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Retreat at TimberRidge Filing No. 4
Traffic Technical Memorandum
(LSC #S234430)
February 21, 2024

Traffic Engineer's Statement

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

Developer's Statement

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

V.P.

2/21/2024
Date

Retreat at TimberRidge Filing No. 4

Traffic Technical Memorandum

Prepared for:

Loren J. Moreland
Vice President / Project Manager
Classic Homes
6385 Corporate Drive, Suite 200

FEBRUARY 21, 2024

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

LSC #S234430

PCD File No.: SF1827

CONTENTS

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February 21, 2024

Loren J. Moreland
Vice President / Project Manager
Classic Homes
6385 Corporate Drive, Suite 200
Colorado Springs, CO

RE: Retreat at TimberRidge Filing No. 4
El Paso County, CO
Traffic Technical Memorandum
PCD File No: SF1827
LSC #S234430

Dear Mr. Moreland:

LSC Transportation Consultants, Inc. has prepared this traffic technical memorandum for the Retreat at TimberRidge Filing No. 4. As shown in Figure 1, The Retreat at TimberRidge development is located generally east of Vollmer Road and adjacent to Arroya Lane in El Paso County, Colorado. The Filing No. 4 site is located on the north side of Arroya Lane.

TimberRidge Filing No. 4 is planned to include 10 lots for single-family homes and one full-movement access point is proposed to Arroya Lane about 480 feet east of Hawks Hill Court.

This memorandum is intended as a site-specific, final-plat traffic report for the currently proposed Filing No. 4.

PRIOR TRAFFIC REPORTS

LSC prepared a traffic impact study (TIS) for the entire Retreat at TimberRidge PUD development plan dated January 25, 2018 and a transportation memorandum that addressed phasing of that development dated April 5, 2018.

LSC also completed a traffic technical memorandum for Filing No. 1 (PCD SF199) dated April 3, 2020, for Filing No. 2 (PCD SF2121) dated October 4, 2021 and for Filing No. 3 (PCD SF2241) dated September 28, 2023 (with a minor revision November 11, 2023). The lot and street plan has not changed since completion of those reports.

LSC also completed the recent *Sterling Ranch Sketch Plan 2023 Amendment and Rezone Traffic Technical Memorandum* (PCD SKP235) dated January 17, 2024which the background traffic on Arroya Lane in this report has been based.

REPORT CONTENTS

This report presents:

- A description of Retreat at TimberRidge filings that are approved and under construction, currently proposed, and planned for the future;
- The current status of other subdivisions shown on the approved PUD plan;
- The existing roadway and traffic conditions in the site's vicinity, including the roadway widths, surface conditions, lane geometries, traffic controls, and posted speed limits;
- Existing (2022) traffic-volume data;
- Projections of short-term and long-term background traffic volumes at the intersection of Vollmer Road/Arroya Lane;
- The projected average weekday and peak-hour vehicle trips to be generated by the Retreat at TimberRidge Filing No. 4;
- The assignment of the Filing No. 4 projected trips to the intersection of Vollmer Road/Arroya Lane;
- The projected short-term and long-term level of service at the intersection of Vollmer Road/Arroya Lane;
- The recommended street classifications for the internal streets within the currently proposed Retreat at TimberRidge Filing No. 4;
- Improvements needed with Retreat at TimberRidge Filing No. 4; and
- The project's obligation to the County roadway improvement fee program.

LAND USE AND ACCESS

TimberRidge PUD/Preliminary Plan (for Reference)

The Retreat at TimberRidge Preliminary Plan area includes the 203 lots for single-family homes located east of Vollmer Road and two lots for single-family homes located west of Vollmer Road and south of Arroya Lane.

Figure 2 shows the location of the approved Retreat at TimberRidge Filing Nos. 1 and 2, the Retreat at TimberRidge Filing No. 3 which is currently under review, the approved Timber Ridge West, and the currently-proposed Retreat at TimberRidge Filing No. 4.

The currently proposed Filing No. 4 will be the last filing for the Retreat at TimberRidge PUD. The April 2018 transportation memorandum included analysis of the preliminary plan by phase. Figure 1 from that report shows the phasing plan. No changes have been made to the PUD plan since completion of that memorandum. The current status of subdivisions is discussed below.

Currently Proposed Filing No. 4

The currently proposed Retreat at TimberRidge Filing No. 4 is planned to include 10 lots for single-family homes north of Arroya Lane. One full-movement access point is proposed to Arroya Lane about 480 feet east of Hawks Hill Court. The currently proposed plan is consistent with what was assumed as **Phase 1 of the Preliminary Plan** in the April 2018 transportation memorandum**.**

Current Status of Other Subdivisions Shown on the Approved PUD Plan

The Retreat at TimberRidge Filing No. 1 is approved and currently under construction. Filing 1 includes 70 lots for single-family homes. The location of the lots within this filing includes 11 of the 13 lots assumed in the **Preliminary Plan Phase 2 plan** and the 59 lots assumed in **Preliminary Plan Phase 3 plan** in the April 2018 transportation memorandum. Poco Road has been constructed east of Vollmer Road to provide access for Filing 1. The proposed easternmost north/south street segment connecting to Arroya Lane has been constructed as a gravel road to provide an interim secondary emergency access. No improvements are planned to Arroya Lane as part of the approved Retreat at TimberRidge Filing No. 1.

The Retreat at TimberRidge Filing No. 2 is approved and currently under construction. This filing includes 90 lots for single-family homes. The location of the lots within this filing includes 6 of the 33 lots assumed in the **Preliminary Plan Phase 4**, 12 of the 15 lots assumed in the **Preliminary Plan Phase 5,** and 72 of the 75 lots assumed in the **Preliminary Plan Phase 6.** No changes are proposed to the Filing 1 access plan with Filing 2.

The Retreat at TimberRidge Filing No. 3, which is currently under review, is proposed to include 33 lots for single-family homes. The location of the lots within this filing includes 27 of the 33 lots assumed in the **Preliminary Plan Phase 4**, 3 of the 15 lots assumed in the **Preliminary Plan Phase 5,** and 3 of the 75 lots assumed in the **Preliminary Plan Phase 6.**

Arroya Lane is planned to be improved to a Rural Collector cross section as part of Filing No. 3. The intersection of Vollmer/Arroya is planned to be realigned so that Arroya intersects Vollmer at a right angle. The planned improvements at this intersection also include widening the shoulder on the east side of Vollmer Road approaching Arroya Lane. The easternmost north/south street segments connecting to Arroya Lane that were constructed as gravel roads to provide an interim secondary emergency access for Filing Nos. 1 and 2 will be paved and improved to their final cross sections as part of Filing No. 3. Aspen Valley Road will also be extended north to Arroya Lane as part of this filing.

Figure 2 shows the location of the Timber Ridge West filing on the west side of Vollmer Road. The April 2018 transportation memorandum assumed this area would be developed with nine lots for single-family homes with access to Vollmer Road aligning with Arroya Lane as part of a future preliminary plan. The approved Timber Ridge West filing includes 3 lots. Access for Lots 1 and 2

was approved at a shared location south of Arroya Lane and an existing home on Lot 3 has access to Vollmer Road north of Arroya Lane.

Sight Distance Analysis

Figure 3 shows a sight-distance analysis at the proposed access point to Arroya Lane. Based on a design speed of 40 mph and the criteria contained in Table 2-21 of the *ECM*, the required intersection sight distance at the future intersections is 445 feet. Based on the criteria contained in Table 2-17 of the *ECM*, the required stopping sight distance approaching this intersection is 305 feet. As shown in Figure 3, the proposed access location will meet the criterion.

Pedestrian and Bicycle Access

There are no existing schools within two miles of the site. However, there are planned future school sites within the Sterling Ranch Master Plan area south of Briargate Parkway. There are planned sidewalks on Vollmer Road south of Poco Road and Briargate Parkway. Pedestrian crossings will be needed on the east side of the intersection of Briargate Parkway/Vollmer Road.

EXISTING ROAD AND TRAFFIC CONDITIONS

The adjacent streets are shown in Figure 1 and are described below. Copies of the *2016 El Paso County Major Transportation Corridors Plan (MTCP), 2040 Roadway Plan,* and *2016 MTCP 2060 Corridor Preservation Plan* with the site location identified on each of them have been attached to this report.

Vollmer Road is currently a five-lane urban street within the City of Colorado Springs limits between Black Forest Road and Cowpoke Road; and a two-lane, rural, paved roadway north of Cowpoke Road extending to north of Hodgen Road. In the southbound direction, Vollmer Road has a posted speed limit of 45 mph. South of Cowpoke Road, Vollmer Road has a 40-mph posted speed limit. The *2040 El Paso County MTCP* and the Sterling Ranch master traffic study show Vollmer Road as a four-lane Urban Minor Arterial adjacent to the site. Vollmer Road is planned to transition to a 2-lane Rural Minor Arterial north of Poco Road. Vollmer Road is planned to be improved to a four-lane Urban Minor Arterial Cross section between Sam Bass Drive and Poco Road by May 2024.

Briargate Parkway is a Principal Arterial that extends east from Interstate 25 (I-25) to Grand Lawn Circle (about one-half mile east of Powers Boulevard). Briargate Parkway/Stapleton Road is planned ultimately to extend to Towner Drive. The section of Briargate Parkway between Vollmer Road and the first Sterling Ranch access (Wheatland Drive) is planned to be constructed to its full section by the end of 2023 and the section from Wheatland Drive to Sterling Ranch Road is planned to be constructed to its full cross section by spring 2024. Briargate Parkway is planned as a four-lane, Principal Arterial in the vicinity.

Poco Road is an existing gravel road which extends east for about three quarters of a mile from Lochwinnoch Lane to Vollmer Road. Poco Road has recently been constructed east of Vollmer Road as an Urban Local Road to serve the Retreat at TimberRidge Filing No. 1 (PCD SF199). Poco Road and Arroya Lane provide two points of access to the Retreat at TimberRidge development.

Existing Traffic Volumes

Figure 4 shows the existing (2022) peak-hour traffic volumes at the intersection of Arroya/Vollmer. The traffic volumes were based on traffic counts conducted by LSC in June 2022. The traffic count sheets are attached.

LEVEL OF SERVICE ANALYSIS

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

Table 1: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle)(1)
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

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

The intersection of Arroya/Vollmer has been analyzed to determine the existing intersection levels of service. The analysis was based on the unsignalized-intersection analysis procedures from the *Highway Capacity Manual, 6th Edition*. Figure 4 shows the level of service analysis results. The level of service reports are attached.

All movements at the intersections of Poco/Vollmer and Arroya/Vollmer are currently operating at LOS B or better during the peak hours.

BACKGROUND (BASELINE) CONDITIONS

Background traffic is the traffic estimated to be on the existing and planned future adjacent roadways and at adjacent intersections without the proposed development's trip generation of site-generated traffic volumes. Background traffic includes the through traffic and the traffic generated by nearby developments but assumes zero traffic generated by Retreat at TimberRidge Filing No. 4.

Short Term Background Traffic Estimates

Figure 5 shows the projected short-term background traffic volumes at the key area intersections. The short-term background traffic includes the existing traffic volumes plus increases in through traffic due to regional growth, plus traffic estimated to be generated by buildout of the Retreat at TimberRidge Filing Nos. 1 through 3, the Homestead at Sterling Ranch Filing 2, Branding Iron at Sterling Ranch Filing 2, Sterling Ranch Filing No. 2, Sterling Ranch Phase 2, and Homestead North Filings 1 through 3 located southeast of the intersection of Vollmer/Poco. . The short-term background volumes assume Aspen Valley Road and Hawks Hill Court have been constructed north to Arroya Lane as part of the Filing 3 development.

Long Term Background Traffic Estimates

Figure 6 shows the projected 2043 background traffic volumes at the key area intersections. 2043 background traffic-volume estimates were based on 2040 volume projections in the *El Paso County MTCP* and previous work completed in the area by LSC. The 2043 background traffic volumes assume buildout of the land uses and street network within the Sterling Ranch Master Plan area, and the Jaynes development located west of Vollmer Road.

The background volumes assume the Sterling Ranch development is built out with the maximum number of dwelling units, and associated street connections, constructed within the areas north of Briargate Parkway and east of Sterling Ranch Road as analyzed in the *Sterling Ranch Sketch Plan 2023 Amendment and Rezone Traffic Technical Memorandum* (PCD SKP235) dated January 17, 2024. This January 2024 TIS report showed a conceptual-level street connection to Arroya Lane. This connection is depicted in Figure 2 of this report.

TRIP GENERATION

The Retreat at TimberRidge Filing No. 4 site-generated vehicle trips have been estimated using the nationally published trip-generation rates from *Trip Generation, 11th Edition*, 2021 by the Institute of Transportation Engineers (ITE). Table 2 (attached) shows the trip-generation estimates for Filing No. 4. Table 2 also shows estimates of the traffic expected to be generated by the approved Retreat at TimberRidge Filing Nos. 1 through 3. The total trips generated by the Retreat at TimberRidge at buildout is consistent with the estimate shown in Table 1 of *The Retreat at TimberRidge Preliminary Plan Transportation Memorandum* dated April 5, 2018.

The Retreat at TimberRidge Filing No. 4 is expected to generate 94 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 two vehicles would enter and five 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 six vehicles would enter and three vehicles would exit the site.

TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of the site-generated traffic volumes on the street and roadway system serving the site is one of the most important factors in determining the site's traffic impacts. The specific short-term and long-term distribution estimates are shown in Figure 7. The directional-distribution estimates are based on the following factors: the location of the site with respect to the Colorado Springs metropolitan area, the planned access system for the site, the street and roadway system serving the site, the land uses proposed for the site, and the distribution of existing traffic volumes.

The short-term distribution estimate assumes only the short section of Briargate Parkway between Vollmer Road and Wheatland Drive has been constructed in the vicinity of the site and the long-term distribution estimate assumes full buildout of the future roadway network in the vicinity of the site.

When the distribution percentages (from Figure 7) are applied to the trip-generation estimates (from Table 2), the resulting site-generated traffic volumes can be determined. Figures 8 and 9 show the short-term and long-term site-generated traffic-volume estimates for the Retreat at TimberRidge Filing 4, respectively.

TOTAL TRAFFIC

Figure 10 shows the projected short-term total traffic volumes at the intersections of Vollmer Road/Poco Road and Vollmer Road/Arroya Lane. The short-term total traffic volumes are the sum of the short-term site-generated traffic volumes (from Figure 8) plus the short-term background traffic volumes (from Figure 5).

Figure 11 shows the projected 2043 total traffic volumes at the intersection of Vollmer Road/Poco Road. The 2043 total traffic volumes are the sum of the long-term site-generated traffic volumes (from Figure 9) plus the 2043 background traffic volumes (from Figure 6).

LEVEL OF SERVICE

The intersection of Vollmer Road/Arroya Lane was analyzed using the unsignalized method of analysis procedures outlined in the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The results of the analysis are shown in Figures 5, 6, 10, and 11.

All movements at the stop-sign-controlled intersection of Vollmer Road/Arroya Lane are projected to operate at an acceptable level of service (LOS D or better) during the peak hours through 2043.

SUBDIVISION STREET CLASSIFICATIONS

Figure 12 shows the recommended street classifications for the internal streets within the Retreat at TimberRidge plan.

ROADWAY IMPROVEMENTS

The April 2018 memorandum contained a summary of needed improvements for the entire TimberRidge PUD plan by phase. Table 3 is an updated version of that table based on the information from traffic studies recently completed in the area, including the *Sterling Ranch Sketch Plan Amendment Master Traffic Impact Study*, dated March 17, 2023 (PCD SKP224) and the *Sterling Ranch Sketch Plan 2023 Amendment and Rezone Traffic Technical Memorandum* (PCD SKP235) dated January 17, 2024. The currently proposed Retreat at TimberRidge Filing 4 will be the last filing within the TimberRidge PUD.

Auxiliary Turn Lanes

Based on the criteria contained in the El Paso County *Engineering Criteria Manual* (*ECM*) and the projected 2043 total traffic volumes shown in Figure 11, a southbound left-turn lane is **not** projected to be required on Vollmer Road approaching Arroya Lane. No other improvements beyond those required for the Retreat at TimberRidge Filing No. 3 which is currently under review will be needed with the currently proposed Retreat at TimberRidge Riling No. 4. While the recent Sketch Plan Amendment report for Sterling Ranch dated January 17, 2024 included an analysis of this intersection, this intersection will likely be reanalyzed with future Preliminary/Plat submittals within this northern portion of Sterling Ranch.

ROADWAY IMPROVEMENT FEE PROGRAM

This project will be required to participate in the El Paso County Road Improvement Fee Program. The Retreat at TimberRidge Filing No. 4 will join the ten-mil PID. The 2019 five-mil PID building permit fee portion associated with this option is $2,527 per single-family dwelling unit. Based on 10 lots, the total building permit fee would be $25,270.

* * * * *

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

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

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

JCH/KDF:jas

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

Tables

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CONSULTANTS, INC.

Table 2
Trip Generation Estimate
Retreat at TimberRidge Filing No. 4

Phase	Land Use Code	Land Use Description	Trip Generation Units: Fil 1	Fil 2	TR West	Fil 3	Fil 4	Total		Trip Generation Rates [1]: Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Retreat at TimberRidge Filing Nos. 1 & 2 and Timber Ridge West Trips Generated: Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Filing No. 3 Trips Generated: Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Filing No. 4 Trips Generated: Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Total Trips Generated: Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out
Approved Preliminary Plan																																				
1	210	Single-Family Detached Housing	0	0	0	0	10	10	DU[2]	9.43	0.18	0.52	0.59	0.35	0	0	0	0	0	0	0	0	0	0	94	2	5	6	3	94	2	5	6	3
2	210	Single-Family Detached Housing	11	0	2	0	0	13	DU	9.43	0.18	0.52	0.59	0.35	123	2	7	8	5	0	0	0	0	0	0	0	0	0	0	123	2	7	8	5
3	210	Single-Family Detached Housing	59	0	0	0	0	59	DU	9.43	0.18	0.52	0.59	0.35	556	11	31	35	21	0	0	0	0	0	0	0	0	0	0	556	11	31	35	21
4	210	Single-Family Detached Housing	0	6	0	27	0	33	DU	9.43	0.18	0.52	0.59	0.35	57	1	3	4	2	255	5	14	16	9	0	0	0	0	0	311	6	17	20	11
5	210	Single-Family Detached Housing	0	12	0	3	0	15	DU	9.43	0.18	0.52	0.59	0.35	113	2	6	7	4	28	1	2	2	1	0	0	0	0	0	141	3	8	9	5
6	210	Single-Family Detached Housing	0	72	0	3	0	75	DU	9.43	0.18	0.52	0.59	0.35	679	13	37	43	25	28	1	2	2	1	0	0	0	0	0	707	14	39	44	26
			70	**90**	**2**	**33**	**10**	**205**	**DU**						**1,528**	**29**	**84**	**96**	**56**	**311**	**6**	**17**	**20**	**11**	**94**	**2**	**5**	**6**	**3**	**1,933**	**37**	**106**	**121**	**71**

Notes:

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

(2) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.

Feb-24

Table 3
Roadway Improvements
Retreat at TimberRidge Filing No. 4

Improvement	Timing	Responsibility[1]
Upgrade Arroya Lane to a Rural Collector cross section	With the Retreat at TimberRidge Filing No. 3	The Retreat at TimberRidge
Realign Arroya Lane at the intersection of Vollmer Road/Arroya Lane so Arroya intersects Vollmer at a right angle	With the Retreat at TimberRidge Filing No. 3	The Retreat at Timber Ridge
Extend Poco Road to the east including the creek crossing	This improvement has been completed	
Construct a gravel road to provide secondary emergency access to Arroya Lane	This improvement has been completed	
Replace the secondary emergency access gravel road with subdivision streets	With the Retreat at TimberRidge Filing No. 3	The Retreat at TimberRidge
Construct a northbound right-turn deceleration lane on Vollmer Road approaching Poco Road.	This improvement has been completed	
Potential improvement: Southbound left-turn lane on Vollmer Road at Arroya Lane	Not anticipated to be needed with the currently proposed Filing No. 4, which is the final filing in the Retreat at TimberRidge PUD. *Although the long term anticipated traffic counts do not warrant it, the County Engineer may require a southbound left-turn lane at Arroyo based on unanticipated traffic patterns* [from prior EPC Staff Comments]. Evaluation with future Sterling Ranch "smoke-stack" (north) area development Preliminary Plans/Plats - when detailed lot and street plans are available, and more information may be available regarding the timing of the Briargate Parkway connection west of Vollmer Road.	(If required in the future) Sterling Ranch "smoke-stack" area development (future) and/or possible-but-not-currently-anticipated other future development with access via Arroya Lane.
Improve the shoulders on the east side of Vollmer Road approaching Arroya Lane per the attached Retreat at TimberRidge Filing No. 3 Construction Plans.	With the Retreat at TimberRidge Filing No. 3	The Retreat at TimberRidge
As shown on the County MTCP: Vollmer Road upgrade between Poco Road and Shoup Road to a county-standard, two-lane Rural Minor Arterial.	This roadway segment is shown on the PPACG 2045 Plan Fiscally-Constrained Project List (Table 7-1.15) under the project Vollmer Rd. Improvements: Briargate Pkwy. to Burgess Rd. Sponsor: El Paso County (4). The 2040 MTCP shows the Vollmer upgrade "project" as Project ID U-12.	The Retreat at Timber Ridge will dedicate right-of-way to accommodate the future upgrade to Rural Minor Arterial standards (As shown in the MTCP and the Fee Study); The applicant will be required to participate in the County Road Impact Fee program.
Upgrade Vollmer Road between future Stapleton Drive and Poco Road to an Urban Minor Arterial cross section (five lanes)	This improvement is planned to be completed by May 2024	
Upgrade Vollmer Road generally between the south boundary of Sterling Ranch and future Briargate Parkway 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 Briargate Parkway between Vollmer Road and the first Sterling Ranch access point (Wheatland Drive)	This improvement is planned to be completed by the end of 2023	
Construct a northbound right-turn deceleration lane on Vollmer Road approaching Briargate Parkway	This improvement is planned to be completed by May 2024	
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[3]	Existing Deficiency	Existing Deficiency - Others (This development will not add volume to this turning movement.)
Northbound left-turn lane at Burgess/Vollmer[3]	Based on traffic counts conducted by LSC in July 2022 and estimated traffic growth, the turning volume threshold warranting the turn lane (25 northbound left turns per hour) will likely be exceeded in the short term, if not already exceeded.	This intersection is shown on the PPACG 2045 Plan Fiscally-Constrained Project List (Table 7-1.15) under the project **Vollmer Rd. Improvements: Briargate Pkwy. to Burgess Rd. Sponsor: El Paso County (4).** Based on the PUD plan (which the existing Filings 1 and 2, Filing 3 which is currently under review and the currently proposed Filing No 4 are consistent with), the afternoon peak-hour traffic impact from the Retreat at TimberRidge PUD on the northbound approach to this intersection is projected to be below 10 percent. The overall PUD site-generated 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 Progam and the MTCP Project ID is U-12.
Northbound right-turn lane at Burgess/Vollmer[3]	Traffic counts conducted by LSC in July 2022 indicate the turning volume threshold warranting the turn lane (50 northbound right turns per hour) is currently exceeded during the afternoon peak hour.	This intersection is shown on the PPACG 2045 Plan Fiscally-Constrained Project List (Table 7-1.15) under the project **Vollmer Rd. Improvements: Briargate Pkwy. to Burgess Rd. Sponsor: El Paso County(4).** Based on the PUD plan (which the existing Filings 1 and 2, Filing 3 which is currently under review and the currently proposed Filing No 4 are consistent with), the afternoon peak-hour traffic impact from this project on the northbound approach to this intersection is projected to be below 10 percent. The overall PUD site-generated 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 Progam and the MTCP Project ID is U-12.
Future traffic signal at Briargate/Vollmer[3]	Once warrants are met; analysis to be included with final plat traffic reports; projections indicate by 2043 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.

(3) This improvement will not be needed if the intersection of Burgess/Vollmer is reconstructed as a modern roundbout as shown in the Sterling Ranch Sketch Plan Amendment Master Traffic Impact Study dated March 17, 2023 (SKP224)

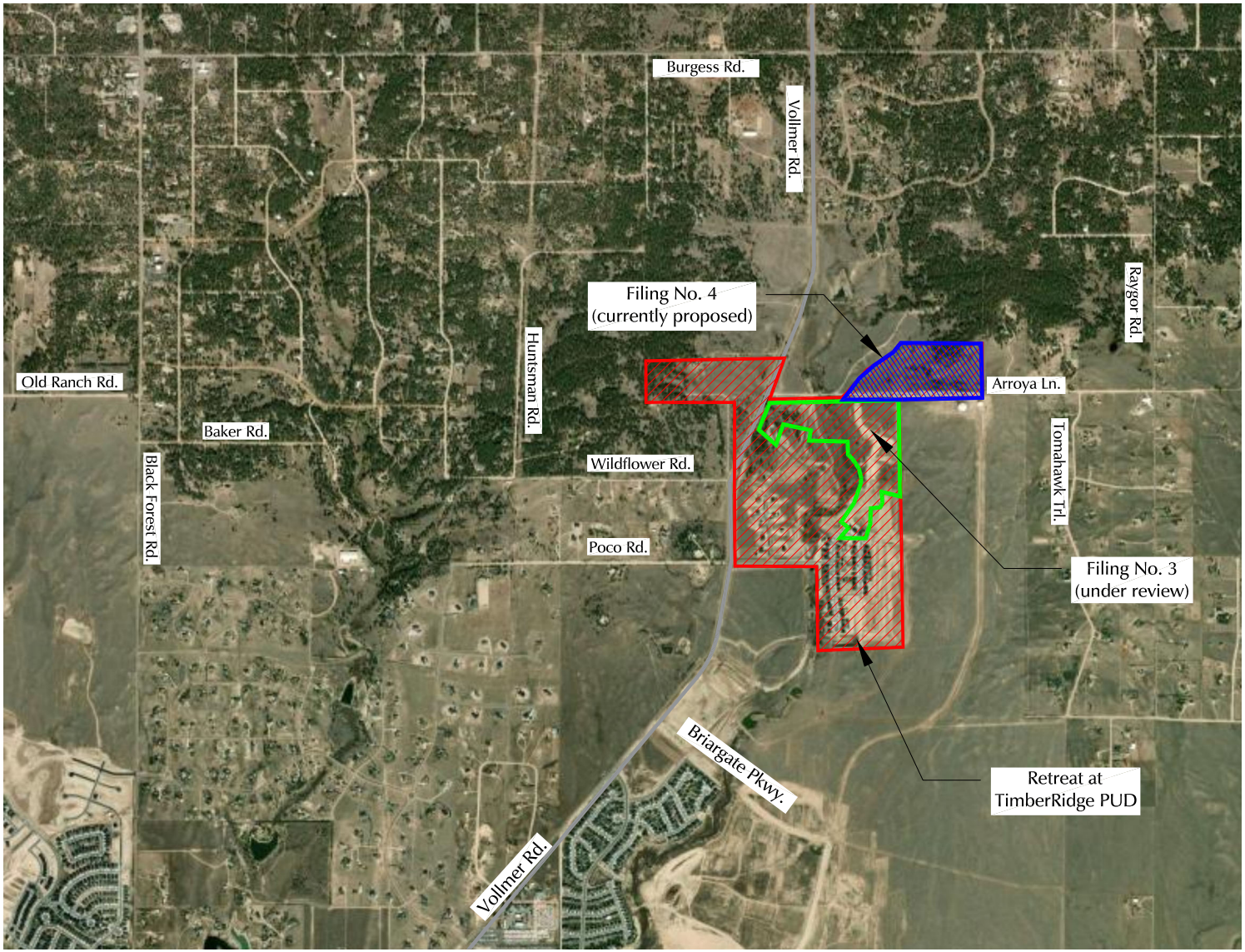
(4) PPACG Moving Forward Transportation Plan - Chapter 7, Fiscally-Constrained Project List (Table 7-1.15): Project Description:*Vollmer Rd. Improvements: Briargate Pkwy. to Burgess Rd.: Bring roadway to current 2-lane arterial standards, sight distance, horizontal and vertical improvements, surface paving (existing gravel areas), shoulders, drainage and intersection improvements, auxiliary lane improvements, multimodal improvements.*

Source: LSC Transportation Consultants, Inc.

Feb-24

Figures

TRANSPORTATION
CONSULTANTS, INC.



N

Approximate Scale
Scale: 1"= 2,500'

TRANSPORTATION CONSULTANTS, INC.

Figure 1

Vicinity Map

Retreat at TimberRidge Filing 4 (LSC #S234430)

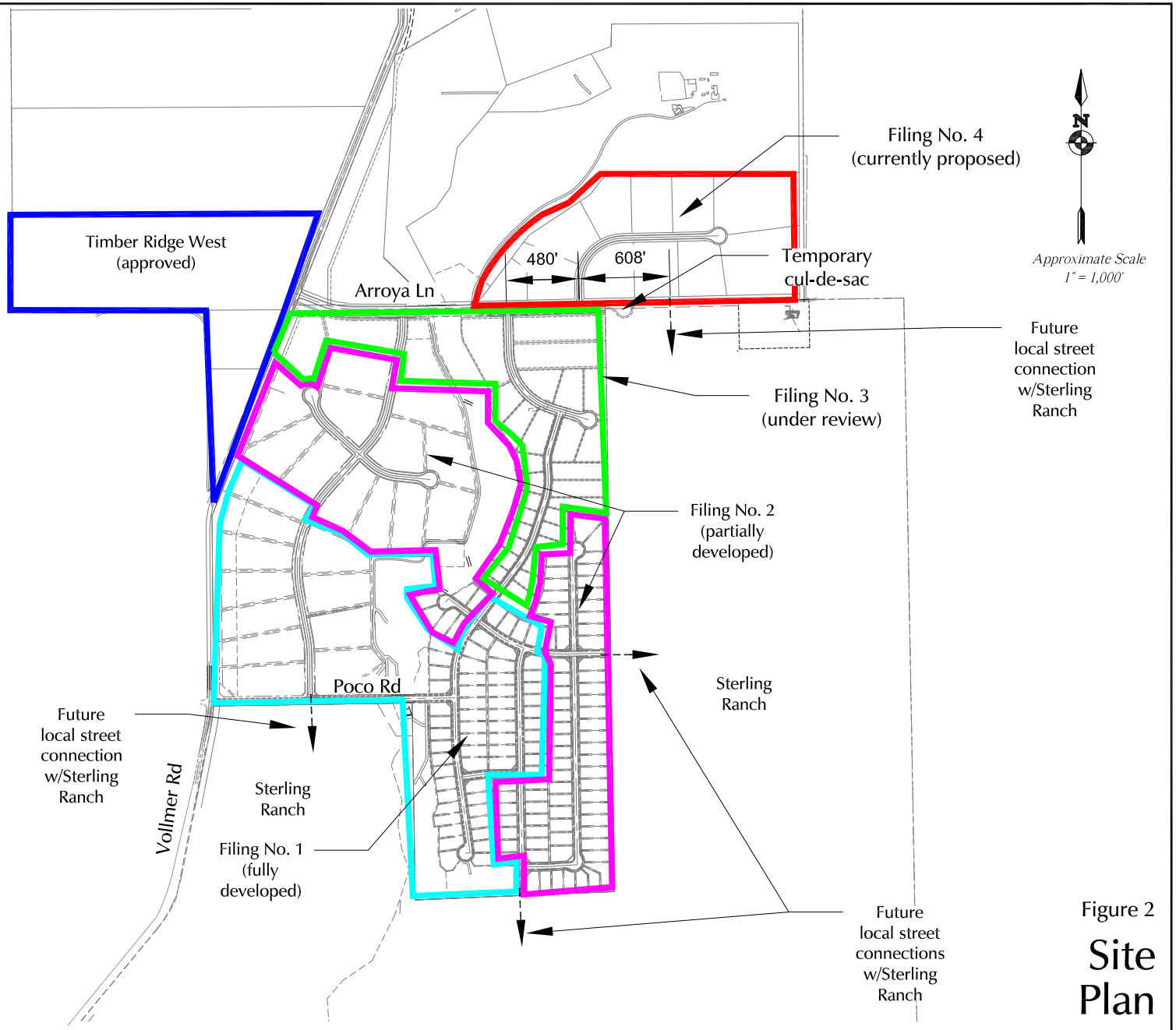


Figure 2

Site Plan

Retreat at TimberRidge Filing 4 (LSC #S234430)

LSC TRANSPORTATION CONSULTANTS, INC.

LEGEND:

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

= ECM Required Stopping Sight Distance (305' based on a design speed of 40mph from Table 2-17)

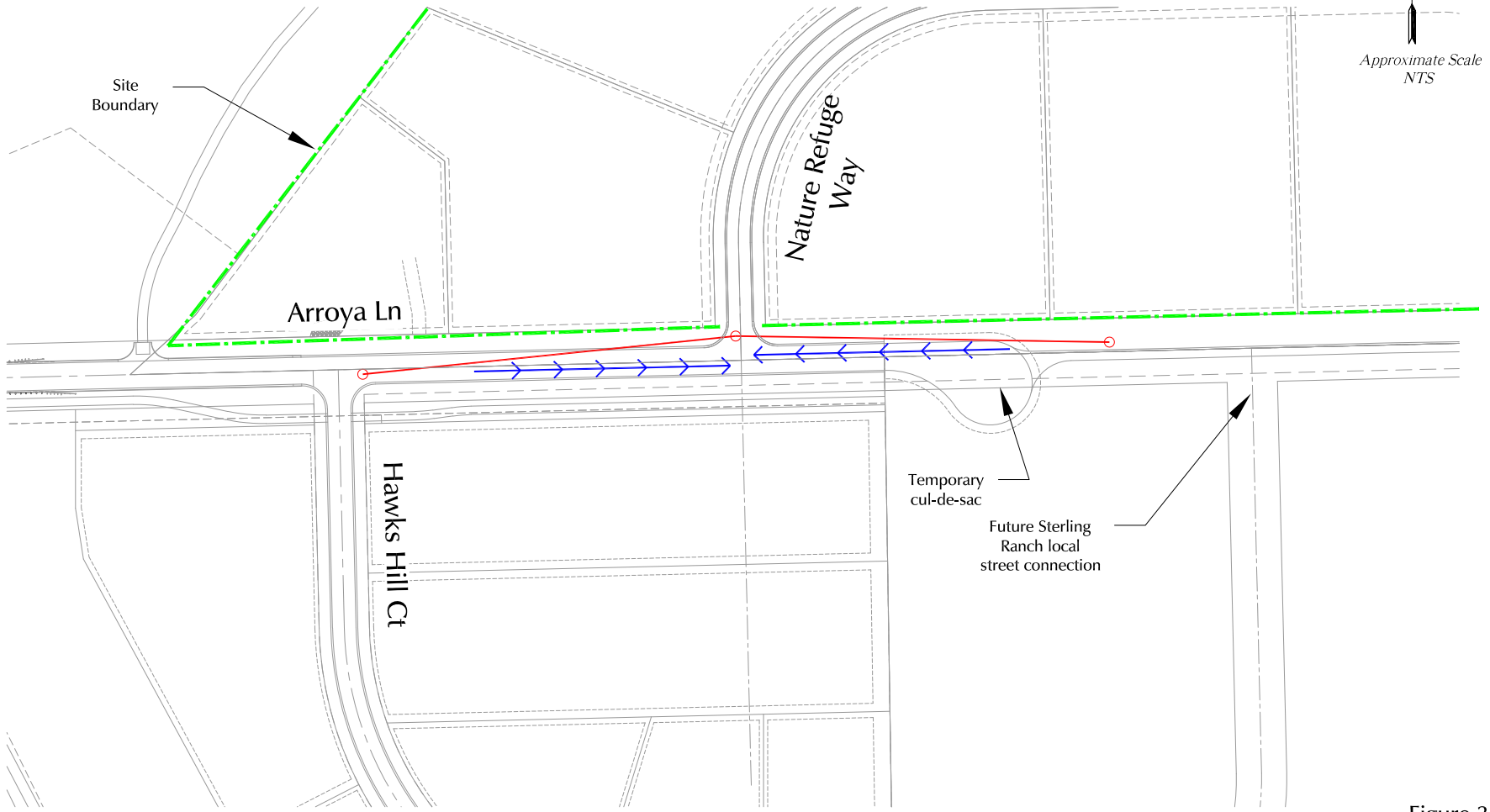
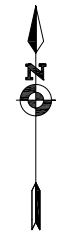


Figure 3

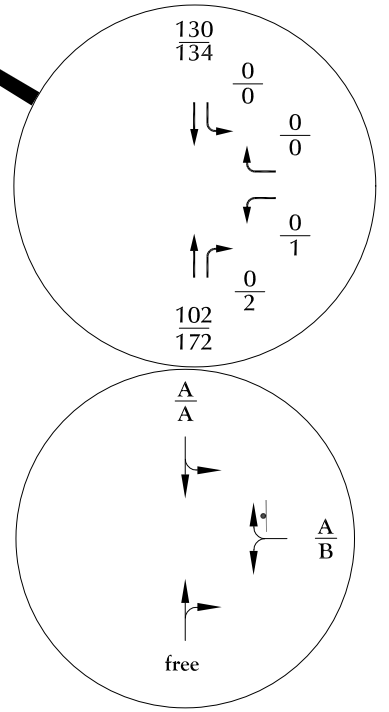
Sight Distance Analysis - Nature Refuge Way/Arroya Ln

Retreat at TimberRidge Filing 4 (LSC #S234430)

LSC TRANSPORTATION CONSULTANTS, INC.



Approximate Scale
NTS



LEGEND:

$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$ Based on counts by LSC May/June 2022

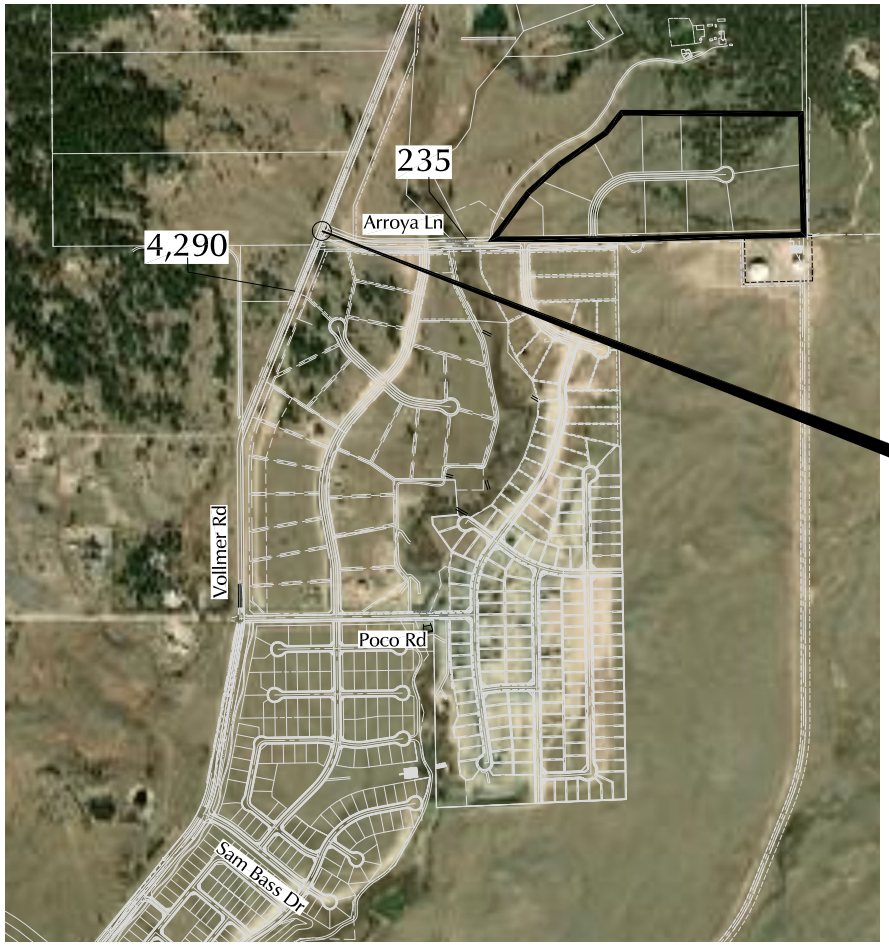
XXX = Average Weekday Traffic (vehicles per day) Estimate by LSC

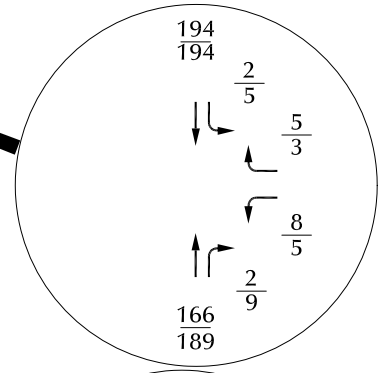
TRANSPORTATION CONSULTANTS, INC.

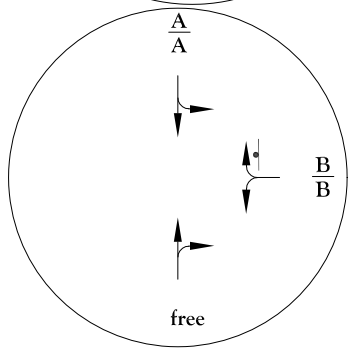
Figure 4

Existing Traffic

Retreat at TimberRidge Filing 4 (LSC #S234430)







Approximate Scale
NTS

LEGEND:

= Stop Sign

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

XXX = Average Weekday Traffic (vehicles per day)

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

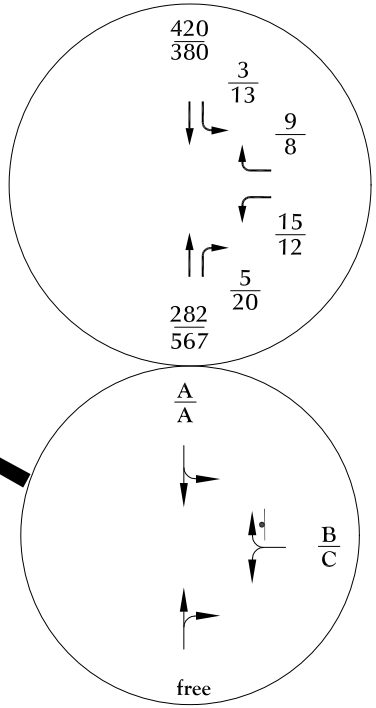
$\frac{C}{D}$ = $\frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 5

Short-Term Background Conditions

Retreat at TimberRidge Filing 4 (LSC #S234430)



N

Approximate Scale
NTS

LEGEND:

= Stop Sign = Traffic Signal

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

XXX = Average Weekday Traffic (vehicles per day)

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

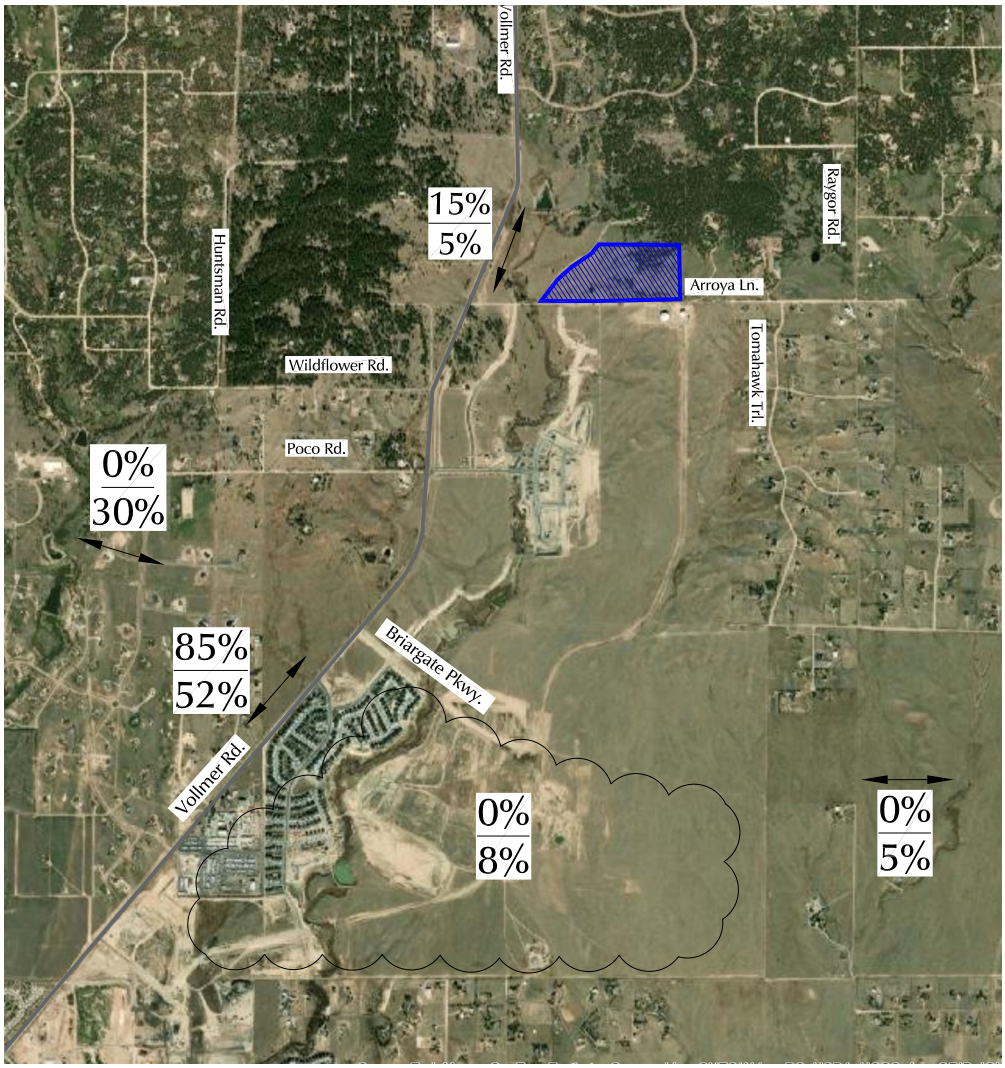
$\frac{C}{D}$ = $\frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 6

2043 Background Conditions

Retreat at TimberRidge Filing 4 (LSC #S234430)



N

Approximate Scale
Scale: 1"= 3,000'

LEGEND:

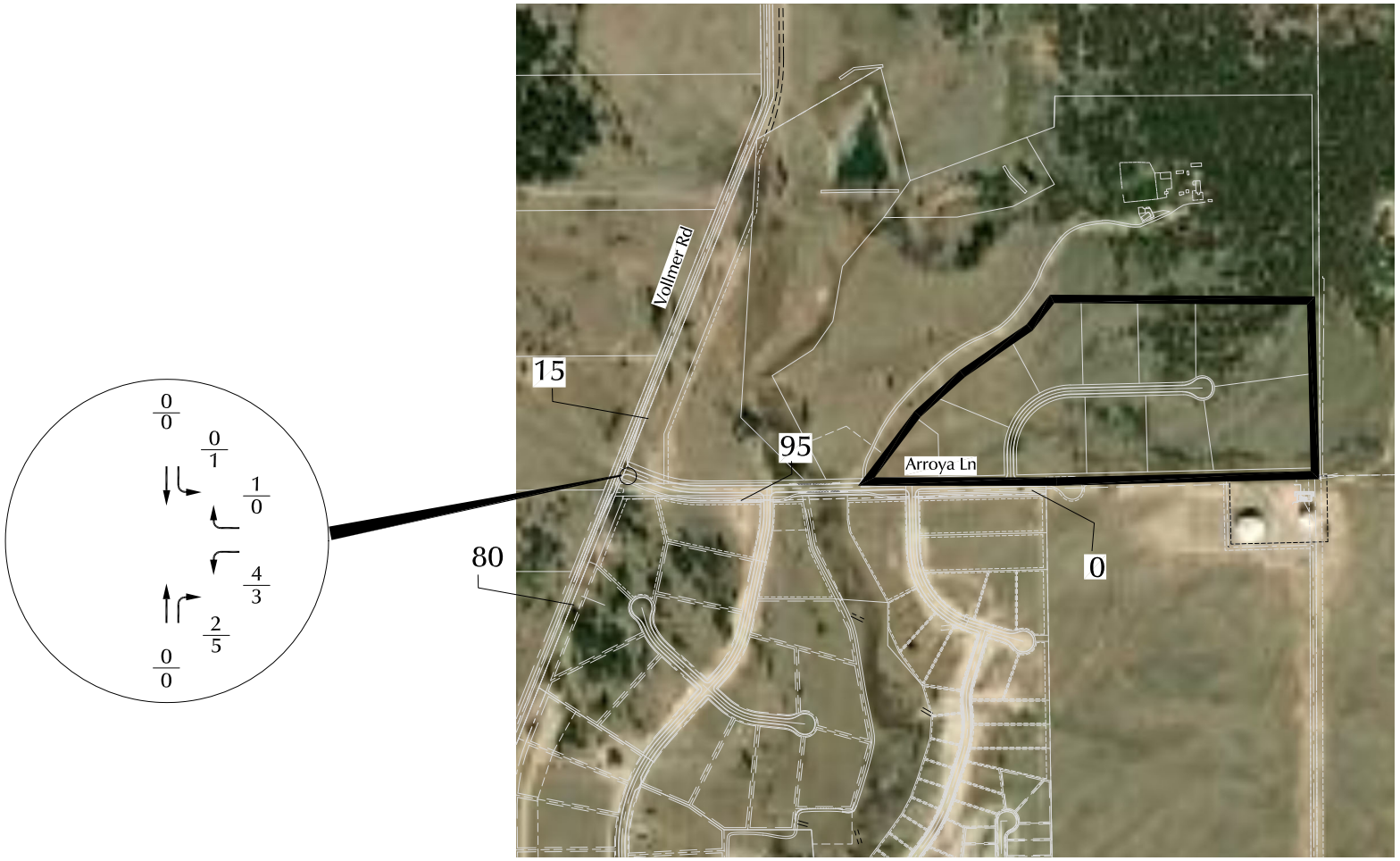
$\frac{XX\%}{XX\%}$ = $\frac{\text{Short–Term Percent Directional Distribution}}{\text{Long–Term Percent Directional Distribution}}$

Figure 7

Directional Distribution of Site-Generated Traffic

Retreat at TimberRidge Filing 4 (LSC #S234430)

LSC TRANSPORTATION CONSULTANTS, INC.



LEGEND:

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

XXX = Average Weekday Traffic (vehicles per day)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 8

Short-Term Assignment of Filing No. 4 Site-Generated Traffic

Retreat at TimberRidge Filing 4 (LSC #S234430)

Approximate Scale
NTS

LEGEND:

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

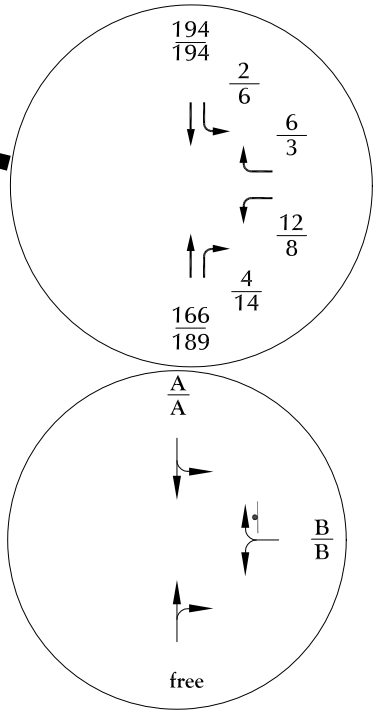
XXX = Average Weekday Traffic (vehicles per day)

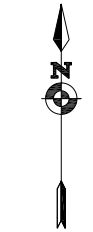
Figure 9

Long-Term Assignment of Filing No. 4 Site-Generated Traffic

Retreat at TimberRidge Filing 4 (LSC #S234430)

LSC TRANSPORTATION CONSULTANTS, INC.





Approximate Scale
NTS

LEGEND:

⊢ = Stop Sign ⊞ = Traffic Signal

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

XXX = Average Weekday Traffic (vehicles per day)

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

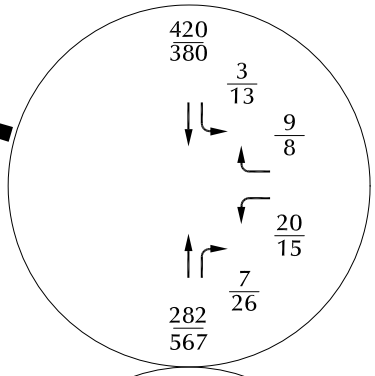
$\frac{C}{D}$ = $\frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$

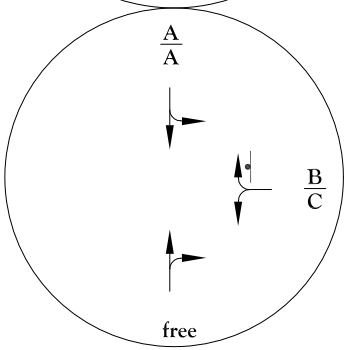
LSC TRANSPORTATION CONSULTANTS, INC.

Figure 10

Short-Term Total Conditions

Retreat at TimberRidge Filing 4 (LSC #S234430)





Approximate Scale
NTS

LEGEND:

= Stop Sign = Traffic Signal

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

XXX = Average Weekday Traffic (vehicles per day)

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

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

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 11

2043 Total Conditions

Retreat at TimberRidge Filing 4 (LSC #S234430)

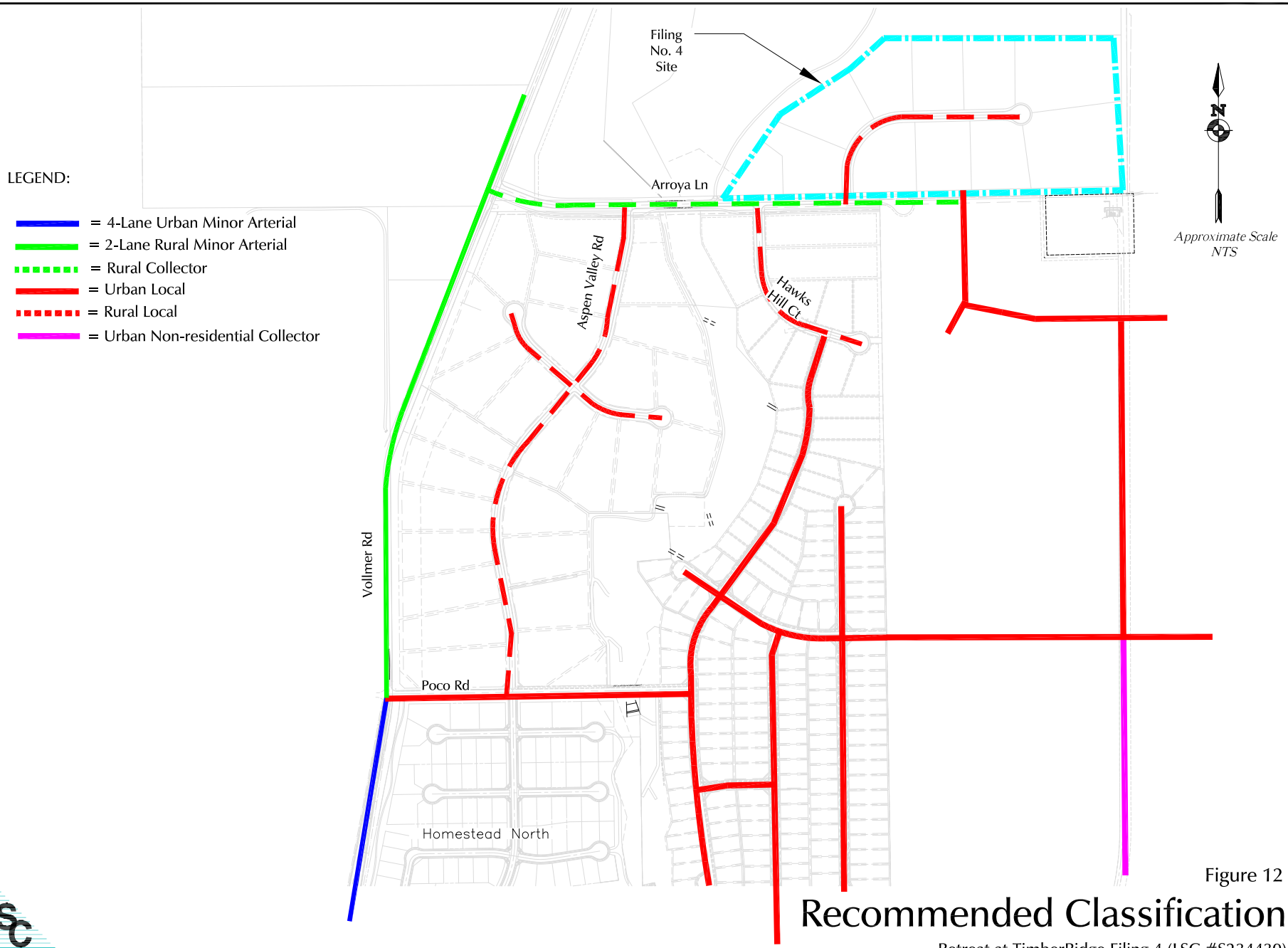


Figure 12

Recommended Classification

Retreat at TimberRidge Filing 4 (LSC #S234430)

LSC TRANSPORTATION CONSULTANTS, INC.

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

LSC Transportation Consultants, Inc.

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

File Name : Vollmer Rd - Arroya Ln AM
Site Code : S224350
Start Date : 6/8/2022
Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Arroya Ln Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30	0	29	0	0	29	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	39
06:45	0	24	0	0	24	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	34
Total	0	53	0	0	53	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	73
07:00	0	26	0	0	26	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	45
07:15	0	33	0	0	33	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	58
07:30	0	41	0	0	41	0	0	0	0	0	0	32	0	0	32	0	0	0	0	0	73
07:45	0	24	0	0	24	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	42
Total	0	124	0	0	124	0	0	0	0	0	0	94	0	0	94	0	0	0	0	0	218
08:00	0	32	0	0	32	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	59
08:15	0	31	0	0	31	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	53
Grand Total	0	240	0	0	240	0	0	0	0	0	0	163	0	0	163	0	0	0	0	0	403
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	59.6	0	0	59.6	0	0	0	0	0	0	40.4	0	0	40.4	0	0	0	0	0	

LSC Transportation Consultants, Inc.

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

File Name : Vollmer Rd - Arroya Ln AM
Site Code : S224350
Start Date : 6/8/2022

	Vollmer Rd Southbound					Arroya Ln Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 7:15:00 AM																					
7:15:00 AM	0	33	0	0	33	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	58
7:30:00 AM	0	**41**	0	0	**41**	0	0	0	0	0	0	**32**	0	0	**32**	0	0	0	0	0	**73**
7:45:00 AM	0	24	0	0	24	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	42
8:00:00 AM	0	32	0	0	32	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	59
Total Volume	0	130	0	0	130	0	0	0	0	0	0	102	0	0	102	0	0	0	0	0	232
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.793	.000	.000	.793	.000	.000	.000	.000	.000	.000	.797	.000	.000	.797	.000	.000	.000	.000	.000	.795

LSC Transportation Consultants, Inc.

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

File Name : Vollmer Rd - Arroya Ln PM
Site Code : S224350
Start Date : 6/8/2022
Page No : 1

Groups Printed- Unshifted

	Vollmer Rd Southbound					Arroya Ln Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
16:00	0	27	0	0	27	2	0	0	0	2	0	36	0	0	36	0	0	0	0	0	65
16:15	0	28	0	0	28	0	0	0	0	0	1	45	0	0	46	0	0	0	0	0	74
16:30	0	32	0	0	32	0	0	1	0	1	0	36	0	0	36	0	0	0	0	0	69
16:45	0	31	0	0	31	0	0	0	0	0	0	46	0	0	46	0	0	0	0	0	77
Total	0	118	0	0	118	2	0	1	0	3	1	163	0	0	164	0	0	0	0	0	285
17:00	0	45	0	0	45	0	0	0	0	0	0	40	0	0	40	0	0	0	0	0	85
17:15	0	25	0	0	25	0	0	1	0	1	2	47	0	0	49	0	0	0	0	0	75
17:30	0	33	0	0	33	0	0	0	0	0	0	39	0	0	39	0	0	0	0	0	72
17:45	0	18	0	0	18	1	0	0	0	1	0	35	0	0	35	0	0	0	0	0	54
Total	0	121	0	0	121	1	0	1	0	2	2	161	0	0	163	0	0	0	0	0	286
Grand Total	0	239	0	0	239	3	0	2	0	5	3	324	0	0	327	0	0	0	0	0	571
Apprch %	0	100	0	0		60	0	40	0		0.9	99.1	0	0		0	0	0	0		
Total %	0	41.9	0	0	41.9	0.5	0	0.4	0	0.9	0.5	56.7	0	0	57.3	0	0	0	0	0	

LSC Transportation Consultants, Inc.

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

File Name : Vollmer Rd - Arroya Ln PM
Site Code : S224350
Start Date : 6/8/2022

	Vollmer Rd Southbound					Arroya Ln Westbound					Vollmer Rd Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 4:45:00 PM																					
4:45:00 PM	0	31	0	0	31	0	0	0	0	0	0	46	0	0	46	0	0	0	0	0	77
5:00:00 PM	0	**45**	0	0	**45**	0	0	0	0	0	0	40	0	0	40	0	0	0	0	0	**85**
5:15:00 PM	0	25	0	0	25	0	0	**1**	0	**1**	**2**	**47**	0	0	**49**	0	0	0	0	0	75
5:30:00 PM	0	33	0	0	33	0	0	0	0	0	0	39	0	0	39	0	0	0	0	0	72
Total Volume	0	134	0	0	134	0	0	1	0	1	2	172	0	0	174	0	0	0	0	0	309
% App. Total	0	100	0	0		0	0	100	0		1.1	98.9	0	0		0	0	0	0		
PHF	.000	.744	.000	.000	.744	.000	.000	.250	.000	.250	.250	.915	.000	.000	.888	.000	.000	.000	.000	.000	.909

Level of Service Reports

TRANSPORTATION
CONSULTANTS, INC.

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	102	0	0	130
Future Vol, veh/h	0	0	102	0	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	85	85	80	80	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	128	0	0	165

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	293	128	0	0	128	0
Stage 1	128	-	-	-	-	-
Stage 2	165	-	-	-	-	-
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	698	922	-	-	1458	-
Stage 1	898	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	698	922	-	-	1458	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	864	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1458	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	0	172	2	0	134
Future Vol, veh/h	1	0	172	2	0	134
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	85	85	87	87	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	198	2	0	181

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	380	199	0	0	200	0
Stage 1	199	-	-	-	-	-
Stage 2	181	-	-	-	-	-
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	622	842	-	-	1372	-
Stage 1	835	-	-	-	-	-
Stage 2	850	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	622	842	-	-	1372	-
Mov Cap-2 Maneuver	622	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	850	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	622	1372	-
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	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	5	166	2	2	194
Future Vol, veh/h	8	5	166	2	2	194
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	85	85	87	87	67	67
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	6	191	2	3	290

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	488	192	0	0	193	0
Stage 1	192	-	-	-	-	-
Stage 2	296	-	-	-	-	-
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	539	850	-	-	1380	-
Stage 1	841	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	537	850	-	-	1380	-
Mov Cap-2 Maneuver	537	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	753	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	626	1380	-
HCM Lane V/C Ratio	-	-	0.024	0.002	-
HCM Control Delay (s)	-	-	10.9	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	3	189	9	5	194
Future Vol, veh/h	5	3	189	9	5	194
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	85	85	87	87	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	4	217	10	6	218

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	452	222	0	0	227	0
Stage 1	222	-	-	-	-	-
Stage 2	230	-	-	-	-	-
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	565	818	-	-	1341	-
Stage 1	815	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	562	818	-	-	1341	-
Mov Cap-2 Maneuver	562	-	-	-	-	-
Stage 1	815	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	637	1341	-
HCM Lane V/C Ratio	-	-	0.015	0.004	-
HCM Control Delay (s)	-	-	10.7	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	6	166	4	2	194
Future Vol, veh/h	12	6	166	4	2	194
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	85	85	87	87	67	67
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	7	191	5	3	290

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	490	194	0	0	196	0
Stage 1	194	-	-	-	-	-
Stage 2	296	-	-	-	-	-
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	537	847	-	-	1377	-
Stage 1	839	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	535	847	-	-	1377	-
Mov Cap-2 Maneuver	535	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	753	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	610	1377	-
HCM Lane V/C Ratio	-	-	0.035	0.002	-
HCM Control Delay (s)	-	-	11.1	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	3	189	14	6	194
Future Vol, veh/h	8	3	189	14	6	194
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	85	85	87	87	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	4	217	16	7	218

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	457	225	0	0	233	0
Stage 1	225	-	-	-	-	-
Stage 2	232	-	-	-	-	-
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	562	814	-	-	1335	-
Stage 1	812	-	-	-	-	-
Stage 2	807	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	559	814	-	-	1335	-
Mov Cap-2 Maneuver	559	-	-	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	802	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	611	1335	-
HCM Lane V/C Ratio	-	-	0.021	0.005	-
HCM Control Delay (s)	-	-	11	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	7	284	6	2	421
Future Vol, veh/h	17	7	284	6	2	421
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	18	8	309	7	2	458

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	775	313	0	0	316	0
Stage 1	313	-	-	-	-	-
Stage 2	462	-	-	-	-	-
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	366	727	-	-	1244	-
Stage 1	741	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	365	727	-	-	1244	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	427	1244	-
HCM Lane V/C Ratio	-	-	0.061	0.002	-
HCM Control Delay (s)	-	-	14	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	6	569	23	9	383
Future Vol, veh/h	14	6	569	23	9	383
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	15	7	618	25	10	416

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1067	631	0	0	643	0
Stage 1	631	-	-	-	-	-
Stage 2	436	-	-	-	-	-
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	246	481	-	-	942	-
Stage 1	530	-	-	-	-	-
Stage 2	652	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	243	481	-	-	942	-
Mov Cap-2 Maneuver	243	-	-	-	-	-
Stage 1	530	-	-	-	-	-
Stage 2	643	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	285	942	-
HCM Lane V/C Ratio	-	-	0.076	0.01	-
HCM Control Delay (s)	-	-	18.7	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	7	284	8	2	421
Future Vol, veh/h	22	7	284	8	2	421
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	24	8	309	9	2	458

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	776	314	0	0	318	0
Stage 1	314	-	-	-	-	-
Stage 2	462	-	-	-	-	-
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	366	726	-	-	1242	-
Stage 1	741	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	365	726	-	-	1242	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	415	1242	-
HCM Lane V/C Ratio	-	-	0.076	0.002	-
HCM Control Delay (s)	-	-	14.4	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	6	569	29	9	383
Future Vol, veh/h	17	6	569	29	9	383
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	18	7	618	32	10	416

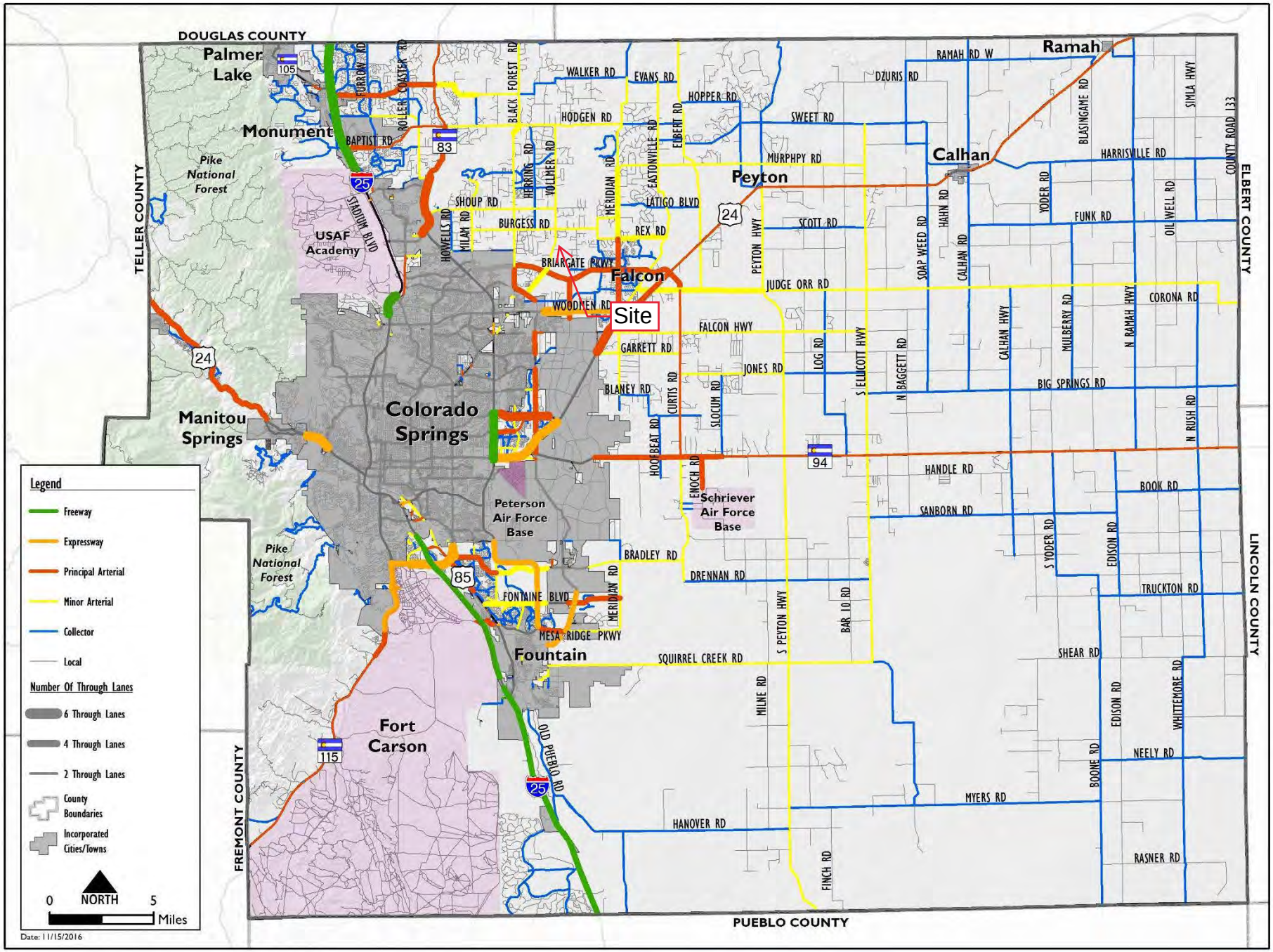
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1070	634	0	0	650	0
Stage 1	634	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	245	479	-	-	936	-
Stage 1	529	-	-	-	-	-
Stage 2	652	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	242	479	-	-	936	-
Mov Cap-2 Maneuver	242	-	-	-	-	-
Stage 1	529	-	-	-	-	-
Stage 2	643	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.2	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	278	936	-
HCM Lane V/C Ratio	-	-	0.09	0.01	-
HCM Control Delay (s)	-	-	19.2	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

MTCP Maps

TRANSPORTATION
CONSULTANTS, INC.



Map 14: 2040 Roadway Plan (Classification and Lanes)

Map 17: 2060 Corridor Preservation