	0	7.1	1	15.2	8.4	0	24.5	

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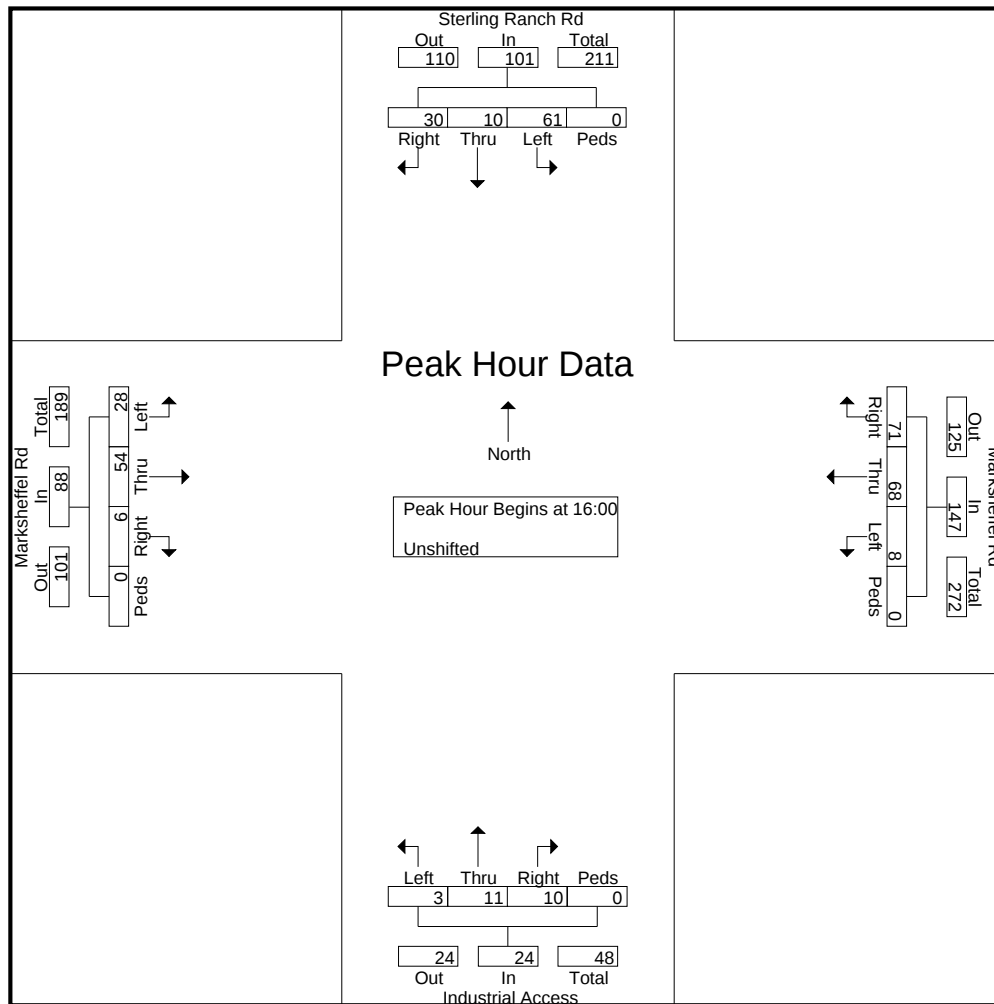
File Name : Sterling Rannch Rd - Marksheffel Rd PM

Site Code : S224580

Start Date : 3/6/2025

Page No : 2

	Sterling Ranch Rd Southbound					Marksheffel Rd Westbound					Industrial Access Northbound					Marksheffel Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	5	6	20	0	31	14	13	5	0	32	5	7	0	0	12	0	12	10	0	22	97
16:15	9	0	16	0	25	18	23	2	0	43	2	2	0	0	4	2	17	10	0	29	101
16:30	10	1	20	0	31	14	17	1	0	32	1	1	1	0	3	0	18	6	0	24	90
16:45	6	3	5	0	14	25	15	0	0	40	2	1	2	0	5	4	7	2	0	13	72
Total Volume	30	10	61	0	101	71	68	8	0	147	10	11	3	0	24	6	54	28	0	88	360
% App. Total	29.7	9.9	60.4	0		48.3	46.3	5.4	0		41.7	45.8	12.5	0		6.8	61.4	31.8	0		
PHF	.750	.417	.763	.000	.815	.710	.739	.400	.000	.855	.500	.393	.375	.000	.500	.375	.750	.700	.000	.759	.891



Level of Service Reports



HCM 6th TWSC
4: Vollmer Rd & Briargate Pkwy

Existing Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	3	160	23	4	236
Future Vol, veh/h	16	3	160	23	4	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	485	-	-	235	385	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	3	178	26	4	262

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	317	89	0	0	204
Stage 1	178	-	-	-	-
Stage 2	139	-	-	-	-
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	651	951	-	-	1365
Stage 1	835	-	-	-	-
Stage 2	873	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	649	951	-	-	1365
Mov Cap-2 Maneuver	685	-	-	-	-
Stage 1	835	-	-	-	-
Stage 2	870	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	685	951	1365
HCM Lane V/C Ratio	-	-	0.026	0.004	0.003
HCM Control Delay (s)	-	-	10.4	8.8	7.6
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	58	214	42	73	250
Future Vol, veh/h	49	58	214	42	73	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	155	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	71	71	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	72	301	59	84	287
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	613	151	0	0	360	0
Stage 1	301	-	-	-	-	-
Stage 2	312	-	-	-	-	-
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	424	868	-	-	1195	-
Stage 1	725	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	394	868	-	-	1195	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.4	0	1.9			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 394 868	1195	-		
HCM Lane V/C Ratio	-	- 0.154 0.082	0.07	-		
HCM Control Delay (s)	-	- 15.8 9.5	8.2	-		
HCM Lane LOS	-	- C A	A	-		
HCM 95th %tile Q(veh)	-	- 0.5 0.3	0.2	-		

HCM 6th TWSC
13: Sterling Ranch Rd & Marksheffel Rd

Existing Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	76	4	8	52	59	10	3	5	65	0	47
Future Vol, veh/h	43	76	4	8	52	59	10	3	5	65	0	47
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	300	-	200	250	-	205	0	-	-	155	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	76	76	76	78	78	78	90	90	90
Heavy Vehicles, %	2	2	70	70	2	2	88	2	88	2	2	2
Mvmt Flow	52	92	5	11	68	78	13	4	6	72	0	52

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	146	0	0	97	0	0	252	364	46	242	291	34
Stage 1	-	-	-	-	-	-	196	196	-	90	90	-
Stage 2	-	-	-	-	-	-	56	168	-	152	201	-
Critical Hdwy	4.14	-	-	5.5	-	-	9.26	6.54	8.66	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	8.26	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	8.26	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.9	-	-	4.38	4.02	4.18	3.52	4.02	3.32
Pot Cap-1 Maneuver	1434	-	-	1113	-	-	499	563	792	692	618	1032
Stage 1	-	-	-	-	-	-	589	737	-	907	820	-
Stage 2	-	-	-	-	-	-	748	758	-	835	734	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1434	-	-	1113	-	-	457	537	792	659	590	1032
Mov Cap-2 Maneuver	-	-	-	-	-	-	457	537	-	659	590	-
Stage 1	-	-	-	-	-	-	568	710	-	874	812	-
Stage 2	-	-	-	-	-	-	703	750	-	794	708	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.7			0.6			11.9			10.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	457	672	1434	-	-	1113	-	-	659	-	1032
HCM Lane V/C Ratio	0.028	0.015	0.036	-	-	0.009	-	-	0.11	-	0.051
HCM Control Delay (s)	13.1	10.4	7.6	-	-	8.3	-	-	11.1	0	8.7
HCM Lane LOS	B	B	A	-	-	A	-	-	B	A	A
HCM 95th %tile Q(veh)	0.1	0	0.1	-	-	0	-	-	0.4	-	0.2

HCM 6th TWSC
4: Vollmer Rd & Briargate Pkwy

Existing Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	4	217	5	3	150
Future Vol, veh/h	21	4	217	5	3	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	485	-	-	235	385	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	79	79	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	5	275	6	3	169

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	366	138	0	0	281
Stage 1	275	-	-	-	-
Stage 2	91	-	-	-	-
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	607	885	-	-	1278
Stage 1	747	-	-	-	-
Stage 2	922	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	606	885	-	-	1278
Mov Cap-2 Maneuver	642	-	-	-	-
Stage 1	747	-	-	-	-
Stage 2	920	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 642 885 1278	-	-
HCM Lane V/C Ratio	-	- 0.042 0.006 0.003	-	-
HCM Control Delay (s)	-	- 10.9 9.1 7.8	-	-
HCM Lane LOS	-	- B A A	-	-
HCM 95th %tile Q(veh)	-	- 0.1 0 0	-	-

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	63	229	35	50	196
Future Vol, veh/h	34	63	229	35	50	196
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	155	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	85	85	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	76	269	41	57	225
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	496	135	0	0	310	0
Stage 1	269	-	-	-	-	-
Stage 2	227	-	-	-	-	-
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	503	889	-	-	1247	-
Stage 1	752	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	480	889	-	-	1247	-
Mov Cap-2 Maneuver	480	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.7	0	1.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 480 889 1247	-	-		
HCM Lane V/C Ratio	-	- 0.085 0.085 0.046	-	-		
HCM Control Delay (s)	-	- 13.2 9.4 8	-	-		
HCM Lane LOS	-	- B A A	-	-		
HCM 95th %tile Q(veh)	-	- 0.3 0.3 0.1	-	-		

HCM 6th TWSC
13: Sterling Ranch Rd & Marksheffel Rd

Existing Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	54	6	8	68	71	3	11	10	61	10	30
Future Vol, veh/h	28	54	6	8	68	71	3	11	10	61	10	30
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	300	-	200	250	-	205	0	-	-	155	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	85	85	85	78	78	78	83	83	83
Heavy Vehicles, %	2	2	70	70	2	2	88	2	88	2	2	2
Mvmt Flow	37	71	8	9	80	84	4	14	13	73	12	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	164	0	0	79	0	0	209	327	36	215	251	40
Stage 1	-	-	-	-	-	-	145	145	-	98	98	-
Stage 2	-	-	-	-	-	-	64	182	-	117	153	-
Critical Hdwy	4.14	-	-	5.5	-	-	9.26	6.54	8.66	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	8.26	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	8.26	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.9	-	-	4.38	4.02	4.18	3.52	4.02	3.32
Pot Cap-1 Maneuver	1412	-	-	1136	-	-	544	590	806	723	651	1022
Stage 1	-	-	-	-	-	-	643	776	-	898	813	-
Stage 2	-	-	-	-	-	-	738	748	-	875	770	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1412	-	-	1136	-	-	504	570	806	680	629	1022
Mov Cap-2 Maneuver	-	-	-	-	-	-	504	570	-	680	629	-
Stage 1	-	-	-	-	-	-	626	756	-	875	806	-
Stage 2	-	-	-	-	-	-	696	742	-	823	750	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.4			0.4			10.9			10.2		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	504	662	1412	-	-	1136	-	-	680	629	1022
HCM Lane V/C Ratio	0.008	0.041	0.026	-	-	0.008	-	-	0.108	0.019	0.035
HCM Control Delay (s)	12.2	10.7	7.6	-	-	8.2	-	-	10.9	10.8	8.7
HCM Lane LOS	B	B	A	-	-	A	-	-	B	B	A
HCM 95th %tile Q(veh)	0	0.1	0.1	-	-	0	-	-	0.4	0.1	0.1

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	150	56	217	72	22	325
Future Vol, veh/h	150	56	217	72	22	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	485	-	-	235	385	-
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	176	66	255	85	26	382
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	498	128	0	0	340	0
Stage 1	255	-	-	-	-	-
Stage 2	243	-	-	-	-	-
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	502	898	-	-	1216	-
Stage 1	764	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	491	898	-	-	1216	-
Mov Cap-2 Maneuver	572	-	-	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.8	0	0.5			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 572 898	1216	-		
HCM Lane V/C Ratio	-	- 0.309 0.073	0.021	-		
HCM Control Delay (s)	-	- 14.1 9.3	8	-		
HCM Lane LOS	-	- B A	A	-		
HCM 95th %tile Q(veh)	-	- 1.3 0.2	0.1	-		

HCM 6th TWSC
5: Sterling Ranch Rd & Briargate Pkwy

Short-Term Background Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	7.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	0	18	31	42	0	59	20	0	0	68	8
Future Vol, veh/h	28	0	18	31	42	0	59	20	0	0	68	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	535	-	200	200	-	200	410	-	155	235	-	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	33	0	21	36	49	0	69	24	0	0	80	9
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	49	0	0	21	0	0	203	187	0	199	208	25
Stage 1	-	-	-	-	-	-	66	66	-	121	121	-
Stage 2	-	-	-	-	-	-	137	121	-	78	87	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1556	-	-	1593	-	-	737	706	-	742	688	1045
Stage 1	-	-	-	-	-	-	937	839	-	870	795	-
Stage 2	-	-	-	-	-	-	852	795	-	922	822	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1556	-	-	1593	-	-	641	675	-	-	658	1045
Mov Cap-2 Maneuver	-	-	-	-	-	-	641	675	-	-	658	-
Stage 1	-	-	-	-	-	-	917	821	-	852	777	-
Stage 2	-	-	-	-	-	-	740	777	-	877	805	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.5			3.1			11.1			10.9		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	641	675	-	1556	-	-	1593	-	-	-	658	1045
HCM Lane V/C Ratio	0.108	0.035	-	0.021	-	-	0.023	-	-	-	0.122	0.009
HCM Control Delay (s)	11.3	10.5	0	7.4	-	-	7.3	-	-	0	11.2	8.5
HCM Lane LOS	B	B	A	A	-	-	A	-	-	A	B	A
HCM 95th %tile Q(veh)	0.4	0.1	-	0.1	-	-	0.1	-	-	-	0.4	0

Intersection						
Int Delay, s/veh	6.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	142	70	304	65	108	442
Future Vol, veh/h	142	70	304	65	108	442
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	155	300	-
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	167	82	358	76	127	520
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	872	179	0	0	434	0
Stage 1	358	-	-	-	-	-
Stage 2	514	-	-	-	-	-
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	290	833	-	-	1122	-
Stage 1	678	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	257	833	-	-	1122	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	31.2	0	1.7			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 257 833 1122	-	-		
HCM Lane V/C Ratio	-	- 0.65 0.099 0.113	-	-		
HCM Control Delay (s)	-	- 41.7 9.8 8.6	-	-		
HCM Lane LOS	-	- E A A	-	-		
HCM 95th %tile Q(veh)	-	- 4.1 0.3 0.4	-	-		

HCM 6th TWSC
13: Sterling Ranch Rd & Marksheffel Rd

Short-Term Background Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	86.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	71	99	4	8	60	236	10	3	5	628	0	142
Future Vol, veh/h	71	99	4	8	60	236	10	3	5	628	0	142
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	300	-	200	250	-	205	0	-	-	155	-	0
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	70	70	2	2	88	2	88	2	2	2
Mvmt Flow	84	116	5	9	71	278	12	4	6	739	0	167
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	349	0	0	121	0	0	338	651	58	317	378	36
Stage 1	-	-	-	-	-	-	284	284	-	89	89	-
Stage 2	-	-	-	-	-	-	54	367	-	228	289	-
Critical Hdwy	4.14	-	-	5.5	-	-	9.26	6.54	8.66	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	8.26	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	8.26	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.9	-	-	4.38	4.02	4.18	3.52	4.02	3.32
Pot Cap-1 Maneuver	1207	-	-	1083	-	-	420	386	775	~ 612	552	1029
Stage 1	-	-	-	-	-	-	507	675	-	908	820	-
Stage 2	-	-	-	-	-	-	750	621	-	754	672	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1207	-	-	1083	-	-	331	356	775	~ 567	509	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	356	-	~ 567	509	-
Stage 1	-	-	-	-	-	-	472	628	-	844	813	-
Stage 2	-	-	-	-	-	-	623	616	-	~ 692	625	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.3			0.2			14.3			141.2		
HCM LOS							B			F		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3	
Capacity (veh/h)	331	538	1207	-	-	1083	-	-	567	-	1029	
HCM Lane V/C Ratio	0.036	0.017	0.069	-	-	0.009	-	-	1.303	-	0.162	
HCM Control Delay (s)	16.3	11.8	8.2	-	-	8.4	-	-	171	0	9.2	
HCM Lane LOS	C	B	A	-	-	A	-	-	F	A	A	
HCM 95th %tile Q(veh)	0.1	0.1	0.2	-	-	0	-	-	30.5	-	0.6	
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	25	0	0	1	5	30	0	5	0
Future Vol, veh/h	0	0	3	25	0	0	1	5	30	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	200	200	-	-
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	0	0	4	29	0	0	1	6	35	0	6	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	32	49	6	16	14	6	6	0	0	41	0	0
Stage 1	6	6	-	8	8	-	-	-	-	-	-	-
Stage 2	26	43	-	8	6	-	-	-	-	-	-	-
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	976	843	1077	999	880	1077	1615	-	-	1568	-	-
Stage 1	1016	891	-	1013	889	-	-	-	-	-	-	-
Stage 2	992	859	-	1013	891	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	976	842	1077	995	879	1077	1615	-	-	1568	-	-
Mov Cap-2 Maneuver	976	842	-	995	879	-	-	-	-	-	-	-
Stage 1	1015	891	-	1012	888	-	-	-	-	-	-	-
Stage 2	991	858	-	1010	891	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	8.4		8.7		0.2		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1615	-	-	1077	995	1568	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.003	0.03	-	-	-				
HCM Control Delay (s)	7.2	-	-	8.4	8.7	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-				

HCM 6th TWSC
4: Vollmer Rd & Briargate Pkwy

Short-Term Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	2.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	111	39	345	167	61	223
Future Vol, veh/h	111	39	345	167	61	223
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	485	-	-	235	385	-
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	131	46	406	196	72	262
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	681	203	0	0	602	0
Stage 1	406	-	-	-	-	-
Stage 2	275	-	-	-	-	-
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	384	804	-	-	971	-
Stage 1	641	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	356	804	-	-	971	-
Mov Cap-2 Maneuver	466	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	14.1	0	1.9			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 466 804	971	-		
HCM Lane V/C Ratio	-	- 0.28 0.057	0.074	-		
HCM Control Delay (s)	-	- 15.7 9.7	9	-		
HCM Lane LOS	-	- C A	A	-		
HCM 95th %tile Q(veh)	-	- 1.1 0.2	0.2	-		

HCM 6th TWSC
5: Sterling Ranch Rd & Briargate Pkwy

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	93	0	62	21	28	0	48	64	0	0	46	6
Future Vol, veh/h	93	0	62	21	28	0	48	64	0	0	46	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	535	-	200	200	-	200	410	-	155	235	-	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	109	0	73	25	33	0	56	75	0	0	54	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	33	0	0	73	0	0	312	301	0	339	374	17
Stage 1	-	-	-	-	-	-	218	218	-	83	83	-
Stage 2	-	-	-	-	-	-	94	83	-	256	291	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1577	-	-	1525	-	-	617	610	-	591	555	1058
Stage 1	-	-	-	-	-	-	764	721	-	916	825	-
Stage 2	-	-	-	-	-	-	902	825	-	726	670	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1577	-	-	1525	-	-	527	559	-	-	508	1058
Mov Cap-2 Maneuver	-	-	-	-	-	-	527	559	-	-	508	-
Stage 1	-	-	-	-	-	-	711	671	-	853	812	-
Stage 2	-	-	-	-	-	-	823	812	-	600	624	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.5			3.2			12.5			12.4		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	527	559	-	1577	-	-	1525	-	-	-	508	1058
HCM Lane V/C Ratio	0.107	0.135	-	0.069	-	-	0.016	-	-	-	0.107	0.007
HCM Control Delay (s)	12.6	12.4	0	7.5	-	-	7.4	-	-	0	12.9	8.4
HCM Lane LOS	B	B	A	A	-	-	A	-	-	A	B	A
HCM 95th %tile Q(veh)	0.4	0.5	-	0.2	-	-	0	-	-	-	0.4	0

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	96	96	507	114	75	326
Future Vol, veh/h	96	96	507	114	75	326
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	155	300	-
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	113	113	596	134	88	384
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	964	298	0	0	730	0
Stage 1	596	-	-	-	-	-
Stage 2	368	-	-	-	-	-
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	253	698	-	-	870	-
Stage 1	513	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	227	698	-	-	870	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	23.4	0	1.8			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 227 698	870	-		
HCM Lane V/C Ratio	-	- 0.498 0.162	0.101	-		
HCM Control Delay (s)	-	- 35.6 11.2	9.6	-		
HCM Lane LOS	-	- E B	A	-		
HCM 95th %tile Q(veh)	-	- 2.5 0.6	0.3	-		

HCM 6th TWSC
13: Sterling Ranch Rd & Marksheffel Rd

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	55.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	114	69	6	8	94	667	3	11	10	436	10	95
Future Vol, veh/h	114	69	6	8	94	667	3	11	10	436	10	95
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	300	-	200	250	-	205	0	-	-	155	-	0
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	88	88	2	2	78	2	78	2	2	2
Mvmt Flow	134	81	7	9	111	785	4	13	12	513	12	112
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	896	0	0	88	0	0	429	1263	41	444	485	56
Stage 1	-	-	-	-	-	-	349	349	-	129	129	-
Stage 2	-	-	-	-	-	-	80	914	-	315	356	-
Critical Hdwy	4.14	-	-	5.86	-	-	9.06	6.54	8.46	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	8.06	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	8.06	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	3.08	-	-	4.28	4.02	4.08	3.52	4.02	3.32
Pot Cap-1 Maneuver	753	-	-	1051	-	-	365	168	820	~ 497	481	999
Stage 1	-	-	-	-	-	-	470	632	-	861	788	-
Stage 2	-	-	-	-	-	-	737	350	-	671	628	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	753	-	-	1051	-	-	272	137	820	~ 391	392	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	272	137	-	~ 391	392	-
Stage 1	-	-	-	-	-	-	386	520	-	708	781	-
Stage 2	-	-	-	-	-	-	639	347	-	530	516	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	6.5			0.1			22.3			151.9		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3	
Capacity (veh/h)	272	227	753	-	-	1051	-	-	391	392	999	
HCM Lane V/C Ratio	0.013	0.109	0.178	-	-	0.009	-	-	1.312	0.03	0.112	
HCM Control Delay (s)	18.4	22.8	10.8	-	-	8.5	-	-	186.2	14.5	9.1	
HCM Lane LOS	C	C	B	-	-	A	-	-	F	B	A	
HCM 95th %tile Q(veh)	0	0.4	0.6	-	-	0	-	-	23.4	0.1	0.4	
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 6th TWSC
309: Sterling Ranch Rd & Vancouver St

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑	↕	↕	↕	
Traffic Vol, veh/h	0	0	2	17	0	0	4	18	99	0	3	0
Future Vol, veh/h	0	0	2	17	0	0	4	18	99	0	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	200	200	-	-
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	0	0	2	20	0	0	5	21	116	0	4	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	93	151	4	36	35	21	4	0	0	137	0	0
Stage 1	4	4	-	31	31	-	-	-	-	-	-	-
Stage 2	89	147	-	5	4	-	-	-	-	-	-	-
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	891	741	1080	970	857	1056	1618	-	-	1447	-	-
Stage 1	1018	892	-	986	869	-	-	-	-	-	-	-
Stage 2	918	775	-	1017	892	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	889	739	1080	965	854	1056	1618	-	-	1447	-	-
Mov Cap-2 Maneuver	889	739	-	965	854	-	-	-	-	-	-	-
Stage 1	1015	892	-	983	866	-	-	-	-	-	-	-
Stage 2	915	773	-	1015	892	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.3		8.8		0.2		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1618	-	-	1080	965	1447	-
HCM Lane V/C Ratio	0.003	-	-	0.002	0.021	-	-
HCM Control Delay (s)	7.2	-	-	8.3	8.8	0	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

HCM 6th TWSC
4: Vollmer Rd & Briargate Pkwy

Short-Term Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	232	63	217	102	24	325
Future Vol, veh/h	232	63	217	102	24	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	485	-	-	235	385	-
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	273	74	255	120	28	382
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	502	128	0	0	375	0
Stage 1	255	-	-	-	-	-
Stage 2	247	-	-	-	-	-
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	499	898	-	-	1180	-
Stage 1	764	-	-	-	-	-
Stage 2	771	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	487	898	-	-	1180	-
Mov Cap-2 Maneuver	568	-	-	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	752	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	15.5	0	0.6			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 568 898 1180	-	-		
HCM Lane V/C Ratio	-	- 0.481 0.083 0.024	-	-		
HCM Control Delay (s)	-	- 17.1 9.4 8.1	-	-		
HCM Lane LOS	-	- C A A	-	-		
HCM 95th %tile Q(veh)	-	- 2.6 0.3 0.1	-	-		

HCM 6th TWSC
5: Sterling Ranch Rd & Briargate Pkwy

Short-Term Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	9.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	61	0	18	31	42	0	59	31	0	0	99	97
Future Vol, veh/h	61	0	18	31	42	0	59	31	0	0	99	97
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	535	-	200	200	-	200	410	-	155	235	-	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	72	0	21	36	49	0	69	36	0	0	116	114
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	49	0	0	21	0	0	299	265	0	283	286	25
Stage 1	-	-	-	-	-	-	144	144	-	121	121	-
Stage 2	-	-	-	-	-	-	155	121	-	162	165	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1556	-	-	1593	-	-	631	639	-	647	622	1045
Stage 1	-	-	-	-	-	-	844	777	-	870	795	-
Stage 2	-	-	-	-	-	-	832	795	-	824	761	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1556	-	-	1593	-	-	451	596	-	-	580	1045
Mov Cap-2 Maneuver	-	-	-	-	-	-	451	596	-	-	580	-
Stage 1	-	-	-	-	-	-	805	741	-	830	777	-
Stage 2	-	-	-	-	-	-	616	777	-	747	726	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.7			3.1			13.4			10.9		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	451	596	-	1556	-	-	1593	-	-	-	580	1045
HCM Lane V/C Ratio	0.154	0.061	-	0.046	-	-	0.023	-	-	-	0.201	0.109
HCM Control Delay (s)	14.4	11.4	0	7.4	-	-	7.3	-	-	0	12.8	8.9
HCM Lane LOS	B	B	A	A	-	-	A	-	-	A	B	A
HCM 95th %tile Q(veh)	0.5	0.2	-	0.1	-	-	0.1	-	-	-	0.7	0.4

Intersection						
Int Delay, s/veh	7.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	142	70	334	65	108	524
Future Vol, veh/h	142	70	334	65	108	524
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	155	300	-
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	167	82	393	76	127	616
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	955	197	0	0	469	0
Stage 1	393	-	-	-	-	-
Stage 2	562	-	-	-	-	-
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	256	811	-	-	1089	-
Stage 1	651	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	226	811	-	-	1089	-
Mov Cap-2 Maneuver	226	-	-	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	40.6	0	1.5			
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 226 811 1089	-			
HCM Lane V/C Ratio	-	- 0.739 0.102 0.117	-			
HCM Control Delay (s)	-	- 55.7 9.9 8.7	-			
HCM Lane LOS	-	- F A A	-			
HCM 95th %tile Q(veh)	-	- 5 0.3 0.4	-			

Timings
12: Vollmer Rd & Marksheffel Rd

Short-Term Total Traffic
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	142	70	334	65	108	524
Future Volume (vph)	142	70	334	65	108	524
Turn Type	Prot	Prot	NA	Perm	pm+pt	NA
Protected Phases	5	5	8		7	4
Permitted Phases				8	4	
Detector Phase	5	5	8	8	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	23.0	23.0	10.0	23.0
Total Split (s)	25.0	25.0	53.0	53.0	12.0	65.0
Total Split (%)	27.8%	27.8%	58.9%	58.9%	13.3%	72.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	10.7	10.7	15.5	15.5	21.0	23.9
Actuated g/C Ratio	0.28	0.28	0.41	0.41	0.56	0.63
v/c Ratio	0.33	0.16	0.27	0.11	0.20	0.28
Control Delay	16.9	5.5	13.0	4.6	6.1	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	5.5	13.0	4.6	6.1	5.6
LOS	B	A	B	A	A	A
Approach Delay	13.1		11.7			5.7
Approach LOS	B		B			A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 37.7

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 8.9

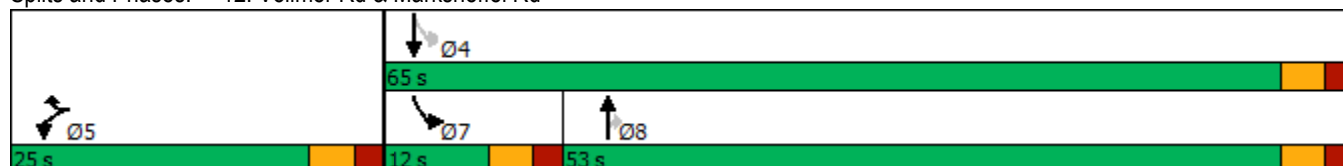
Intersection LOS: A

Intersection Capacity Utilization 35.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 12: Vollmer Rd & Marksheffel Rd



HCM 6th TWSC
13: Sterling Ranch Rd & Marksheffel Rd

Short-Term Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	101.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	71	99	4	8	60	248	10	3	5	659	0	142
Future Vol, veh/h	71	99	4	8	60	248	10	3	5	659	0	142
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	300	-	200	250	-	205	0	-	-	155	-	0
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	70	70	2	2	88	2	88	2	2	2
Mvmt Flow	84	116	5	9	71	292	12	4	6	775	0	167
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	363	0	0	121	0	0	338	665	58	317	378	36
Stage 1	-	-	-	-	-	-	284	284	-	89	89	-
Stage 2	-	-	-	-	-	-	54	381	-	228	289	-
Critical Hdwy	4.14	-	-	5.5	-	-	9.26	6.54	8.66	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	8.26	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	8.26	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.9	-	-	4.38	4.02	4.18	3.52	4.02	3.32
Pot Cap-1 Maneuver	1192	-	-	1083	-	-	420	379	775	~ 612	552	1029
Stage 1	-	-	-	-	-	-	507	675	-	908	820	-
Stage 2	-	-	-	-	-	-	750	612	-	~ 754	672	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1192	-	-	1083	-	-	331	350	775	~ 567	509	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	350	-	~ 567	509	-
Stage 1	-	-	-	-	-	-	472	628	-	844	813	-
Stage 2	-	-	-	-	-	-	623	607	-	~ 692	625	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.4			0.2			14.3			164.2		
HCM LOS							B			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3	
Capacity (veh/h)	331 533		1192	-	-	1083	-	-	567	-	1029	
HCM Lane V/C Ratio	0.036 0.018		0.07	-	-	0.009	-	-	1.367	-	0.162	
HCM Control Delay (s)	16.3 11.9		8.2	-	-	8.4	-	-	197.6	0	9.2	
HCM Lane LOS	C B		A	-	-	A	-	-	F	A	A	
HCM 95th %tile Q(veh)	0.1 0.1		0.2	-	-	0	-	-	34.5	-	0.6	
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Timings 13: Sterling Ranch Rd & Marksheffel Rd

Short-Term Total Traffic
AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBR
Lane Configurations										
Traffic Volume (vph)	71	99	4	8	60	248	10	3	659	142
Future Volume (vph)	71	99	4	8	60	248	10	3	659	142
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	5	2		1	6		3	8	7	
Permitted Phases	2		2	6		6	8			4
Detector Phase	5	2	2	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	10.0	23.0
Total Split (s)	10.0	40.0	40.0	10.0	40.0	40.0	10.0	23.0	17.0	30.0
Total Split (%)	11.1%	44.4%	44.4%	11.1%	44.4%	44.4%	11.1%	25.6%	18.9%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None
Act Effect Green (s)	20.2	19.5	19.5	18.3	15.6	15.6	6.7	10.4	12.4	13.2
Actuated g/C Ratio	0.44	0.42	0.42	0.40	0.34	0.34	0.15	0.23	0.27	0.29
v/c Ratio	0.14	0.08	0.01	0.03	0.06	0.40	0.09	0.04	0.84	0.15
Control Delay	9.0	10.9	0.0	9.0	14.0	4.7	16.3	15.1	29.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	10.9	0.0	9.0	14.0	4.7	16.3	15.1	29.9	0.3
LOS	A	B	A	A	B	A	B	B	C	A
Approach Delay		9.9			6.6			15.8		
Approach LOS		A			A			B		

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 46

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 18.2

Intersection LOS: B

Intersection Capacity Utilization 46.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Sterling Ranch Rd & Marksheffel Rd



HCM 6th TWSC
309: Sterling Ranch Rd & Vancouver St

Short-Term Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑	↕	↕	↕	
Traffic Vol, veh/h	0	0	123	25	0	0	45	5	30	0	5	0
Future Vol, veh/h	0	0	123	25	0	0	45	5	30	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	200	200	-	-
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	0	0	145	29	0	0	53	6	35	0	6	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	136	153	6	191	118	6	6	0	0	41	0	0
Stage 1	6	6	-	112	112	-	-	-	-	-	-	-
Stage 2	130	147	-	79	6	-	-	-	-	-	-	-
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	835	739	1077	769	772	1077	1615	-	-	1568	-	-
Stage 1	1016	891	-	893	803	-	-	-	-	-	-	-
Stage 2	874	775	-	930	891	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	814	715	1077	649	747	1077	1615	-	-	1568	-	-
Mov Cap-2 Maneuver	814	715	-	649	747	-	-	-	-	-	-	-
Stage 1	982	891	-	864	777	-	-	-	-	-	-	-
Stage 2	845	749	-	805	891	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.9		10.8		4.1		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	1077	649	1568	-
HCM Lane V/C Ratio	0.033	-	-	0.134	0.045	-	-
HCM Control Delay (s)	7.3	-	-	8.9	10.8	0	-
HCM Lane LOS	A	-	-	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.1	0	-

HCM 6th TWSC
4: Vollmer Rd & Briargate Pkwy

Short-Term Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	167	44	345	259	70	223
Future Vol, veh/h	167	44	345	259	70	223
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	485	-	-	235	385	-
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	196	52	406	305	82	262
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	701	203	0	0	711	0
Stage 1	406	-	-	-	-	-
Stage 2	295	-	-	-	-	-
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	373	804	-	-	884	-
Stage 1	641	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	338	804	-	-	884	-
Mov Cap-2 Maneuver	451	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	17.1	0	2.3			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 451 804	884	-		
HCM Lane V/C Ratio	-	- 0.436 0.064	0.093	-		
HCM Control Delay (s)	-	- 19 9.8	9.5	-		
HCM Lane LOS	-	- C A	A	-		
HCM 95th %tile Q(veh)	-	- 2.2 0.2	0.3	-		

HCM 6th TWSC
5: Sterling Ranch Rd & Briargate Pkwy

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	10.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	193	0	62	21	28	0	48	99	0	0	67	67
Future Vol, veh/h	193	0	62	21	28	0	48	99	0	0	67	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	535	-	200	200	-	200	410	-	155	235	-	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	227	0	73	25	33	0	56	116	0	0	79	79
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	33	0	0	73	0	0	560	537	0	595	610	17
Stage 1	-	-	-	-	-	-	454	454	-	83	83	-
Stage 2	-	-	-	-	-	-	106	83	-	512	527	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1577	-	-	1525	-	-	411	449	-	388	408	1058
Stage 1	-	-	-	-	-	-	555	568	-	916	825	-
Stage 2	-	-	-	-	-	-	888	825	-	513	527	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1577	-	-	1525	-	-	277	378	-	-	344	1058
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	378	-	-	344	-
Stage 1	-	-	-	-	-	-	475	486	-	784	812	-
Stage 2	-	-	-	-	-	-	730	812	-	334	451	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.8			3.2			19.5			13.6		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	277	378	-	1577	-	-	1525	-	-	-	344	1058
HCM Lane V/C Ratio	0.204	0.308	-	0.144	-	-	0.016	-	-	-	0.229	0.075
HCM Control Delay (s)	21.3	18.7	0	7.7	-	-	7.4	-	-	0	18.5	8.7
HCM Lane LOS	C	C	A	A	-	-	A	-	-	A	C	A
HCM 95th %tile Q(veh)	0.7	1.3	-	0.5	-	-	0	-	-	-	0.9	0.2

Intersection						
Int Delay, s/veh	5.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	96	96	598	114	75	382
Future Vol, veh/h	96	96	598	114	75	382
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	155	300	-
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	113	113	704	134	88	449
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1105	352	0	0	838	0
Stage 1	704	-	-	-	-	-
Stage 2	401	-	-	-	-	-
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	205	644	-	-	792	-
Stage 1	452	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	182	644	-	-	792	-
Mov Cap-2 Maneuver	182	-	-	-	-	-
Stage 1	452	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	32.2	0	1.7			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 182 644	792	-		
HCM Lane V/C Ratio	-	- 0.621 0.175	0.111	-		
HCM Control Delay (s)	-	- 52.6 11.8	10.1	-		
HCM Lane LOS	-	- F B	B	-		
HCM 95th %tile Q(veh)	-	- 3.5 0.6	0.4	-		

Timings
12: Vollmer Rd & Marksheffel Rd

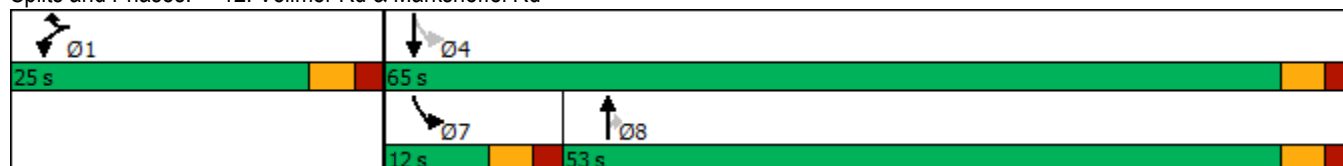
Short-Term Total Traffic
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	96	96	598	114	75	382
Future Volume (vph)	96	96	598	114	75	382
Turn Type	Prot	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	1	8		7	4
Permitted Phases				8	4	
Detector Phase	1	1	8	8	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	23.0	23.0	10.0	23.0
Total Split (s)	25.0	25.0	53.0	53.0	12.0	65.0
Total Split (%)	27.8%	27.8%	58.9%	58.9%	13.3%	72.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	Max	None
Act Effect Green (s)	10.4	10.4	48.1	48.1	60.1	60.1
Actuated g/C Ratio	0.13	0.13	0.60	0.60	0.75	0.75
v/c Ratio	0.50	0.37	0.33	0.13	0.16	0.17
Control Delay	40.0	10.4	9.0	2.0	3.9	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	10.4	9.0	2.0	3.9	3.4
LOS	D	B	A	A	A	A
Approach Delay	25.2		7.9			3.5
Approach LOS	C		A			A

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 80.5	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 8.9	Intersection LOS: A
Intersection Capacity Utilization 38.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 12: Vollmer Rd & Marksheffel Rd



HCM 6th TWSC
13: Sterling Ranch Rd & Marksheffel Rd

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	65											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	114	69	6	8	94	701	3	11	10	457	10	95
Future Vol, veh/h	114	69	6	8	94	701	3	11	10	457	10	95
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	300	-	200	250	-	205	0	-	-	155	-	0
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	88	88	2	2	78	2	78	2	2	2
Mvmt Flow	134	81	7	9	111	825	4	13	12	538	12	112

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	936	0	0	88	0	0	429	1303	41	444	485	56
Stage 1	-	-	-	-	-	-	349	349	-	129	129	-
Stage 2	-	-	-	-	-	-	80	954	-	315	356	-
Critical Hdwy	4.14	-	-	5.86	-	-	9.06	6.54	8.46	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	8.06	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	8.06	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	3.08	-	-	4.28	4.02	4.08	3.52	4.02	3.32
Pot Cap-1 Maneuver	727	-	-	1051	-	-	365	159	820	~ 497	481	999
Stage 1	-	-	-	-	-	-	470	632	-	861	788	-
Stage 2	-	-	-	-	-	-	737	335	-	671	628	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	727	-	-	1051	-	-	270	129	820	~ 387	389	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	270	129	-	~ 387	389	-
Stage 1	-	-	-	-	-	-	384	516	-	703	781	-
Stage 2	-	-	-	-	-	-	639	332	-	~ 526	512	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.7	0.1	23.2	179.1
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	270	215	727	-	-	1051	-	-	387	389	999
HCM Lane V/C Ratio	0.013	0.115	0.184	-	-	0.009	-	-	1.389	0.03	0.112
HCM Control Delay (s)	18.5	23.9	11.1	-	-	8.5	-	-	218	14.5	9.1
HCM Lane LOS	C	C	B	-	-	A	-	-	F	B	A
HCM 95th %tile Q(veh)	0	0.4	0.7	-	-	0	-	-	26.5	0.1	0.4

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

Timings 13: Sterling Ranch Rd & Marksheffel Rd

Short-Term Total Traffic
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	114	69	6	8	94	701	3	11	457	10	95
Future Volume (vph)	114	69	6	8	94	701	3	11	457	10	95
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8				4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	10.0	23.0	23.0
Total Split (s)	10.0	40.0	40.0	10.0	40.0	40.0	10.0	25.0	15.0	30.0	30.0
Total Split (%)	11.1%	44.4%	44.4%	11.1%	44.4%	44.4%	11.1%	27.8%	16.7%	33.3%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None
Act Effect Green (s)	25.4	24.8	24.8	22.2	18.2	18.2	6.6	10.7	10.7	11.3	11.3
Actuated g/C Ratio	0.51	0.50	0.50	0.45	0.37	0.37	0.13	0.22	0.22	0.23	0.23
v/c Ratio	0.21	0.05	0.01	0.03	0.09	0.75	0.03	0.09	0.73	0.03	0.24
Control Delay	7.4	8.3	0.0	6.9	11.9	6.3	18.7	17.3	29.6	19.8	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	8.3	0.0	6.9	11.9	6.3	18.7	17.3	29.6	19.8	4.5
LOS	A	A	A	A	B	A	B	B	C	B	A
Approach Delay		7.5			6.9			17.5		25.1	
Approach LOS		A			A			B		C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 49.4

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 70.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: Sterling Ranch Rd & Marksheffel Rd



HCM 6th TWSC
309: Sterling Ranch Rd & Vancouver St

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑	↕	↕	↕	
Traffic Vol, veh/h	0	0	85	17	0	0	138	18	99	0	3	0
Future Vol, veh/h	0	0	85	17	0	0	138	18	99	0	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	200	200	-	-
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	0	0	100	20	0	0	162	21	116	0	4	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	407	465	4	399	349	21	4	0	0	137	0	0
Stage 1	4	4	-	345	345	-	-	-	-	-	-	-
Stage 2	403	461	-	54	4	-	-	-	-	-	-	-
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	555	495	1080	561	575	1056	1618	-	-	1447	-	-
Stage 1	1018	892	-	671	636	-	-	-	-	-	-	-
Stage 2	624	565	-	958	892	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	512	446	1080	470	518	1056	1618	-	-	1447	-	-
Mov Cap-2 Maneuver	512	446	-	470	518	-	-	-	-	-	-	-
Stage 1	916	892	-	604	572	-	-	-	-	-	-	-
Stage 2	562	509	-	869	892	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.7		13		4		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1618	-	-	1080	470	1447	-
HCM Lane V/C Ratio	0.1	-	-	0.093	0.043	-	-
HCM Control Delay (s)	7.5	-	-	8.7	13	0	-
HCM Lane LOS	A	-	-	A	B	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.3	0.1	0	-

Timings 4: Vollmer Rd & Briargate Pkwy

2045 Background Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	529	153	228	1015	79	153	130	101	108	310	139
Future Volume (vph)	68	529	153	228	1015	79	153	130	101	108	310	139
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	15.0	15.0	15.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	57.0	57.0	20.0	65.0	65.0	17.0	28.0	28.0	15.0	26.0	26.0
Total Split (%)	10.0%	47.5%	47.5%	16.7%	54.2%	54.2%	14.2%	23.3%	23.3%	12.5%	21.7%	21.7%
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 Effect Green (s)	58.7	52.1	52.1	15.0	62.7	62.7	29.2	17.9	17.9	25.3	16.0	16.0
Actuated g/C Ratio	0.51	0.46	0.46	0.13	0.55	0.55	0.26	0.16	0.16	0.22	0.14	0.14
v/c Ratio	0.25	0.34	0.20	0.53	0.55	0.09	0.60	0.24	0.28	0.36	0.66	0.41
Control Delay	12.2	21.3	3.7	52.0	19.4	1.6	42.1	43.1	3.6	34.7	53.4	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	21.3	3.7	52.0	19.4	1.6	42.1	43.1	3.6	34.7	53.4	9.6
LOS	B	C	A	D	B	A	D	D	A	C	D	A
Approach Delay		16.8			24.0			32.2			38.8	
Approach LOS		B			C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 26.0

Intersection LOS: C

Intersection Capacity Utilization 65.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Vollmer Rd & Briargate Pkwy



Timings 5: Sterling Ranch Rd & Briargate Pkwy

2045 Background Traffic

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	605	135	144	936	10	241	104	123	47	123	146
Future Volume (vph)	56	605	135	144	936	10	241	104	123	47	123	146
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0		5.0	20.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	25.0		10.0	25.0	
Total Split (s)	12.0	55.0	55.0	12.0	55.0	55.0	21.0	32.0		21.0	32.0	
Total Split (%)	10.0%	45.8%	45.8%	10.0%	45.8%	45.8%	17.5%	26.7%		17.5%	26.7%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effect Green (s)	56.7	50.0	50.0	58.1	52.5	52.5	48.0	37.6	120.0	35.6	28.1	120.0
Actuated g/C Ratio	0.47	0.42	0.42	0.48	0.44	0.44	0.40	0.31	1.00	0.30	0.23	1.00
v/c Ratio	0.26	0.43	0.19	0.44	0.64	0.01	0.51	0.19	0.08	0.12	0.30	0.10
Control Delay	17.7	26.1	4.1	20.2	29.3	0.0	29.5	32.8	0.1	23.8	40.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	26.1	4.1	20.2	29.3	0.0	29.5	32.8	0.1	23.8	40.6	0.1
LOS	B	C	A	C	C	A	C	C	A	C	D	A
Approach Delay		21.7			27.8			22.5			19.3	
Approach LOS		C			C			C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 24.1

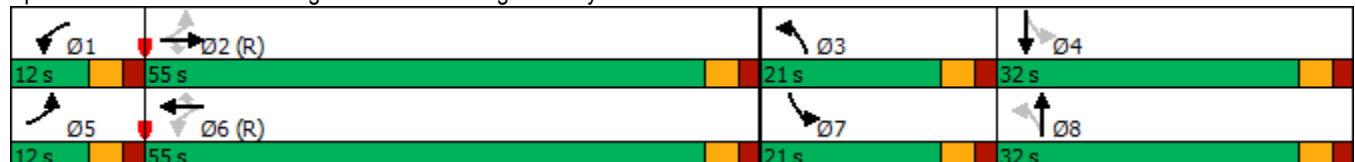
Intersection LOS: C

Intersection Capacity Utilization 76.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Sterling Ranch Rd & Briargate Pkwy



Timings
12: Vollmer Rd & Marksheffel Rd

2045 Background Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	832	42	162	898	63	108	246	104	121	566	135
Future Volume (vph)	68	832	42	162	898	63	108	246	104	121	566	135
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (s)	12.0	60.0	60.0	12.0	60.0	60.0	13.0	35.0	35.0	13.0	35.0	35.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	10.8%	29.2%	29.2%	10.8%	29.2%	29.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	61.7	55.0	55.0	63.0	57.4	57.4	37.9	30.1	30.1	38.1	30.2	30.2
Actuated g/C Ratio	0.51	0.46	0.46	0.52	0.48	0.48	0.32	0.25	0.25	0.32	0.25	0.25
v/c Ratio	0.26	0.54	0.06	0.59	0.56	0.08	0.51	0.29	0.23	0.34	0.67	0.29
Control Delay	14.9	25.0	0.1	24.0	15.2	0.3	35.5	37.5	7.8	30.0	44.9	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	25.0	0.1	24.0	15.2	0.3	35.5	37.5	7.8	30.0	44.9	9.2
LOS	B	C	A	C	B	A	D	D	A	C	D	A
Approach Delay		23.1			15.7			30.3			36.8	
Approach LOS		C			B			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 25.0

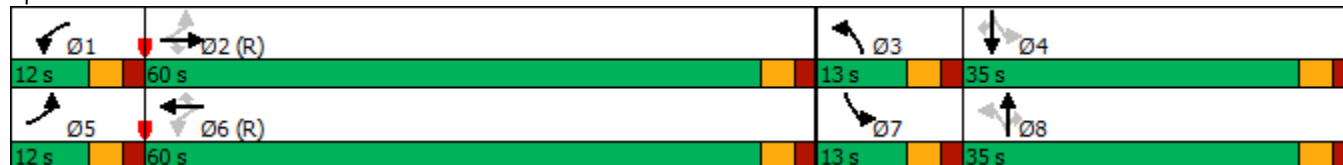
Intersection LOS: C

Intersection Capacity Utilization 70.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 12: Vollmer Rd & Marksheffel Rd



Timings
13: Sterling Ranch Rd & Marksheffel Rd

2045 Background Traffic
AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	142	884	12	53	807	172	7	2	498	10	308
Future Volume (vph)	142	884	12	53	807	172	7	2	498	10	308
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8				4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	20.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	15.0	25.0	20.0	20.0
Total Split (s)	12.0	51.0	51.0	12.0	51.0	51.0	12.0	25.0	32.0	45.0	45.0
Total Split (%)	10.0%	42.5%	42.5%	10.0%	42.5%	42.5%	10.0%	20.8%	26.7%	37.5%	37.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effect Green (s)	81.7	73.8	73.8	76.2	69.4	69.4	8.0	10.0	23.4	24.1	24.1
Actuated g/C Ratio	0.68	0.62	0.62	0.64	0.58	0.58	0.07	0.08	0.20	0.20	0.20
v/c Ratio	0.35	0.43	0.01	0.15	0.41	0.18	0.06	0.06	0.78	0.03	0.59
Control Delay	13.3	12.0	0.0	8.9	16.6	3.2	41.1	33.0	54.5	36.2	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	12.0	0.0	8.9	16.6	3.2	41.1	33.0	54.5	36.2	11.0
LOS	B	B	A	A	B	A	D	C	D	D	B
Approach Delay		12.0			14.0			36.6		37.9	
Approach LOS		B			B			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 20.1

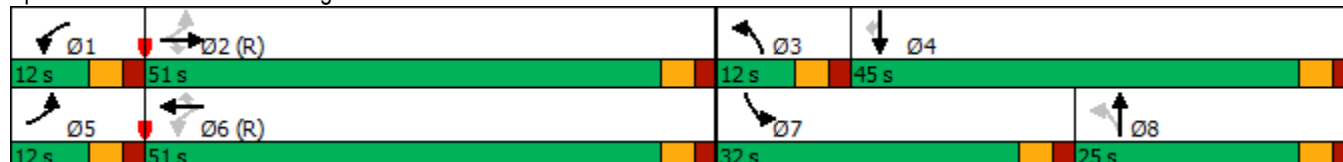
Intersection LOS: C

Intersection Capacity Utilization 63.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 13: Sterling Ranch Rd & Marksheffel Rd



Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	12	25	0	1	3	126	22	0	208	0
Future Vol, veh/h	0	0	12	25	0	1	3	126	22	0	208	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	200	200	-	-
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	0	0	13	26	0	1	3	133	23	0	219	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	370	381	219	365	358	133	219	0	0	156	0	0
Stage 1	219	219	-	139	139	-	-	-	-	-	-	-
Stage 2	151	162	-	226	219	-	-	-	-	-	-	-
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	587	552	821	591	568	916	1350	-	-	1424	-	-
Stage 1	783	722	-	864	782	-	-	-	-	-	-	-
Stage 2	851	764	-	777	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	585	551	821	581	567	916	1350	-	-	1424	-	-
Mov Cap-2 Maneuver	585	551	-	581	567	-	-	-	-	-	-	-
Stage 1	781	722	-	862	780	-	-	-	-	-	-	-
Stage 2	848	762	-	765	722	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9.5		11.4		0.2		0					
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1350	-	-	821	589	1424	-	-				
HCM Lane V/C Ratio	0.002	-	-	0.015	0.046	-	-	-				
HCM Control Delay (s)	7.7	-	-	9.5	11.4	0	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-				

Timings 4: Vollmer Rd & Briargate Pkwy

2045 Background Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	969	176	187	720	65	291	414	262	91	211	118
Future Volume (vph)	227	969	176	187	720	65	291	414	262	91	211	118
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	15.0	15.0	15.0	15.0	15.0	8.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0	13.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	53.0	53.0	20.0	61.0	61.0	22.0	28.0	28.0	19.0	25.0	25.0
Total Split (%)	10.0%	44.2%	44.2%	16.7%	50.8%	50.8%	18.3%	23.3%	23.3%	15.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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 Effect Green (s)	55.1	48.1	48.1	15.0	56.1	56.1	34.9	20.2	20.2	23.7	13.7	13.7
Actuated g/C Ratio	0.49	0.42	0.42	0.13	0.49	0.49	0.31	0.18	0.18	0.21	0.12	0.12
v/c Ratio	0.64	0.66	0.24	0.43	0.43	0.08	0.82	0.67	0.54	0.37	0.52	0.38
Control Delay	23.6	29.3	4.0	49.5	20.0	1.1	51.4	49.5	9.2	32.9	51.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	29.3	4.0	49.5	20.0	1.1	51.4	49.5	9.2	32.9	51.0	6.7
LOS	C	C	A	D	B	A	D	D	A	C	D	A
Approach Delay		25.0			24.4			39.0			34.6	
Approach LOS		C			C			D			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 113.4

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 29.6

Intersection LOS: C

Intersection Capacity Utilization 77.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Vollmer Rd & Briargate Pkwy



Timings 5: Sterling Ranch Rd & Briargate Pkwy

2045 Background Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	262	902	134	154	831	39	146	113	84	37	59	106
Future Volume (vph)	262	902	134	154	831	39	146	113	84	37	59	106
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0		5.0	20.0	
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	25.0		10.0	25.0	
Total Split (s)	22.0	68.0	68.0	12.0	58.0	58.0	15.0	30.0		10.0	25.0	
Total Split (%)	18.3%	56.7%	56.7%	10.0%	48.3%	48.3%	12.5%	25.0%		8.3%	20.8%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effect Green (s)	77.3	66.1	66.1	66.6	59.6	59.6	32.0	26.0	120.0	21.0	20.0	120.0
Actuated g/C Ratio	0.64	0.55	0.55	0.56	0.50	0.50	0.27	0.22	1.00	0.18	0.17	1.00
v/c Ratio	0.68	0.49	0.15	0.49	0.50	0.05	0.44	0.30	0.06	0.16	0.20	0.07
Control Delay	18.3	18.4	2.7	15.5	22.8	0.1	38.6	41.7	0.1	33.0	45.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	18.4	2.7	15.5	22.8	0.1	38.6	41.7	0.1	33.0	45.1	0.1
LOS	B	B	A	B	C	A	D	D	A	C	D	A
Approach Delay		16.7			20.8			30.2			19.2	
Approach LOS		B			C			C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 20.0

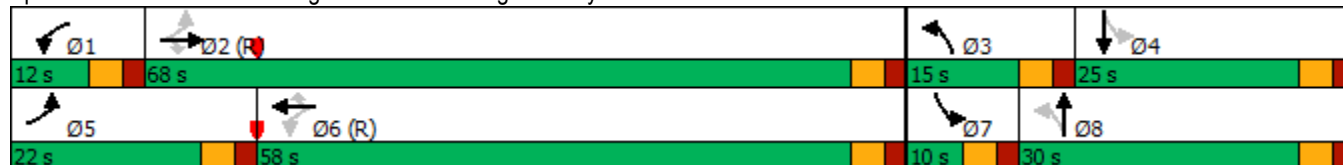
Intersection LOS: B

Intersection Capacity Utilization 66.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: Sterling Ranch Rd & Briargate Pkwy



Timings
12: Vollmer Rd & Marksheffel Rd

2045 Background Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	913	89	187	701	149	169	770	176	126	381	196
Future Volume (vph)	138	913	89	187	701	149	169	770	176	126	381	196
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	25.0	25.0	10.0	25.0	25.0
Total Split (s)	20.0	50.0	50.0	20.0	50.0	50.0	15.0	37.0	37.0	13.0	35.0	35.0
Total Split (%)	16.7%	41.7%	41.7%	16.7%	41.7%	41.7%	12.5%	30.8%	30.8%	10.8%	29.2%	29.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	58.2	47.7	47.7	61.8	49.5	49.5	41.8	32.0	32.0	38.2	30.2	30.2
Actuated g/C Ratio	0.48	0.40	0.40	0.52	0.41	0.41	0.35	0.27	0.27	0.32	0.25	0.25
v/c Ratio	0.41	0.68	0.14	0.67	0.51	0.21	0.54	0.86	0.36	0.74	0.45	0.37
Control Delay	17.7	33.4	3.8	45.9	20.7	4.4	33.2	52.4	14.2	52.0	39.9	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	33.4	3.8	45.9	20.7	4.4	33.2	52.4	14.2	52.0	39.9	6.9
LOS	B	C	A	D	C	A	C	D	B	D	D	A
Approach Delay		29.2			22.9			43.5			32.9	
Approach LOS		C			C			D			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 32.2

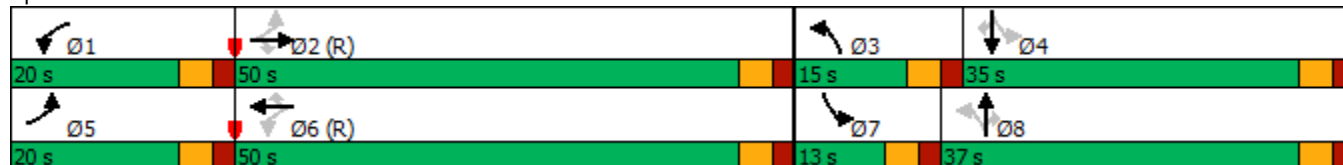
Intersection LOS: C

Intersection Capacity Utilization 80.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 12: Vollmer Rd & Marksheffel Rd



Timings
13: Sterling Ranch Rd & Marksheffel Rd

2045 Background Traffic
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		 			 			 	 	 	
Traffic Volume (vph)	295	940	6	62	838	549	18	4	338	16	181
Future Volume (vph)	295	940	6	62	838	549	18	4	338	16	181
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8				4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	20.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	15.0	25.0	20.0	20.0
Total Split (s)	20.0	68.0	68.0	12.0	60.0	60.0	10.0	15.0	25.0	30.0	30.0
Total Split (%)	16.7%	56.7%	56.7%	10.0%	50.0%	50.0%	8.3%	12.5%	20.8%	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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effect Green (s)	81.0	71.6	71.6	69.4	62.9	62.9	11.0	10.0	20.0	25.0	25.0
Actuated g/C Ratio	0.68	0.60	0.60	0.58	0.52	0.52	0.09	0.08	0.17	0.21	0.21
v/c Ratio	0.73	0.47	0.01	0.19	0.48	0.52	0.13	0.18	0.62	0.04	0.40
Control Delay	38.1	10.2	0.0	10.2	20.8	3.5	35.7	24.2	51.9	37.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	10.2	0.0	10.2	20.8	3.5	35.7	24.2	51.9	37.4	8.2
LOS	D	B	A	B	C	A	D	C	D	D	A
Approach Delay		16.8			13.8			28.8		36.6	
Approach LOS		B			B			C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 18.9

Intersection LOS: B

Intersection Capacity Utilization 71.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: Sterling Ranch Rd & Marksheffel Rd



Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	
Traffic Vol, veh/h	0	0	8	14	0	0	12	291	65	1	135	0
Future Vol, veh/h	0	0	8	14	0	0	12	291	65	1	135	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	200	200	-	-
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	0	0	8	15	0	0	13	306	68	1	142	0

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	510	544	142	480	476	306	142	0	0	374	0	0
Stage 1	144	144	-	332	332	-	-	-	-	-	-	-
Stage 2	366	400	-	148	144	-	-	-	-	-	-	-
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	474	446	906	496	488	734	1441	-	-	1184	-	-
Stage 1	859	778	-	681	644	-	-	-	-	-	-	-
Stage 2	653	602	-	855	778	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	470	442	906	488	483	734	1441	-	-	1184	-	-
Mov Cap-2 Maneuver	470	442	-	488	483	-	-	-	-	-	-	-
Stage 1	851	777	-	675	638	-	-	-	-	-	-	-
Stage 2	647	597	-	846	777	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9		12.6		0.2		0.1	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	906	488	1184	-
HCM Lane V/C Ratio	0.009	-	-	0.009	0.03	0.001	-
HCM Control Delay (s)	7.5	-	-	9	12.6	8	-
HCM Lane LOS	A	-	-	A	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

Timings

4: Vollmer Rd & Briargate Pkwy

2045 Total Traffic

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	534	153	250	1037	82	153	130	105	108	310	139
Future Volume (vph)	68	534	153	250	1037	82	153	130	105	108	310	139
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	15.0	15.0	15.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	57.0	57.0	20.0	65.0	65.0	17.0	28.0	28.0	15.0	26.0	26.0
Total Split (%)	10.0%	47.5%	47.5%	16.7%	54.2%	54.2%	14.2%	23.3%	23.3%	12.5%	21.7%	21.7%
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 Effect Green (s)	58.7	52.1	52.1	15.0	62.7	62.7	29.2	17.9	17.9	25.3	16.0	16.0
Actuated g/C Ratio	0.51	0.46	0.46	0.13	0.55	0.55	0.26	0.16	0.16	0.22	0.14	0.14
v/c Ratio	0.26	0.34	0.20	0.58	0.56	0.09	0.60	0.24	0.29	0.36	0.66	0.41
Control Delay	12.3	21.4	3.7	53.3	19.7	1.9	42.1	43.1	4.1	34.7	53.4	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	21.4	3.7	53.3	19.7	1.9	42.1	43.1	4.1	34.7	53.4	9.6
LOS	B	C	A	D	B	A	D	D	A	C	D	A
Approach Delay		16.9			24.8			32.0			38.8	
Approach LOS		B			C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 26.3

Intersection LOS: C

Intersection Capacity Utilization 66.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Vollmer Rd & Briargate Pkwy



Timings 5: Sterling Ranch Rd & Briargate Pkwy

2045 Total Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	605	135	144	936	18	241	129	123	87	149	193
Future Volume (vph)	66	605	135	144	936	18	241	129	123	87	149	193
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0		5.0	20.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	25.0		10.0	25.0	
Total Split (s)	12.0	55.0	55.0	12.0	55.0	55.0	21.0	32.0		21.0	32.0	
Total Split (%)	10.0%	45.8%	45.8%	10.0%	45.8%	45.8%	17.5%	26.7%		17.5%	26.7%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effect Green (s)	56.8	50.0	50.0	58.0	52.4	52.4	47.7	33.5	120.0	37.5	28.1	120.0
Actuated g/C Ratio	0.47	0.42	0.42	0.48	0.44	0.44	0.40	0.28	1.00	0.31	0.23	1.00
v/c Ratio	0.30	0.43	0.19	0.44	0.64	0.03	0.55	0.26	0.08	0.21	0.36	0.13
Control Delay	18.3	26.1	4.1	20.0	29.4	0.1	30.3	36.1	0.1	24.7	41.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	26.1	4.1	20.0	29.4	0.1	30.3	36.1	0.1	24.7	41.8	0.2
LOS	B	C	A	C	C	A	C	D	A	C	D	A
Approach Delay		21.8			27.7			24.3			19.6	
Approach LOS		C			C			C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 24.2

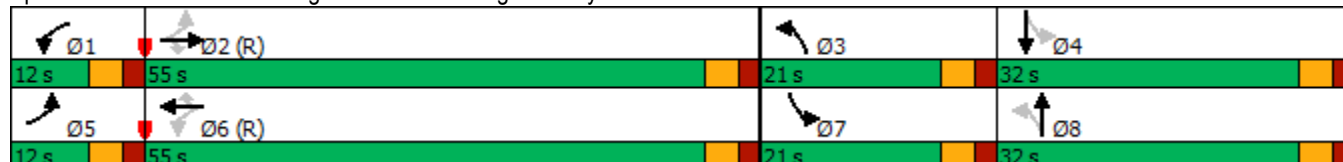
Intersection LOS: C

Intersection Capacity Utilization 76.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Sterling Ranch Rd & Briargate Pkwy



Timings
12: Vollmer Rd & Marksheffel Rd

2045 Total Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	833	42	162	903	63	108	251	104	121	588	135
Future Volume (vph)	68	833	42	162	903	63	108	251	104	121	588	135
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (s)	12.0	60.0	60.0	12.0	60.0	60.0	13.0	35.0	35.0	13.0	35.0	35.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	10.8%	29.2%	29.2%	10.8%	29.2%	29.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	61.7	55.0	55.0	63.0	57.4	57.4	37.9	30.1	30.1	38.1	30.2	30.2
Actuated g/C Ratio	0.51	0.46	0.46	0.52	0.48	0.48	0.32	0.25	0.25	0.32	0.25	0.25
v/c Ratio	0.27	0.54	0.06	0.59	0.56	0.08	0.53	0.30	0.23	0.35	0.70	0.29
Control Delay	14.9	25.0	0.1	23.9	15.3	0.3	36.4	37.5	7.8	30.0	45.7	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	25.0	0.1	23.9	15.3	0.3	36.4	37.5	7.8	30.0	45.7	10.0
LOS	B	C	A	C	B	A	D	D	A	C	D	A
Approach Delay		23.1			15.7			30.6			37.7	
Approach LOS		C			B			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 25.3

Intersection LOS: C

Intersection Capacity Utilization 70.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 12: Vollmer Rd & Marksheffel Rd



Timings
13: Sterling Ranch Rd & Marksheffel Rd

2045 Total Traffic
AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	144	884	12	53	807	174	7	2	509	10	314
Future Volume (vph)	144	884	12	53	807	174	7	2	509	10	314
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8				4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	20.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	15.0	25.0	20.0	20.0
Total Split (s)	12.0	51.0	51.0	12.0	51.0	51.0	12.0	25.0	32.0	45.0	45.0
Total Split (%)	10.0%	42.5%	42.5%	10.0%	42.5%	42.5%	10.0%	20.8%	26.7%	37.5%	37.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effect Green (s)	81.5	73.6	73.6	75.9	69.1	69.1	8.0	10.0	23.7	24.4	24.4
Actuated g/C Ratio	0.68	0.61	0.61	0.63	0.58	0.58	0.07	0.08	0.20	0.20	0.20
v/c Ratio	0.36	0.43	0.01	0.15	0.42	0.19	0.06	0.06	0.79	0.03	0.60
Control Delay	13.8	12.1	0.0	9.0	16.9	3.2	41.1	33.0	54.8	36.0	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	12.1	0.0	9.0	16.9	3.2	41.1	33.0	54.8	36.0	11.6
LOS	B	B	A	A	B	A	D	C	D	D	B
Approach Delay		12.2			14.2			36.6		38.3	
Approach LOS		B			B			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 20.4

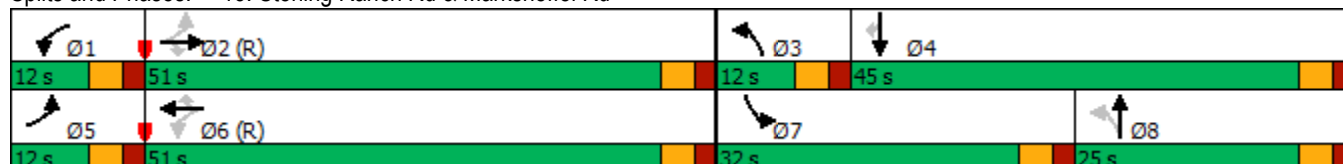
Intersection LOS: C

Intersection Capacity Utilization 64.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 13: Sterling Ranch Rd & Marksheffel Rd



Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑	↕	↕	↕	
Traffic Vol, veh/h	0	0	126	25	0	1	47	126	22	0	208	0
Future Vol, veh/h	0	0	126	25	0	1	47	126	22	0	208	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	200	200	-	-
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	0	0	133	26	0	1	49	133	23	0	219	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	462	473	219	517	450	133	219	0	0	156	0	0
Stage 1	219	219	-	231	231	-	-	-	-	-	-	-
Stage 2	243	254	-	286	219	-	-	-	-	-	-	-
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	510	490	821	469	504	916	1350	-	-	1424	-	-
Stage 1	783	722	-	772	713	-	-	-	-	-	-	-
Stage 2	761	697	-	721	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	495	472	821	382	486	916	1350	-	-	1424	-	-
Mov Cap-2 Maneuver	495	472	-	382	486	-	-	-	-	-	-	-
Stage 1	755	722	-	744	687	-	-	-	-	-	-	-
Stage 2	733	672	-	605	722	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.2		14.9		1.9		0	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1350	-	-	821	391	1424	-
HCM Lane V/C Ratio	0.037	-	-	0.162	0.07	-	-
HCM Control Delay (s)	7.8	-	-	10.2	14.9	0	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.2	0	-

Timings

4: Vollmer Rd & Briargate Pkwy

2045 Total Traffic

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	996	176	202	735	67	291	414	288	94	211	118
Future Volume (vph)	227	996	176	202	735	67	291	414	288	94	211	118
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	15.0	15.0	15.0	15.0	15.0	8.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0	13.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	53.0	53.0	20.0	61.0	61.0	22.0	28.0	28.0	19.0	25.0	25.0
Total Split (%)	10.0%	44.2%	44.2%	16.7%	50.8%	50.8%	18.3%	23.3%	23.3%	15.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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 Effect Green (s)	55.1	48.1	48.1	15.0	56.1	56.1	35.2	20.3	20.3	24.2	14.0	14.0
Actuated g/C Ratio	0.48	0.42	0.42	0.13	0.49	0.49	0.31	0.18	0.18	0.21	0.12	0.12
v/c Ratio	0.65	0.68	0.24	0.47	0.44	0.08	0.81	0.67	0.59	0.38	0.51	0.37
Control Delay	24.6	30.1	4.4	50.4	20.3	1.2	50.9	49.5	11.2	32.9	50.6	6.6
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	24.6	30.1	4.4	50.4	20.3	1.2	50.9	49.5	11.2	32.9	50.6	6.6
LOS	C	C	A	D	C	A	D	D	B	C	D	A
Approach Delay		25.9			25.1			38.7			34.4	
Approach LOS		C			C			D			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 113.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 29.9

Intersection LOS: C

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Vollmer Rd & Briargate Pkwy



Timings 5: Sterling Ranch Rd & Briargate Pkwy

2045 Total Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	902	134	154	831	86	146	138	84	65	77	139
Future Volume (vph)	318	902	134	154	831	86	146	138	84	65	77	139
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0		5.0	20.0	
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	25.0		10.0	25.0	
Total Split (s)	22.0	68.0	68.0	12.0	58.0	58.0	15.0	30.0		10.0	25.0	
Total Split (%)	18.3%	56.7%	56.7%	10.0%	48.3%	48.3%	12.5%	25.0%		8.3%	20.8%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effect Green (s)	77.7	66.1	66.1	64.8	57.9	57.9	32.0	24.0	120.0	21.0	20.0	120.0
Actuated g/C Ratio	0.65	0.55	0.55	0.54	0.48	0.48	0.27	0.20	1.00	0.18	0.17	1.00
v/c Ratio	0.78	0.49	0.15	0.48	0.51	0.11	0.45	0.39	0.06	0.28	0.26	0.09
Control Delay	25.3	18.4	2.7	15.5	24.0	0.4	38.8	44.8	0.1	36.6	46.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	18.4	2.7	15.5	24.0	0.4	38.8	44.8	0.1	36.6	46.2	0.1
LOS	C	B	A	B	C	A	D	D	A	D	D	A
Approach Delay		18.4			20.9			32.2			21.2	
Approach LOS		B			C			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 21.2

Intersection LOS: C

Intersection Capacity Utilization 82.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: Sterling Ranch Rd & Briargate Pkwy



Timings
12: Vollmer Rd & Marksheffel Rd

2045 Total Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	919	89	187	704	149	169	796	176	126	396	196
Future Volume (vph)	138	919	89	187	704	149	169	796	176	126	396	196
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	25.0	25.0	10.0	25.0	25.0
Total Split (s)	20.0	50.0	50.0	20.0	50.0	50.0	15.0	37.0	37.0	13.0	35.0	35.0
Total Split (%)	16.7%	41.7%	41.7%	16.7%	41.7%	41.7%	12.5%	30.8%	30.8%	10.8%	29.2%	29.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	58.1	47.7	47.7	61.9	49.5	49.5	41.8	32.0	32.0	38.2	30.2	30.2
Actuated g/C Ratio	0.48	0.40	0.40	0.52	0.41	0.41	0.35	0.27	0.27	0.32	0.25	0.25
v/c Ratio	0.41	0.69	0.14	0.67	0.51	0.21	0.55	0.89	0.36	0.74	0.47	0.37
Control Delay	17.7	33.5	3.8	46.3	20.7	4.4	33.7	54.9	14.8	52.0	40.3	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	33.5	3.8	46.3	20.7	4.4	33.7	54.9	14.8	52.0	40.3	6.9
LOS	B	C	A	D	C	A	C	D	B	D	D	A
Approach Delay		29.3			23.0			45.6			33.2	
Approach LOS		C			C			D			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 33.0

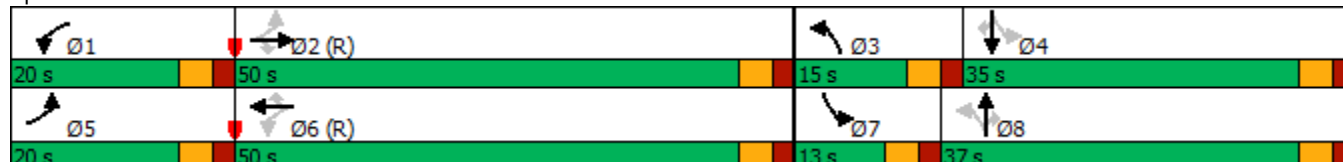
Intersection LOS: C

Intersection Capacity Utilization 81.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 12: Vollmer Rd & Marksheffel Rd



Timings
13: Sterling Ranch Rd & Marksheffel Rd

2045 Total Traffic
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	303	940	6	62	838	562	18	4	346	18	184
Future Volume (vph)	303	940	6	62	838	562	18	4	346	18	184
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8				4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	20.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	15.0	25.0	20.0	20.0
Total Split (s)	20.0	68.0	68.0	12.0	60.0	60.0	10.0	15.0	25.0	30.0	30.0
Total Split (%)	16.7%	56.7%	56.7%	10.0%	50.0%	50.0%	8.3%	12.5%	20.8%	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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effect Green (s)	81.0	71.6	71.6	69.3	62.7	62.7	11.0	10.0	20.0	25.0	25.0
Actuated g/C Ratio	0.68	0.60	0.60	0.58	0.52	0.52	0.09	0.08	0.17	0.21	0.21
v/c Ratio	0.75	0.47	0.01	0.19	0.48	0.53	0.13	0.18	0.64	0.05	0.40
Control Delay	39.6	10.3	0.0	10.2	20.8	3.5	35.7	24.2	52.3	37.5	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	10.3	0.0	10.2	20.8	3.5	35.7	24.2	52.3	37.5	8.2
LOS	D	B	A	B	C	A	D	C	D	D	A
Approach Delay		17.3			13.7			28.8		37.0	
Approach LOS		B			B			C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 19.2

Intersection LOS: B

Intersection Capacity Utilization 72.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: Sterling Ranch Rd & Marksheffel Rd



HCM 6th TWSC
309: Sterling Ranch Rd & Vancouver St

2045 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	
Traffic Vol, veh/h	0	0	87	14	0	0	140	291	65	1	135	0
Future Vol, veh/h	0	0	87	14	0	0	140	291	65	1	135	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	200	200	-	-
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	0	0	92	15	0	0	147	306	68	1	142	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	778	812	142	790	744	306	142	0	0	374	0	0
Stage 1	144	144	-	600	600	-	-	-	-	-	-	-
Stage 2	634	668	-	190	144	-	-	-	-	-	-	-
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	314	313	906	308	343	734	1441	-	-	1184	-	-
Stage 1	859	778	-	488	490	-	-	-	-	-	-	-
Stage 2	467	456	-	812	778	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	289	281	906	255	308	734	1441	-	-	1184	-	-
Mov Cap-2 Maneuver	289	281	-	255	308	-	-	-	-	-	-	-
Stage 1	771	777	-	438	440	-	-	-	-	-	-	-
Stage 2	419	409	-	729	777	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.4		20		2.2		0.1	
HCM LOS	A		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	906	255	1184	-
HCM Lane V/C Ratio	0.102	-	-	0.101	0.058	0.001	-
HCM Control Delay (s)	7.8	-	-	9.4	20	8	-
HCM Lane LOS	A	-	-	A	C	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.3	0.2	0	-

Appendix Table 1

Appendix Table 1: Area Traffic Impact Studies

Study	PCD File No ⁽¹⁾	Consultant	Date
Sterling Ranch Reports			
Sterling Ranch Updated Traffic Impact Analysis	SKP07007	LSC Transportation Consultants, Inc	June 5, 2008
Sterling Ranch Phase 1 Traffic Impact Study	P151	LSC Transportation Consultants, Inc	March 16, 2015
Sterling Ranch Phases 1-3 Transportation Memorandum	SP1415	LSC Transportation Consultants, Inc	October 2, 2017
Branding Iron at Sterling Ranch Filing No. 1 and Homestead at Sterling Ranch Filing No. 1 Transportation Memorandum	SF1724 SF1725	LSC Transportation Consultants, Inc	December 19, 2017
Sterling Ranch Filing No. 2 Transportation Memorandum	SF1820	LSC Transportation Consultants, Inc	April 3, 2018
Sterling Ranch Phase 2 Preliminary Plan Traffic Impact Study	SP203	LSC Transportation Consultants, Inc	December 20, 2018
Homestead at Sterling Ranch Filing No. 2 Transportation Memorandum	SF194	LSC Transportation Consultants, Inc	March 3, 2020
Branding Iron at Sterling Ranch Filing No. 2 Transportation Memorandum	SF1918	LSC Transportation Consultants, Inc	May 6, 2020
Sterling Ranch Filing No. 2 and Phase 2 Traffic Impact Study	SF2015 SP191	LSC Transportation Consultants, Inc	June 23, 2021
Sterling Ranch Filing No. 3 Transportation Memorandum	SF2132	LSC Transportation Consultants, Inc	April 19, 2022
Homestead North Phase 1 Updated Transportation Memorandum	SP208	LSC Transportation Consultants, Inc	January 11, 2022
Homestead North Filing No. 1 Traffic Technical Memorandum	SF2213	LSC Transportation Consultants, Inc	February 2, 2022
Homestead North Filing No. 2 Traffic Technical Memorandum	SF2218	LSC Transportation Consultants, Inc	April 15, 2022
Homestead North Filing 3 Traffic Impact Study	SF2229	LSC Transportation Consultants, Inc	June 17, 2022
The Villages at Sterling Ranch East Preliminary Plan/Traffic Generation Analysis	PUDSP226	SM Rocha, LLC	July 1, 2022
Sterling Ranch Sketch Plan Amendment Master Traffic Impact Study	SKP224	LSC Transportation Consultants, Inc	March 17, 2023
Sterling Ranch East - Rezoning & Preliminary Plan Traffic Impact Study	SP-22-004, P-22-012, P-22-013	LSC Transportation Consultants, Inc	March 17, 2023 ⁽²⁾
Foursquare at Sterling Ranch East Transportation Memorandum	PUDSP226 SF2239	LSC Transportation Consultants, Inc	April 20, 2023
Sterling Ranch East Filing Nos 1 & 2 Traffic Technical Memorandum	SF2235 SF2237	LSC Transportation Consultants, Inc	February 10, 2023
Sterling Ranch Filing No. 4 Transportation Memorandum	SF2230	LSC Transportation Consultants, Inc	February 21, 2023
Copper Chase at Sterling Ranch Traffic Impact Study	PUDSP222	LSC Transportation Consultants, Inc	April 28, 2023
Sterling Ranch Filing No. 5 Traffic Impact Study	PUDSP-23-002	LSC Transportation Consultants, Inc	November 15, 2023
Sterling Ranch East - Filing 5 Rezone & Preliminary Plan Traffic Impact Study	P237 & SP235	LSC Transportation Consultants, Inc	January 15, 2024
Sterling Ranch Sketch Plan 2023 Amendment & Rezone Traffic Technical Memorandum	SKP235, P239, P2311	LSC Transportation Consultants, Inc	January 17, 2024
Sterling Ranch Sketch Plan Amendment #4 & Sterling Ranch East Filing No. 7 Rezone Master Traffic Impact Addendum/Technical	SKP241 & P2415	LSC Transportation Consultants, Inc	November 18, 2024
Sterling Ranch East Filing No. 3 Traffic Impact Study	SF2428	LSC Transportation Consultants, Inc	January 7, 2025
Sterling Ranch East - Filing 6 Rezone & Preliminary Plan Traffic Impact Study	P2414 & SP244	LSC Transportation Consultants, Inc	March 20, 2025
Villages at Sterling Ranch East Traffic Impact Study	SF2439	LSC Transportation Consultants, Inc	April 24, 2025
Sterling Ranch East Filing No. 8 Traffic Impact Study	PUDSP256	LSC Transportation Consultants, Inc	October 28, 2025
Retreat at TimberRidge Reports			
The Retreat at TimberRidge Traffic Impact Analysis	PUD173	LSC Transportation Consultants, Inc	January 25, 2018
The Retreat at TimberRidge Preliminary Plan Traffic Technical Memorandum	SP182	LSC Transportation Consultants, Inc	June 29, 2018
The Retreat at TimberRidge Filing No. 1 Traffic Technical Memorandum	SF199	LSC Transportation Consultants, Inc	April 3, 2020
The Retreat at TimberRidge Filing No. 2 Updated Traffic Technical Memorandum	SF2121	LSC Transportation Consultants, Inc	October 4, 2021
The Retreat at TimberRidge Filing No. 3 Traffic Technical Memorandum	SF2241	LSC Transportation Consultants, Inc	November 15, 2023
The Retreat at TimberRidge Filing No. 4 Traffic Technical Memorandum	SF1827	LSC Transportation Consultants, Inc	February 21, 2024
Other Area Reports			
Wolf Ranch School Site Traffic Impact Study	OAR1720	Matrix Design Group, Inc.	May 5, 2017
The Ranch Sketch Plan Traffic Impact Analysis	SKP186	LSC Transportation Consultants, Inc	July 9, 2019
Lodge III Traffic Impact Study	OAR	LSC Transportation Consultants, Inc	December 13, 2019
Continental 613 Traffic Impact Study	OAR2177	LSC Transportation Consultants, Inc	July 16, 2021
Solace at Black Forest Traffic Impact and Access Analysis	OAR2134	LSC Transportation Consultants, Inc	August 13, 2021
Traffic Impact Study Addendum for Percheron	OAR2173	SM Rocha, LLC	October, 2021
Woodmen East Commercial Center Traffic Impact Analysis	OAR2191	LSC Transportation Consultants, Inc	December 8, 2021
Traffic Impact Study for Jaynes Property	SKP225	SM Rocha, LLC	May, 2022
Briargate-Stapleton Corridor Study	briargate-stapleton.com	Wilson & Company	December 7, 2023
Sterling Recycling Facility Transportation Memorandum	PPR2341	LSC Transportation Consultants, Inc	August 24, 2023
Notes:			
(1) Follow the links listed below to obtain the most recent version of each listed study. To obtain a copy of the version of each study used in preparing this report please contact LSC Transportation Consultants, Inc.			
Source: LSC Transportation Consultants, Inc.			Apr-26

MTCP Maps

Figure 22. 2045 Roadway Functional Classifications

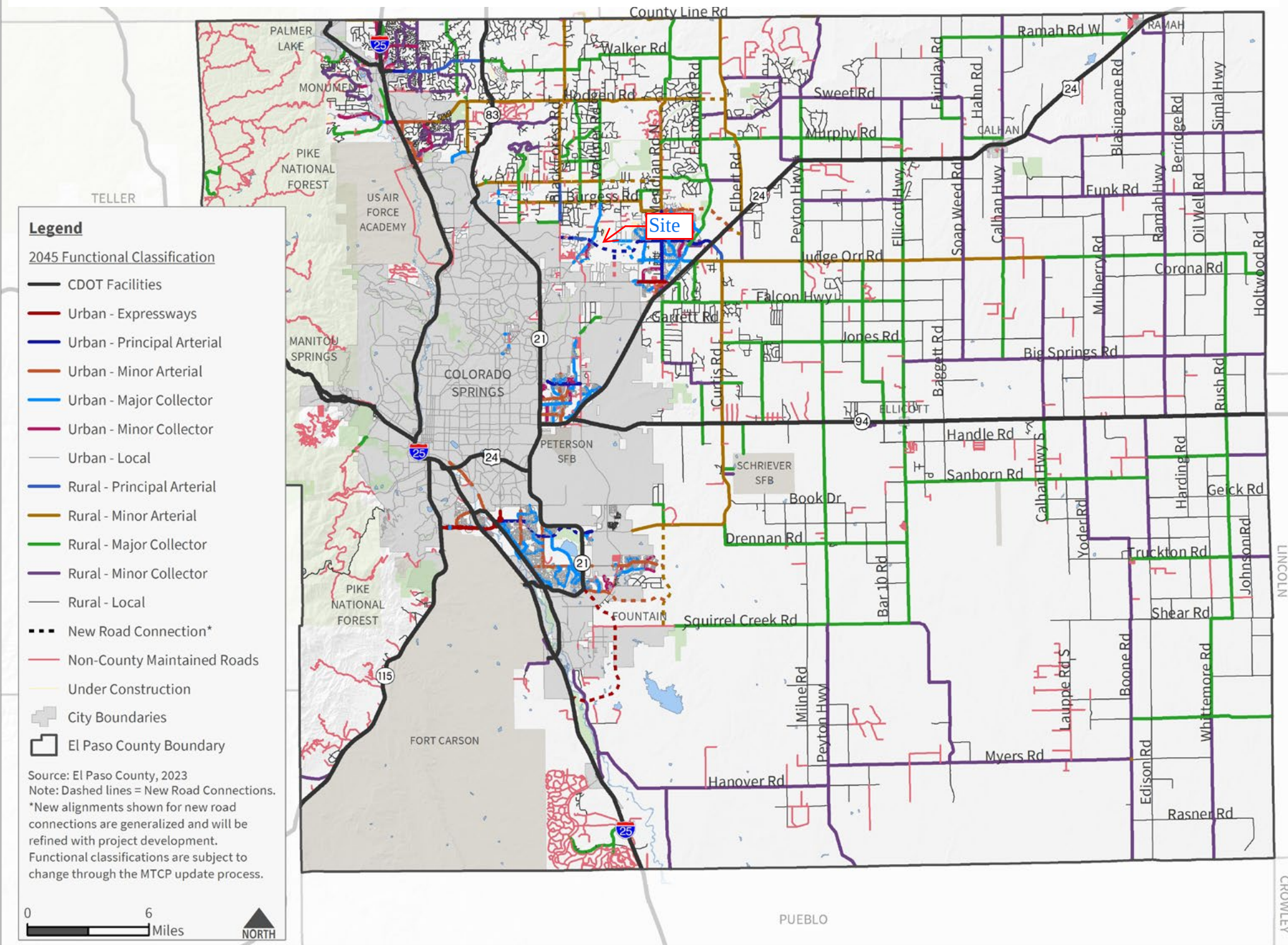
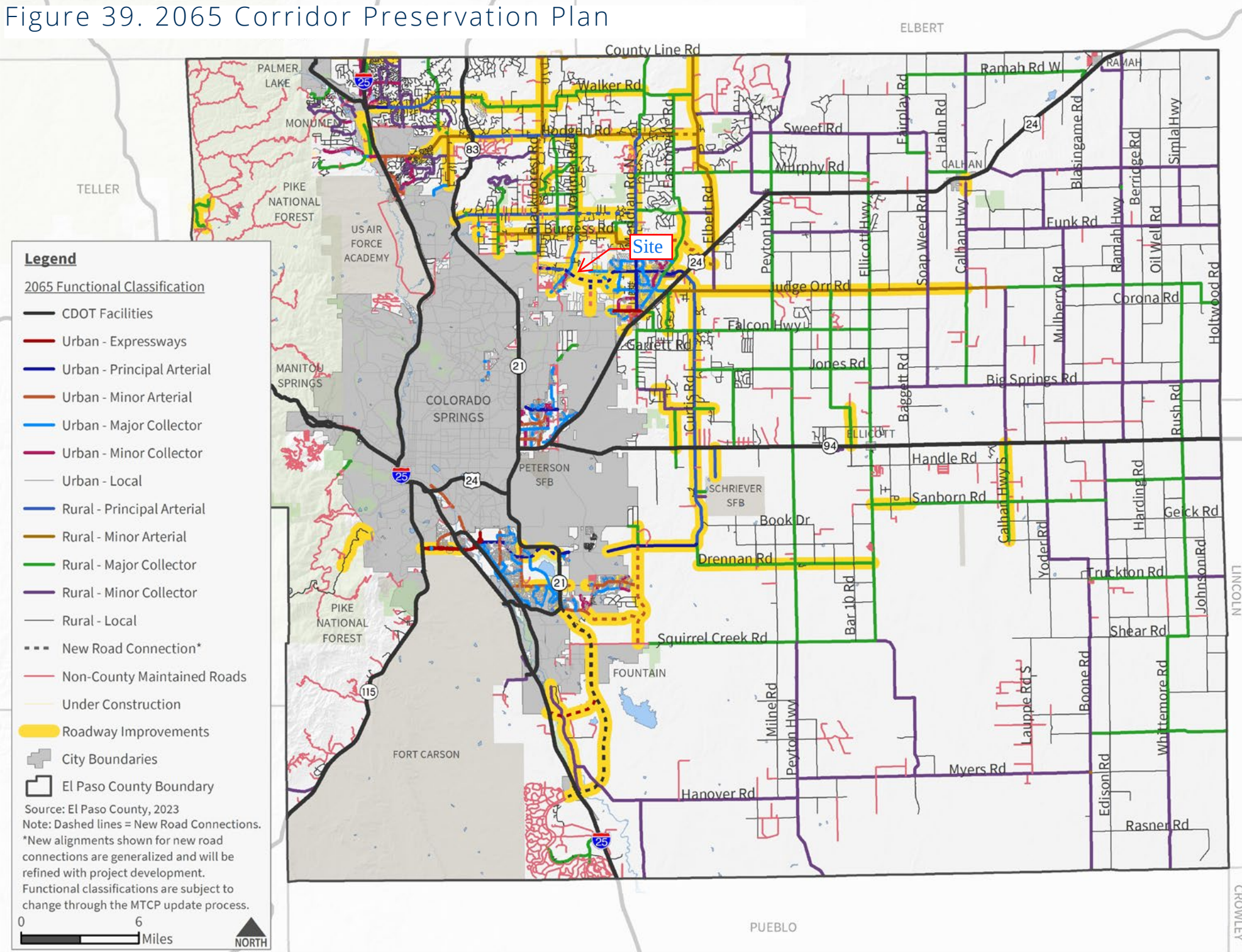


Figure 39. 2065 Corridor Preservation Plan



Crash History



Colorado State Patrol



Colorado Open Records Act (CORA) Request Form

The Colorado State Patrol allows inspection or release of agency criminal justice records and public records in accordance with established statutory policy and/or guidance from the following Colorado Revised Statutes: Public Records §24-72-201, Criminal Justice Records Act §24-72-301, and Children's Code Records and Information Act §19-1-301. The first hour of staff research time related to fulfilling a record request is free to the requestor. The subsequent review, production and/or redaction of agency criminal justice records that takes more than one hour of staff time, the CSP shall charge \$30.00 an hour. As permitted in §24-72-205(6)(a), C.R.S., for all staff time associated with locating and producing records, the CSP may charge an hourly rate greater than \$30.00 an hour when specialized document production or specialized skills are required to locate, compile or produce records. In addition, if the Record Custodian determines that the research time will extend beyond one hour, a \$50.00 deposit may be required.

The following must be complete and accurate

Requestor Information:

Name: Jeffrey C. Hodsdon

Organization represented (if any): LSC Transportation Consultants, Inc.

Address: 2504 East Pikes Peak Avenue, Suite 304

City: Colorado Springs State: Colorado Zip Code: 80909

Phone Number: (719) 633-2868 Email: jeff@lsctrans.com

Description/Name of Document(s) Requested:

Traffic accident/crash data for the past three years at the following stretches of road in

- El Paso County : **Marksheffel Road** between Vollmer Road and Keebler Road
- El Paso County : **Vollmer Road** between Marksheffel Road and Briargate Parkway

Signature

Today's Date: 11 March 2025

Failure to sign will result in the request not being fulfilled

*Your signature affirms that the requested information **will not** be used for solicitation of business for monetary or pecuniary gain and acknowledges that such a violation is a misdemeanor and is punishable by a fine and/or imprisonment – C.R.S. 24-72-305.5 & 24-72-309.*

Please email this form to cdps_cspcorarequests@state.co.us



Julie Slaughter <jaslaughter@Isctrans.com>

Crash History Request - LSC #S224580

CSPCORAREQUESTS - CDPS, CDPS <cdps_cspcorarequests@state.co.us>

Tue, Mar 11, 2025 at 3:43 PM

To: Julie Slaughter <julie@Isctrans.com>

Good afternoon -

We found no records responsive at those locations.

Thank you!!

[Quoted text hidden]