




LSC TRANSPORTATION CONSULTANTS, INC.
545 East Pikes Peak Avenue, Suite 210
Colorado Springs, CO 80903
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: <http://www.lsctrans.com>

Retreat at Timber Ridge Updated Traffic Impact Analysis

PCD File No: PUD-17-003
(LSC #174030)
December 6, 2017

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.

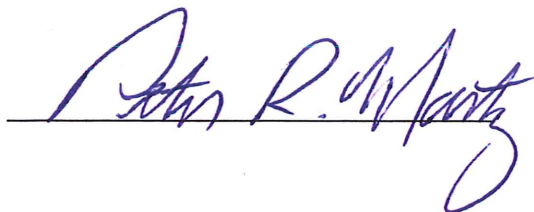

Jeffrey C. Hodsdon, P.E., #31684




Date 12/6/17

Developer's Statement

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


Peter R. Martz


Date 12/6/17



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545 East Pikes Peak Avenue, Suite 210
Colorado Springs, CO 80903
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lscetrans.com
Website: <http://www.lscetrans.com>

December 6, 2017

Mr. Peter Martz
Arroyo Investments
P.O. Box 50223
Colorado Springs, CO 80949

RE: Retreat at Timber Ridge
Updated Traffic Impact Analysis
El Paso County, CO
LSC #174030

Dear Peter:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed Retreat at Timber Ridge residential development to be located generally east of Vollmer Road and south of Arroya Lane in El Paso County, Colorado. Figure 1 shows the site location.

REPORT CONTENTS

The report contains the following:

- The existing roadway and traffic conditions in the site's vicinity including the roadway widths, surface conditions, lane geometries, traffic controls, and posted speed limits, etc.
- The existing traffic volumes on the area roadways.
- The projected average weekday and peak-hour vehicle-trips to be generated by the proposed development.
- The assignment of the projected site-generated traffic volumes to the area roadways.
- The projected total traffic volumes on the area roadways.
- The projected levels of service at the site access points and the key adjacent intersections.
- The resulting traffic impacts.
- Recommendations for roadway improvements.

SITE LAND USE

The site is located generally east of Vollmer Road and south of Arroya Lane. There are existing single-family homes west and north of the site. The vacant parcels south and east of the site are part of the planned Sterling Ranch development. These parcels are planned to be developed for single-family homes.

The site is planned to be developed with 205 lots for single-family homes. Two of these lots are located west of Vollmer Road and 10 of these lots are located north of Arroya Lane. The site plan is shown in Figure 2.

212

has not been?

interim

Access is proposed to Vollmer Road aligning with Poco Road. An additional access to the lots on the west side of Vollmer is proposed for a location 432 feet south of the **existing** Arroya/Vollmer intersection (which is planned to be realigned 18 feet to the north). A deviation request for the location of this access on the west side of Vollmer has been approved. Three full-movement access points are proposed to Arroya Lane. The spacing of the proposed Arroya Lane access points is shown in Figure 2. A deviation request for the location of these access points has been approved. The site plan also shows future connections through the Sterling Ranch development east and south of the site.

EXISTING ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The roadways in the study area are shown on Figure 1 and are described below.

- **Vollmer Road** is a two-lane, rural, paved roadway north of Cowpoke Road extending to north of Hodgen Road. Vollmer Road has a posted speed limit of 45 miles per hour (mph). It is currently a five-lane urban street within the City of Colorado Springs limits between Black Forest Road and Cowpoke Road. The 2040 El Paso County *Major Transportation Corridors Plan (MTCP)* shows Vollmer Road as a two-lane Rural Minor Arterial adjacent to the site.
- **Burgess Road** is a two-lane Rural Minor Arterial that extends east from Milam Road to Goodson Road. The posted speed limit on Burgess Road in the vicinity of Vollmer Road is 45 mph.
- **Briargate Parkway** is a six-lane, Principal Arterial that extends east from I-25 to Grand Lawn Circle (about one-half mile east of Powers Boulevard). Briargate Parkway is planned to ultimately extend to Vollmer Road. The County MTCP shows Briargate/Stapleton east of Black Forest Road as a four-lane Principal Arterial.
- **Stapleton Drive** is shown as a four-lane Principal Arterial on the El Paso County *MTCP*. Stapleton Drive currently extends east from just west of Towner Drive across Eastonville Road to Curtis Road. Stapleton Drive is planned to be extended west to connect to Briargate Parkway in the future.

Existing Traffic Conditions

Figure 3 shows the current morning and afternoon peak-hour traffic volumes at the intersections of Vollmer Road/Poco Road and Vollmer Road/Burgess Road based on counts conducted by LSC in February, March, and June 2017. The traffic count reports 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 and signalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 1 shows the level of service delay ranges.

Table 1 Intersection Levels of Service Delay Ranges			
Level of Service	Signalized Intersections		Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	V/C⁽¹⁾	Average Control Delay (seconds per vehicle)⁽²⁾
A	10.0 sec or less	less than 0.60	10.0 sec or less
B	10.1-20.0 sec	0.60-0.69	10.1-15.0 sec
C	20.1-35.0 sec	0.70-0.79	15.1-25.0 sec
D	35.1-55.0 sec	0.80-0.89	25.1-35.0 sec
E	55.1-80.0 sec	0.90-0.99	35.1-50.0 sec
F	80.1 sec or more	1.00 and greater	50.1 sec or more

(1) Source: *Transportation Research Circular 212*
 (2) For unsignalized intersections if V/C ratio is greater than 1.0 the level of service is LOS F regardless of the projected average control delay per vehicle.

The intersections of Vollmer Road/Poco Road and Vollmer Road/Burgess Road were analyzed to determine the existing levels of service based on the unsignalized method of analysis procedures found in the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. Figure 3 shows the level of service analysis results. The level of service (LOS) reports are attached.

As shown on the figure, all movements the intersection of Vollmer/Poco are currently operating at a level of service A during the peak hours. All movements at the intersection of Vollmer/Burgess are currently operating at LOS C or better during the peak hours.

SIGHT DISTANCE

Figure 4 shows the sight distance analysis for the Arroya Lane access points. The analysis is based on a design speed of 40 miles per hour.

SHORT-TERM (2020) BACKGROUND TRAFFIC

Background traffic is the traffic estimated to be on the adjacent roadways and at adjacent intersections without the proposed development’s trip generation and resulting site-generated traffic volumes. Background traffic includes increases in the through traffic and the traffic generated by adjacent and nearby developments, but assumes zero traffic generated by the site. Figure 5 shows the background traffic for the short term (Year 2020). The short-term background traffic volumes are based on some growth in existing through volumes on Vollmer Road shown in Figure 3, plus the addition of traffic generated by Phase 1 of the Sterling Ranch development located just east of Vollmer Road and south of the future Stapleton Drive, and traffic generated by Sterling Ranch North located east of Vollmer Road between the future Stapleton Drive and future extension of Poco Road. The short-term background volumes assume Stapleton Drive and Briargate Parkway will not be constructed in the vicinity of the site in the short term other than the short segment needed for access for Phase 1 of Sterling Ranch.

2040 BACKGROUND TRAFFIC

Figure 6 shows the background traffic volumes for the year 2040. The 2040 background traffic volume estimates were based on 2040 volume projections in the *El Paso County Major Transportation Corridors Plan (MTCP)* and previous work completed in the area by LSC, including the *Sterling Ranch Updated Traffic Impact Analysis* by LSC dated June 5, 2008. The 2040 background traffic includes buildout of the Sterling Ranch development including the future connections to the Sterling Ranch parcels east of the Retreat at Timber Ridge Site. The 2040 background traffic also assumes a Stapleton Drive extension to the west to Vollmer Road and a Briargate Parkway extension east to Vollmer Road.

TRIP GENERATION

Estimates of the traffic volumes expected to be generated by the existing and proposed land uses within the study area were made using the nationally published trip generation rates found in *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Table 2 shows the trip generation estimates.

The site is projected to generate about 1,935 new external vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 38 vehicles would enter and 114 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 128 vehicles would enter and 75 vehicles would exit the site.

TRIP DISTRIBUTION AND ASSIGNMENT

The estimated directional distribution of the site-generated traffic volumes on the adjacent roadways is an important factor in determining the site's traffic impacts. Figure 7 shows the short-term and long-term directional distribution estimates for the site-generated traffic. The estimates have been based on the following factors: the site's location with respect to the City of Colorado Springs metropolitan area and other developed areas; the site's proposed land use; the site's proposed access points; the roadway system serving the site; and the existing traffic counts. The short-term directional distribution estimates assume the proposed future extensions of Stapleton Drive and Briargate Parkway will not be constructed in the vicinity of the site in the short term other than the short segments needed for access for Phase 1 of Sterling Ranch. The long-term directional distribution estimate assumes buildout of the future street network including a Stapleton Drive extension to the west to Vollmer Road and a Briargate Parkway extension east to Vollmer Road. The long-term distribution estimate also assumes the future connections on the east side of the site will connect to a new north/south collector street through the Sterling Ranch parcel just east of the site.

When the distribution percentages (from Figure 7) were applied to the trip generation estimates (from Table 2), the site generated traffic volumes on the area roadways were determined. Figures 8 and 9 show the short-term and long-term site-generated traffic volumes, respectively.

SHORT-TERM TOTAL TRAFFIC

Figure 10 shows the short-term total traffic volumes at the access points and key intersections in the vicinity of the site. The volumes are the sum of the short-term background traffic volumes from Figure 5, plus the short-term site-generated traffic volumes from Figure 8.

Figure 10 also shows the lane geometry, traffic control, and level of service at the site access points and key intersections based on the short-term total volumes.

2040 TOTAL TRAFFIC

Figure 11 shows the 2040 total traffic volumes at the site access points and key intersections in the vicinity of the site. The volumes are the sum of the 2040 background traffic volumes from Figure 6, plus the long-term site-generated traffic volumes from Figure 9.

Figure 11 also shows the lane geometry, traffic control, and level of service at the key intersections based on the 2040 total volumes.

PROJECTED LEVELS OF SERVICE

Intersection Levels of Service

The site access point intersections and other key area intersections have been analyzed to determine the projected levels of service based on the short-term and 2040 total traffic volumes. The intersections were analyzed based on the unsignalized method of analysis procedures found in the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The intersection of Vollmer/Briargate/Stapleton was analyzed as a signalized intersection for the projected long-term conditions using Synchro. The level of service reports are attached. Figures 5, 6, 10, and 11 show the level of service analysis results.

The intersections of Vollmer/Poco and Vollmer/Arroya and the proposed site access point to Vollmer just south of Arroya are projected to operate at a satisfactory level of service (satisfactory according to the County standards, which is LOS D or better) as stop-sign-controlled intersections based on the projected short-term and 2040 total traffic volumes.

All movements at the intersection of Vollmer/Burgess are projected to operate at LOS D or better based on the projected 2020 total traffic volumes. By 2040 the eastbound and westbound approaches at this intersection are projected to operate at LOS F during the afternoon peak hour based on both background and total traffic volumes assuming the current two-way stop-sign control (TWSC). If this intersection were converted to all-way, stop-sign control (AWSC) all movements are projected to operate at LOS C or better.

The intersection of Vollmer/Stapleton is projected to operate at a satisfactory level of service (LOS D or better) as a stop-sign-controlled intersection based on the short-term total traffic. This analysis assumes Stapleton Road has only been extended east of Vollmer Road to serve the planned Phase 1 development of Sterling Ranch. By 2040, it was assumed that Briargate Road would be extended east

to Vollmer Road and Stapleton Drive would be extended east to connect to its current terminus. It was also assumed that the intersection of Vollmer/Briargate/Stapleton would be signal controlled by 2040. This intersection is projected to operate at an overall satisfactory level of service (LOS D or better) as a signalized intersection.

Modern Roundabout Option

The levels of service assuming modern roundabout traffic control at the Poco/Vollmer intersection would be A overall and for all intersection approaches during the peak hours based on the projected 2040 total traffic volumes. The roundabout level of service reports are attached.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The site is projected to generate about 1,935 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 38 vehicles would enter and 114 vehicles would exit the site. During the afternoon peak hour about 128 vehicles would enter and 75 vehicles would exit the site.

Projected Levels of Service

2. The intersections of Vollmer/Poco and Vollmer/Arroya and the site access point to Vollmer Road just south of Arroya are projected to operate at a satisfactory level of service (LOS D or better) as stop-sign-controlled intersections based on the projected short-term and 2040 total traffic volumes.
3. All movements at the intersection of Vollmer/Burgess are projected to operate at LOS D or better based on the projected 2020 total traffic volumes. By 2040, the eastbound and westbound approaches at this intersection are projected to operate at LOS F during the afternoon peak hour based on both background and total traffic volumes assuming the current two-way stop-sign control (TWSC). If this intersection were converted to all-way, stop-sign control (AWSC) all movements are projected to operate at LOS C or better.
4. The intersection of Vollmer/Stapleton is projected to operate at a satisfactory level of service (LOS D or better) as a stop-sign-controlled intersection based on the short-term total traffic. This intersection is projected to operate at an overall satisfactory level of service (LOS D or better) as a signalized intersection in 2040.

Improvements

5. A summary of the needed improvements is shown in Table 3.

Recommended Auxiliary Turn Lane Improvements at the Site Access Points

6. Based on the criteria contained in the *El Paso County Engineering Criteria Manual*, the classification of Vollmer Road as a Minor Arterial, and the projected short-term site-generated

traffic volumes, a northbound right-turn deceleration lane will be required on Vollmer Road approaching the Poco Road intersection. Based on a 45-mph posted speed limit (50-mph design speed), this deceleration lane should be 235 feet long plus a 200-foot taper. Depending on the timing of Sterling Ranch to the south, the anticipated Vollmer improvement adjacent to Sterling Ranch, and associated transitions to the rural road cross section, the right turn could potentially be incorporated into that transition section. ← Address Arroya

7. Actual timing of installation of these turn lanes can be determined with the final plats.
8. Modern Roundabout Option: Modern roundabout intersection control could be considered as an alternative to two-way, Stop-sign control (TWSC) at Poco/Vollmer. The levels of service assuming modern roundabout traffic control at the Poco/Vollmer intersection would be A overall and for all intersection approaches. This would represent significantly lower delay on the side-street approaches during peak periods, but would introduce some minimal delay for north/south through traffic on Vollmer.

Roundabouts would require significant circular right-of-way around the center of the intersection. Currently, additional right-of-way to accommodate a roundabout(s) is not available on the west side of Vollmer. The consideration is that although the TIS shows better side-street level of service with the roundabout, the projected approach traffic volumes are not close to being equal on all the intersection approaches. The northbound and southbound through volumes are significantly higher than the eastbound and westbound volumes. The balance of approach volumes is an element to consider when evaluating a roundabout as a potential traffic control solution.

Off-Site Auxiliary Turn Lane Evaluation

9. Based on the criteria contained in the El Paso County Engineering Criteria Manual, the classification of Vollmer Road as a Minor Arterial, and the existing plus buildout site-generated, 2020 background, and 2020 total traffic volumes, northbound right-turn volume will exceed the turning volume thresholds requiring a northbound right-turn lane on Vollmer Road at the Burgess Road intersection. Based on the revised PUD plan with lower trip generation, the afternoon peak-hour traffic impact from this project on the northbound approach to this intersection is projected to be below 10 percent. The site volume on the roadway link (both directions of travel) south of the intersection is more than 10 percent; however, the turn lane thresholds are shown to be exceeded on the northbound approach during the afternoon peak hour when the impact of this project is below 10 percent on this approach. This project will be participating in the Fee Program and the MTCP Project ID is U-12.
10. Based on the criteria contained in the *El Paso County Engineering Criteria Manual*, the classification of Vollmer Road as a Minor Arterial, and the existing traffic volumes, the minimum turning volume threshold for a southbound left-turn lane is currently exceeded on Vollmer Road approaching Burgess Road. This project will not add any left turning volume to this turning movement.
11. Based on the criteria contained in the El Paso County Engineering Criteria Manual, the classification of Vollmer Road as a Minor Arterial, and the 2040 background traffic volumes, the northbound left-turn volume would exceed the turning volume thresholds requiring a northbound left-turn lane on

Vollmer Road at the Burgess Road intersection. Based on the revised PUD plan with lower trip generation, the afternoon peak-hour traffic impact from this project on the northbound approach to this intersection is projected to be below 10 percent. The site volume on the roadway link (both directions of travel) south of the intersection is more than 10 percent, however the turn lane thresholds are shown to be exceeded on the northbound approach during the afternoon peak hour when the impact of this project is below 10 percent on this approach. This project will be participating in the Fee Program and the MTCP Project ID is U-12.

El Paso County Roadway Improvement Fee Program

12. This project will be required to participate in the El Paso County Road Impact Fee Program.

Street Classification

13. Figure 12 shows the recommended street classifications for Vollmer Road adjacent to the site and the internal streets based on the projected 2040 traffic volumes shown in Figure 10.

Deviations


14. County deviation forms for the proposed intersection spacing along Arroya Lane and the west-side access to Vollmer have been approved.

* * * * *

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

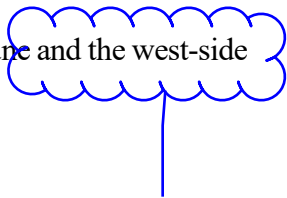
Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

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

JCH:KDF:bjwb

Enclosures: Tables 2 and 3
Figures 1-12
Traffic Count Reports
Level of Service Reports


see comment
letter

**Table 2
Trip Generation Estimate
Retreat at Timber Ridge**

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾				Total Trips Generated					
			Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour	
				In	Out	In	Out		In	Out	In	Out
210	Single-Family Detached Housing	205 DU ⁽²⁾	9.44	0.19	0.56	0.62	0.37	1,935	38	114	128	75

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

Source: LSC Transportation Consultants, Inc.

**Table 3
Roadway Improvements
Retreat at Timber Ridge**

Improvement	Timing	Responsibility ⁽¹⁾
Construct a northbound right-turn deceleration lane on Vollmer Road approaching Poco Road.	Design and installation with the applicable final plat(s) for The Retreat at Timber Ridge.	The Retreat at Timber Ridge
Potential improvement: Southbound left-turn lane at Arroyo	Evaluation with final plats. <i>Although the anticipated traffic counts do not warrant it, the County Engineer may require a southbound left-turn lane at Arroyo based on unanticipated traffic patterns</i> [from Staff Comments].	The Retreat at Timber Ridge and/or possible-but-not-currently-anticipated-future development with access via Arroya
Possible future modern roundabout intersection control at Poco/Vollmer as an alternative to the two-way, Stop-sign control (TWSC) shown in this TIS	Consideration of roundabout traffic control instead of TWSC could be addressed with the applicable final plat(s) for The Retreat at Timber Ridge and/or Sterling Ranch. Roundabouts would require significant circular right-of-way around the center of the intersection. Currently, additional right-of-way to accommodate a roundabout(s) is not available on the west side of Vollmer. Also, the southeast corner of the intersection is not part of this project and is not owned by this applicant. It is owned by Sterling Ranch. The consideration is that although the TIS shows better side-street level of service with the roundabout, the projected approach traffic volumes are not close to being equal on all the intersection approaches. The northbound and southbound through volumes are significantly higher than the eastbound and westbound volumes. The balance of approach volumes is an element to consider when evaluating a roundabout as a potential traffic control solution.	The Retreat at Timber Ridge and/or Sterling Ranch
Upgrade Vollmer Road between future Stapleton Drive and Poco Road to an Urban Minor Arterial cross section (five lanes)	Future MTCP Project ID U-12 (Note: MTCP indicates two-lane Rural Minor Arterial.)	(Sterling Ranch Metro District) MTCP Master-Planned MTCP Project ID U-12
Upgrade Vollmer Road generally between the south boundary of Sterling Ranch and future Stapleton Drive to an Urban Minor Arterial cross section (five lanes)	Designed MTCP Project ID C-13	Sterling Ranch Metro District
Upgrade Vollmer Road generally between Cowpoke Road and the south boundary of Sterling Ranch to an Urban Minor Arterial cross section (five lanes)	Designed MTCP Project ID C-13	Woodmen Heights Metro District
Construct section of Stapleton Road half section between Vollmer Road and the first Sterling Ranch access point	With development of Phase 1 of Sterling Ranch - Designed MTCP Project ID N-5	Sterling Ranch Metro District
Construct a northbound right-turn deceleration lane on Vollmer Road approaching Stapleton Road	With development of Phase 1 of Sterling Ranch - Designed MTCP Project ID C-13	Sterling Ranch Metro District
Construct Briargate Parkway (four-lane Principal Arterial) between Black Forest Road and Vollmer Road.	Future - TBD TBD with PPRTA ⁽²⁾ Corridor Study	TBD with PPRTA ⁽²⁾ Corridor Study MTCP Project N-5
Construct Stapleton Drive between Vollmer Road and Towner	Future TBD with PPRTA ⁽²⁾ Corridor Study	TBD with PPRTA ⁽²⁾ Corridor Study MTCP Project N-5
Southbound left-turn lanes on Vollmer Road approaching Burgess Road	Existing Deficiency	Existing Deficiency - Others (This development will not add volume to this turning movement.)
Northbound left-turn lane at Burgess/Vollmer	Projections indicate after 2020 but prior to 2040 the turning volume threshold warranting the turn lane (25 northbound left turns per hour) would be exceeded.	Based on the revised PUD plan, the afternoon peak-hour traffic impact from this project on the northbound approach to this intersection is projected to be below 10 percent. The site volume on the roadway link (both directions of travel) south of the intersection is more than 10 percent, however the turn lane thresholds are shown to be exceeded on the northbound approach during the afternoon peak hour when the impact of this project is below 10 percent on this approach. This project will be participating in the Fee Program and the MTCP Project ID is U-12.
Northbound right-turn lane at Burgess/Vollmer	Projections indicate by 2020 the turning volume threshold warranting the turn lane (50 northbound right turns per hour) would be exceeded.	Based on the revised PUD plan, the afternoon peak-hour traffic impact from this project on the northbound approach to this intersection is projected to be below 10 percent. The site volume on the roadway link (both directions of travel) south of the intersection is more than 10 percent, however the turn lane thresholds are shown to be exceeded on the northbound approach during the afternoon peak hour when the impact of this project is below 10 percent on this approach. This project will be participating in the Fee Program and the MTCP Project ID is U-12.
Future traffic signal at Stapleton/Vollmer	Once warrants are met; analysis to be included with final plat traffic reports; projections indicate by 2040 the intersection would be signalized.	Escrow a fair-share amount toward the cost the signal (to be determined with final plats). Once the signal is constructed, a portion of the escrow amount used to fund the installation of the signal may have become creditable under the Fee Program (if this signal is added to the fee program list of signals eligible for credit (County signals not currently programmed in Fee Program)).

Notes:
(1) Preliminary concept of responsibility; the actual construction responsibility would be determined through subdivision applications and cost recovery if applicable agreements.
(2) PPRTA = Pikes Peak Rural Transportation Authority.



Approximate Scale
Scale: 1" = 3,000'

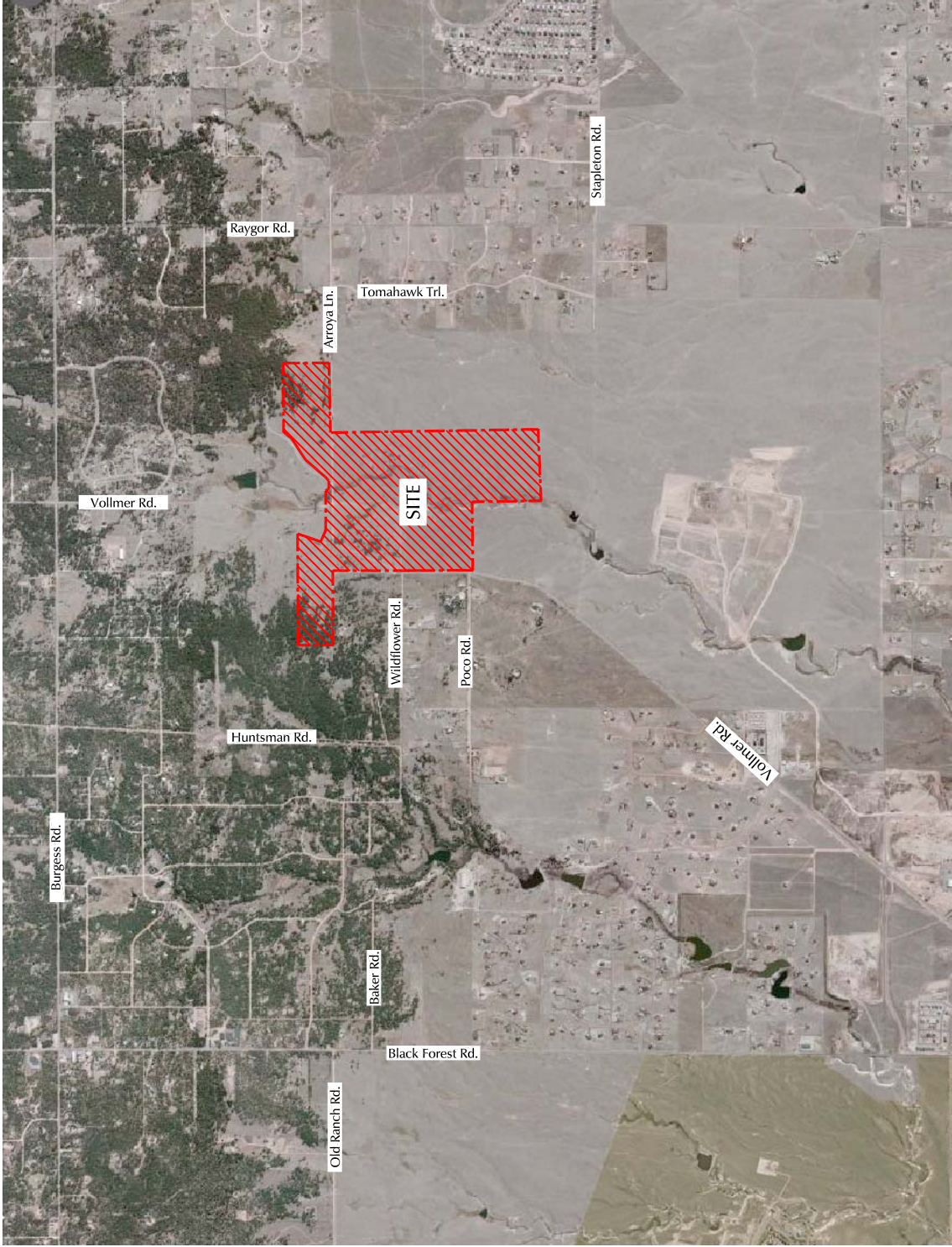


Figure 1

Vicinity Map

Retreat at Timber Ridge (LSC #174030)



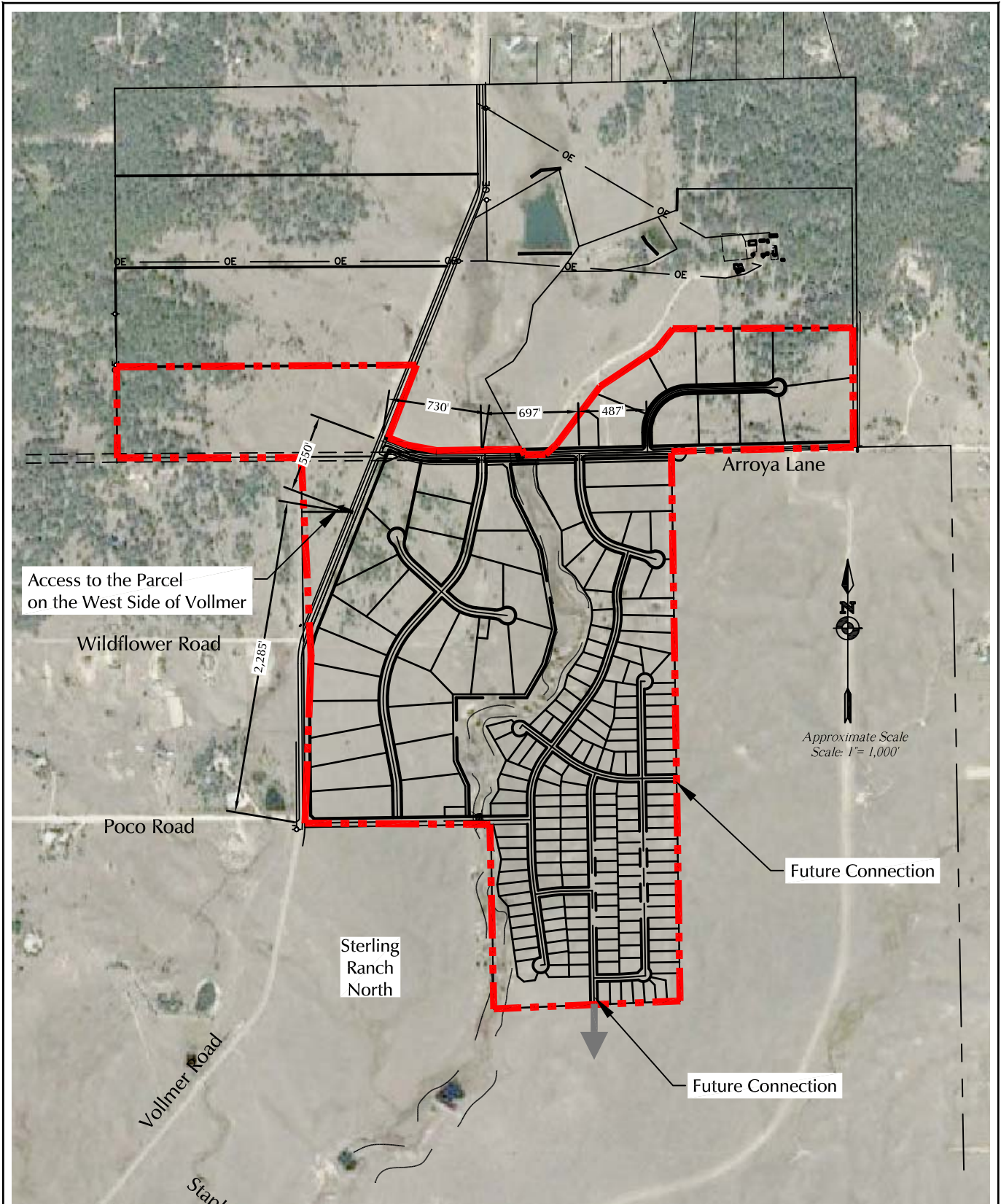
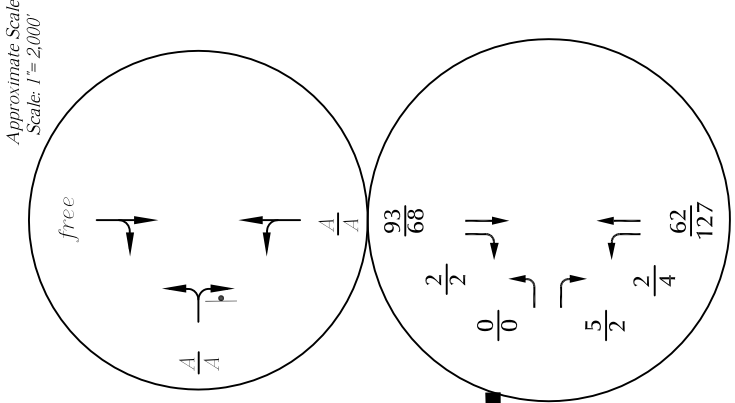
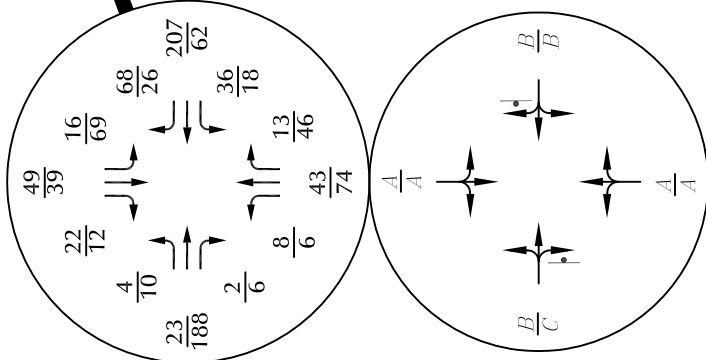
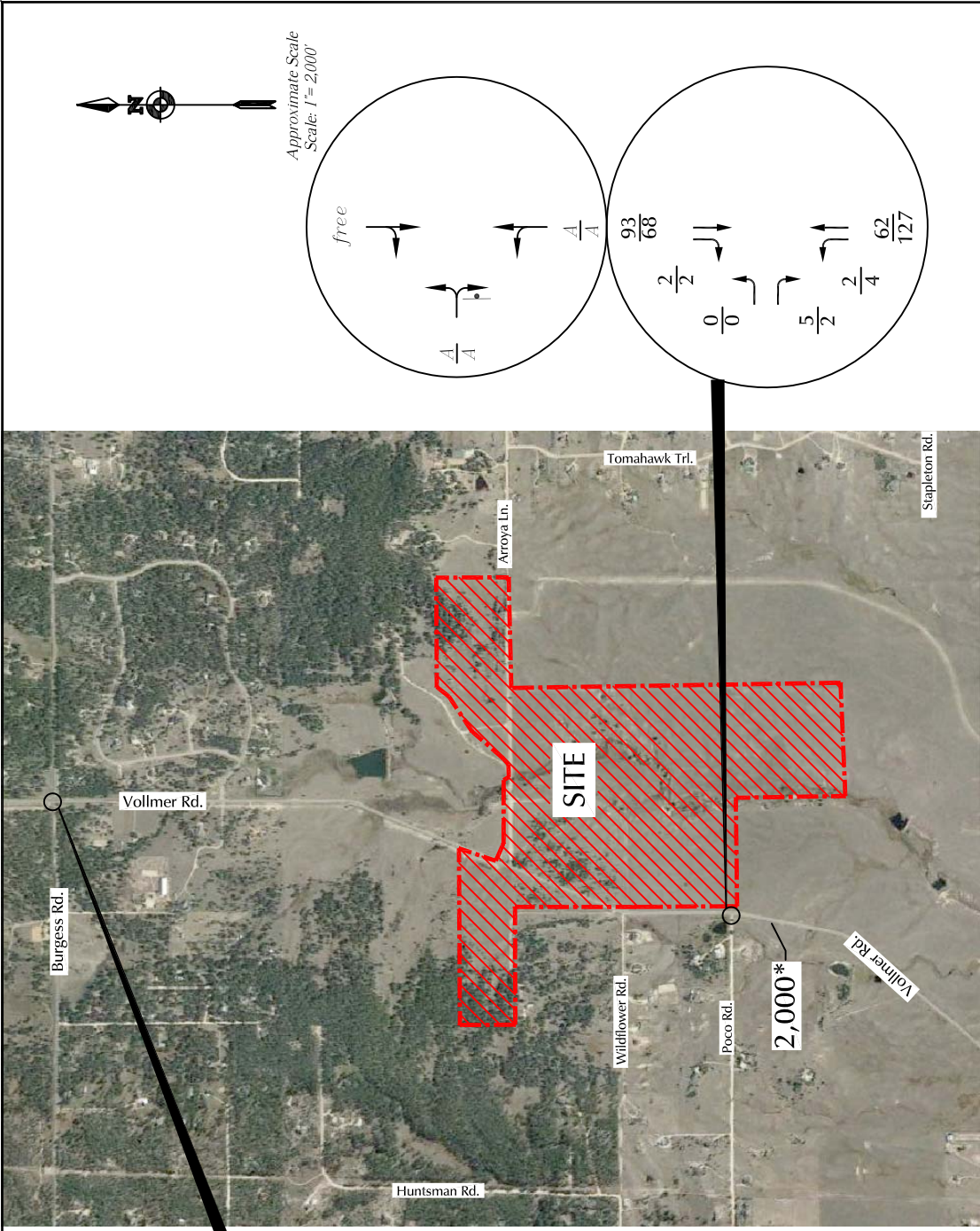


Figure 2
Site Plan

Retreat at Timber Ridge (LSC #174030)





Approximate Scale
Scale: 1" = 2,000'

LEGEND:

⊥ = Stop Sign

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
 $\frac{A}{B}$ = PM Individual Movement Peak-Hour Level of Service

XXX = Average Weekday Traffic (vehicles per day) Estimate by LSC

Figure 3

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

Retreat at Timber Ridge (LSC #174030)





Approximate Scale
Scale: 1 = 100

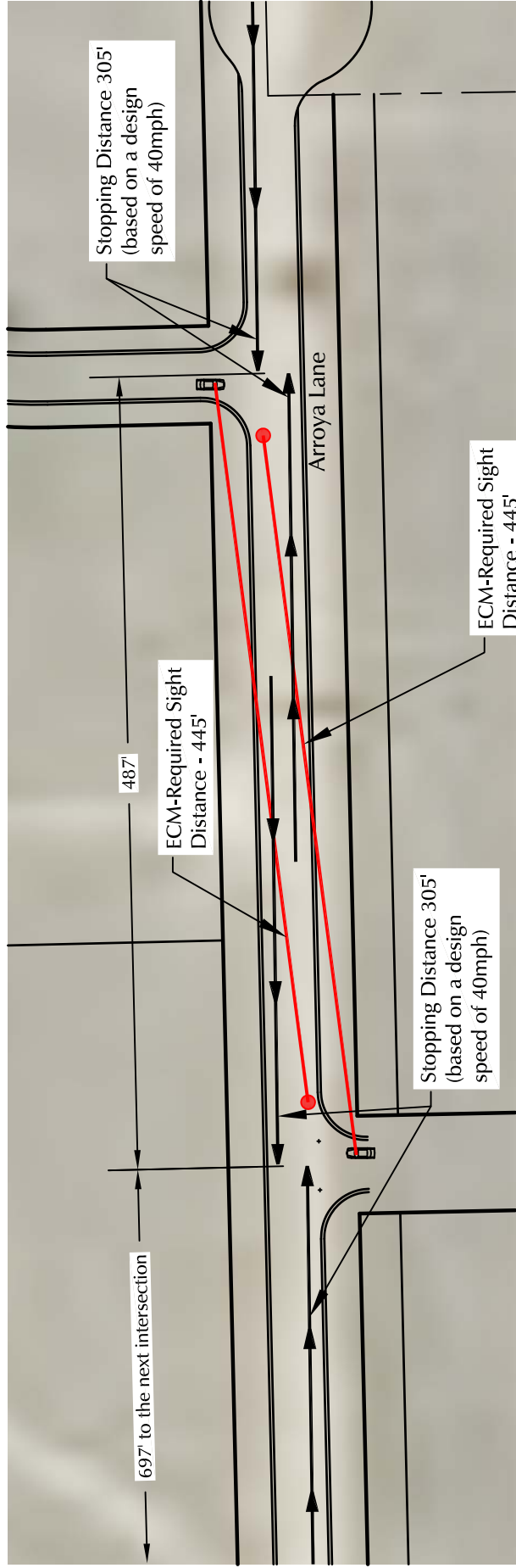


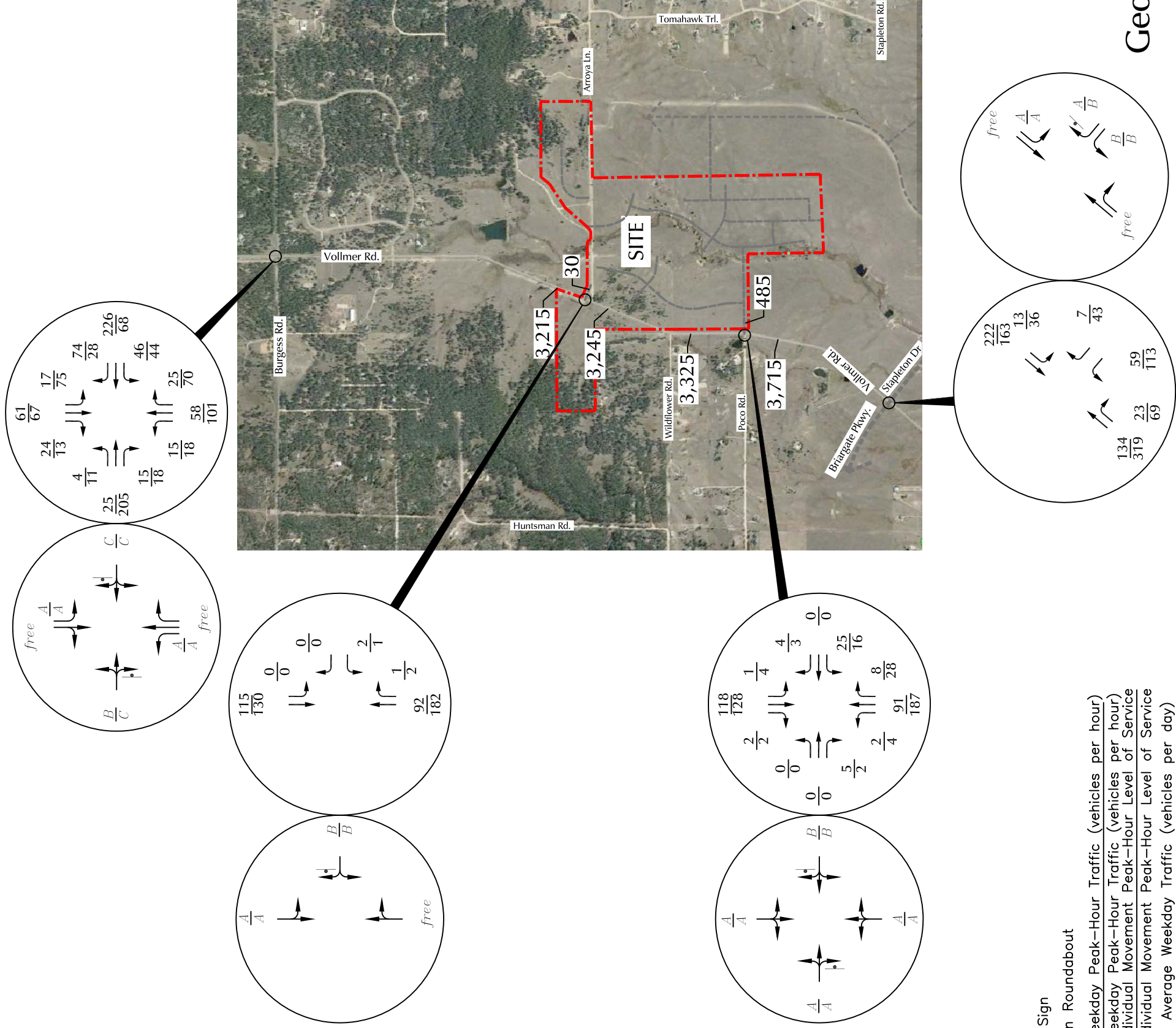
Figure 4

Intersection Sight Distance

Retreat at Timber Ridge (LSC #174030)



Approximate Scale
Scale: 1" = 2,000'



LEGEND:

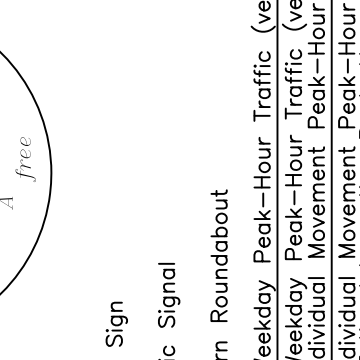
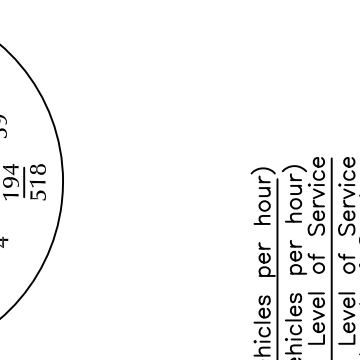
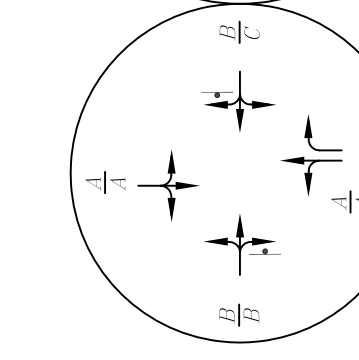
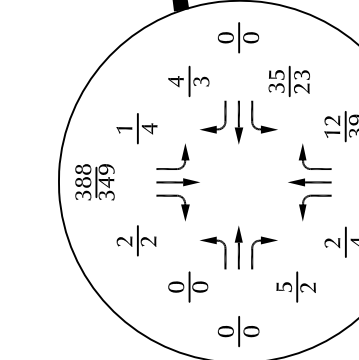
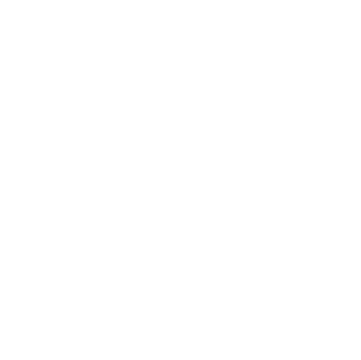
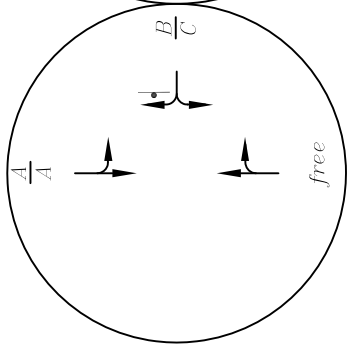
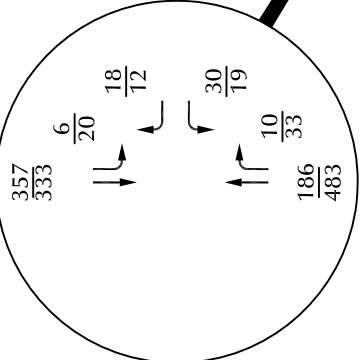
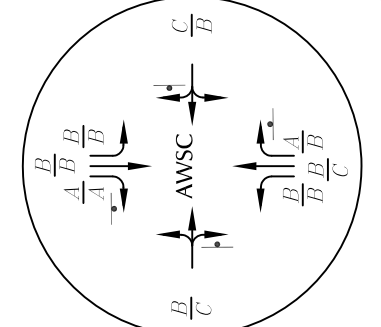
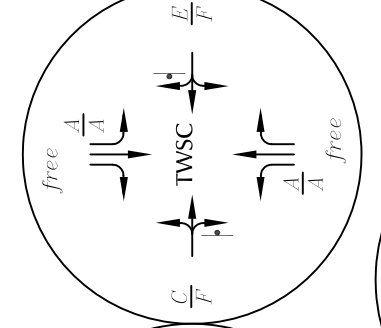
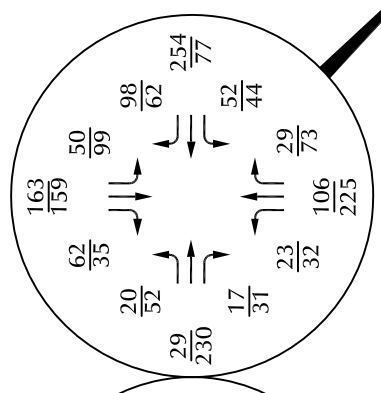
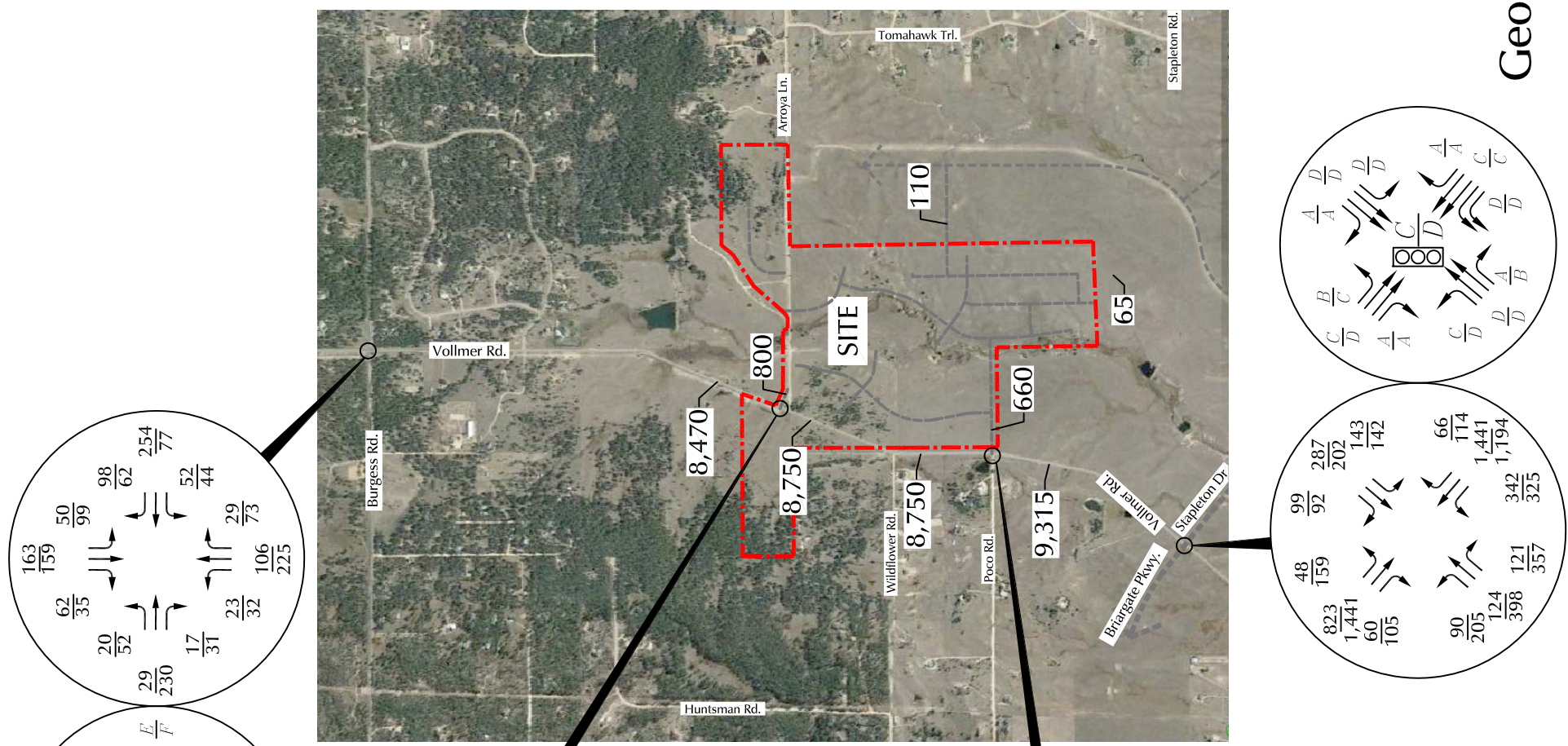
- ⊥ = Stop Sign
- = Modern Roundabout
- $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{YY}{YY}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{A}{A}$ = AM Individual Movement Peak-Hour Level of Service
- $\frac{B}{B}$ = PM Individual Movement Peak-Hour Level of Service
- XXX = Average Weekday Traffic (vehicles per day)



Figure 5
Year 2020 Background Traffic, Lane Geometry, Traffic Control and Level of Service
Retreat at Timber Ridge (LSC #174030)

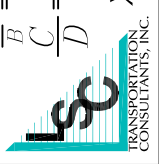


Approximate Scale
Scale: 1" = 2,000'



- LEGEND:
- ⊥ = Stop Sign
 - ⊞ = Traffic Signal
 - = Modern Roundabout
 - XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour)
 - XX/XX = PM Weekday Peak-Hour Traffic (vehicles per hour)
 - A/B = AM Individual Movement Peak-Hour Level of Service
 - A/B = PM Individual Movement Peak-Hour Level of Service
 - C/D = AM Entire Intersection Peak-Hour Level of Service
 - C/D = PM Entire Intersection Peak-Hour Level of Service
 - XXX = Average Weekday Traffic (vehicles per day)

Figure 6
Year 2040 Background Traffic, Lane
Geometry, Traffic Control and Level of Service
Retreat at Timber Ridge (LSC #174030)





Approximate Scale
Scale: 1" = 3,000'

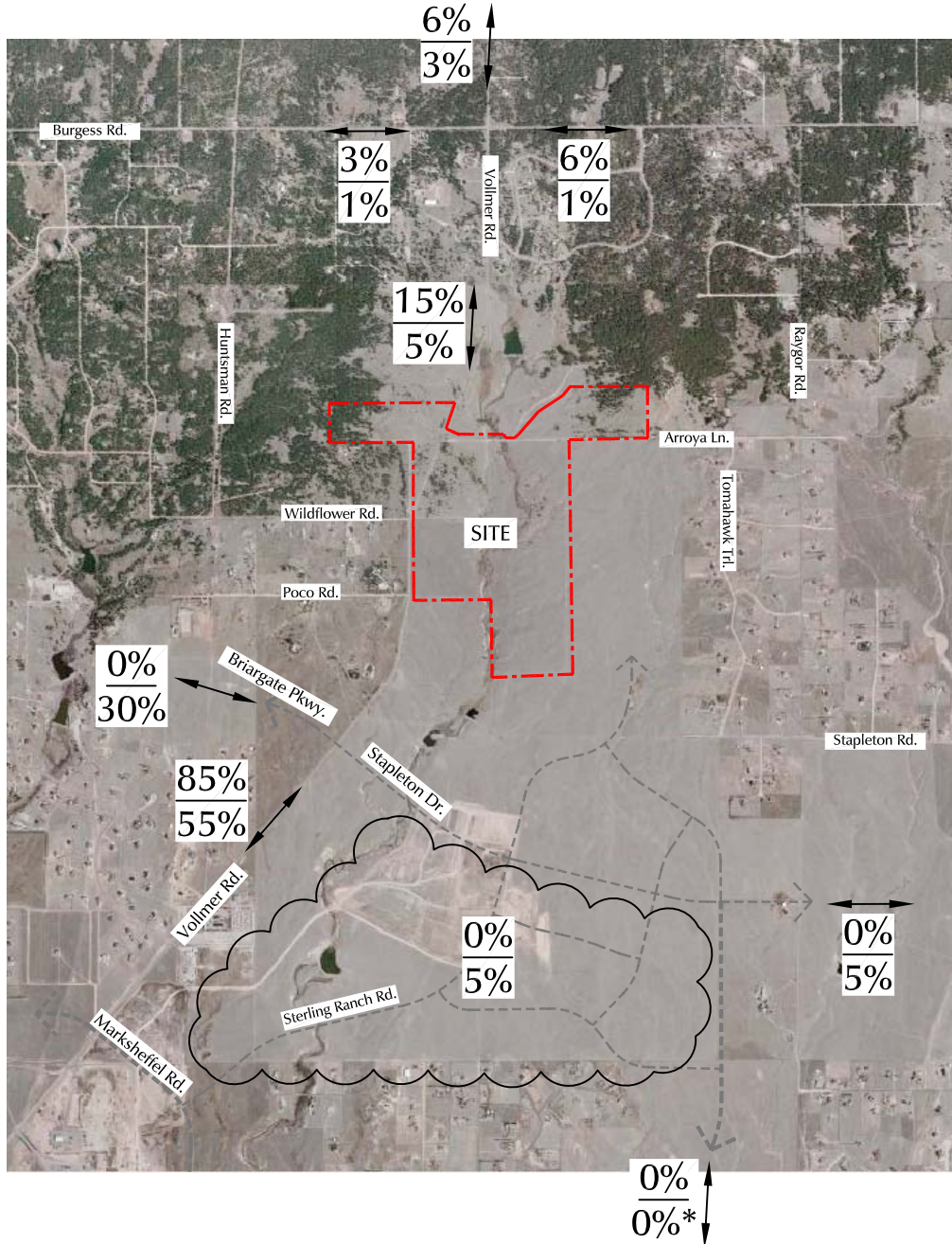


Figure 7

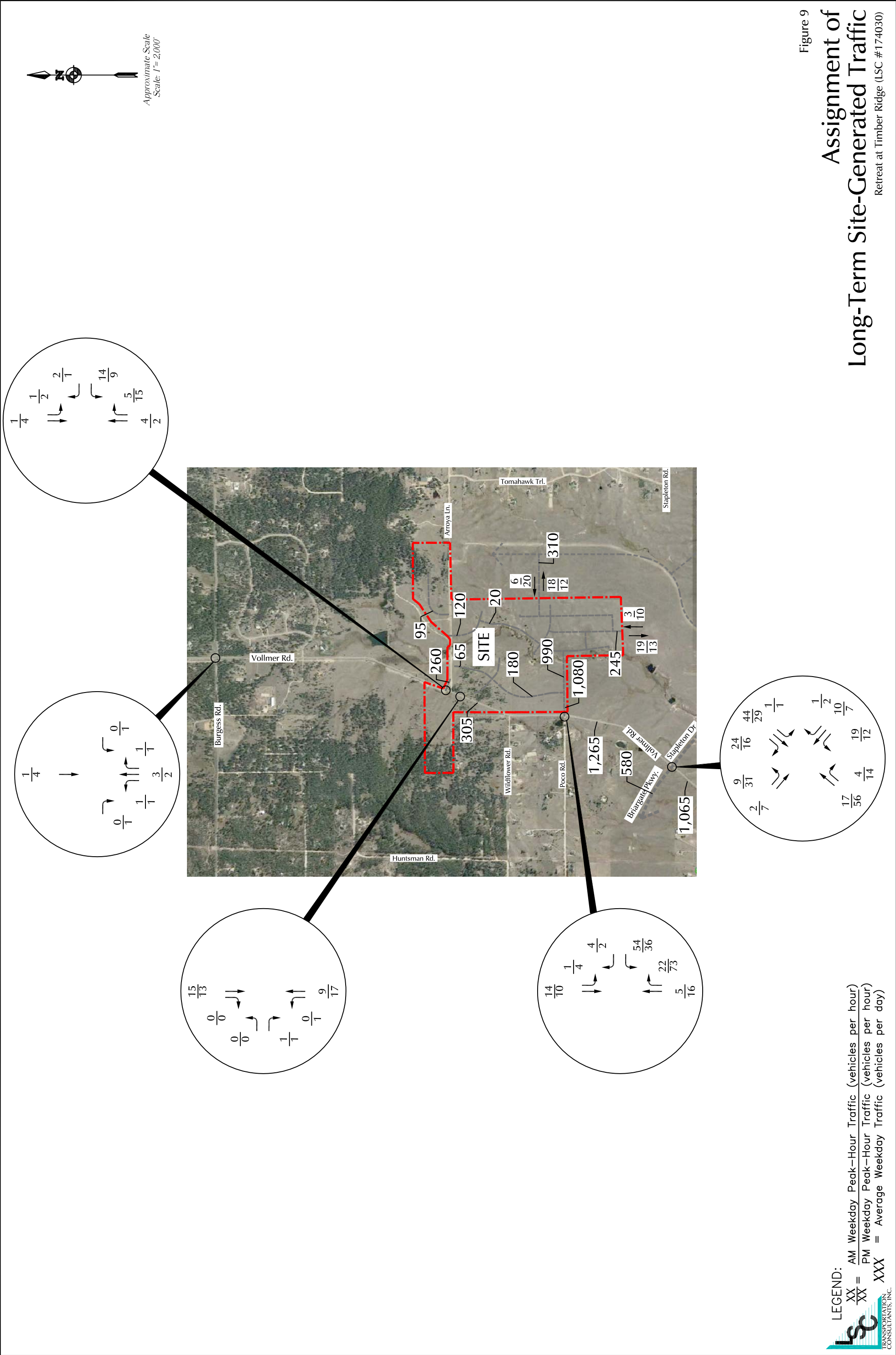
Directional Distribution of Site-Generated Traffic

Retreat at Timber Ridge (LSC #174030)

LEGEND:



$\frac{XX\%}{XX\%}$ = Short-Term Percent Directional Distribution
 $\frac{XX\%}{XX\%}$ = Long-Term Percent Directional Distribution

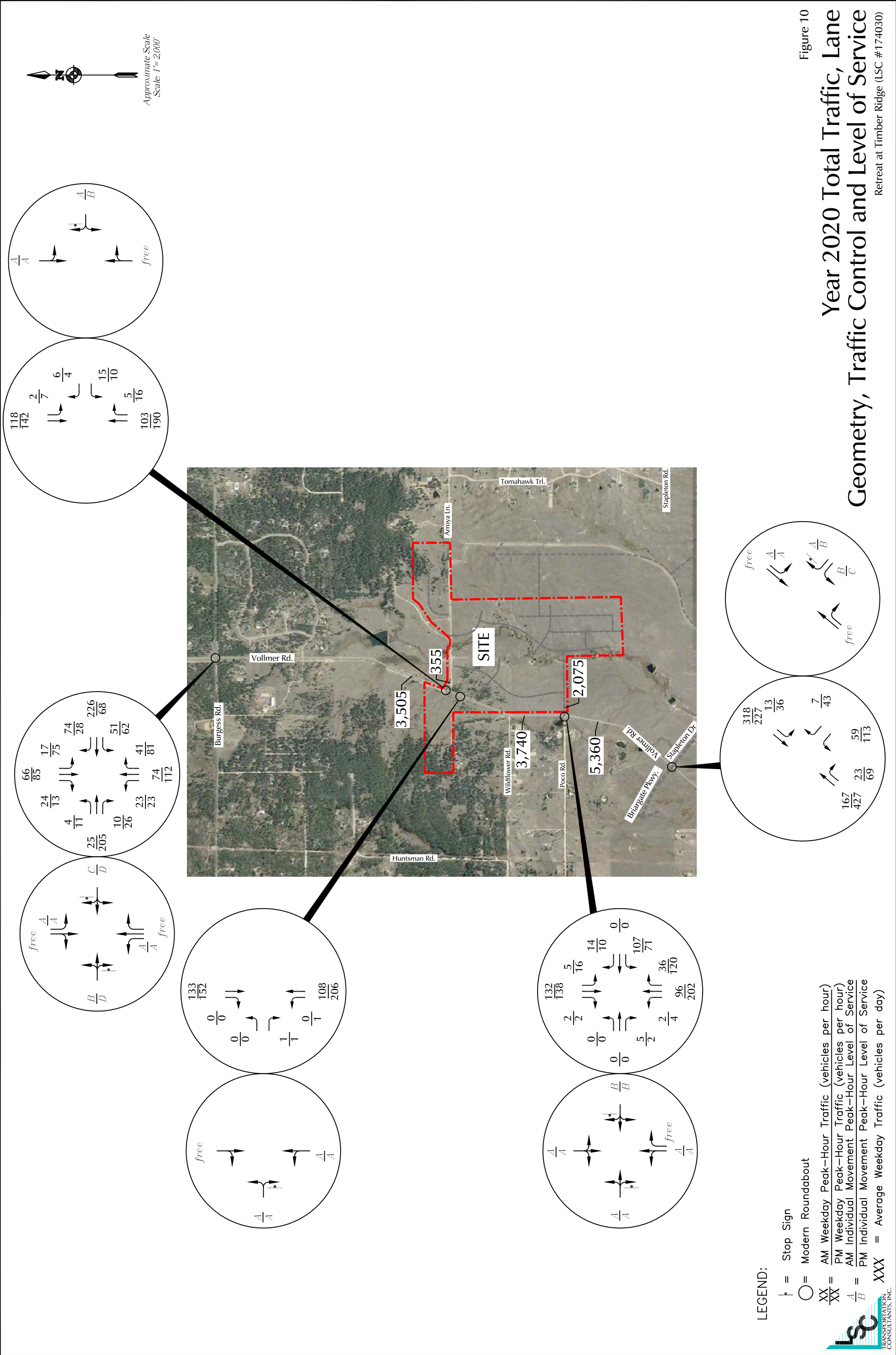


Approximate Scale
Scale: 1" = 2,000'

Figure 9
Assignment of Long-Term Site-Generated Traffic
Retreat at Timber Ridge (LSC #174030)

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





LEGEND:

⊥ = Stop Sign

○ = Modern Roundabout

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

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

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

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

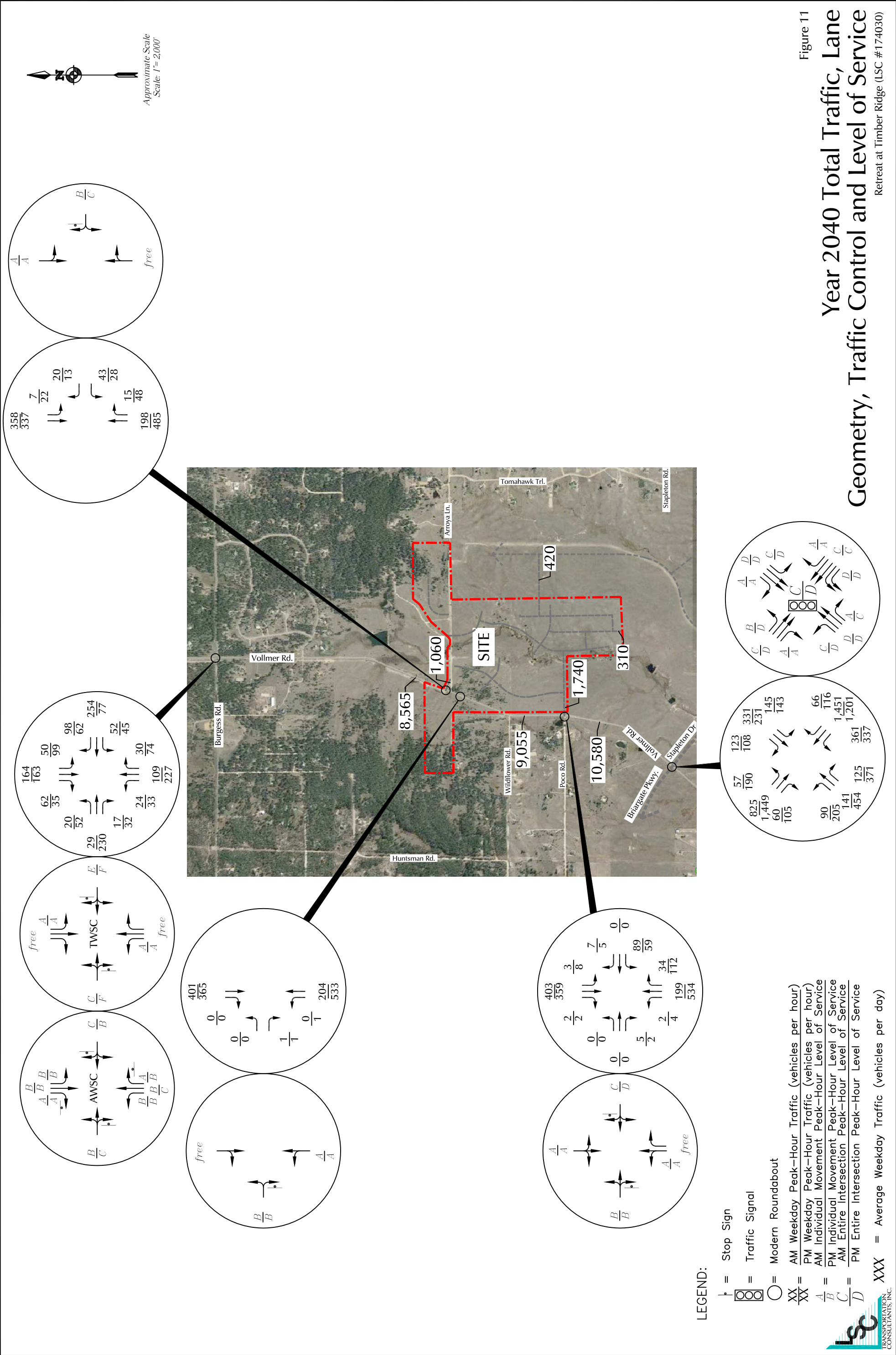
XXX = Average Weekday Traffic (vehicles per day)

Figure 10

Year 2020 Total Traffic, Lane Geometry, Traffic Control and Level of Service

Retreat at Timber Ridge (LSC #174030)



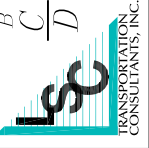


Approximate Scale
Scale: 1" = 2,000'

Figure 11
Year 2040 Total Traffic, Lane
Geometry, Traffic Control and Level of Service
Retreat at Timber Ridge (LSC #174030)

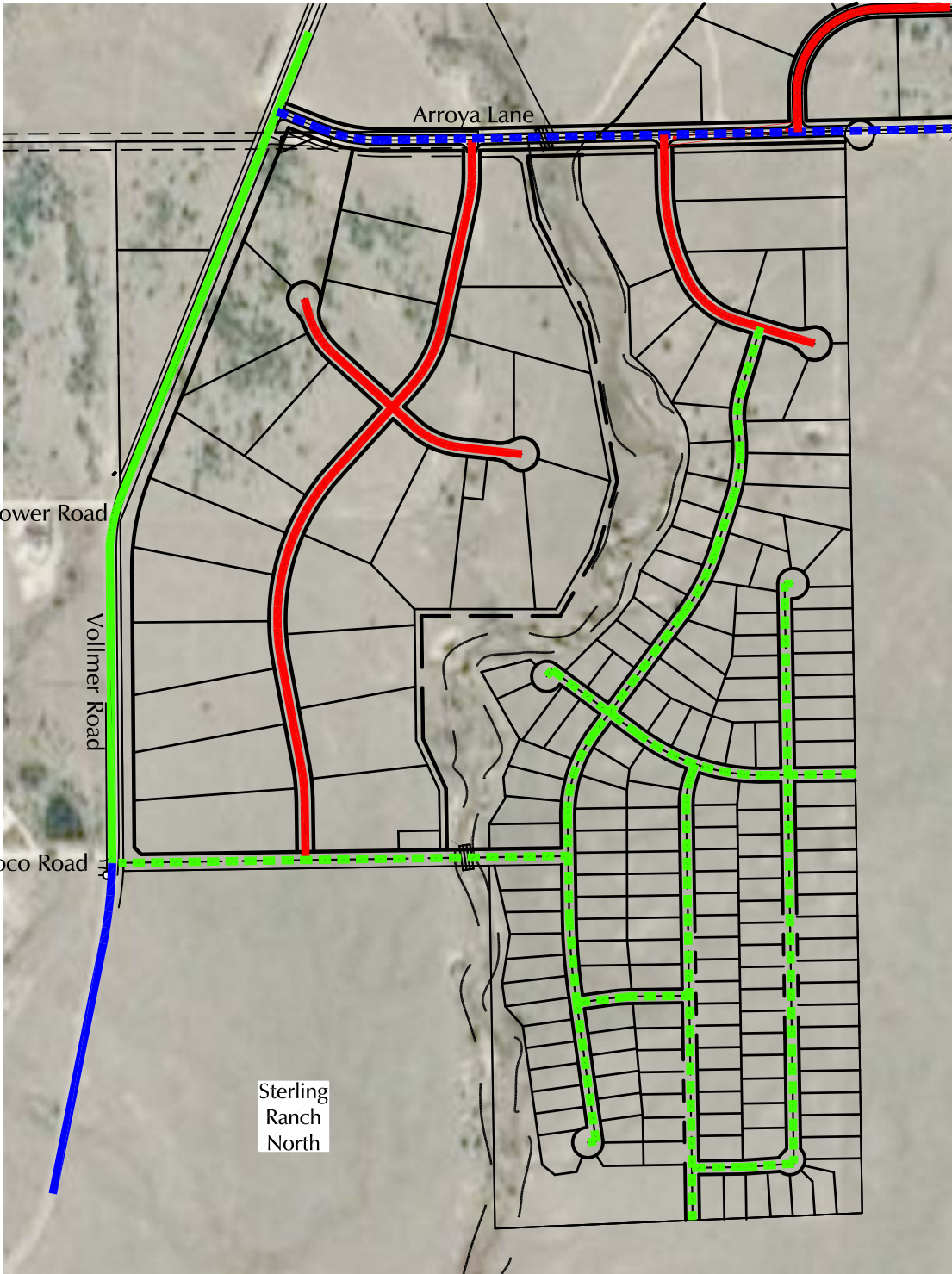
LEGEND:

- ⊥ = Stop Sign
- ⊞ = Traffic Signal
- = Modern Roundabout
- XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour)
- XX/XX = PM Weekday Peak-Hour Traffic (vehicles per hour)
- A/A = AM Individual Movement Peak-Hour Level of Service
- B/B = PM Individual Movement Peak-Hour Level of Service
- C/C = AM Entire Intersection Peak-Hour Level of Service
- D/D = PM Entire Intersection Peak-Hour Level of Service
- XXX = Average Weekday Traffic (vehicles per day)





Approximate Scale
Scale: 1" = 600'



LEGEND:






-  = 4-Lane Urban Minor Arterial
-  = 2-Lane Rural Minor Arterial
-  = 2-Lane Rural Minor Collector
-  = Rural Local
-  = Urban Local

Figure 12

Recommended Classifications

Trails at Timber Ridge (LSC #174030)



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210

LSC Transportation Consultants, Inc. Colorado Springs, CO 80903 File Name : Vollmer Rd - Poco Rd AM
 (719) 633-2868 Site Code : 00174030
 Start Date : 02/09/2017
 Page No : 1

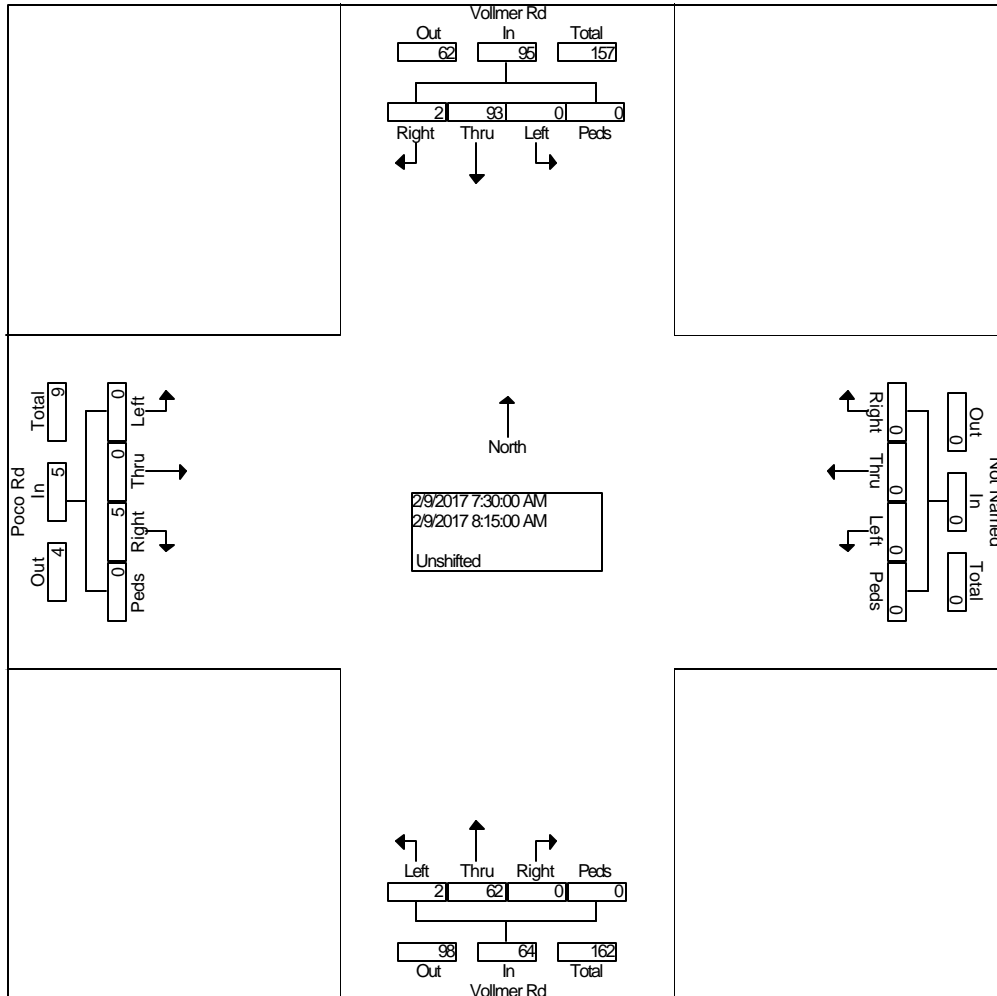
Groups Printed- Unshifted

Start Time	Vollmer Rd From North				From East				Vollmer Rd From South				Poco Rd From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	26	0	0	0	0	0	0	0	9	1	0	1	0	1	0	38
06:45 AM	0	23	0	0	0	0	0	0	0	3	4	0	0	0	0	0	30
Total	0	49	0	0	0	0	0	0	0	12	5	0	1	0	1	0	68
07:00 AM	0	21	0	0	0	0	0	0	0	11	3	0	1	0	0	0	36
07:15 AM	1	25	0	0	0	0	0	0	0	12	0	0	3	0	0	0	41
07:30 AM	0	22	0	0	0	0	0	0	0	20	0	0	1	0	0	0	43
07:45 AM	1	22	0	0	0	0	0	0	0	15	0	0	2	0	0	0	40
Total	2	90	0	0	0	0	0	0	0	58	3	0	7	0	0	0	160
08:00 AM	0	20	0	0	0	0	0	0	0	8	0	0	2	0	0	0	30
08:15 AM	1	29	0	0	0	0	0	0	0	19	2	0	0	0	0	0	51
Grand Total	3	188	0	0	0	0	0	0	0	97	10	0	10	0	1	0	309
Apprch %	1.6	98.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.7	9.3	0.0	90.9	0.0	9.1	0.0	
Total %	1.0	60.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.4	3.2	0.0	3.2	0.0	0.3	0.0	

LSC Transportation Consultants, Inc.
 545 E. Pikes Peak Ave., #210
 Colorado Springs, CO 80903
 (719) 633-2868

File Name : Vollmer Rd - Poco Rd AM
 Site Code : 00174030
 Start Date : 02/09/2017
 Page No : 2

Start Time	Vollmer Rd From North					From East					Vollmer Rd From South					Poco Rd From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	2	93	0	0	95	0	0	0	0	0	0	62	2	0	64	5	0	0	0	5	164
Percent	2.1	97.9	0.0	0.0		0.0	0.0	0.0	0.0		0.0	96.9	3.1	0.0		10.0	0.0	0.0	0.0		
08:15 Volume	1	29	0	0	30	0	0	0	0	0	0	19	2	0	21	0	0	0	0	0	51
Peak Factor	0.804																				
High Int.	08:15 AM																				
Volume	1	29	0	0	30	6:15:00 AM					08:15 AM					07:45 AM					2
Peak Factor	0.79										0.76					0.62					5
Factor	2										2										5



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

LSC Transportation Consultants, Inc. File Name : Vollmer Rd - Poco Rd PM
 Site Code : 00174030
 Start Date : 02/08/2017
 Page No : 1

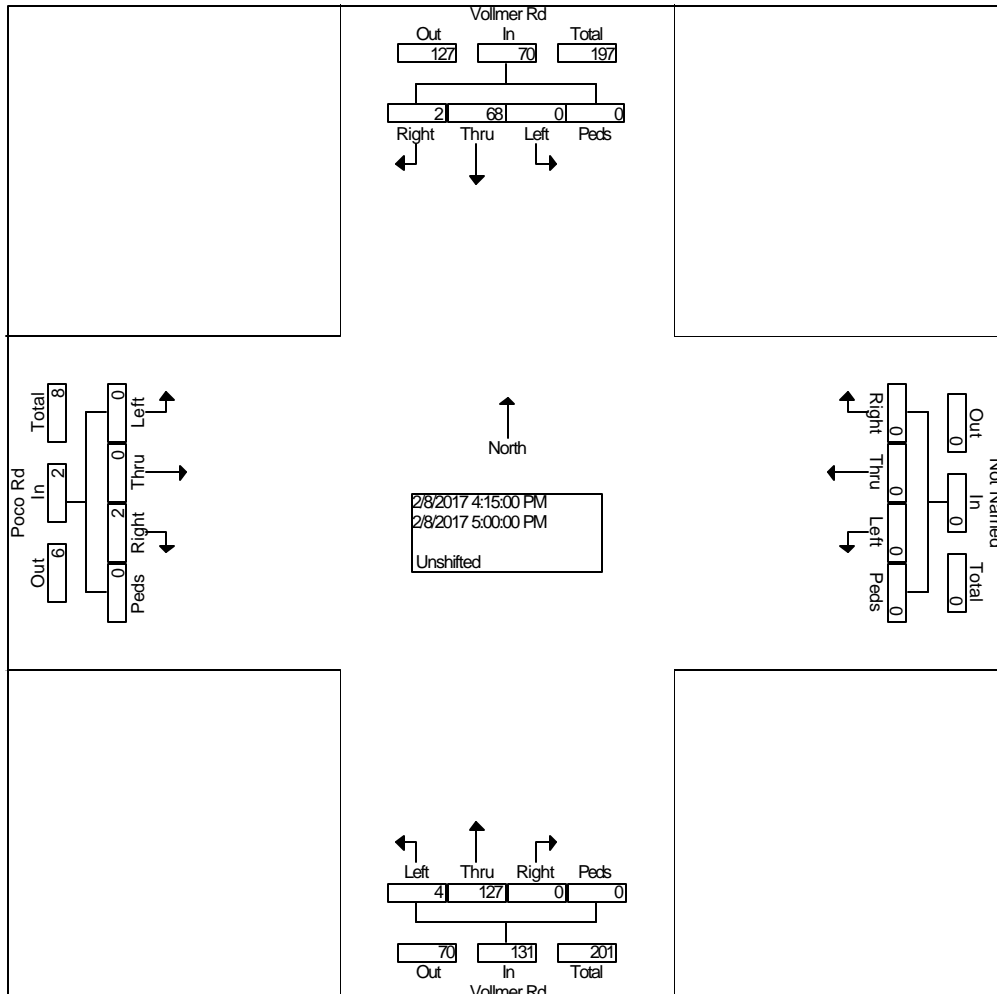
Groups Printed- Unshifted

Start Time	Vollmer Rd From North				From East				Vollmer Rd From South				Poco Rd From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	20	0	0	0	0	0	0	0	28	1	0	0	0	1	0	50
04:15 PM	1	14	0	0	0	0	0	0	0	20	0	0	0	0	0	0	35
04:30 PM	0	19	0	0	0	0	0	0	0	36	1	0	0	0	0	0	56
04:45 PM	0	13	0	0	0	0	0	0	0	36	1	0	2	0	0	0	52
Total	1	66	0	0	0	0	0	0	0	120	3	0	2	0	1	0	193
05:00 PM	1	22	0	0	0	0	0	0	0	35	2	0	0	0	0	0	60
05:15 PM	0	10	0	0	0	0	0	0	0	22	1	0	0	0	0	0	33
05:30 PM	0	15	0	0	0	0	0	0	0	38	1	0	1	0	0	0	55
05:45 PM	0	12	0	0	0	0	0	0	0	26	2	0	1	0	0	0	41
Total	1	59	0	0	0	0	0	0	0	121	6	0	2	0	0	0	189
Grand Total	2	125	0	0	0	0	0	0	0	241	9	0	4	0	1	0	382
Apprch %	1.6	98.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.4	3.6	0.0	80.0	0.0	20.0	0.0	
Total %	0.5	32.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63.1	2.4	0.0	1.0	0.0	0.3	0.0	

LSC Transportation Consultants, Inc.
 545 E. Pikes Peak Ave., #210
 Colorado Springs, CO 80903
 (719) 633-2868

File Name : Vollmer Rd - Poco Rd PM
 Site Code : 00174030
 Start Date : 02/08/2017
 Page No : 2

Start Time	Vollmer Rd From North					From East					Vollmer Rd From South					Poco Rd From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:15 PM																				
Volume	2	68	0	0	70	0	0	0	0	0	0	12	4	0	131	2	0	0	0	2	203
Percent	2.9	97.1	0.0	0.0		0.0	0.0	0.0	0.0		0.0	96.9	3.1	0.0		10.0	0.0	0.0	0.0		
05:00 Volume	1	22	0	0	23	0	0	0	0	0	0	35	2	0	37	0	0	0	0	0	60
Peak Factor	0.846																				
High Int. Volume	05:00 PM					3:45:00 PM					04:30 PM					04:45 PM					
Peak Factor	1	22	0	0	23	0	0	0	0	0	0	36	1	0	37	2	0	0	0	2	0.25
	0.76										0.88					0.25					
	1										5					0					



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Vollmer Rd - Burgess Rd AM
 Site Code : 00174030
 Start Date : 06/13/2017
 Page No : 1

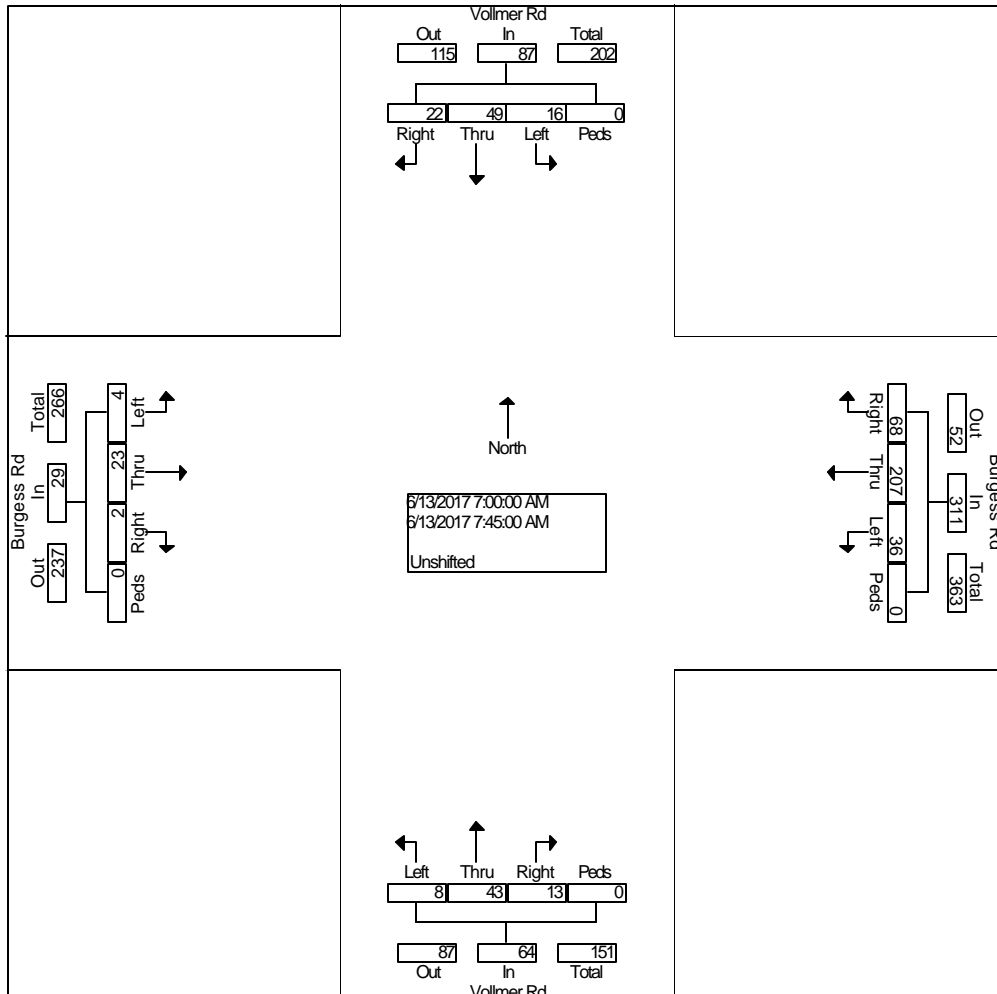
Groups Printed- Unshifted

Start Time	Vollmer Rd From North				Burgess Rd From East				Vollmer Rd From South				Burgess Rd From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	2	15	6	0	13	39	5	0	1	1	0	0	0	7	1	0	90
06:45 AM	1	5	2	0	9	39	7	0	4	5	1	0	0	5	0	0	78
Total	3	20	8	0	22	78	12	0	5	6	1	0	0	12	1	0	168
07:00 AM	7	18	2	0	17	51	12	0	6	13	2	0	0	7	0	0	135
07:15 AM	6	7	4	0	21	52	8	0	1	6	2	0	0	2	0	0	109
07:30 AM	2	12	4	0	17	60	11	0	6	12	1	0	1	5	2	0	133
07:45 AM	7	12	6	0	13	44	5	0	0	12	3	0	1	9	2	0	114
Total	22	49	16	0	68	207	36	0	13	43	8	0	2	23	4	0	491
08:00 AM	2	14	7	0	9	30	7	0	5	5	1	0	0	6	1	0	87
08:15 AM	3	6	10	0	9	38	9	0	7	6	2	0	1	9	1	0	101
Grand Total	30	89	41	0	108	353	64	0	30	60	12	0	3	50	7	0	847
Apprch %	18.8	55.6	25.6	0.0	20.6	67.2	12.2	0.0	29.4	58.8	11.8	0.0	5.0	83.3	11.7	0.0	
Total %	3.5	10.5	4.8	0.0	12.8	41.7	7.6	0.0	3.5	7.1	1.4	0.0	0.4	5.9	0.8	0.0	

Counts by LSC

File Name : Vollmer Rd - Burgess Rd AM
 Site Code : 00174030
 Start Date : 06/13/2017
 Page No : 2

Start Time	Vollmer Rd From North					Burgess Rd From East					Vollmer Rd From South					Burgess Rd From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	22	49	16	0	87	68	20	36	0	311	13	43	8	0	64	2	23	4	0	29	491
Percent	25.3	56.3	18.4	0.0		21.9	66.6	11.6	0.0		20.3	67.2	12.5	0.0		6.9	79.3	13.8	0.0		
07:00 Volume	7	18	2	0	27	17	51	12	0	80	6	13	2	0	21	0	7	0	0	7	135
Peak Factor																					
High Int. Volume	07:00 AM					07:30 AM					07:00 AM					07:45 AM					
Peak Factor	0.80					0.88					0.76					0.60					
	6					4					2					4					



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Vollmer Rd - Burgess Rd PM
 Site Code : 00174030
 Start Date : 06/08/2017
 Page No : 1

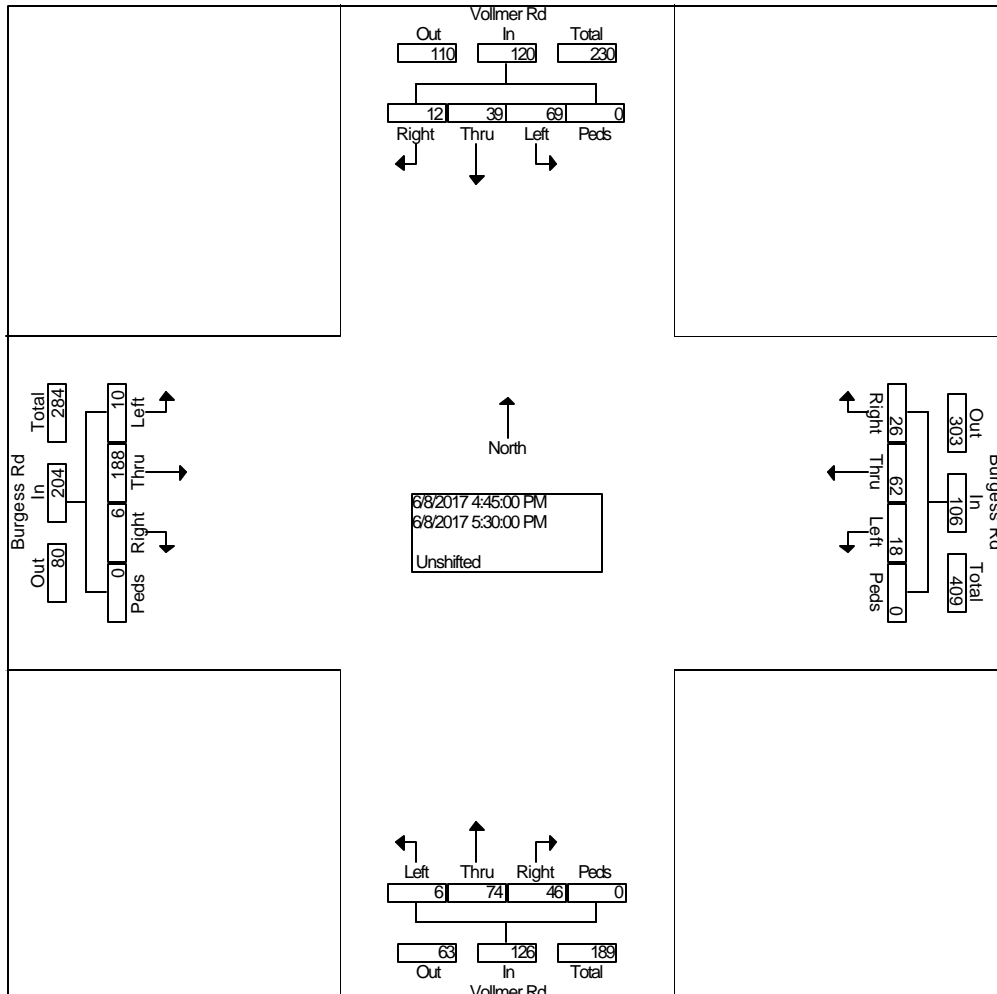
Groups Printed- Unshifted

Start Time	Vollmer Rd From North				Burgess Rd From East				Vollmer Rd From South				Burgess Rd From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	2	11	13	0	10	15	11	0	13	9	4	0	2	27	2	0	119
04:15 PM	0	11	19	0	4	22	5	0	17	8	1	0	3	36	1	0	127
04:30 PM	5	11	11	0	11	19	7	0	9	17	0	0	0	29	3	0	122
04:45 PM	4	9	28	0	5	18	7	0	14	20	2	0	0	43	3	0	153
Total	11	42	71	0	30	74	30	0	53	54	7	0	5	135	9	0	521
05:00 PM	1	8	15	0	7	10	7	0	9	17	0	0	2	40	2	0	118
05:15 PM	5	8	8	0	7	17	2	0	13	21	2	0	2	56	1	0	142
05:30 PM	2	14	18	0	7	17	2	0	10	16	2	0	2	49	4	0	143
05:45 PM	3	6	11	0	9	14	8	0	17	15	0	0	1	42	2	0	128
Total	11	36	52	0	30	58	19	0	49	69	4	0	7	187	9	0	531
Grand Total	22	78	123	0	60	132	49	0	102	123	11	0	12	322	18	0	1052
Apprch %	9.9	35.0	55.2	0.0	24.9	54.8	20.3	0.0	43.2	52.1	4.7	0.0	3.4	91.5	5.1	0.0	
Total %	2.1	7.4	11.7	0.0	5.7	12.5	4.7	0.0	9.7	11.7	1.0	0.0	1.1	30.6	1.7	0.0	

Counts by LSC

File Name : Vollmer Rd - Burgess Rd PM
 Site Code : 00174030
 Start Date : 06/08/2017
 Page No : 2

Start Time	Vollmer Rd From North					Burgess Rd From East					Vollmer Rd From South					Burgess Rd From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	12	39	69	0	120	26	62	18	0	106	46	74	6	0	126	6	18	10	0	204	556
Percent	10.0	32.5	57.5	0.0		24.5	58.5	17.0	0.0		36.5	58.7	4.8	0.0		2.9	92.2	4.9	0.0		
04:45 Volume	4	9	28	0	41	5	18	7	0	30	14	20	2	0	36	0	43	3	0	46	153
Peak Factor																					0.908
High Int. Volume	04:45 PM					04:45 PM					04:45 PM					05:15 PM					
Peak Factor	0.73					0.88					0.87					0.86					
	2					3					5					4					



Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	2	62	93	2
Future Vol, veh/h	0	5	2	62	93	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	76	76	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	3	82	118	3

Major/Minor	Minor2	Major1		Major2
Conflicting Flow All	208	120	121	0
Stage 1	120	-	-	-
Stage 2	88	-	-	-
Critical Hdwy	6.42	6.22	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-
Pot Cap-1 Maneuver	780	931	1467	-
Stage 1	905	-	-	-
Stage 2	935	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	778	931	1467	-
Mov Cap-2 Maneuver	778	-	-	-
Stage 1	903	-	-	-
Stage 2	935	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1467	-	931	-	-
HCM Lane V/C Ratio	0.002	-	0.005	-	-
HCM Control Delay (s)	7.5	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
101: Vollmer Rd & Burgess Rd

Existing 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	4	23	2	36	207	68	8	43	13	16	49	22
Future Vol, veh/h	4	23	2	36	207	68	8	43	13	16	49	22
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	97	97	97	76	76	76	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	23	2	37	213	70	11	57	17	20	60	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	343	210	74	214	215	66	87	0	0	74	0	0
Stage 1	114	114	-	88	88	-	-	-	-	-	-	-
Stage 2	229	96	-	126	127	-	-	-	-	-	-	-
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	611	687	988	743	683	998	1509	-	-	1526	-	-
Stage 1	891	801	-	920	822	-	-	-	-	-	-	-
Stage 2	774	815	-	878	791	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	421	672	988	710	668	998	1509	-	-	1526	-	-
Mov Cap-2 Maneuver	421	672	-	710	668	-	-	-	-	-	-	-
Stage 1	884	790	-	913	815	-	-	-	-	-	-	-
Stage 2	527	808	-	839	780	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	13.8	0.9	1.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1509	-	-	634	725	1526	-	-
HCM Lane V/C Ratio	0.007	-	-	0.046	0.442	0.013	-	-
HCM Control Delay (s)	7.4	0	-	11	13.8	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	2.3	0	-	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	4	127	68	2
Future Vol, veh/h	0	2	4	127	68	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	89	89	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	4	143	89	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	242	91	92	0	-	0
Stage 1	91	-	-	-	-	-
Stage 2	151	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	746	967	1503	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	877	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	744	967	1503	-	-	-
Mov Cap-2 Maneuver	744	-	-	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	877	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1503	-	967	-	-
HCM Lane V/C Ratio	0.003	-	0.002	-	-
HCM Control Delay (s)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection												
Int Delay, s/veh	9.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	188	6	18	62	26	6	74	46	69	39	12
Future Vol, veh/h	10	188	6	18	62	26	6	74	46	69	39	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	88	88	88	88	88	88	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	188	6	20	70	30	7	84	52	95	53	16
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	425	401	61	472	383	110	69	0	0	136	0	0
Stage 1	251	251	-	124	124	-	-	-	-	-	-	-
Stage 2	174	150	-	348	259	-	-	-	-	-	-	-
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	540	538	1004	502	550	943	1532	-	-	1448	-	-
Stage 1	753	699	-	880	793	-	-	-	-	-	-	-
Stage 2	828	773	-	668	694	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	442	499	1004	334	510	943	1532	-	-	1448	-	-
Mov Cap-2 Maneuver	442	499	-	334	510	-	-	-	-	-	-	-
Stage 1	749	651	-	876	789	-	-	-	-	-	-	-
Stage 2	727	769	-	440	647	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	17			14			0.4			4.4		
HCM LOS	C			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1532	-	-	503	522	1448	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.406	0.231	0.065	-	-				
HCM Control Delay (s)	7.4	0	-	17	14	7.7	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	1.9	0.9	0.2	-	-				

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↑	↗	↔	↑
Traffic Vol, veh/h	59	7	134	23	13	222
Future Vol, veh/h	59	7	134	23	13	222
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	235	260	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	76	92	92	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	8	176	25	14	281
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	485	176	0	0	201	0
Stage 1	176	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	541	867	-	-	1371	-
Stage 1	855	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	536	867	-	-	1371	-
Mov Cap-2 Maneuver	536	-	-	-	-	-
Stage 1	846	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.2	0		0.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	536 867	1371	-	
HCM Lane V/C Ratio	-	-	0.12 0.009	0.01	-	
HCM Control Delay (s)	-	-	12.6 9.2	7.7	-	
HCM Lane LOS	-	-	B A	A	-	
HCM 95th %tile Q(veh)	-	-	0.4 0	0	-	

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	5	25	0	4	2	91	8	1	118	2
Future Vol, veh/h	0	0	5	25	0	4	2	91	8	1	118	2
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	92	92	92	76	76	92	92	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	27	0	4	3	120	9	1	149	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	286	288	151	286	285	125	152	0	0	129	0	0
Stage 1	153	153	-	131	131	-	-	-	-	-	-	-
Stage 2	133	135	-	155	154	-	-	-	-	-	-	-
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	666	622	895	666	624	926	1429	-	-	1457	-	-
Stage 1	849	771	-	873	788	-	-	-	-	-	-	-
Stage 2	870	785	-	847	770	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	661	620	895	661	622	926	1429	-	-	1457	-	-
Mov Cap-2 Maneuver	661	620	-	661	622	-	-	-	-	-	-	-
Stage 1	847	770	-	871	786	-	-	-	-	-	-	-
Stage 2	864	783	-	841	769	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	10.5	0.2	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1429	-	-	895	688	1457	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.046	0.001	-	-
HCM Control Delay (s)	7.5	0	-	9	10.5	7.5	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	0	5	2	93	117	0
Future Vol, veh/h	0	5	2	93	117	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	76	79	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	2	122	148	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	274	148	148	0	-	0
Stage 1	148	-	-	-	-	-
Stage 2	126	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	716	899	1434	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	900	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	715	899	1434	-	-	-
Mov Cap-2 Maneuver	715	-	-	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	900	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1434	-	899	-	-
HCM Lane V/C Ratio	0.002	-	0.006	-	-
HCM Control Delay (s)	7.5	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	0	92	1	0	115
Future Vol, veh/h	2	0	92	1	0	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	76	92	92	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	121	1	0	146

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	268	122	0	0	122	0
Stage 1	122	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	721	929	-	-	1465	-
Stage 1	903	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	721	929	-	-	1465	-
Mov Cap-2 Maneuver	721	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	881	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 721	1465	-
HCM Lane V/C Ratio	-	- 0.003	-	-
HCM Control Delay (s)	-	- 10	0	-
HCM Lane LOS	-	- B	A	-
HCM 95th %tile Q(veh)	-	- 0	0	-

Intersection												
Int Delay, s/veh	9.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖	↗	↗	↖	↖
Traffic Vol, veh/h	4	25	7	46	226	74	15	58	25	17	61	24
Future Vol, veh/h	4	25	7	46	226	74	15	58	25	17	61	24
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	-	-	-	-	-	-	0	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	97	97	97	76	76	76	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	25	7	47	233	76	20	76	33	21	75	30
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	419	281	90	264	263	76	105	0	0	109	0	0
Stage 1	132	132	-	116	116	-	-	-	-	-	-	-
Stage 2	287	149	-	148	147	-	-	-	-	-	-	-
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	544	627	968	689	642	985	1486	-	-	1481	-	-
Stage 1	871	787	-	889	800	-	-	-	-	-	-	-
Stage 2	720	774	-	855	775	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	349	610	968	649	625	985	1486	-	-	1481	-	-
Mov Cap-2 Maneuver	349	610	-	649	625	-	-	-	-	-	-	-
Stage 1	860	776	-	877	790	-	-	-	-	-	-	-
Stage 2	462	764	-	810	764	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	11.3			15.9			1.1			1.2		
HCM LOS	B			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1486	-	-	603	682	1481	-	-				
HCM Lane V/C Ratio	0.013	-	-	0.06	0.523	0.014	-	-				
HCM Control Delay (s)	7.5	-	-	11.3	15.9	7.5	-	-				
HCM Lane LOS	A	-	-	B	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.2	3.1	0	-	-				

Intersection

Int Delay, s/veh 3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	113	43	319	69	36	163
Future Vol, veh/h	113	43	319	69	36	163
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	235	260	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	47	347	75	39	177

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	602	347	0
Stage 1	347	-	-
Stage 2	255	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	463	696	1137
Stage 1	716	-	-
Stage 2	788	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	447	696	1137
Mov Cap-2 Maneuver	532	-	-
Stage 1	692	-	-
Stage 2	788	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	532	696	1137	-
HCM Lane V/C Ratio	-	-	0.231	0.067	0.034	-
HCM Control Delay (s)	-	-	13.8	10.5	8.3	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.2	0.1	-

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	2	16	0	3	4	187	28	4	128	2
Future Vol, veh/h	0	0	2	16	0	3	4	187	28	4	128	2
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	92	92	92	89	89	92	92	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	2	17	0	3	4	210	30	4	168	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	413	426	170	412	412	225	171	0	0	240	0	0
Stage 1	178	178	-	233	233	-	-	-	-	-	-	-
Stage 2	235	248	-	179	179	-	-	-	-	-	-	-
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	549	520	874	550	530	814	1406	-	-	1327	-	-
Stage 1	824	752	-	770	712	-	-	-	-	-	-	-
Stage 2	768	701	-	823	751	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	544	517	874	546	527	814	1406	-	-	1327	-	-
Mov Cap-2 Maneuver	544	517	-	546	527	-	-	-	-	-	-	-
Stage 1	822	750	-	768	710	-	-	-	-	-	-	-
Stage 2	763	699	-	819	749	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	11.5	0.1	0.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1406	-	-	874	576	1327	-	-
HCM Lane V/C Ratio	0.003	-	-	0.002	0.036	0.003	-	-
HCM Control Delay (s)	7.6	0	-	9.1	11.5	7.7	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	5	184	131	0
Future Vol, veh/h	0	3	5	184	131	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	89	76	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	5	207	172	0




Major/Minor	Minor2	Major1		Major2
Conflicting Flow All	389	172	172	0
Stage 1	172	-	-	-
Stage 2	217	-	-	-
Critical Hdwy	6.42	6.22	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-
Pot Cap-1 Maneuver	615	872	1405	-
Stage 1	858	-	-	-
Stage 2	819	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	613	872	1405	-
Mov Cap-2 Maneuver	613	-	-	-
Stage 1	855	-	-	-
Stage 2	819	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1405	-	872	-	-
HCM Lane V/C Ratio	0.004	-	0.004	-	-
HCM Control Delay (s)	7.6	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	0	182	2	0	130
Future Vol, veh/h	1	0	182	2	0	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	89	92	92	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	204	2	0	171

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	376	205	0	0	206	0
Stage 1	205	-	-	-	-	-
Stage 2	171	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	625	836	-	-	1365	-
Stage 1	829	-	-	-	-	-
Stage 2	859	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	625	836	-	-	1365	-
Mov Cap-2 Maneuver	625	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	859	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 625	1365	-
HCM Lane V/C Ratio	-	- 0.002	-	-
HCM Control Delay (s)	-	- 10.8	0	-
HCM Lane LOS	-	- B	A	-
HCM 95th %tile Q(veh)	-	- 0	0	-

Intersection												
Int Delay, s/veh	11.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑	↑	↕	↕	↕
Traffic Vol, veh/h	11	205	17	44	68	28	18	101	70	75	67	13
Future Vol, veh/h	11	205	17	44	68	28	18	101	70	75	67	13
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	-	-	-	-	-	-	0	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	88	88	88	88	88	88	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	205	17	50	77	32	20	115	80	103	92	18
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	557	542	101	573	471	115	110	0	0	195	0	0
Stage 1	307	307	-	155	155	-	-	-	-	-	-	-
Stage 2	250	235	-	418	316	-	-	-	-	-	-	-
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	441	447	954	430	491	937	1480	-	-	1378	-	-
Stage 1	703	661	-	847	769	-	-	-	-	-	-	-
Stage 2	754	710	-	612	655	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	346	408	954	240	448	937	1480	-	-	1378	-	-
Mov Cap-2 Maneuver	346	408	-	240	448	-	-	-	-	-	-	-
Stage 1	693	611	-	835	758	-	-	-	-	-	-	-
Stage 2	645	700	-	370	606	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	23.6			20.8			0.7			3.8		
HCM LOS	C			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1480	-	-	422	384	1378	-	-				
HCM Lane V/C Ratio	0.014	-	-	0.552	0.414	0.075	-	-				
HCM Control Delay (s)	7.5	-	-	23.6	20.8	7.8	-	-				
HCM Lane LOS	A	-	-	C	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	3.3	2	0.2	-	-				

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	59	7	167	23	13	318
Future Vol, veh/h	59	7	167	23	13	318
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	235	260	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	76	92	92	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	8	220	25	14	403

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	651	220	0	0	245
Stage 1	220	-	-	-	-
Stage 2	431	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	433	820	-	-	1321
Stage 1	817	-	-	-	-
Stage 2	655	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	428	820	-	-	1321
Mov Cap-2 Maneuver	428	-	-	-	-
Stage 1	808	-	-	-	-
Stage 2	655	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	428	820	1321
HCM Lane V/C Ratio	-	-	0.15	0.009	0.011
HCM Control Delay (s)	-	-	14.9	9.4	7.8
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	0

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	
Traffic Vol, veh/h	0	0	5	107	0	14	2	96	36	5	132	2
Future Vol, veh/h	0	0	5	107	0	14	2	96	36	5	132	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	235	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	92	92	92	76	76	92	92	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	116	0	15	3	126	39	5	167	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	338	350	169	313	312	126	170	0	0	165	0	0
Stage 1	179	179	-	132	132	-	-	-	-	-	-	-
Stage 2	159	171	-	181	180	-	-	-	-	-	-	-
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	616	574	875	640	603	924	1407	-	-	1413	-	-
Stage 1	823	751	-	871	787	-	-	-	-	-	-	-
Stage 2	843	757	-	821	750	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	603	571	875	634	599	924	1407	-	-	1413	-	-
Mov Cap-2 Maneuver	603	571	-	634	599	-	-	-	-	-	-	-
Stage 1	821	748	-	869	785	-	-	-	-	-	-	-
Stage 2	827	755	-	813	747	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.1		11.8		0.1		0.2	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1407	-	-	875	658	1413	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.2	0.004	-
HCM Control Delay (s)	7.6	0	-	9.1	11.8	7.6	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0	-

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	15	6	103	5	2	118
Future Vol, veh/h	15	6	103	5	2	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	76	92	92	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	7	136	5	2	149

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	292	139	0	0	141
Stage 1	139	-	-	-	-
Stage 2	153	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	699	909	-	-	1442
Stage 1	888	-	-	-	-
Stage 2	875	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	698	909	-	-	1442
Mov Cap-2 Maneuver	698	-	-	-	-
Stage 1	886	-	-	-	-
Stage 2	875	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	748	1442
HCM Lane V/C Ratio	-	-	0.031	0.002
HCM Control Delay (s)	-	-	10	7.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection												
Int Delay, s/veh	10.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖	↗	↖	↗	↖
Traffic Vol, veh/h	4	25	10	51	226	74	23	74	41	17	66	24
Future Vol, veh/h	4	25	10	51	226	74	23	74	41	17	66	24
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	-	-	-	-	-	-	0	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	97	97	97	76	76	76	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	25	10	53	233	76	30	97	54	21	81	30

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	477	349	96	313	310	97	111	0	0	151	0	0
Stage 1	138	138	-	157	157	-	-	-	-	-	-	-
Stage 2	339	211	-	156	153	-	-	-	-	-	-	-
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	498	575	960	640	605	959	1479	-	-	1430	-	-
Stage 1	865	782	-	845	768	-	-	-	-	-	-	-
Stage 2	676	728	-	846	771	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	308	555	960	595	584	959	1479	-	-	1430	-	-
Mov Cap-2 Maneuver	308	555	-	595	584	-	-	-	-	-	-	-
Stage 1	848	770	-	828	753	-	-	-	-	-	-	-
Stage 2	421	713	-	798	759	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.8		17.8		1.2		1.2	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1479	-	-	570	638	1430	-
HCM Lane V/C Ratio	0.02	-	-	0.068	0.567	0.015	-
HCM Control Delay (s)	7.5	-	-	11.8	17.8	7.6	-
HCM Lane LOS	A	-	-	B	C	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	3.6	0	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	108	133	0
Future Vol, veh/h	0	1	0	108	133	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	117	145	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	262	145	145	0	-	0
Stage 1	145	-	-	-	-	-
Stage 2	117	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	727	902	1437	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	908	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	727	902	1437	-	-	-
Mov Cap-2 Maneuver	727	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	908	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1437	-	902	-	-
HCM Lane V/C Ratio	-	-	0.001	-	-
HCM Control Delay (s)	0	-	9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	113	43	427	69	36	227
Future Vol, veh/h	113	43	427	69	36	227
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	235	260	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	47	464	75	39	247

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	789	464	0	0	539	0
Stage 1	464	-	-	-	-	-
Stage 2	325	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	359	598	-	-	1029	-
Stage 1	633	-	-	-	-	-
Stage 2	732	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	345	598	-	-	1029	-
Mov Cap-2 Maneuver	452	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	732	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	452	598	1029
HCM Lane V/C Ratio	-	-	0.272	0.078	0.038
HCM Control Delay (s)	-	-	15.9	11.5	8.6
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0.3	0.1

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	
Traffic Vol, veh/h	0	0	2	71	0	10	4	202	120	16	138	2
Future Vol, veh/h	0	0	2	71	0	10	4	202	120	16	138	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	235	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	92	92	92	89	89	92	92	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	2	77	0	11	4	227	130	17	182	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	524	583	184	454	454	227	185	0	0	357	0	0
Stage 1	218	218	-	235	235	-	-	-	-	-	-	-
Stage 2	306	365	-	219	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	464	424	858	516	502	812	1390	-	-	1202	-	-
Stage 1	784	723	-	768	710	-	-	-	-	-	-	-
Stage 2	704	623	-	783	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	451	416	858	507	492	812	1390	-	-	1202	-	-
Mov Cap-2 Maneuver	451	416	-	507	492	-	-	-	-	-	-	-
Stage 1	781	711	-	765	707	-	-	-	-	-	-	-
Stage 2	692	621	-	769	710	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB		
HCM Control Delay, s	9.2		13.1		0.1		0.7		
HCM LOS	A		B						

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1390	-	-	858	532	1202	-	-
HCM Lane V/C Ratio	0.003	-	-	0.002	0.165	0.014	-	-
HCM Control Delay (s)	7.6	0	-	9.2	13.1	8	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.6	0	-	-

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	10	4	190	16	7	142
Future Vol, veh/h	10	4	190	16	7	142
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	89	92	92	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	4	213	17	8	187

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	425	222	0	0	230
Stage 1	222	-	-	-	-
Stage 2	203	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	586	818	-	-	1338
Stage 1	815	-	-	-	-
Stage 2	831	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	582	818	-	-	1338
Mov Cap-2 Maneuver	582	-	-	-	-
Stage 1	809	-	-	-	-
Stage 2	831	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	634	1338
HCM Lane V/C Ratio	-	-	0.024	0.006
HCM Control Delay (s)	-	-	10.8	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection												
Int Delay, s/veh	14.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖	↗	↖	↖	↗
Traffic Vol, veh/h	11	205	26	62	68	28	23	112	81	75	85	13
Future Vol, veh/h	11	205	26	62	68	28	23	112	81	75	85	13
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	-	-	-	-	-	-	0	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	88	88	88	88	88	88	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	205	26	70	77	32	26	127	92	103	116	18

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	611	602	125	626	519	127	134	0	0	219	0	0
Stage 1	331	331	-	179	179	-	-	-	-	-	-	-
Stage 2	280	271	-	447	340	-	-	-	-	-	-	-
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	406	414	926	397	461	923	1451	-	-	1350	-	-
Stage 1	682	645	-	823	751	-	-	-	-	-	-	-
Stage 2	727	685	-	591	639	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	313	375	926	205	418	923	1451	-	-	1350	-	-
Mov Cap-2 Maneuver	313	375	-	205	418	-	-	-	-	-	-	-
Stage 1	670	596	-	808	737	-	-	-	-	-	-	-
Stage 2	617	673	-	348	590	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	27.2		29.9		0.8		3.4	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1451	-	-	397	319	1350	-
HCM Lane V/C Ratio	0.018	-	-	0.61	0.563	0.076	-
HCM Control Delay (s)	7.5	-	-	27.2	29.9	7.9	-
HCM Lane LOS	A	-	-	D	D	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.9	3.3	0.2	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	1	206	152	0
Future Vol, veh/h	0	1	1	206	152	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	224	165	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	391	165	165	0	-	0
Stage 1	165	-	-	-	-	-
Stage 2	226	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	613	879	1413	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	612	879	1413	-	-	-
Mov Cap-2 Maneuver	612	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	812	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1413	-	879	-	-
HCM Lane V/C Ratio	0.001	-	0.001	-	-
HCM Control Delay (s)	7.5	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Timings
8: Vollmer Rd & Stapleton Dr

2040 Background Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	823	60	342	1441	66	90	124	121	143	287	99
Future Volume (vph)	48	823	60	342	1441	66	90	124	121	143	287	99
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	53.0	53.0	22.0	65.0	65.0	15.0	32.0	32.0	13.0	30.0	30.0
Total Split (%)	8.3%	44.2%	44.2%	18.3%	54.2%	54.2%	12.5%	26.7%	26.7%	10.8%	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	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	42.9	37.6	37.6	15.0	50.4	50.4	23.2	14.4	14.4	23.4	17.4	17.4
Actuated g/C Ratio	0.45	0.39	0.39	0.16	0.52	0.52	0.24	0.15	0.15	0.24	0.18	0.18
v/c Ratio	0.30	0.63	0.09	0.67	0.82	0.08	0.31	0.25	0.35	0.46	0.47	0.25
Control Delay	15.0	25.9	0.2	48.0	24.5	1.0	31.9	39.7	6.4	35.5	42.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	25.9	0.2	48.0	24.5	1.0	31.9	39.7	6.4	35.5	42.5	3.3
LOS	B	C	A	D	C	A	C	D	A	D	D	A
Approach Delay		23.7			28.0			25.6			33.3	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 96.4
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 27.5
 Intersection LOS: C
 Intersection Capacity Utilization 73.6%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 8: Vollmer Rd & Stapleton Dr



Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	
Traffic Vol, veh/h	0	0	5	35	0	4	2	194	12	1	388	2
Future Vol, veh/h	0	0	5	35	0	4	2	194	12	1	388	2
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	-	-	-	-	-	-	-	-	-	-	-	-
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	5	37	0	4	2	204	13	1	408	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	628	632	409	622	620	204	410	0	0	217	0	0
Stage 1	411	411	-	208	208	-	-	-	-	-	-	-
Stage 2	217	221	-	414	412	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	395	398	642	399	404	837	1149	-	-	1353	-	-
Stage 1	618	595	-	794	730	-	-	-	-	-	-	-
Stage 2	785	720	-	616	594	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	392	397	642	395	403	837	1149	-	-	1353	-	-
Mov Cap-2 Maneuver	392	397	-	395	403	-	-	-	-	-	-	-
Stage 1	617	594	-	792	729	-	-	-	-	-	-	-
Stage 2	779	719	-	610	593	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.7		14.5		0.1		0	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1149	-	-	642	418	1353	-	-
HCM Lane V/C Ratio	0.002	-	-	0.008	0.098	0.001	-	-
HCM Control Delay (s)	8.1	0	-	10.7	14.5	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑		↑
Traffic Vol, veh/h	30	18	186	10	6	357
Future Vol, veh/h	30	18	186	10	6	357
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	19	196	11	6	376

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	584	196	0	0	207
Stage 1	196	-	-	-	-
Stage 2	388	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	474	845	-	-	1364
Stage 1	837	-	-	-	-
Stage 2	686	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	471	845	-	-	1364
Mov Cap-2 Maneuver	471	-	-	-	-
Stage 1	832	-	-	-	-
Stage 2	686	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	565	1364
HCM Lane V/C Ratio	-	-	0.089	0.005
HCM Control Delay (s)	-	-	12	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Intersection												
Int Delay, s/veh	19.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖	↗	↖	↗	↖
Traffic Vol, veh/h	20	29	17	52	254	98	23	106	29	50	163	62
Future Vol, veh/h	20	29	17	52	254	98	23	106	29	50	163	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	0	0	-	-
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	21	31	18	55	267	103	24	112	31	53	172	65

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	672	502	205	495	503	112	237	0	0	143	0	0
Stage 1	311	311	-	160	160	-	-	-	-	-	-	-
Stage 2	361	191	-	335	343	-	-	-	-	-	-	-
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	370	471	836	485	471	941	1330	-	-	1440	-	-
Stage 1	699	658	-	842	766	-	-	-	-	-	-	-
Stage 2	657	742	-	679	637	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	166	446	836	431	446	941	1330	-	-	1440	-	-
Mov Cap-2 Maneuver	166	446	-	431	446	-	-	-	-	-	-	-
Stage 1	686	634	-	827	752	-	-	-	-	-	-	-
Stage 2	370	729	-	609	613	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	19.3		38.5		1.1		1.4	
HCM LOS	C		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1330	-	-	321	509	1440	-
HCM Lane V/C Ratio	0.018	-	-	0.216	0.835	0.037	-
HCM Control Delay (s)	7.8	-	-	19.3	38.5	7.6	-
HCM Lane LOS	A	-	-	C	E	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	8.4	0.1	-

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑	↑	↑	↑	↑
Traffic Vol, veh/h	20	29	17	52	254	98	23	106	29	50	163	62
Future Vol, veh/h	20	29	17	52	254	98	23	106	29	50	163	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	31	18	55	267	103	24	112	31	53	172	65
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	10.2	20.3	10.5	11
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	30%	13%	100%	0%	0%
Vol Thru, %	0%	100%	0%	44%	63%	0%	100%	0%
Vol Right, %	0%	0%	100%	26%	24%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	106	29	66	404	50	163	62
LT Vol	23	0	0	20	52	50	0	0
Through Vol	0	106	0	29	254	0	163	0
RT Vol	0	0	29	17	98	0	0	62
Lane Flow Rate	24	112	31	69	425	53	172	65
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.048	0.204	0.05	0.125	0.686	0.101	0.305	0.103
Departure Headway (Hd)	7.101	6.588	5.87	6.472	5.809	6.901	6.389	5.672
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	503	543	607	552	621	518	561	630
Service Time	4.863	4.349	3.631	4.237	3.551	4.655	4.143	3.426
HCM Lane V/C Ratio	0.048	0.206	0.051	0.125	0.684	0.102	0.307	0.103
HCM Control Delay	10.2	11	8.9	10.2	20.3	10.4	11.9	9.1
HCM Lane LOS	B	B	A	B	C	B	B	A
HCM 95th-tile Q	0.2	0.8	0.2	0.4	5.4	0.3	1.3	0.3

Timings
8: Vollmer Rd & Stapleton Dr

2040 Background Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	1441	105	325	1194	114	205	398	357	142	202	92
Future Volume (vph)	159	1441	105	325	1194	114	205	398	357	142	202	92
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	50.0	50.0	28.0	58.0	58.0	22.0	28.0	28.0	14.0	20.0	20.0
Total Split (%)	16.7%	41.7%	41.7%	23.3%	48.3%	48.3%	18.3%	23.3%	23.3%	11.7%	16.7%	16.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	59.3	48.0	48.0	16.4	53.2	53.2	32.4	19.2	19.2	22.0	13.1	13.1
Actuated g/C Ratio	0.53	0.43	0.43	0.15	0.47	0.47	0.29	0.17	0.17	0.20	0.12	0.12
v/c Ratio	0.63	0.97	0.14	0.68	0.75	0.14	0.62	0.70	0.72	0.64	0.52	0.27
Control Delay	28.8	50.7	0.4	53.3	28.9	1.7	40.7	50.9	18.0	46.5	52.3	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	50.7	0.4	53.3	28.9	1.7	40.7	50.9	18.0	46.5	52.3	1.8
LOS	C	D	A	D	C	A	D	D	B	D	D	A
Approach Delay		45.4			31.9			36.5			39.8	
Approach LOS		D			C			D			D	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 112.6
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 38.3
 Intersection LOS: D
 Intersection Capacity Utilization 84.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 8: Vollmer Rd & Stapleton Dr



Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	
Traffic Vol, veh/h	0	0	2	23	0	3	4	518	39	4	349	2
Future Vol, veh/h	0	0	2	23	0	3	4	518	39	4	349	2
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	-	-	-	-	-	-	-	-	-	-	-	-
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	2	24	0	3	4	545	41	4	367	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	951	970	368	930	930	545	369	0	0	586	0	0
Stage 1	376	376	-	553	553	-	-	-	-	-	-	-
Stage 2	575	594	-	377	377	-	-	-	-	-	-	-
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	240	253	677	248	267	538	1190	-	-	989	-	-
Stage 1	645	616	-	517	514	-	-	-	-	-	-	-
Stage 2	503	493	-	644	616	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	237	250	677	245	264	538	1190	-	-	989	-	-
Mov Cap-2 Maneuver	237	250	-	245	264	-	-	-	-	-	-	-
Stage 1	642	613	-	514	511	-	-	-	-	-	-	-
Stage 2	498	491	-	639	613	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.3		20.4		0.1		0.1	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1190	-	-	677	261	989	-
HCM Lane V/C Ratio	0.004	-	-	0.003	0.105	0.004	-
HCM Control Delay (s)	8	0	-	10.3	20.4	8.7	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑	↑		↔
Traffic Vol, veh/h	19	12	483	33	20	333
Future Vol, veh/h	19	12	483	33	20	333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	235	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	13	508	35	21	351

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	901	508	0	0	543
Stage 1	508	-	-	-	-
Stage 2	393	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	309	565	-	-	1026
Stage 1	604	-	-	-	-
Stage 2	682	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	301	565	-	-	1026
Mov Cap-2 Maneuver	301	-	-	-	-
Stage 1	589	-	-	-	-
Stage 2	682	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	367	1026
HCM Lane V/C Ratio	-	-	0.089	0.021
HCM Control Delay (s)	-	-	15.8	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection												
Int Delay, s/veh	58.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑	↑	↕	↕	↕
Traffic Vol, veh/h	52	230	31	44	77	62	32	225	73	99	159	35
Future Vol, veh/h	52	230	31	44	77	62	32	225	73	99	159	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	245	33	47	82	66	34	239	78	105	169	37

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	818	783	188	844	723	239	206	0	0	317	0	0
Stage 1	398	398	-	307	307	-	-	-	-	-	-	-
Stage 2	420	385	-	537	416	-	-	-	-	-	-	-
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	295	325	854	283	352	800	1365	-	-	1243	-	-
Stage 1	628	603	-	703	661	-	-	-	-	-	-	-
Stage 2	611	611	-	528	592	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	199	290	854	74	314	800	1365	-	-	1243	-	-
Mov Cap-2 Maneuver	199	290	-	74	314	-	-	-	-	-	-	-
Stage 1	612	552	-	685	644	-	-	-	-	-	-	-
Stage 2	477	596	-	259	542	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB		
HCM Control Delay, s	142.2		107.6		0.7		2.8		
HCM LOS	F		F						

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1365	-	-	287	199	1243	-
HCM Lane V/C Ratio	0.025	-	-	1.16	0.978	0.085	-
HCM Control Delay (s)	7.7	-	-	142.2	107.6	8.2	-
HCM Lane LOS	A	-	-	F	F	A	-
HCM 95th %tile Q(veh)	0.1	-	-	14.4	8.3	0.3	-

Intersection	
Intersection Delay, s/veh	16.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑	↑	↑	↑	↑
Traffic Vol, veh/h	52	230	31	44	77	62	32	225	73	99	159	35
Future Vol, veh/h	52	230	31	44	77	62	32	225	73	99	159	35
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	245	33	47	82	66	34	239	78	105	169	37
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	21.7	14.5	14.4	12.9
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	17%	24%	100%	0%	0%
Vol Thru, %	0%	100%	0%	73%	42%	0%	100%	0%
Vol Right, %	0%	0%	100%	10%	34%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	32	225	73	313	183	99	159	35
LT Vol	32	0	0	52	44	99	0	0
Through Vol	0	225	0	230	77	0	159	0
RT Vol	0	0	73	31	62	0	0	35
Lane Flow Rate	34	239	78	333	195	105	169	37
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.072	0.475	0.138	0.646	0.389	0.226	0.339	0.067
Departure Headway (Hd)	7.66	7.144	6.42	6.986	7.2	7.736	7.218	6.494
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	505	558	516	498	463	497	551
Service Time	5.41	4.893	4.169	4.729	4.952	5.487	4.969	4.245
HCM Lane V/C Ratio	0.073	0.473	0.14	0.645	0.392	0.227	0.34	0.067
HCM Control Delay	11	16.2	10.2	21.7	14.5	12.7	13.7	9.7
HCM Lane LOS	B	C	B	C	B	B	B	A
HCM 95th-tile Q	0.2	2.5	0.5	4.6	1.8	0.9	1.5	0.2

Timings
8: Vollmer Rd & Stapleton Dr

2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	825	60	361	1451	66	90	141	125	145	331	123
Future Volume (vph)	59	825	60	361	1451	66	90	141	125	145	331	123
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	53.0	53.0	22.0	65.0	65.0	15.0	30.0	30.0	15.0	30.0	30.0
Total Split (%)	8.3%	44.2%	44.2%	18.3%	54.2%	54.2%	12.5%	25.0%	25.0%	12.5%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	43.4	38.1	38.1	15.5	51.4	51.4	23.3	14.4	14.4	26.3	18.9	18.9
Actuated g/C Ratio	0.44	0.39	0.39	0.16	0.52	0.52	0.24	0.15	0.15	0.27	0.19	0.19
v/c Ratio	0.37	0.64	0.09	0.71	0.83	0.08	0.33	0.29	0.36	0.44	0.51	0.30
Control Delay	17.9	27.1	0.2	50.3	25.9	1.0	32.0	41.2	7.3	33.8	42.9	5.9
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	17.9	27.1	0.2	50.3	25.9	1.0	32.0	41.2	7.3	33.8	42.9	5.9
LOS	B	C	A	D	C	A	C	D	A	C	D	A
Approach Delay		24.8			29.8			27.0			33.1	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 98.9
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 28.8
 Intersection Capacity Utilization 75.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 8: Vollmer Rd & Stapleton Dr



Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	
Traffic Vol, veh/h	0	0	5	89	0	7	2	199	34	3	403	2
Future Vol, veh/h	0	0	5	89	0	7	2	199	34	3	403	2
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	-	-	-	-	-	-	-	-	-	-	-	-
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	5	94	0	7	2	209	36	3	424	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	666	680	425	647	645	209	426	0	0	245	0	0
Stage 1	431	431	-	213	213	-	-	-	-	-	-	-
Stage 2	235	249	-	434	432	-	-	-	-	-	-	-
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	373	373	629	384	391	831	1133	-	-	1321	-	-
Stage 1	603	583	-	789	726	-	-	-	-	-	-	-
Stage 2	768	701	-	600	582	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	368	371	629	379	389	831	1133	-	-	1321	-	-
Mov Cap-2 Maneuver	368	371	-	379	389	-	-	-	-	-	-	-
Stage 1	602	581	-	787	725	-	-	-	-	-	-	-
Stage 2	760	700	-	593	580	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.8		17.2		0.1		0.1	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1133	-	-	629	395	1321	-
HCM Lane V/C Ratio	0.002	-	-	0.008	0.256	0.002	-
HCM Control Delay (s)	8.2	0	-	10.8	17.2	7.7	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0	1	0	-

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		TT			TT
Traffic Vol, veh/h	43	20	189	15	7	358
Future Vol, veh/h	43	20	189	15	7	358
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	21	199	16	7	377

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	598	207	0	0	215
Stage 1	207	-	-	-	-
Stage 2	391	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	465	833	-	-	1355
Stage 1	828	-	-	-	-
Stage 2	683	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	462	833	-	-	1355
Mov Cap-2 Maneuver	462	-	-	-	-
Stage 1	822	-	-	-	-
Stage 2	683	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	538	1355
HCM Lane V/C Ratio	-	-	0.123	0.005
HCM Control Delay (s)	-	-	12.6	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0

Intersection												
Int Delay, s/veh	19.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↑	↖	↗	↖	↖
Traffic Vol, veh/h	20	29	17	52	254	98	24	109	30	50	164	62
Future Vol, veh/h	20	29	17	52	254	98	24	109	30	50	164	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	0	0	-	-
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	21	31	18	55	267	103	25	115	32	53	173	65

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	678	509	206	501	509	115	238	0	0	147	0	0
Stage 1	312	312	-	165	165	-	-	-	-	-	-	-
Stage 2	366	197	-	336	344	-	-	-	-	-	-	-
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	366	467	835	480	467	937	1329	-	-	1435	-	-
Stage 1	699	658	-	837	762	-	-	-	-	-	-	-
Stage 2	653	738	-	678	637	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	162	441	835	426	441	937	1329	-	-	1435	-	-
Mov Cap-2 Maneuver	162	441	-	426	441	-	-	-	-	-	-	-
Stage 1	686	634	-	821	748	-	-	-	-	-	-	-
Stage 2	366	724	-	608	613	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	19.6		40.1		1.1		1.4	
HCM LOS	C		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1329	-	-	315	503	1435	-
HCM Lane V/C Ratio	0.019	-	-	0.221	0.845	0.037	-
HCM Control Delay (s)	7.8	-	-	19.6	40.1	7.6	-
HCM Lane LOS	A	-	-	C	E	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	8.7	0.1	-

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	20	29	17	52	254	98	24	109	30	50	164	62
Future Vol, veh/h	20	29	17	52	254	98	24	109	30	50	164	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	31	18	55	267	103	25	115	32	53	173	65
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	10.2	20.5	10.6	11.1
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	30%	13%	100%	0%	0%
Vol Thru, %	0%	100%	0%	44%	63%	0%	100%	0%
Vol Right, %	0%	0%	100%	26%	24%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	109	30	66	404	50	164	62
LT Vol	24	0	0	20	52	50	0	0
Through Vol	0	109	0	29	254	0	164	0
RT Vol	0	0	30	17	98	0	0	62
Lane Flow Rate	25	115	32	69	425	53	173	65
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.05	0.21	0.052	0.125	0.688	0.101	0.307	0.103
Departure Headway (Hd)	7.107	6.594	5.875	6.495	5.826	6.912	6.4	5.684
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	502	543	607	550	621	517	559	628
Service Time	4.869	4.356	3.637	4.261	3.569	4.67	4.158	3.44
HCM Lane V/C Ratio	0.05	0.212	0.053	0.125	0.684	0.103	0.309	0.104
HCM Control Delay	10.2	11.1	9	10.2	20.5	10.5	12	9.1
HCM Lane LOS	B	B	A	B	C	B	B	A
HCM 95th-tile Q	0.2	0.8	0.2	0.4	5.4	0.3	1.3	0.3

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	1	0	204	401	0
Future Vol, veh/h	0	1	0	204	401	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	215	422	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	637	422	422	0	-	0
Stage 1	422	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	441	632	1137	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	821	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	441	632	1137	-	-	-
Mov Cap-2 Maneuver	441	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	821	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1137	-	632	-	-
HCM Lane V/C Ratio	-	-	0.002	-	-
HCM Control Delay (s)	0	-	10.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection				
Intersection Delay, s/veh	5.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	5	101	247	429
Demand Flow Rate, veh/h	5	103	252	437
Vehicles Circulating, veh/h	531	215	3	98
Vehicles Exiting, veh/h	4	40	533	220
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.5	4.1	4.2	6.3
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	5	103	252	437
Cap Entry Lane, veh/h	803	1108	1376	1249
Entry HV Adj Factor	1.000	0.981	0.979	0.981
Flow Entry, veh/h	5	101	247	429
Cap Entry, veh/h	803	1087	1347	1224
V/C Ratio	0.006	0.093	0.183	0.350
Control Delay, s/veh	4.5	4.1	4.2	6.3
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	2

Timings
8: Vollmer Rd & Stapleton Dr

2040 Total Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1449	105	337	1201	116	205	454	371	143	231	108
Future Volume (vph)	190	1449	105	337	1201	116	205	454	371	143	231	108
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	52.0	52.0	27.0	59.0	59.0	21.0	27.0	27.0	14.0	20.0	20.0
Total Split (%)	16.7%	43.3%	43.3%	22.5%	49.2%	49.2%	17.5%	22.5%	22.5%	11.7%	16.7%	16.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	62.0	49.5	49.5	17.2	54.1	54.1	33.6	20.3	20.3	23.8	14.8	14.8
Actuated g/C Ratio	0.53	0.43	0.43	0.15	0.47	0.47	0.29	0.18	0.18	0.21	0.13	0.13
v/c Ratio	0.74	0.98	0.14	0.70	0.77	0.15	0.65	0.76	0.77	0.71	0.54	0.30
Control Delay	39.2	52.8	0.4	54.8	30.2	1.8	43.0	54.7	24.1	52.6	53.0	2.1
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	39.2	52.8	0.4	54.8	30.2	1.8	43.0	54.7	24.1	52.6	53.0	2.1
LOS	D	D	A	D	C	A	D	D	C	D	D	A
Approach Delay		48.0			33.3			41.3			41.4	
Approach LOS		D			C			D			D	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 116
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 40.9
 Intersection LOS: D
 Intersection Capacity Utilization 86.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 8: Vollmer Rd & Stapleton Dr



Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔	↔		↔	
Traffic Vol, veh/h	0	0	2	59	0	5	4	534	112	8	359	2
Future Vol, veh/h	0	0	2	59	0	5	4	534	112	8	359	2
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	-	-	-	-	-	-	-	-	-	-	-	-
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	2	62	0	5	4	562	118	8	378	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1027	1083	379	966	966	562	380	0	0	680	0	0
Stage 1	395	395	-	570	570	-	-	-	-	-	-	-
Stage 2	632	688	-	396	396	-	-	-	-	-	-	-
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	213	217	668	234	255	526	1178	-	-	912	-	-
Stage 1	630	605	-	506	505	-	-	-	-	-	-	-
Stage 2	468	447	-	629	604	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	208	213	668	230	251	526	1178	-	-	912	-	-
Mov Cap-2 Maneuver	208	213	-	230	251	-	-	-	-	-	-	-
Stage 1	626	598	-	503	502	-	-	-	-	-	-	-
Stage 2	461	444	-	620	597	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.4		25.6		0		0.2	
HCM LOS	B		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1178	-	-	668	241	912	-	-
HCM Lane V/C Ratio	0.004	-	-	0.003	0.28	0.009	-	-
HCM Control Delay (s)	8.1	0	-	10.4	25.6	9	0	-
HCM Lane LOS	A	A	-	B	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.1	0	-	-

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	13	485	48	22	337
Future Vol, veh/h	28	13	485	48	22	337
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	14	511	51	23	355

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	938	537	0	0	562
Stage 1	537	-	-	-	-
Stage 2	401	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	293	544	-	-	1009
Stage 1	586	-	-	-	-
Stage 2	676	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	285	544	-	-	1009
Mov Cap-2 Maneuver	285	-	-	-	-
Stage 1	570	-	-	-	-
Stage 2	676	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.3	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	336	1009
HCM Lane V/C Ratio	-	-	0.128	0.023
HCM Control Delay (s)	-	-	17.3	8.7
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection												
Int Delay, s/veh	62.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↑	↖	↗	↖	↖
Traffic Vol, veh/h	52	230	32	45	77	62	33	227	74	99	163	35
Future Vol, veh/h	52	230	32	45	77	62	33	227	74	99	163	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	245	34	48	82	66	35	241	79	105	173	37

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	827	792	192	852	731	241	210	0	0	320	0	0
Stage 1	402	402	-	311	311	-	-	-	-	-	-	-
Stage 2	425	390	-	541	420	-	-	-	-	-	-	-
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	291	322	850	280	349	798	1361	-	-	1240	-	-
Stage 1	625	600	-	699	658	-	-	-	-	-	-	-
Stage 2	607	608	-	525	589	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	196	287	850	70	311	798	1361	-	-	1240	-	-
Mov Cap-2 Maneuver	196	287	-	70	311	-	-	-	-	-	-	-
Stage 1	609	549	-	681	641	-	-	-	-	-	-	-
Stage 2	473	592	-	256	539	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	148.3		124.7		0.8		2.7	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1361	-	-	284	190	1240	-
HCM Lane V/C Ratio	0.026	-	-	1.176	1.03	0.085	-
HCM Control Delay (s)	7.7	-	-	148.3	124.7	8.2	-
HCM Lane LOS	A	-	-	F	F	A	-
HCM 95th %tile Q(veh)	0.1	-	-	14.7	8.9	0.3	-

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑	↑	↑	↑	↑
Traffic Vol, veh/h	52	230	32	45	77	62	33	227	74	99	163	35
Future Vol, veh/h	52	230	32	45	77	62	33	227	74	99	163	35
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	245	34	48	82	66	35	241	79	105	173	37
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	22	14.7	14.5	13
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	17%	24%	100%	0%	0%
Vol Thru, %	0%	100%	0%	73%	42%	0%	100%	0%
Vol Right, %	0%	0%	100%	10%	34%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	33	227	74	314	184	99	163	35
LT Vol	33	0	0	52	45	99	0	0
Through Vol	0	227	0	230	77	0	163	0
RT Vol	0	0	74	32	62	0	0	35
Lane Flow Rate	35	241	79	334	196	105	173	37
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.075	0.481	0.141	0.651	0.394	0.227	0.349	0.067
Departure Headway (Hd)	7.689	7.172	6.448	7.019	7.242	7.764	7.246	6.522
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	502	555	514	497	462	496	548
Service Time	5.443	4.926	4.201	4.765	4.996	5.52	5.002	4.278
HCM Lane V/C Ratio	0.075	0.48	0.142	0.65	0.394	0.227	0.349	0.068
HCM Control Delay	11.1	16.4	10.3	22	14.7	12.8	13.9	9.7
HCM Lane LOS	B	C	B	C	B	B	B	A
HCM 95th-tile Q	0.2	2.6	0.5	4.6	1.9	0.9	1.5	0.2

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	1	1	533	365	0
Future Vol, veh/h	0	1	1	533	365	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	561	384	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	947	384	384	0	-	0
Stage 1	384	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	290	664	1174	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	290	664	1174	-	-	-
Mov Cap-2 Maneuver	290	-	-	-	-	-
Stage 1	687	-	-	-	-	-
Stage 2	570	-	-	-	-	-

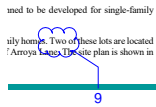
Approach	EB	NB	SB
HCM Control Delay, s	10.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1174	-	664	-	-
HCM Lane V/C Ratio	0.001	-	0.002	-	-
HCM Control Delay (s)	8.1	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection				
Intersection Delay, s/veh	7.0			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	2	67	684	388
Demand Flow Rate, veh/h	2	68	697	396
Vehicles Circulating, veh/h	457	577	8	67
Vehicles Exiting, veh/h	6	128	451	578
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.2	5.7	8.0	5.6
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	2	68	697	396
Cap Entry Lane, veh/h	866	766	1369	1289
Entry HV Adj Factor	1.000	0.985	0.981	0.981
Flow Entry, veh/h	2	67	684	388
Cap Entry, veh/h	866	755	1343	1264
V/C Ratio	0.002	0.089	0.509	0.307
Control Delay, s/veh	4.2	5.7	8.0	5.6
LOS	A	A	A	A
95th %tile Queue, veh	0	0	3	1

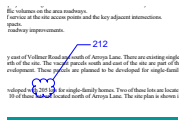
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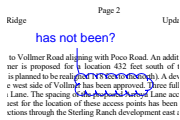
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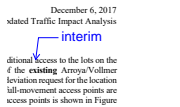
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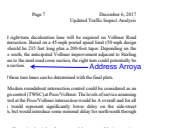
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