LSC TRANSPORTATION CONSULTANTS, INC.
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Colorado Springs, CO 80909
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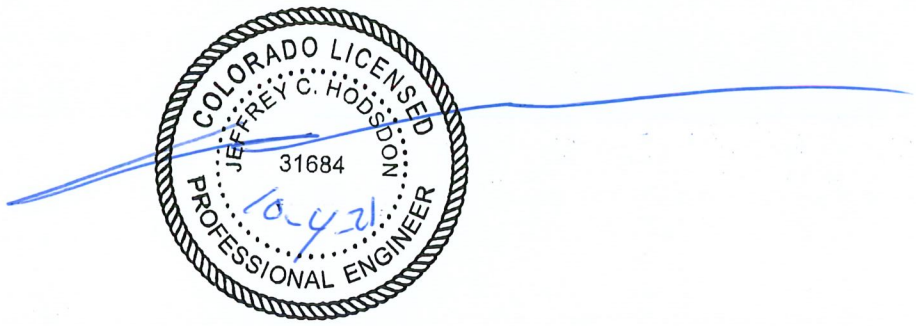
Retreat at TimberRidge Filing No. 2
Updated Traffic Technical Memorandum
PCD File No. SF-21-021
(LSC #S214200)
October 4, 2021

Traffic Engineer's Statement

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



Developer's Statement

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

10/8/2021
Date

Retreat at TimberRidge Filing No. 2

Traffic Technical Memorandum

Prepared for:

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

OCTOBER 4, 2021

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

LSC #S214200

CONTENTS

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October 4, 2021

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

RE: Retreat at TimberRidge Filing No. 2
El Paso County, CO
Traffic Technical Memorandum
LSC #S214200

Dear Mr. Moreland:

LSC Transportation Consultants, Inc. has prepared this updated traffic technical memorandum for the Retreat at TimberRidge Filing No. 2. As shown in Figure 1 The Retreat at TimberRidge is located generally east of Vollmer Road and south of Arroya Lane in El Paso County, Colorado. LSC prepared a traffic impact study (TIS) for the entire Retreat at TimberRidge PUD development plan dated January 25, 2018 and a traffic memorandum that addressed phasing of that development dated June 29, 2018. LSC also completed a traffic technical memorandum for Filing No. 1 dated April 3, 2020. The lot and street plan has not changed since completion of those reports. This memorandum is intended as a site-specific, final plat traffic report for the currently-proposed filing.

REPORT CONTENTS

This report presents:

- A description of Retreat at TimberRidge filings that are currently under review, currently proposed, and planned for the future;
- The current status of other subdivisions shown on the approved PUD plan;
- Projections of short-term and long-term background traffic volumes at the intersection of Vollmer Road/Poco Road;
- The projected average weekday and peak-hour vehicle trips to be generated by the Retreat at TimberRidge Filing Ns. 2;
- The assignment of the Filing No. 2 projected trips to the key area intersections;
- The projected short-term and long-term level of service at the intersection of Vollmer Road/Poco Road;

- The recommended street classifications for the internal streets within the currently-proposed Retreat at TimberRidge Filing No. 2;
- Improvements needed with Retreat at TimberRidge Filing No. 2; and
- The project's obligation to the County roadway improvement fee program.

LAND USE AND ACCESS

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 No. 1, the currently-proposed Retreat at TimberRidge Filing No. 2, and future filings. The June 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.

Current Status of Other Subdivisions Shown on the Approved PUD Plan

The approved Retreat at TimberRidge Filing No. 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 June 2018 transportation memorandum. Access is planned to an extension of Poco Road. The proposed easternmost north/south street segments connecting to Arroya Lane will be constructed initially as a gravel road as part of Filing 1. This gravel road will be constructed 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 TimberRidge Estates Filing No. 1 (different from “Retreat at TimberRidge” Filing No. 1) was under review by El Paso County. However, it has now been withdrawn. These 10 lots remain part of the approved PUD plan and are shown as part of **Phase 1 of the Preliminary Plan**. With the withdrawal of the subdivision plat, although part of Phase 1 of the Preliminary Plan, there is now no current plan to develop these lots in the short term. This filing planned 10 lots for single-family homes located east of Vollmer Road and north of Arroya Lane. Access is to Arroya Lane only. LSC completed a transportation memorandum for this filing dated April 19, 2018. As discussed with County staff and Black Forest Fire District (reference revised fire commitment letter dated March 22, 2020), Arroya Lane requires no further improvements at this time.

LSC is not aware of any status updates for the two lots for single-family homes on the west side of Vollmer Road. These two lots were included in **Preliminary Plan Phase 2** in the June 2018 transportation memorandum.

Currently-Proposed Filing No. 2

The Retreat at TimberRidge Filing No. 2 is currently proposed to include 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.

TRIP GENERATION

The Retreat at TimberRidge Filing No. 2 site-generated vehicle trips have been estimated using the nationally published trip-generation rates from *Trip Generation, 10th Edition*, 2017 by the Institute of Transportation Engineers (ITE). Table 1 shows the trip-generation estimates for these filings. Table 1 also shows estimates of the traffic expected to be generated by the approved Retreat at TimberRidge Filing No. 1 and by future Retreat at TimberRidge filings. 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 June 29, 2018.

The Retreat at TimberRidge Filing No. 2 is expected to generate 850 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 17 vehicles would enter and 50 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 56 vehicles would enter and 33 vehicles would exit the site.

TRIP DISTRIBUTION AND ASSIGNMENT

When the estimated site trips from Table 1 are directionally distributed according to the LSC estimated short-term and long-term percentages shown in Figure 7 from the *Retreat at TimberRidge Updated Traffic Impact Analysis* dated January 25, 2018, the resulting projected site-generated traffic volumes can be determined. Figures 3 shows the projected short-term traffic volumes at the key area intersections and street segments due to the currently-proposed Retreat at TimberRidge Filing No.2. The short-term site-generated traffic volumes assume emergency-only access to Arroyo Lane and no access east of the site. Figure 4 shows the long-term site-generated traffic volumes assuming full buildout of the street system within the Retreat at TimberRidge including both future connections to Arroyo Lane and connections through the parcels to the east.

BACKGROUND TRAFFIC

Background traffic is the traffic estimated to be on the adjacent roadways and at adjacent intersections without the proposed development's trip generation of site-generated traffic volumes. Background traffic includes the through traffic and the traffic generated by nearby developments but assumes zero traffic generated by the Retreat at TimberRidge Filing No. 2.

Figure 5 shows the projected short-term background traffic volumes at the intersection of Vollmer Road/Poco Road. 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 Homestead at Sterling Ranch Filings 1 and 2, Branding Iron at Sterling Ranch Filings 1 and 2, Sterling Ranch Filing No. 2, Sterling Ranch Phase 2, Homestead North Filing No. 1, and the Retreat at TimberRidge Filing No. 1.

Figure 6 shows the projected 2040 background traffic volumes at the key area intersections. 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) and the Retreat at TimberRidge Updated Traffic Impact Analysis by LSC (dated January 25, 2018). The 2040 background traffic volumes assume buildout of the Sterling Ranch development, including future phases of Homestead North, and buildout of the Retreat at TimberRidge. The 2040 background traffic assumes Briargate Parkway/Stapleton Road has been constructed between Black Forest Road and Towner Avenue and that the intersection of Briargate/Wheatland is restricted to a three-quarter movement (left-in/right-in/right-out only) for the south leg and right-in/right-out only for the north leg. The 2040 background traffic also assumes a connection between the intersection of Wheatland/Briargate and Poco Road through the Homestead North area.

TOTAL TRAFFIC

Figure 7 shows the projected short-term total traffic volumes at the intersection of Vollmer Road/Poco Road. The short-term total traffic volumes are the sum of the short-term site-generated traffic volumes (from Figure 3) plus the short-term background traffic volumes (from Figure 5).

Figure 8 shows the projected 2040 total traffic volumes at the intersection of Vollmer Road/Poco Road. The 2040 total traffic volumes are the sum of the long-term site-generated traffic volumes (from Figure 4) plus the 2040 background traffic volumes (from Figure 6).

LEVEL OF SERVICE

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

Table 1: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections	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 Vollmer Road/Poco Road 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 through 8. All movements at the stop-sign-controlled intersection of Vollmer Road/Poco Road are projected to operate at an acceptable level of service (LOS D or better) during the peak hours through 2040.

SUBDIVISION STREET CLASSIFICATIONS

Figure 2 from the June 2018 transportation memorandum showed the recommended street classifications for the internal streets within the Retreat at TimberRidge plan. The recommendations within the Filing No. 2 area are still valid.

ROADWAY IMPROVEMENTS

Table 3 from the June 2018 memorandum contained a summary of needed improvements for the entire TimberRidge PUD plan by phase. A copy of this table with markups and notations is attached. The approved Retreat at TimberRidge Filing No. 1 and the currently-proposed Retreat at TimberRidge Filing No. 2 includes 160 of the 195 lots identified in that memorandum as Phases 2 through 6. TimberRidge Filing Nos 1 and 2 do not include the 10 lots shown as Preliminary Plan Phase 1 nor the two lots located west of Vollmer Road. These filings also do not include the 33 lots within Phases 4 and 5 that are adjacent to Arroya Lane which would necessitate improvements to Arroya.

All recommendations in that table are still valid. However, it is important to note that the first improvement listed, identified as “Arroya Lane Initial/Interim,” is no longer necessary in the short-term. Although this improvement is still associated with Phase 1 of the Preliminary Plan, and this area of Preliminary Plan Phase 1 will/may occur at a later date, the TimberRidge Estates

Filing No. 1 application (and plans for short-term development of 10 lots shown north of Arroya Lane) has been withdrawn. The improvements specially needed with the Retreat at Timber Ridge Filing Nos. 1 and 2 have been repeated below.

- Extend Poco Road to the east including the creek crossing.
- Construct a gravel road to provide secondary emergency access through the future filings area to Arroya Lane (this gravel road would be replaced with the subdivision streets with those future filings).
- Construct a northbound right-turn deceleration lane on Vollmer Road at Poco Road. Based on a design speed of 40 miles per hour and the criteria contained in the El Paso County *Engineering Criteria Manual*, this lane should be 155 feet long plus a 160-foot taper.

Vollmer Road (from Poco Road South to Future Briargate Parkway)

Vollmer Road adjacent to and south of the site is a two-lane rural roadway (without paved shoulders) with a 60’ right-of-way. The section south of Poco Road is ultimately planned as a four-lane urban minor arterial. It is planned to be improved as part of the Sterling Ranch Homestead North Preliminary Plan (File No. SP208) currently under review. If this plat is approved and recorded prior to the first Homestead North plat, an additional agreement, condition of approval, and/or Subdivision Improvement Agreement (SIA) clause will be required to address construction from Poco to Briargate.

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. 2 will join the ten-mil PID. The 2019 ten-mil PID building permit fee portion associated with this option is $1,221 per single-family dwelling unit. Based on 90 lots, the total building permit fee would be $109,890.

* * * * *

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: Table 1
Figures 1-5
Level of Service Reports
Improvements Table – with March 2021 and October 2021 Notations

Table 1

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CONSULTANTS, INC.

Table 1
Trip Generation Estimate
Retreat at TimberRidge Filing No. 2

Phase	Land Use Code	Land Use Description	Trip Generation Units					Trip Generation Rates [1]					Filing No. 1 Trips Generated					Filing No. 2 Trips Generated					Future Trips Generated					Total Trips Generated				
								Average Weekday	Morning Peak Hour		Afternoon Peak Hour		Average Weekday	Morning Peak Hour		Afternoon Peak Hour		Average Weekday	Morning Peak Hour		Afternoon Peak Hour		Average Weekday	Morning Peak Hour		Afternoon Peak Hour		Average Weekday	Morning Peak Hour		Afternoon Peak Hour	
			Fil 1	Fil 2	Future	Total		Traffic	In	Out	In	Out	Traffic	In	Out	In	Out	Traffic	In	Out	In	Out	Traffic	In	Out	In	Out	Traffic	In	Out	In	Out
Approved Preliminary Plan																															
1	210	Single-Family Detached Housing	0	0	10	10	DU[2]	9.44	0.19	0.56	0.62	0.37	0	0	0	0	0	0	0	0	0	0	94	2	6	6	4	94	2	6	6	4
2	210	Single-Family Detached Housing	11	0	2	13	DU	9.44	0.19	0.56	0.62	0.37	104	2	6	7	4	0	0	0	0	0	19	0	1	1	1	123	2	7	8	5
3	210	Single-Family Detached Housing	59	0	0	59	DU	9.44	0.19	0.56	0.62	0.37	557	11	33	37	22	0	0	0	0	0	0	0	0	0	0	557	11	33	37	22
4	210	Single-Family Detached Housing	0	6	27	33	DU	9.44	0.19	0.56	0.62	0.37	0	0	0	0	0	57	1	3	4	2	255	5	15	17	10	312	6	18	21	12
5	210	Single-Family Detached Housing	0	12	3	15	DU	9.44	0.19	0.56	0.62	0.37	0	0	0	0	0	113	2	7	7	4	28	1	2	2	1	142	3	8	9	5
6	210	Single-Family Detached Housing	0	72	3	75	DU	9.44	0.19	0.56	0.62	0.37	0	0	0	0	0	680	13	40	45	26	28	1	2	2	1	708	14	42	47	27
			70	**90**	**45**	**205**	**DU**						**661**	**13**	**39**	**44**	**26**	**850**	**17**	**50**	**56**	**33**	**425**	**8**	**25**	**28**	**16**	**1,935**	**38**	**114**	**128**	**75**
Future Filings (Part of the overall PUD but not a part of the currently approved Preliminary Plan)																															
	210	Single-Family Detached Housing	0	0	7	7	DU	9.44	0.19	0.56	0.62	0.37	0	0	0	0	0	0	0	0	0	0	66	1	4	4	3	66	1	4	4	3
	Total at Buildout of Retreat at TimberRidge					212	DU	9.44	0.19	0.56	0.62	0.37	661	13	39	44	26	850	17	50	56	33	491	10	29	32	19	2,001	39	118	132	78

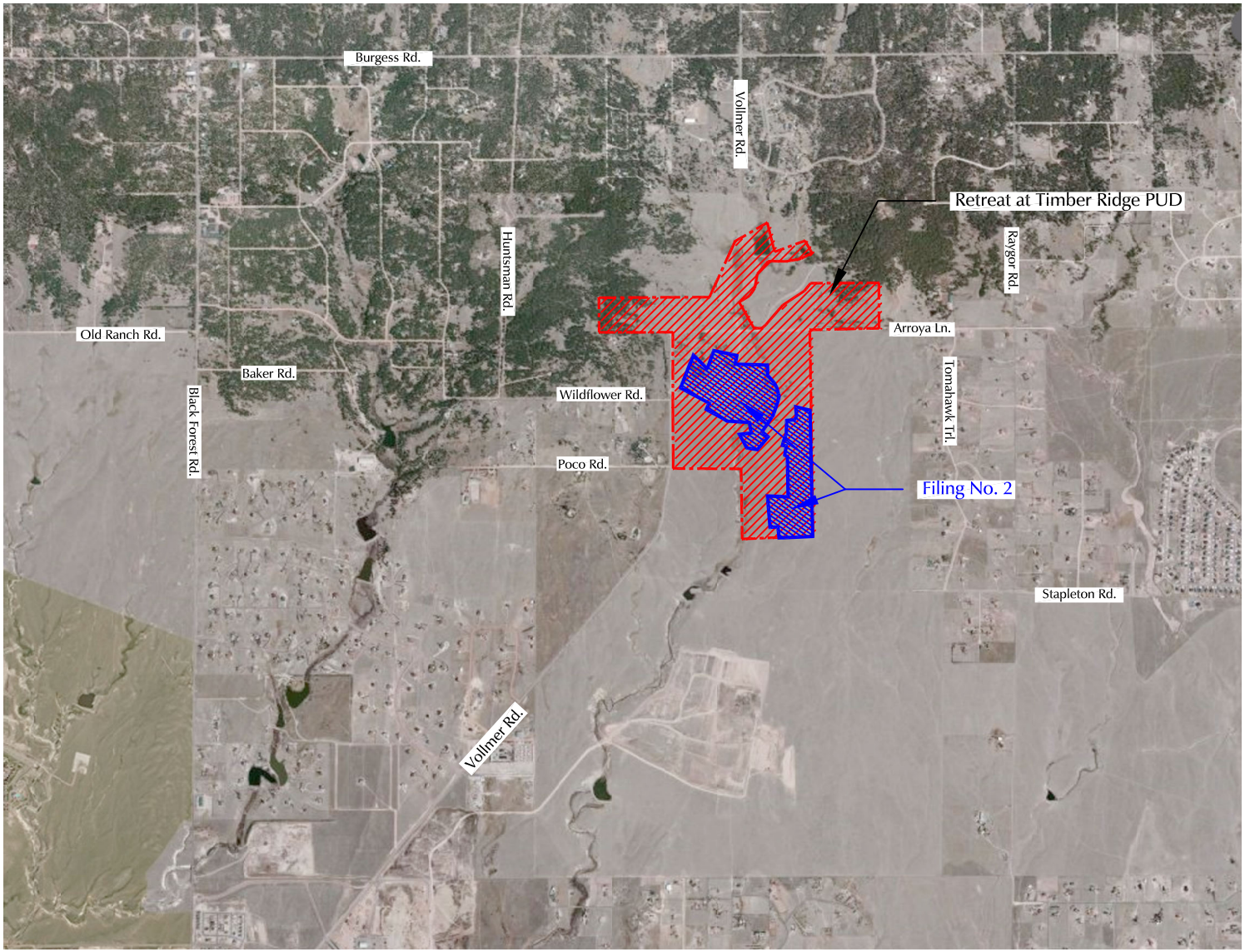
Notes:
(1) Source: "*Trip Generation, 10th Edition, 2017*" by the Institute of Transportation Engineers (ITE)
(2) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.

Mar-21

Figures 1-5

TRANSPORTATION
CONSULTANTS, INC.



TRANSPORTATION CONSULTANTS, INC.

Figure 1

Vicinity Map

Retreat at Timber Ridge Filing No. 2 (LSC #S214200)

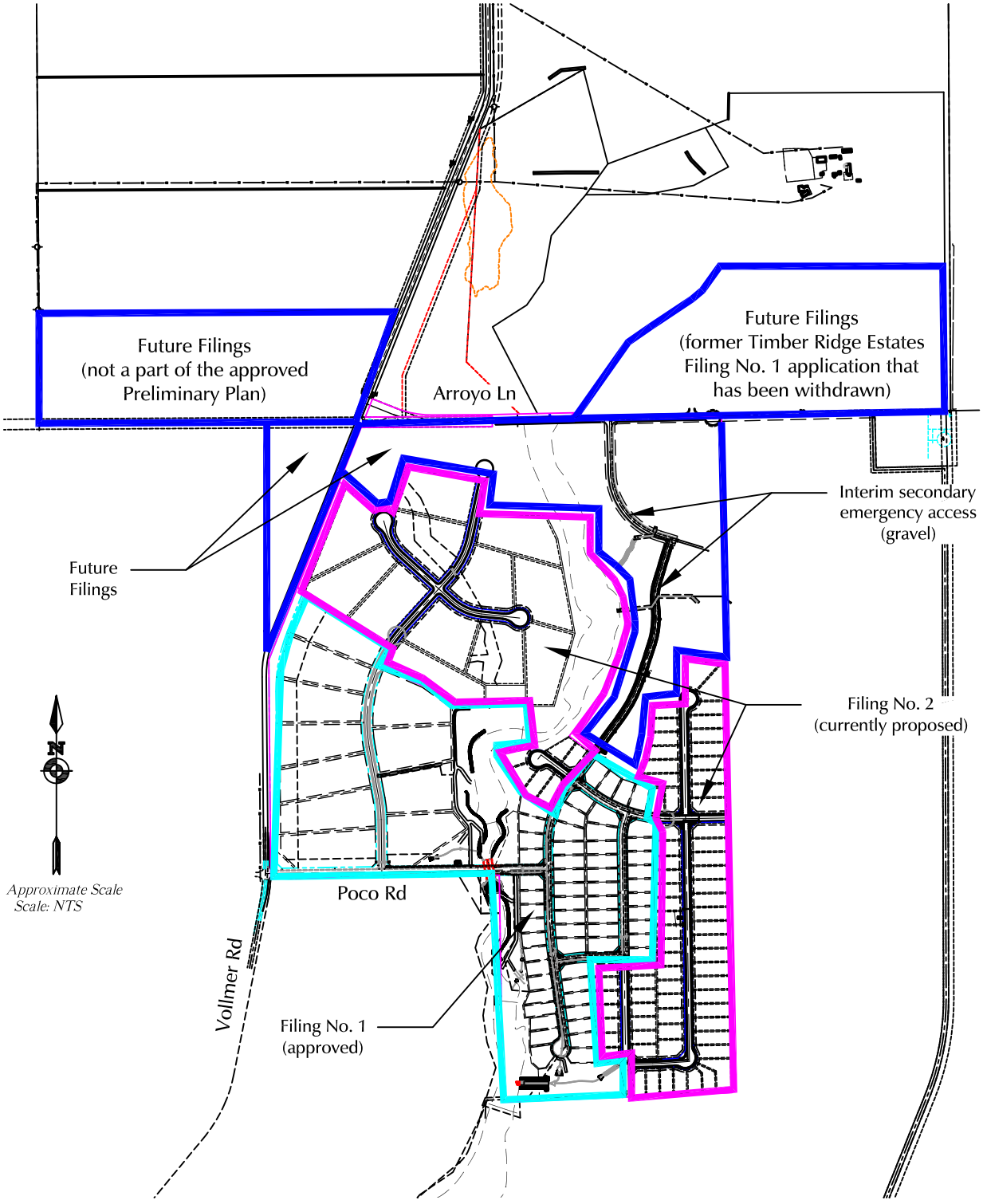


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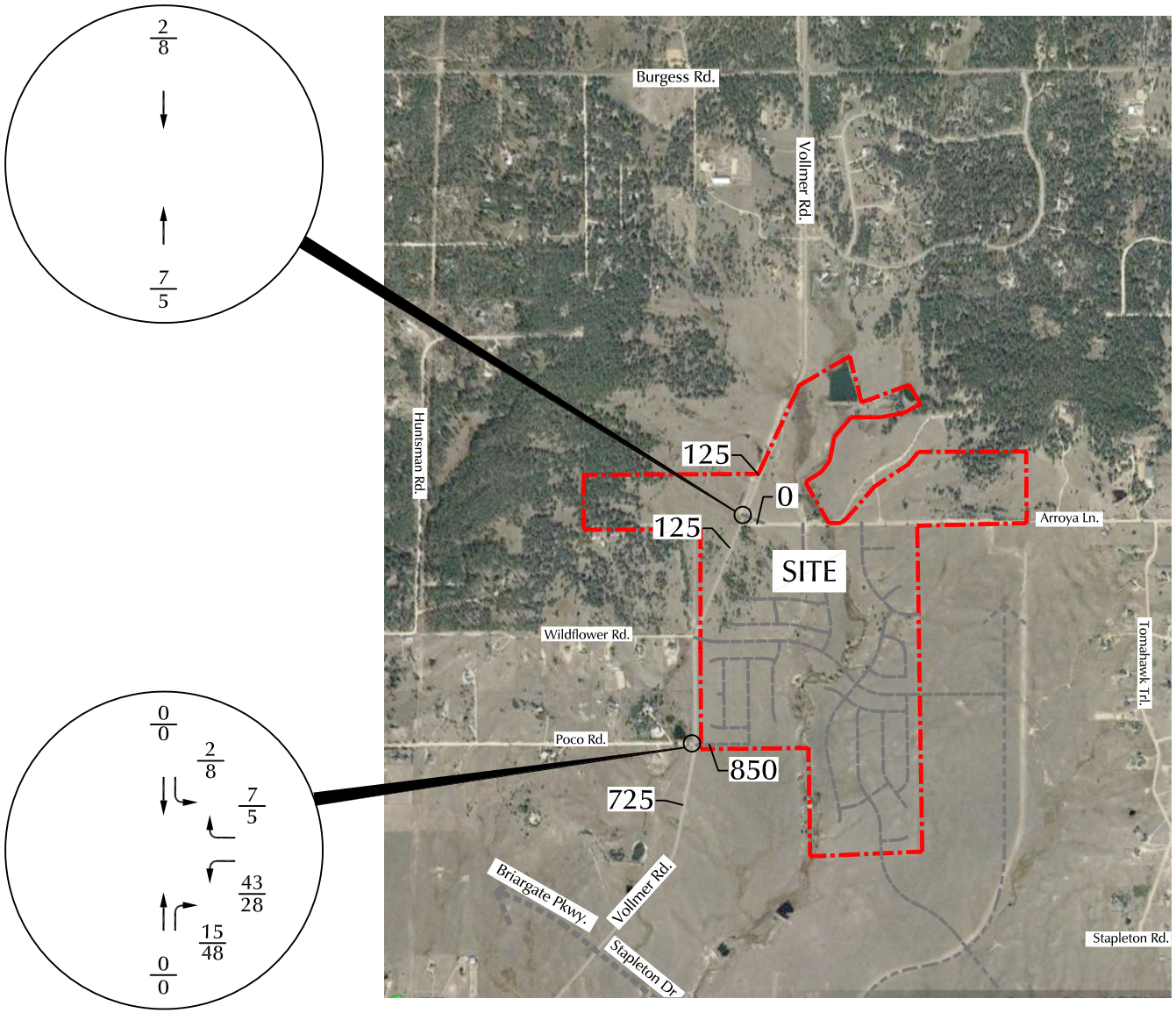
Figure 2

Site Plan

Retreat at Timber Ridge Filing No. 2 (LSC #S214200)



LEGEND:

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

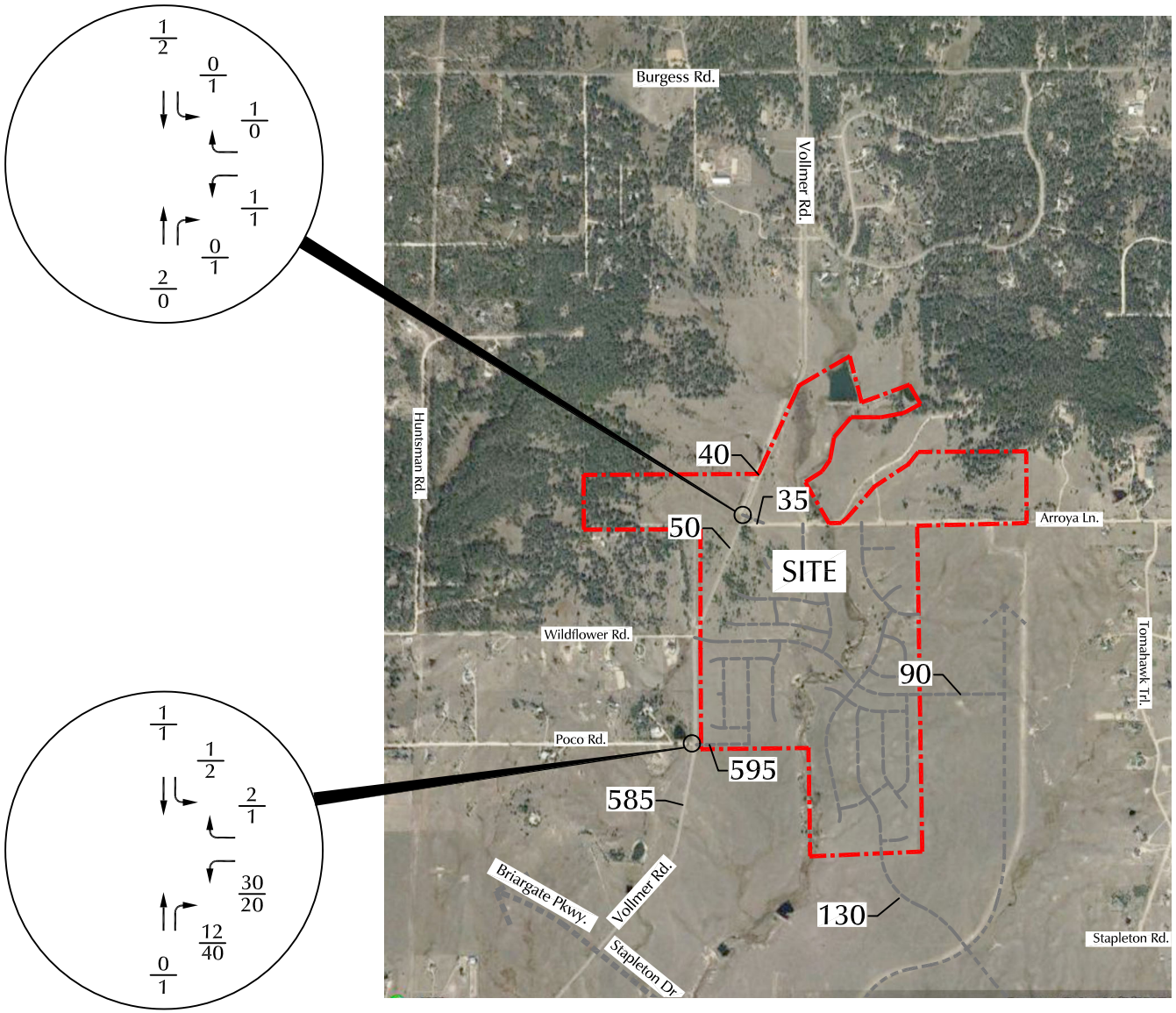
XXX = Average Weekday Traffic (vehicles per day)

TRANSPORTATION CONSULTANTS, INC.

Figure 3

Short-Term Assignment of Filing No. 2 Site-Generated Traffic

Retreat at Timber Ridge Filing No. 2 (LSC #S214200)



N

Approximate Scale
Scale: 1"= 2,000'

LEGEND:

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

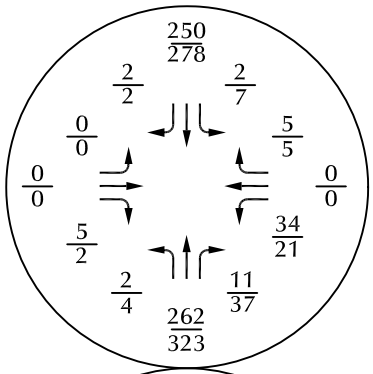
XXX = Average Weekday Traffic (vehicles per day)

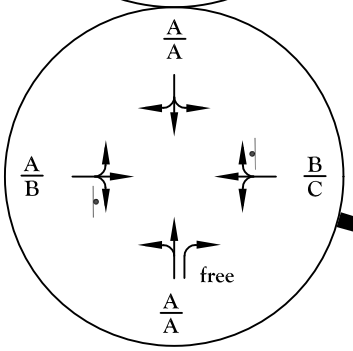
TRANSPORTATION CONSULTANTS, INC.

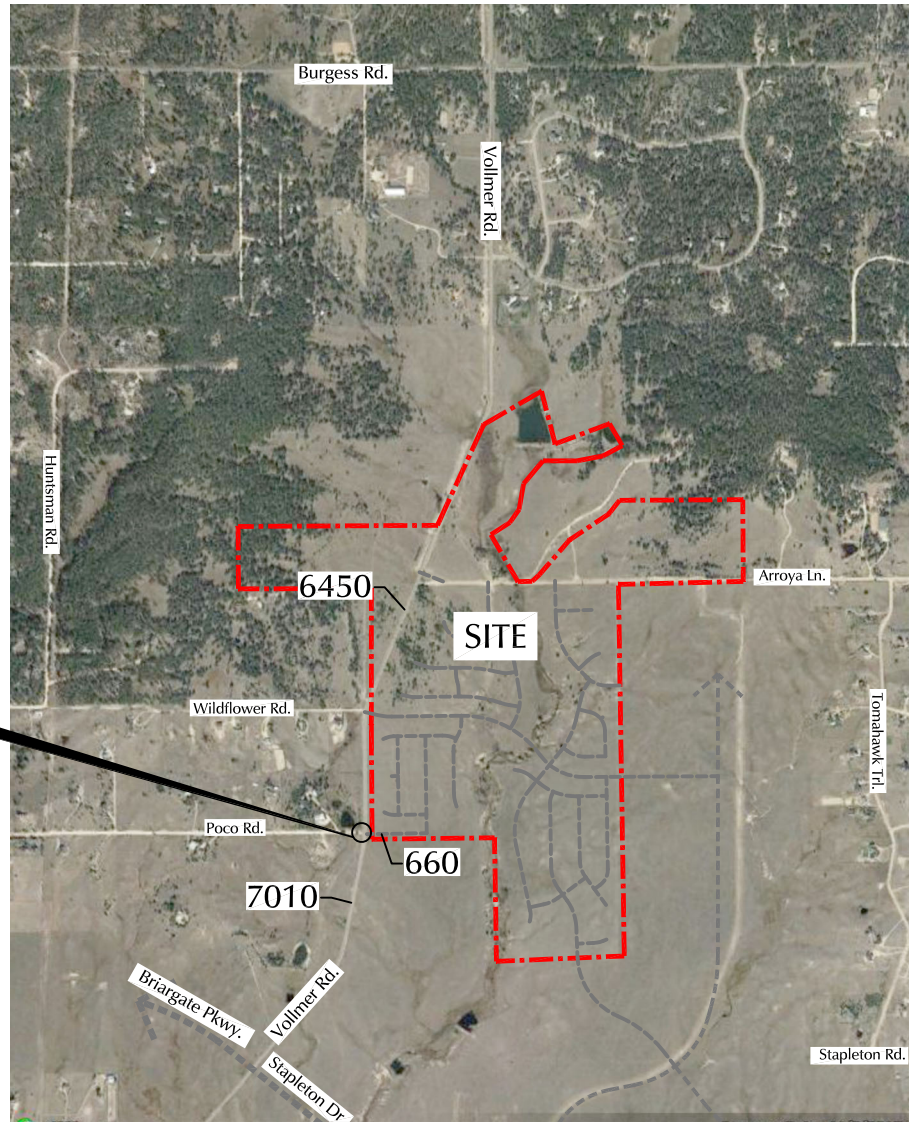
Figure 4

Long-Term Assignment of Filing No. 2 Site-Generated Traffic

Retreat at Timber Ridge Filing No. 2 (LSC #S214200)







Approximate Scale
Scale: 1"= 2,000'

LEGEND:

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

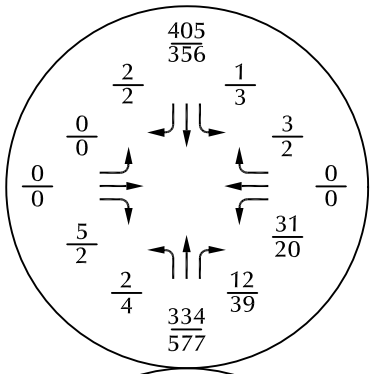
XXX = Average Weekday Traffic (vehicles per day)

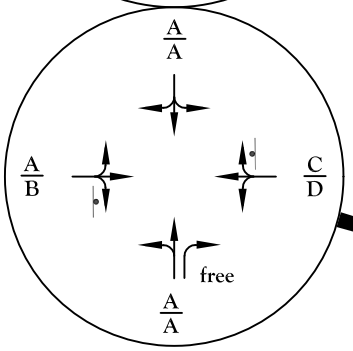
Figure 5

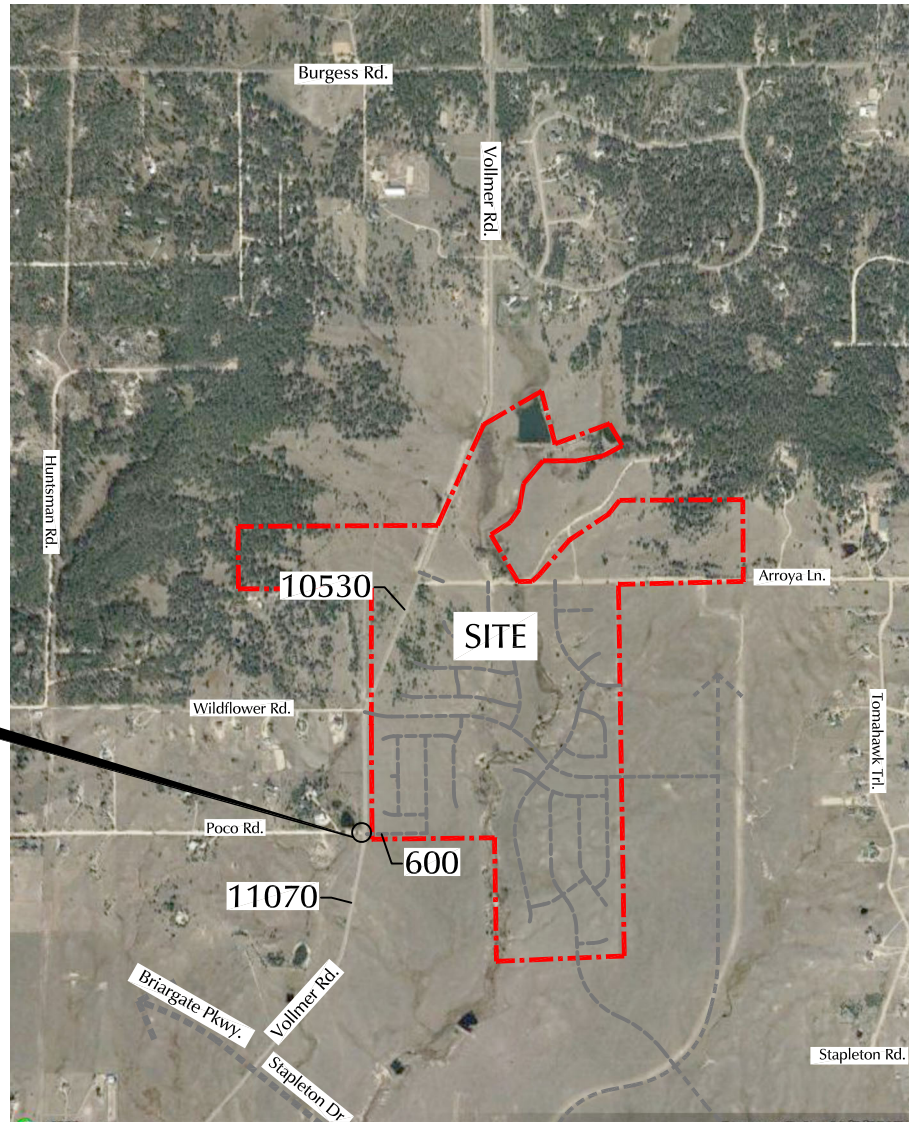
Short-Term Background Traffic
Lane Geometry, Traffic Control, and Level of Service

Retreat at Timber Ridge Filing No. 2 (LSC #S214200)

LSC TRANSPORTATION CONSULTANTS, INC.







Approximate Scale
Scale: 1"= 2,000'

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)

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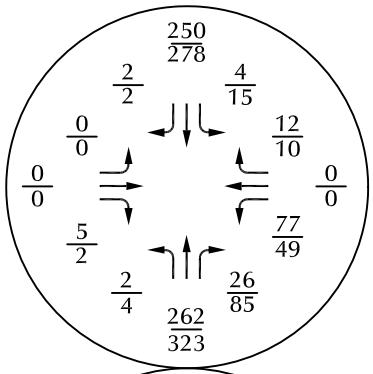
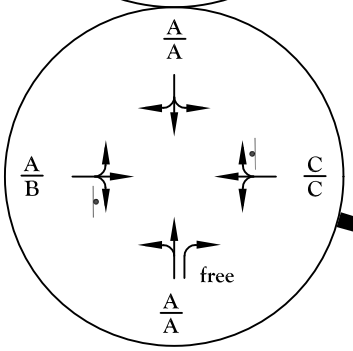
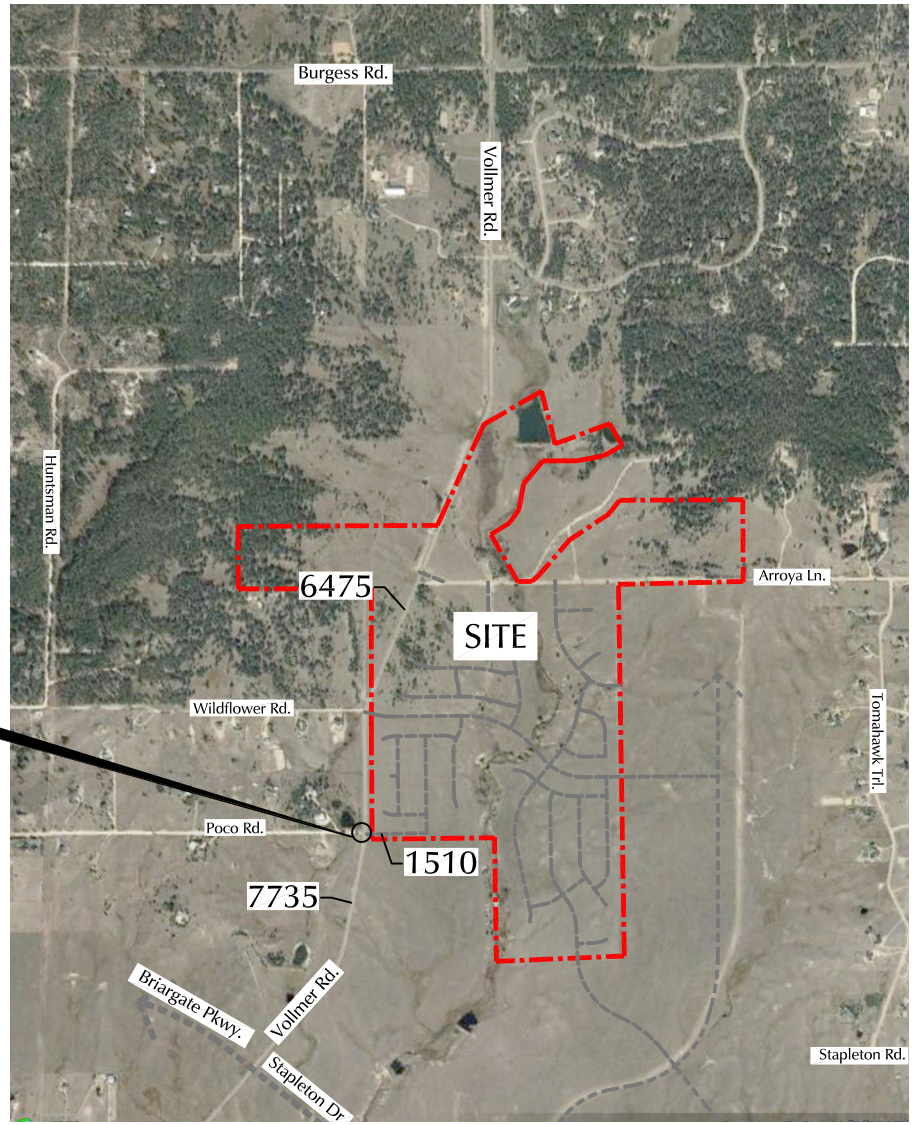
Figure 6

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

Retreat at Timber Ridge Filing No. 2 (LSC #S214200)







Approximate Scale
Scale: 1"= 2,000'

LEGEND:

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

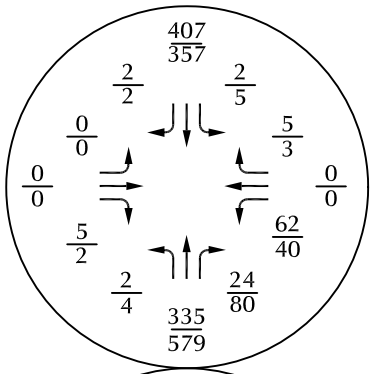
XXX = Average Weekday Traffic (vehicles per day)

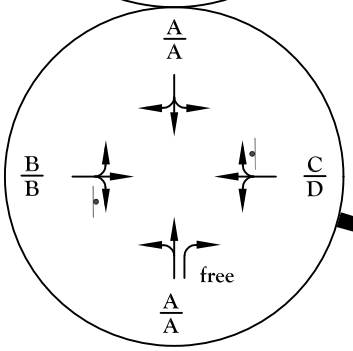
TRANSPORTATION CONSULTANTS, INC.

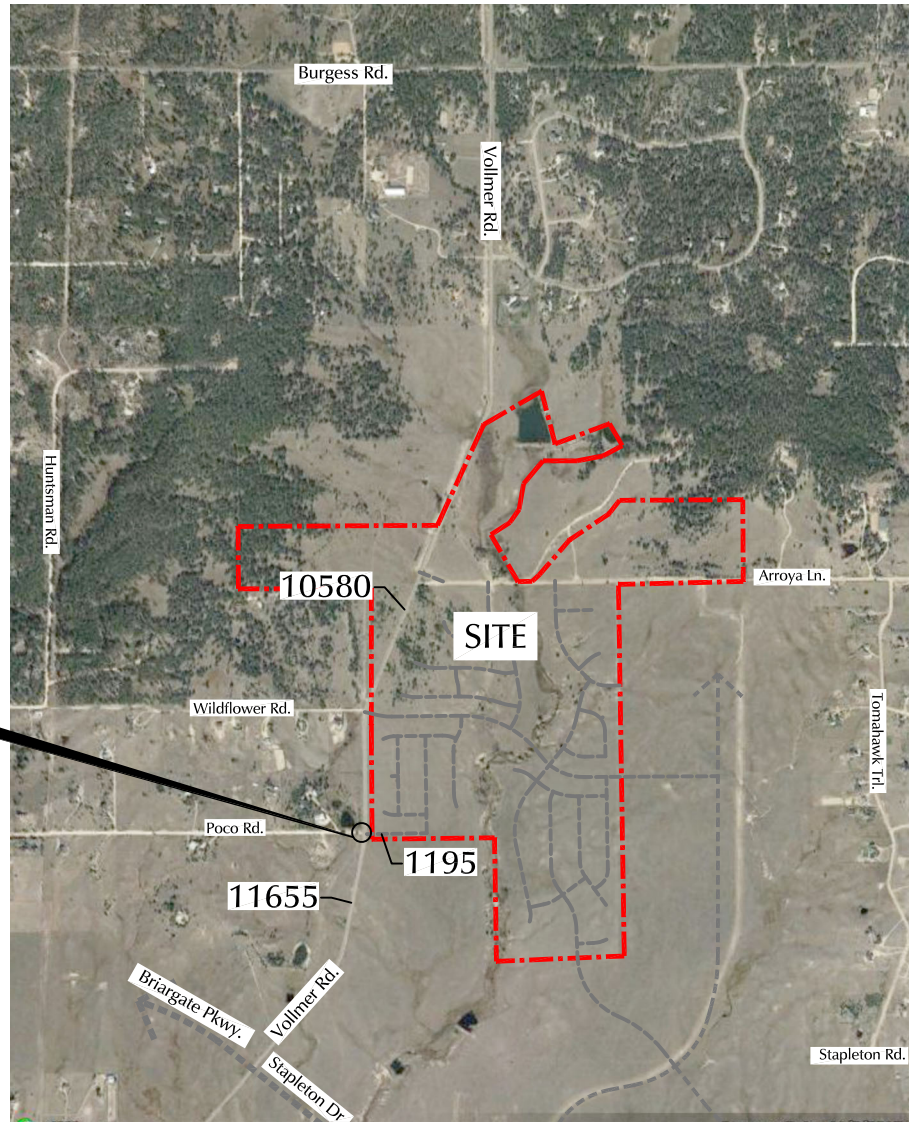
Figure 7

Short-Term Total Traffic
Lane Geometry, Traffic Control, and Level of Service

Retreat at Timber Ridge Filing No. 2 (LSC #S214200)







Approximate Scale
Scale: 1"= 2,000'

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)

TRANSPORTATION CONSULTANTS, INC.

Figure 8

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

Retreat at Timber Ridge Filing No. 2 (LSC #S214200)

Levels of Service

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Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↕	
Traffic Vol, veh/h	0	0	5	34	0	5	2	262	11	2	250	2
Future Vol, veh/h	0	0	5	34	0	5	2	262	11	2	250	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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	6	40	0	6	2	308	13	2	294	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	621	624	295	614	612	308	296	0	0	321	0	0
Stage 1	299	299	-	312	312	-	-	-	-	-	-	-
Stage 2	322	325	-	302	300	-	-	-	-	-	-	-
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	400	402	744	404	408	732	1265	-	-	1239	-	-
Stage 1	710	666	-	699	658	-	-	-	-	-	-	-
Stage 2	690	649	-	707	666	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	396	400	744	400	406	732	1265	-	-	1239	-	-
Mov Cap-2 Maneuver	396	400	-	400	406	-	-	-	-	-	-	-
Stage 1	709	665	-	698	657	-	-	-	-	-	-	-
Stage 2	683	648	-	700	665	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	14.5	0.1	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1265	-	-	744	425	1239	-	-
HCM Lane V/C Ratio	0.002	-	-	0.008	0.108	0.002	-	-
HCM Control Delay (s)	7.9	0	-	9.9	14.5	7.9	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↕	
Traffic Vol, veh/h	0	0	2	21	0	5	4	323	37	7	278	2
Future Vol, veh/h	0	0	2	21	0	5	4	323	37	7	278	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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	2	25	0	6	5	380	44	8	327	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	759	778	328	735	735	380	329	0	0	424	0	0
Stage 1	344	344	-	390	390	-	-	-	-	-	-	-
Stage 2	415	434	-	345	345	-	-	-	-	-	-	-
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	323	328	713	335	347	667	1231	-	-	1135	-	-
Stage 1	671	637	-	634	608	-	-	-	-	-	-	-
Stage 2	615	581	-	671	636	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	317	323	713	330	342	667	1231	-	-	1135	-	-
Mov Cap-2 Maneuver	317	323	-	330	342	-	-	-	-	-	-	-
Stage 1	668	631	-	631	605	-	-	-	-	-	-	-
Stage 2	607	578	-	663	630	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	15.7	0.1	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	713	366	1135	-	-
HCM Lane V/C Ratio	0.004	-	-	0.003	0.084	0.007	-	-
HCM Control Delay (s)	7.9	0	-	10.1	15.7	8.2	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	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↕	
Traffic Vol, veh/h	0	0	5	77	0	12	2	262	26	4	250	2
Future Vol, veh/h	0	0	5	77	0	12	2	262	26	4	250	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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	6	91	0	14	2	308	31	5	294	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	640	648	295	620	618	308	296	0	0	339	0	0
Stage 1	305	305	-	312	312	-	-	-	-	-	-	-
Stage 2	335	343	-	308	306	-	-	-	-	-	-	-
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	388	389	744	400	405	732	1265	-	-	1220	-	-
Stage 1	705	662	-	699	658	-	-	-	-	-	-	-
Stage 2	679	637	-	702	662	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	378	386	744	395	402	732	1265	-	-	1220	-	-
Mov Cap-2 Maneuver	378	386	-	395	402	-	-	-	-	-	-	-
Stage 1	704	659	-	698	657	-	-	-	-	-	-	-
Stage 2	665	636	-	693	659	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	16.4	0.1	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1265	-	-	744	421	1220	-	-
HCM Lane V/C Ratio	0.002	-	-	0.008	0.249	0.004	-	-
HCM Control Delay (s)	7.9	0	-	9.9	16.4	8	0	-
HCM Lane LOS	A	A	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↗		↕	
Traffic Vol, veh/h	0	0	2	49	0	10	4	323	85	15	278	2
Future Vol, veh/h	0	0	2	49	0	10	4	323	85	15	278	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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	2	58	0	12	5	380	100	18	327	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	810	854	328	755	755	380	329	0	0	480	0	0
Stage 1	364	364	-	390	390	-	-	-	-	-	-	-
Stage 2	446	490	-	365	365	-	-	-	-	-	-	-
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	298	296	713	325	338	667	1231	-	-	1082	-	-
Stage 1	655	624	-	634	608	-	-	-	-	-	-	-
Stage 2	591	549	-	654	623	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	287	288	713	318	329	667	1231	-	-	1082	-	-
Mov Cap-2 Maneuver	287	288	-	318	329	-	-	-	-	-	-	-
Stage 1	651	612	-	630	604	-	-	-	-	-	-	-
Stage 2	577	546	-	639	611	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	17.9	0.1	0.4
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	713	349	1082	-	-
HCM Lane V/C Ratio	0.004	-	-	0.003	0.199	0.016	-	-
HCM Control Delay (s)	7.9	0	-	10.1	17.9	8.4	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↗		↕	
Traffic Vol, veh/h	0	0	5	31	0	3	2	334	12	1	405	2
Future Vol, veh/h	0	0	5	31	0	3	2	334	12	1	405	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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	6	36	0	4	2	393	14	1	476	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	885	890	477	879	877	393	478	0	0	407	0	0
Stage 1	479	479	-	397	397	-	-	-	-	-	-	-
Stage 2	406	411	-	482	480	-	-	-	-	-	-	-
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	266	282	588	268	287	656	1084	-	-	1152	-	-
Stage 1	568	555	-	629	603	-	-	-	-	-	-	-
Stage 2	622	595	-	565	554	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	264	281	588	265	286	656	1084	-	-	1152	-	-
Mov Cap-2 Maneuver	264	281	-	265	286	-	-	-	-	-	-	-
Stage 1	567	554	-	628	602	-	-	-	-	-	-	-
Stage 2	617	594	-	559	553	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	20	0	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1084	-	-	588	280	1152	-	-
HCM Lane V/C Ratio	0.002	-	-	0.01	0.143	0.001	-	-
HCM Control Delay (s)	8.3	0	-	11.2	20	8.1	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0	-	-

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	20	0	2	4	577	39	3	356	2
Future Vol, veh/h	0	0	2	20	0	2	4	577	39	3	356	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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	2	24	0	2	5	679	46	4	419	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1141	1163	420	1118	1118	679	421	0	0	725	0	0
Stage 1	428	428	-	689	689	-	-	-	-	-	-	-
Stage 2	713	735	-	429	429	-	-	-	-	-	-	-
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	178	195	633	184	207	452	1138	-	-	878	-	-
Stage 1	605	585	-	436	446	-	-	-	-	-	-	-
Stage 2	423	425	-	604	584	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	175	192	633	181	204	452	1138	-	-	878	-	-
Mov Cap-2 Maneuver	175	192	-	181	204	-	-	-	-	-	-	-
Stage 1	601	581	-	433	443	-	-	-	-	-	-	-
Stage 2	418	422	-	598	580	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	26.8	0.1	0.1
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1138	-	-	633	191	878	-	-
HCM Lane V/C Ratio	0.004	-	-	0.004	0.136	0.004	-	-
HCM Control Delay (s)	8.2	0	-	10.7	26.8	9.1	0	-
HCM Lane LOS	A	A	-	B	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↗		↕	
Traffic Vol, veh/h	0	0	5	62	0	5	2	235	24	4	407	2
Future Vol, veh/h	0	0	5	62	0	5	2	235	24	4	407	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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	6	73	0	6	2	276	28	5	479	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	787	798	480	773	771	276	481	0	0	304	0	0
Stage 1	490	490	-	280	280	-	-	-	-	-	-	-
Stage 2	297	308	-	493	491	-	-	-	-	-	-	-
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	309	319	586	316	331	763	1082	-	-	1257	-	-
Stage 1	560	549	-	727	679	-	-	-	-	-	-	-
Stage 2	712	660	-	558	548	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	305	317	586	311	329	763	1082	-	-	1257	-	-
Mov Cap-2 Maneuver	305	317	-	311	329	-	-	-	-	-	-	-
Stage 1	559	546	-	726	678	-	-	-	-	-	-	-
Stage 2	705	659	-	550	545	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	19.6	0.1	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1082	-	-	586	325	1257	-	-
HCM Lane V/C Ratio	0.002	-	-	0.01	0.243	0.004	-	-
HCM Control Delay (s)	8.3	0	-	11.2	19.6	7.9	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.9	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	2	40	0	3	4	579	80	5	357	2
Future Vol, veh/h	0	0	2	40	0	3	4	579	80	5	357	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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	2	47	0	4	5	681	94	6	420	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1173	1218	421	1125	1125	681	422	0	0	775	0	0
Stage 1	433	433	-	691	691	-	-	-	-	-	-	-
Stage 2	740	785	-	434	434	-	-	-	-	-	-	-
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	169	181	632	182	205	450	1137	-	-	841	-	-
Stage 1	601	582	-	435	446	-	-	-	-	-	-	-
Stage 2	409	404	-	600	581	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	165	178	632	179	202	450	1137	-	-	841	-	-
Mov Cap-2 Maneuver	165	178	-	179	202	-	-	-	-	-	-	-
Stage 1	596	577	-	432	442	-	-	-	-	-	-	-
Stage 2	403	401	-	592	576	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	31.2	0	0.1
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1137	-	-	632	187	841	-	-
HCM Lane V/C Ratio	0.004	-	-	0.004	0.271	0.007	-	-
HCM Control Delay (s)	8.2	0	-	10.7	31.2	9.3	0	-
HCM Lane LOS	A	A	-	B	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0	-	-

Improvements Table – with April 2020 Notations

TRANSPORTATION
CONSULTANTS, INC.

From: The Retreat at Timber Ridge
Preliminary Plan
Transportation Memorandum
PCD File No: SP-182
(LSC #174030)
June 29, 2018

Table 3
Roadway Improvements
Retreat at Timber Ridge
Preliminary Plan

Improvement	Timing	Responsibility[1]
Arroya Lane Initial/interim: Dedicate 80' of ROW or 40' half ROW where applicable; construct a storm sewer crossing under Arroya Lane; regrade and improve the roadway to an interim all-weather, gravel cross section for two-way traffic and emergency vehicles suitable to the County and the fire district the from Vollmer to Nature Refuge Road; move the existing temporary turnaround on the east end of Arroya Lane onsite and construct a 50-foot apron at the tie-in to Vollmer Road.	Phase 1	The Retreat at Timber Ridge
Upgrade **Arroya Lane** to a Rural Local cross section (paved). Along with this improvement, upgrade **Nature Refuge Road** to a Rural Local Road.	Once the average weekday traffic volume exeeds 200 vehicles per day. This is projected to occur with either Phase 4 or 5	The Retreat at Timber Ridge
Realign Arroya Lane at the intersection of Vollmer Road/Arroya Lane so Arroya intersects Vollmer at a right angle.	Phases 4 or 5	The Retreat at Timber Ridge
Extend Poco Road to the east including the creek crossing	Phases 2 and 3	The Retreat at Timber Ridge
Construct a gravel road to provide secondary emergency access through the Phase 4 area to Arroya Lane (this gravel road would be replaced with the subdivision streets in Phase 4).	Phases 2 and 3	The Retreat at Timber Ridge
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. This turn lane is projected to be required with Phase 5.	The Retreat at Timber Ridge
Potential improvement: Southbound left-turn lane at Arroyo	Evaluation with final plats. *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* [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 signifcant circular right-of-way around the center of the intersection. Currently, additional right-of-way to accomodate 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
As shown on the County MTCP: Vollmer Road upgrade between Poco Road and Shoup Road to a county-standard, two-lane Rural Minor Arterial.	Traffic volume estimates indicate this improvement will not be needed in the short term horizon. The 2040 MTCP indicates the Vollmer project will be needed by 2040. 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 requred 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)	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 Progam 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 Progam 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 signalilzed.	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.

Source: LSC Transportation Consultants, Inc.

Note (3/3/2021): The TimberRidge Estates Filing No. 1 plat has been withdrawn. See report narrative for details/explanation.

Note (3/3/2021): Not necessary with Fil No. 2

If this plat is approved and recorded prior to the first Homestead North plat, additional agreement or SIA clause will be required to address construction from Poco to Briargate. This is related to Item V6 on Table 3 of Homestead North TIS which reads: “Improve Vollmer Road between Sam Bass Drive and Poco Road to a 4-lane Urban Minor Arterial but with necessary lane transitions, redirect tapers, etc. south of Poco to adequately transition between the 4-Lane Urban Minor Arterial Cross Section and the 2-Lane Rural Arterial Cross Section north of Poco Road.”