

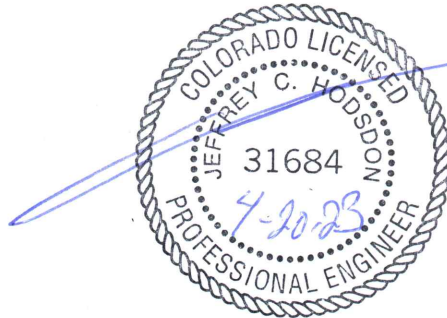


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Foursquare at Sterling Ranch East
Traffic Technical Memorandum
PCD No. PUDSP227
(LSC #S224590)
April 20, 2023

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.

[Handwritten Signature]

4/20/23
Date

Foursquare at Sterling Ranch East Traffic Technical Memorandum

Prepared for:

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

APRIL 20, 2023

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

LSC #S224590
PUDSP227



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April 20, 2023

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

RE: Foursquare at Sterling Ranch East
El Paso County, CO
Traffic Technical Memorandum
PUDSP227
LSC #S224590

Dear Mr. Moreland:

LSC Transportation Consultants, Inc. has prepared this traffic technical memorandum for the Foursquare at Sterling Ranch East residential development. As shown in Figure 1, the site is located north of the future extension of Briargate Parkway and west of the future extension of Sterling Ranch Road in El Paso County, Colorado. LSC recently prepared a traffic impact study (TIS) for the Sterling Ranch East Rezoning and Preliminary Plan ([SP224](#)) that included trips by the currently-proposed filing. This memorandum is intended as a site-specific, final plat traffic report for Foursquare at Sterling Ranch East.

REPORT CONTENTS

This report presents:

- A summary of the proposed land use and access plan;
- The projected average weekday and peak-hour vehicle trips to be generated by the currently-proposed filing;
- The assignment of the site-generated traffic volumes to the area roadways;
- The recommended street classifications for the internal streets within the currently-proposed filing;
- Improvements needed with the currently-proposed filing; and
- The project's obligation to the County roadway improvement fee program.

RECENT TRAFFIC REPORTS

- LSC completed an updated master traffic study (MTIS) for the entire Sterling Ranch development, dated February 10, 2023. Appendix Table 1 includes a link to the El Paso County Electronic Development Application Review Program (EDARP) page where a copy of the latest version of that MTIS can be obtained.
- LSC prepared a TIS for the Sterling Ranch East Rezoning and Preliminary Plan, February 10, 2023. The currently proposed filing was accounted for within that recent report. Appendix Table 1 includes a link to the El Paso County Electronic Development Application Review Program (EDARP) page where a copy of the latest version of that TIS can be obtained.
- A list of other traffic studies within Sterling Ranch and in the vicinity of area of study completed within the past five years (that LSC is aware of) is attached for reference (Appendix Table 1).
- El Paso County is currently studying the Briargate Stapleton Corridor as part of a Pikes Peak Rural Transportation Authority (PPRTA) study. A draft version of the Briargate-Stapleton Corridor Study by Wilson & Company was published December 9, 2021.

LAND USE AND ACCESS

Foursquare at Sterling Ranch East is planned to include 158 small lots for single-family homes. The proposed development includes higher density single-family detached units arranged in “packs” of four (referred to as “Foursquare”) with two units adjacent to the public street and two units behind. Figure 2 shows the proposed site plan.

The proposed development is most similar to patio homes, which the *Trip Generation Manual* includes as a “specialized land use” under ITE Land Use 210: Single-Family Detached Housing. However, the data is limited to only three sites and ITE intends to provide further analysis in future editions of the Trip Generation Manual. Until that further data and analysis are available, LSC has selected **ITE Land Use 210 Single-Family Detached Housing**, which results in a more conservative trip-generation estimate for the proposed Foursquare development.

While ITE Land Use 210 was selected for use in this report, LSC considered ITE Land Uses 215 and 220. The description for ITE Land Use: 215 Single-Family Attached Housing states that the units share a wall with an adjoining dwelling unit and the description for ITE Land Use: 220 Multifamily Housing states that the units are located within the same building with at least three other dwelling units. The proposed homes within Foursquare at Sterling Ranch East are all proposed to be detached units on individual small lots with no shared walls.

Figure 3 shows the roadway connections that are planned to be constructed in the short term. As shown in Figure 3, by 2023 Briargate Parkway is planned to be constructed to its final cross section between Vollmer Road and Wheatland Drive, Marksheffel Road is planned to be completed between Vollmer Road and Woodmen Road, and Sterling Ranch Road is planned to

be constructed from Marksheffel Road to Dines Boulevard. With Sterling Ranch East Filing No. 1, which is planned to be constructed prior to the Villages at Sterling Ranch East, Briargate Parkway is planned to be constructed to its final cross section between Wheatland Drive and Sterling Ranch Road and Sterling Ranch Road is planned to be constructed from Dines Boulevard to Idaho Falls Drive. These connections will need to be constructed with Foursquare at Sterling Ranch East if they are not constructed as part of Sterling Ranch East Filing 1.

Full-movement access is proposed to Sterling Ranch Road via Idaho Falls Drive. The proposed access spacing is shown in Figure 2. As shown in the figure, all of the access points meet the intersection spacing requirements.

An additional three-quarter-movement access (Boulder City Drive) is proposed to Briargate Parkway about 1,245 feet east of Wheatland Drive and 1,375 feet west of Sterling Ranch Road. This access will require a deviation to the criteria contained in the El Paso County *Engineering Criteria Manual (ECM)*. The *Briargate Parkway-Stapleton Road Corridor Study Appendix D: Access Control Plan* shows the access locations and intersection access restrictions along Briargate Parkway between Black Forest Road and Meridian Road. This deviation request is being made as part of the application for Sterling Ranch East Filing No. 1 but will also be required by the currently-proposed Foursquare at Sterling Ranch East as it is our understanding that these projects will need to be developed concurrently. The draft access control plan shows a right-in/right-out access point north and south of Briargate Parkway between Wheatland Drive and Sterling Ranch Road. The Master TIS showed two offset three-quarter movement (left-in/right-in/right-out only) access points in this general location. A future three-quarter movement access to be located 160 feet east of the currently-proposed Boulder City Drive would serve the future planned K-8 school parcel located southwest of the intersection of Briargate/Sterling Ranch.

The currently-proposed filing was included in the Sterling Ranch Master TIS as Traffic Analysis Zone (TAZ) 19. Traffic projected to be generated by land uses within this zone was included as part of the short-term background traffic volumes in the Sterling Ranch East Rezoning and Preliminary Plan TIS. The land use and access currently proposed are consistent with what was assumed in the Master TIS and the Sterling Ranch East Rezoning and Preliminary Plan TIS.

Intersection Sight Distance

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

Figure 4b shows a sight-distance analysis at the proposed three-quarter movement intersection of Boulder City/Briargate. Based on a design speed of 50 miles per hour (mph) and the criteria

contained in Table 2-21 of the *Engineering Criteria Manual (ECM)*, the required intersection sight distance at the future intersection is 55 feet. As shown in Figures 4b, the proposed intersection will meet the criteria.

Please refer to the PUDSP document for sight-distance analysis of the internal local/local intersections.

Pedestrian and Bicycle Analysis

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

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

There are no existing schools within two miles of the site, however, a K-8 school is planned southwest of the future intersection of Briargate/Sterling Ranch Road and two elementary schools are planned east of Sterling Ranch Road. A school crossing will likely be needed at the intersection of Sterling Ranch Road/Briargate Parkway. This intersection is planned to be signal controlled in the future. The final intersection design will need to meet the criteria for pedestrian safety contained in *ECM* 2.5.2.F.2 and *ECM* 2.5.6.G-J. It is our understanding that the specific elements of this design are currently under discussion by the applicant and County staff. Once a decision has been reached regarding the planning/design elements, the applicable documents will be revised as necessary (which may include this TIS report).

Safety Analysis

Most of the roadways in the vicinity of the site have not yet been constructed. The Colorado State Patrol (CSP) provided LSC with crash history data for Vollmer Road between Tahiti Drive and Burgess Road from September 2019 through September 2022. During the reported time period, there were twelve reported crashes. Of the twelve reports, ten were single-vehicle non-intersection-related crashes on Vollmer Road. One crash involved a southbound vehicle that turned right onto Poco Road and crashed into several cars parked on Poco Road partially in the lane. The only intersection related crash occurred in June 2022. A vehicle heading northbound on Vollmer Road was slowing to turn left at Lochwinnoch Road and the vehicle behind them attempted to pass on the left side. The crash history data has been attached.

TRIP GENERATION

Foursquare at Sterling Ranch East 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 1 shows the trip-generation estimate. The

trip-generation estimate is consistent with the estimate assumed in the Sterling Ranch Master TIS and the Sterling Ranch East Rezoning and Preliminary Plan TIS for the same parcels.

The Villages at Sterling Ranch East is expected to generate 1,490 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 29 vehicles would enter and 82 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 94 vehicles would enter and 55 vehicles would exit the site.

TRIP DISTRIBUTION AND ASSIGNMENT

When the distribution percentages from Figure 8 of the Sterling Ranch East Rezoning and Preliminary Plan TIA are applied to the new, external trip-generation estimates (from Table 1), the resulting site-generated traffic volumes can be determined. Figures 5a and 5b show the short-term residential site-generated traffic volumes. These volumes assume only the street network shown in Figure 3.

TOTAL TRAFFIC VOLUMES AND LEVELS OF SERVICE

Please refer to the short-term and 2042 peak-hour traffic-volume projections and level of service analysis shown in Figures 14c and 15c of the *Sterling Ranch East Rezoning & Preliminary Plan TIS*. The proposed land use and access are in compliance with the Sterling Ranch Master TIS and Sterling Ranch Preliminary Plan TIS. As such, there are no changes to these projected volumes or level of service results.

SIGNAL WARRANT THRESHOLD ANALYSIS – AM AND PM PEAK HOURS

The intersections of Marksheffel/Vollmer, Marksheffel/Sterling Ranch, and Briargate/Vollmer were analyzed to determine if the thresholds for Four-Hour and/or Eight-Hour Vehicular-Volume Traffic-Signal Warrant thresholds would be reached or exceeded, based on the projected short-term traffic volumes.

The volumes shown are based on the following:

- The short-term background traffic volumes which are based on the existing traffic volumes plus estimates of traffic to be generated in the short term by buildout of Homestead at Sterling Ranch, Branding Iron at Sterling Ranch, Sterling Ranch Filings 2-4, Copper Chase at Sterling Ranch, Homestead North at Sterling Ranch Filings 1-3, and the Retreat at TimberRidge Filings 1-3,
- The Sterling Ranch East Filing Nos. 1 and 2 site-generated traffic volumes taken from the traffic memo for that subdivision filing.,
- The Villages at Sterling Ranch East site-generated traffic volumes from our current work for the traffic memo for that subdivision,
- The Foursquare at Sterling Ranch East site-generated traffic volumes shown in Figure 5b of this memorandum.

The off-peak-hour volumes are estimates by LSC based on the peak-hour traffic volumes, 72-hour machine counts conducted by LSC on Vollmer Road in November 2020, and vehicle time-of-day distribution data for single-family homes published by the Institute of Transportation Engineers.

Marksheffel/Vollmer

Table 2 shows the results of the analysis for the intersection of Marksheffel/Vollmer. As shown in Table 2, in the short-term only, five of the hours analyzed are projected to meet the thresholds for an Eight-Hour Vehicular-Volume Traffic-Signal Warrant and none of the hours analyzed are projected to meet the thresholds for a Four-Hour Vehicular Volume Traffic Signal Warrant. This analysis indicates that traffic-signal warrant(s) will likely **not** be met at the intersection of Marksheffel/Vollmer with buildout of Sterling Ranch East Filing Nos. 1 and 2, the Villages at Sterling Ranch East, and Foursquare at Sterling Ranch East.

Marksheffel/Sterling Ranch

Table 3 shows the results of the analysis for the intersection of Marksheffel/Sterling Ranch. As shown in Table 3, in the short-term, five of the hours analyzed are projected to meet the thresholds for an Eight-Hour Vehicular-Volume Traffic-Signal Warrant. The traffic volumes for three additional hours are approaching the thresholds. The minor approach volume for all three of these hours is well over the 150 vehicle per hour (vph) minimum threshold and the major approach volumes are within two to 68 vph of the 600 vph threshold. Four of the hours analyzed are projected to meet the thresholds for a Four-Hour Vehicular-Volume Traffic-Signal Warrant.

This analysis indicates that the Eight-Hour and Four-Hour Vehicular Volume traffic-signal warrant(s) may be met at the intersection of Marksheffel/Sterling Ranch with buildout of Sterling Ranch East Filing 1, the Villages at Sterling Ranch East, and Foursquare at Sterling Ranch East. LSC recommends at least eight hours of traffic count volume data be collected at the intersections Marksheffel/Sterling Ranch following completion of Marksheffel Road between Vollmer Road and Woodmen Road, which is planned to be done in 2023. Once the traffic data is completed, traffic-signal warrant analysis can be reanalyzed based on the existing conditions at that time. The decision to require a signal to be installed rests with the County.

Briargate/Vollmer

Table 4 shows the results of the analysis for the intersection of Briargate/Vollmer. As shown in Table 4, in the short term only, none of the hours analyzed are projected to meet the thresholds for an Eight-Hour Vehicular-Volume Traffic-Signal Warrant or the thresholds for a Four-Hour Vehicular-Volume Traffic-Signal Warrant. This analysis indicates that traffic-signal warrant(s) will likely **not** be met at the intersection of Briargate/Vollmer with buildout of Sterling Ranch East Filing Nos. 1 and 2, the Villages at Sterling Ranch East, and Foursquare at Sterling Ranch East.

SUBDIVISION STREET CLASSIFICATIONS

All of the internal streets within Foursquare at Sterling Ranch East should be classified as Urban Local. Figure 6 shows the recommended street classifications for the internal streets and the streets in the vicinity of the site.

DEVIATON REQUESTS

The Boulder City Drive connection to Briargate Parkway, along with the Briargate Parkway extension to Sterling Ranch Road, are part of a separate Preliminary Plan and Final Plat. However, it is our understanding that both projects will need to develop concurrently because of shared infrastructure.

It is also our understanding that the deviation request for the three-quarter movement access to Briargate Parkway, prepared by JR Engineering, has been revised (by JR Engineering) in response to staff comments.

ROADWAY IMPROVEMENTS

Tables 5 and 6 from the *Sterling Ranch East Rezoning and Preliminary Plan TIS* contained a summary of needed improvements and recommendations for auxiliary turn-lane lengths. Copies of these tables have been attached with the improvements needed either prior to or with Foursquare at Sterling Ranch East highlighted.

ROADWAY IMPROVEMENT FEE PROGRAM

This project will be required to participate in the El Paso County Road Improvement Fee Program. Foursquare at Sterling Ranch East Filing will join the five-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 158 lots, the total building permit fee would be \$399,266. Note: program fees are subject to change.

* * * * *

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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 1-4
Figures 1-6
Appendix Table 1
Tables 5 and 6 from *Sterling Ranch East Rezoning and Preliminary Plan TIS* with
notes by LSC

Tables 1-4

Table 1
FourSquare at Sterling Ranch East
Trip Generation

Sketch Plan TAZ	ITE Code	ITE Land Use	Quantity	Unit	Trip Generation Rates ⁽¹⁾					Total Trip Generated				
					Daily	AM Peak Hour		PM Peak Hour		Daily	AM Peak Hour		PM Peak Hour	
						In	Out	In	Out		In	Out	In	Out
19	210	Single-Family Detached Housing	158	DU ⁽²⁾	9.43	0.18	0.52	0.59	0.35	1,490	29	82	94	55

Notes:

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

(2) DU = Dwelling Unit

Source: LSC Transportation Consultants, Inc.

Nov-22

Table 2
Traffic Signal Warrant Analysis
Marksheffel Road/Vollmer Road

												Warrant Analysis ⁽³⁾																															
												Warrant 1: Eight Hour Vehicular Volume Evaluation								Warrant 2: Four Hour Vehicular Volume Evaluation																							
																				Short-Term Background				Short-Term Total																			
												Short-Term Background Traffic ⁽²⁾				SRE Filing Nos. 1 & 2 Generated Traffic				Villages at SRE Generated Traffic				Foursquare at SRE Generated Traffic				Short-Term Total Traffic				Warrant Thresholds				Warrant Threshold Met?				Warrant Threshold Met?			
																																				Short-Term Background		Short-Term Total		Warrant Threshold Minor		Warrant Threshold Met?	
Major ⁽⁹⁾	Minor ⁽⁹⁾	Major	Minor	Major	Minor	Major	Minor	Major	Minor	Major	Minor	Condition A	Condition B	Condition	Condition	Condition	Condition	Warrant Threshold Minor	Warrant Threshold Met?	Warrant Threshold Minor	Warrant Threshold Met?																						
Hour	Voilmer	Marksheffel	Voilmer	Marksheffel	Voilmer	Marksheffel	Voilmer	Marksheffel	Voilmer	Marksheffel	Voilmer	Marksheffel	Major	Minor	Major	Minor	Condition A	Condition B	Condition A	Condition B	Minimum	WB	Minimum	WB																			
Short-Term Total Traffic ⁽⁹⁾																																											
12-1 AM	49	3	1	0	1	0	2	0	53	3	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
1-2 AM	24	3	0	0	0	0	1	0	25	3	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
2-3 AM	18	0	0	0	0	0	1	0	19	0	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
3-4 AM	26	3	0	0	0	0	1	0	27	3	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
4-5 AM	41	13	1	1	2	0	1	0	45	14	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
5-6 AM	108	34	4	2	5	1	2	0	119	37	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
6-7 AM	320	99	14	5	15	2	7	0	356	106	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
7-8 AM	763	171	23	8	26	3	14	0	826	182	600	150	900	75	Yes	No	Yes	No	219	No	194	No																					
8-9 AM	851	144	22	7	24	3	16	0	913	154	600	150	900	75	No	No	Yes	Yes	187	No	172	No																					
9-10 AM	737	91	16	4	18	2	14	0	785	97	600	150	900	75	No	No	No	No	232	No	208	No																					
10-11 AM	856	91	19	4	20	2	18	0	913	97	600	150	900	75	No	No	No	Yes	186	No	172	No																					
11-12 PM	971	86	21	4	23	2	24	0	1039	92	600	150	900	75	No	Yes	No	Yes	157	No	138	No																					
12-1 PM	685	68	21	4	22	1	24	0	752	73	600	150	900	75	No	No	No	No	256	No	224	No																					
1-2 PM	679	72	23	4	23	2	26	0	751	78	600	150	900	75	No	No	No	No	258	No	225	No																					
2-3 PM	782	75	25	4	26	2	30	0	863	81	600	150	900	75	No	No	No	No	209	No	184	No																					
3-4 PM	835	73	29	4	27	2	36	0	927	79	600	150	900	75	No	No	No	Yes	191	No	168	No																					
4-5 PM	869	91	36	5	35	2	45	0	985	98	600	150	900	75	No	No	No	Yes	183	No	154	No																					
5-6 PM	732	90	36	5	35	2	44	0	847	97	600	150	900	75	No	No	No	No	234	No	188	No																					
6-7 PM	505	72	29	4	28	2	37	0	599	78	600	150	900	75	No	No	No	No	338	No	291	No																					
7-8 PM	320	52	21	3	20	1	27	0	388	56	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
8-9 PM	260	38	19	2	18	1	27	0	324	41	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
9-10 PM	168	29	14	2	13	1	19	0	214	32	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
10-11 PM	95	13	7	1	7	0	9	0	118	14	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
11-12 AM	50	8	4	0	3	0	6	0	63	8	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No																					
Numbers of Hours the Warrant Thresholds Are Met																1	1	2	5			0		0																			
Warrant Met?																No				No																							

Table 3
Traffic Signal Warrant Analysis
 Marksheffel Road/Sterling Ranch Road

											Warrant Analysis ⁽¹⁾												
											Warrant 1: Eight Hour Vehicular Volume Evaluation								Warrant 2: Four Hour Vehicular Volume Evaluation				
											Warrant Threshold Met?								Short-Term Background		Short-Term Total		
											Warrant Thresholds				Short-Term Background		Short-Term Total		Warrant Threshold Minor Minimum	Warrant Threshold Met? WB	Warrant Threshold Minor Minimum	Warrant Threshold Met? WB	
											Condition A		Condition B		Condition A	Condition B	Condition A	Condition B					
Hour	Major ⁽³⁾ Marksheffel	Minor ⁽⁴⁾ Sterling Ranch	Major Marksheffel	Minor Sterling Ranch	Major Marksheffel	Minor Sterling Ranch	Major Marksheffel	Minor Sterling Ranch	Major Marksheffel	Minor Sterling Ranch	Major	Minor	Major	Minor					Condition A	Condition B	Condition A	Condition B	Minimum
Short-Term Total Traffic ⁽⁵⁾																							
12-1 AM	40	5	8	3	5	1	2	1	55	10	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
1-2 AM	17	5	3	3	2	1	1	1	23	10	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
2-3 AM	16	0	3	0	2	0	1	0	22	0	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
3-4 AM	18	5	3	3	2	1	1	1	24	10	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
4-5 AM	27	18	5	11	3	6	1	3	36	38	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
5-6 AM	57	45	8	27	5	14	2	7	72	93	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
6-7 AM	173	133	27	80	16	42	7	21	223	276	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
7-8 AM	374	230	52	138	30	72	13	36	469	476	600	150	900	75	No	No	No	No	Low Volume	No	356	Yes	
8-9 AM	422	194	60	116	35	61	15	30	532	401	600	150	900	75	No	No	No	No	379	No	324	Yes	
9-10 AM	366	122	52	73	30	38	13	19	461	252	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
10-11 AM	451	122	68	73	39	38	17	19	575	252	600	150	900	75	No	No	No	No	365	No	303	No	
11-12 PM	548	115	88	69	51	36	22	18	709	238	600	150	900	75	No	No	Yes	No	316	No	246	No	
12-1 PM	340	102	88	69	42	38	21	18	491	227	600	150	900	75	No	No	No	No	#N/A	#N/A	345	No	
1-2 PM	350	108	95	72	45	40	23	19	513	239	600	150	900	75	No	No	No	No	Low Volume	No	334	No	
2-3 PM	407	113	111	76	53	42	27	20	598	251	600	150	900	75	No	No	No	No	387	No	291	No	
3-4 PM	460	110	135	74	64	41	33	19	692	244	600	150	900	75	No	No	Yes	No	360	No	253	No	
4-5 PM	522	137	167	92	79	51	41	24	809	304	600	150	900	75	No	No	Yes	No	329	No	198	Yes	
5-6 PM	477	135	164	91	78	50	40	24	759	300	600	150	900	75	No	No	Yes	No	352	No	221	Yes	
6-7 PM	367	108	136	72	64	40	34	19	601	239	600	150	900	75	No	No	Yes	No	Low Volume	No	290	No	
7-8 PM	251	79	98	53	47	29	24	14	420	175	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
8-9 PM	238	57	100	38	48	21	25	10	411	126	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
9-10 PM	165	44	72	29	34	16	18	8	289	97	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
10-11 PM	84	20	35	13	17	7	9	4	145	44	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
11-12 AM	49	13	21	9	9	5	5	2	84	29	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	
Numbers of Hours the Warrant Thresholds Are Met															0	0	5	0			0		
Warrant Met?															No		No				No		

Notes:

(1) Thresholds are based on 2 or more lanes on the major approach and 1 lane on the minor approach (Warrant evaluation assuming the southbound left turn only for the minor street)

(2) Source: *Sterling Ranch East Phase 1 Rezoning and Preliminary Plan Traffic Impact Study*, February 10, 2023

(3) The major street traffic includes all movements (left, through, and right)

(4) The minor street traffic includes only the left turns from the minor street

(5) Off peak hour traffic volumes are based on the projected peak hour traffic volumes, 72-hour machine counts conducted on Vollmer Road in November 2020 and vehicle time-of-day distribution data for single-family residential published by the Institute of Transportation Engineers

Source: LSC Transportation Consultants, Inc.

Table 4
Traffic Signal Warrant Analysis
Briargate Parkway/Vollmer Road

												Warrant Analysis ^(c)																							
												Warrant 1: Eight Hour Vehicular Volume Evaluation								Warrant 2: Four Hour Vehicular Volume Evaluation															
																				Evaluation															
												Short-Term Background Traffic ⁽²⁾		SRE Filing Nos. 1 & 2 Generated Traffic		Villages at SRE Generated Traffic		Foursquare at SRE Generated Traffic		Short-Term Total Traffic		Warrant Thresholds				Warrant Threshold Met?		Short-Term Background		Short-Term Total		Warrant Threshold Minor Minimum	Warrant Threshold Met? WB	Warrant Threshold Minor Minimum	Warrant Threshold Met? WB
																										Condition A	Condition B								
Hour	Major ^(c) Vollmer	Minor ^(c) Marksheffel	Major Vollmer	Minor Marksheffel	Major Vollmer	Minor Marksheffel	Major Vollmer	Minor Marksheffel	Major Vollmer	Minor Marksheffel	Major	Minor	Major	Minor	Condition A	Condition B	Condition A	Condition B	Condition A	Condition B	Condition A	Condition B	Condition A	Condition B	Condition A	Condition B									
Short-Term Total Traffic ⁽⁵⁾																																			
12-1 AM	19	1	2	0	4	0	2	1	1	27	2	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No								
1-2 AM	11	1	0	0	1	0	1	1	1	13	2	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No								
2-3 AM	6	0	0	0	1	0	1	0	8	0	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
3-4 AM	13	1	0	0	1	0	1	1	1	15	2	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No								
4-5 AM	23	4	0	1	3	1	1	3	27	9	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
5-6 AM	79	10	2	3	4	4	2	8	87	25	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
6-7 AM	222	30	6	9	13	10	8	23	249	72	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
7-8 AM	551	52	10	15	25	18	16	40	602	125	600	150	900	75	No	No	No	No	315	No	289	No	289	No	289	No									
8-9 AM	603	44	12	13	29	15	18	34	662	106	600	150	900	75	No	No	No	No	289	No	285	No	285	No	285	No									
9-10 AM	525	28	10	8	25	10	16	21	576	67	600	150	900	75	No	No	No	No	328	No	302	No	302	No	302	No									
10-11 AM	578	28	14	8	33	10	21	21	646	67	600	150	900	75	No	No	No	No	301	No	272	No	272	No	272	No									
11-12 PM	625	26	16	8	42	9	27	20	710	63	600	150	900	75	No	No	No	No	280	No	245	No	245	No	245	No									
12-1 PM	576	25	17	49	14	10	28	20	635	104	600	150	900	75	No	No	No	No	302	No	276	No	276	No	276	No									
1-2 PM	563	27	19	52	16	10	31	21	629	110	600	150	900	75	No	No	No	No	309	No	278	No	278	No	278	No									
2-3 PM	646	28	22	55	18	11	35	22	721	116	600	150	900	75	No	No	No	No	272	No	240	No	240	No	240	No									
3-4 PM	672	27	27	53	21	10	42	22	762	112	600	150	900	75	No	No	No	No	261	No	219	No	219	No	219	No									
4-5 PM	672	34	33	66	27	13	53	27	785	140	600	150	900	75	No	No	No	No	261	No	208	No	208	No	208	No									
5-6 PM	542	34	33	65	27	13	52	27	654	139	600	150	900	75	No	No	No	No	319	No	268	No	268	No	268	No									
6-7 PM	347	27	27	52	23	10	44	21	441	110	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
7-8 PM	206	19	19	38	16	7	32	15	273	79	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
8-9 PM	149	14	20	27	16	5	32	11	217	57	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
9-10 PM	88	11	14	21	11	4	22	9	135	45	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
10-11 PM	55	5	7	10	6	2	11	4	79	21	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
11-12 AM	26	3	4	6	3	1	7	3	40	13	600	150	900	75	No	No	No	No	Low Volume	No	Low Volume	No	Low Volume	No	Low Volume	No									
Numbers of Hours the Warrant Thresholds Are Met																0	0	0	0			0			0										
Warrant Met?																No	No		No																

Notes:

(1) Thresholds are based on 2 or more lanes on the major approach and 1 lane on the minor approach (Warrant evaluation assuming the westbound left turn only for the minor street)

(2) Source: *Sterling Ranch East Phase 1 Rezoning and Preliminary Plan Traffic Impact Study*, February 10, 2023

(3) The major street traffic includes all movements (left, through, and right)

(4) The minor street traffic includes only the left turns from the minor street

(5) Off peak hour traffic volumes are based on the projected peak hour traffic volumes, 72-hour machine counts conducted on Vollmer Road in November 2020 and vehicle time-of-day distribution data for single-family residential published by the Institute of Transportation Engineers

Source: LSC Transportation Consultants, Inc.

Figures 1-6



Not to
scale

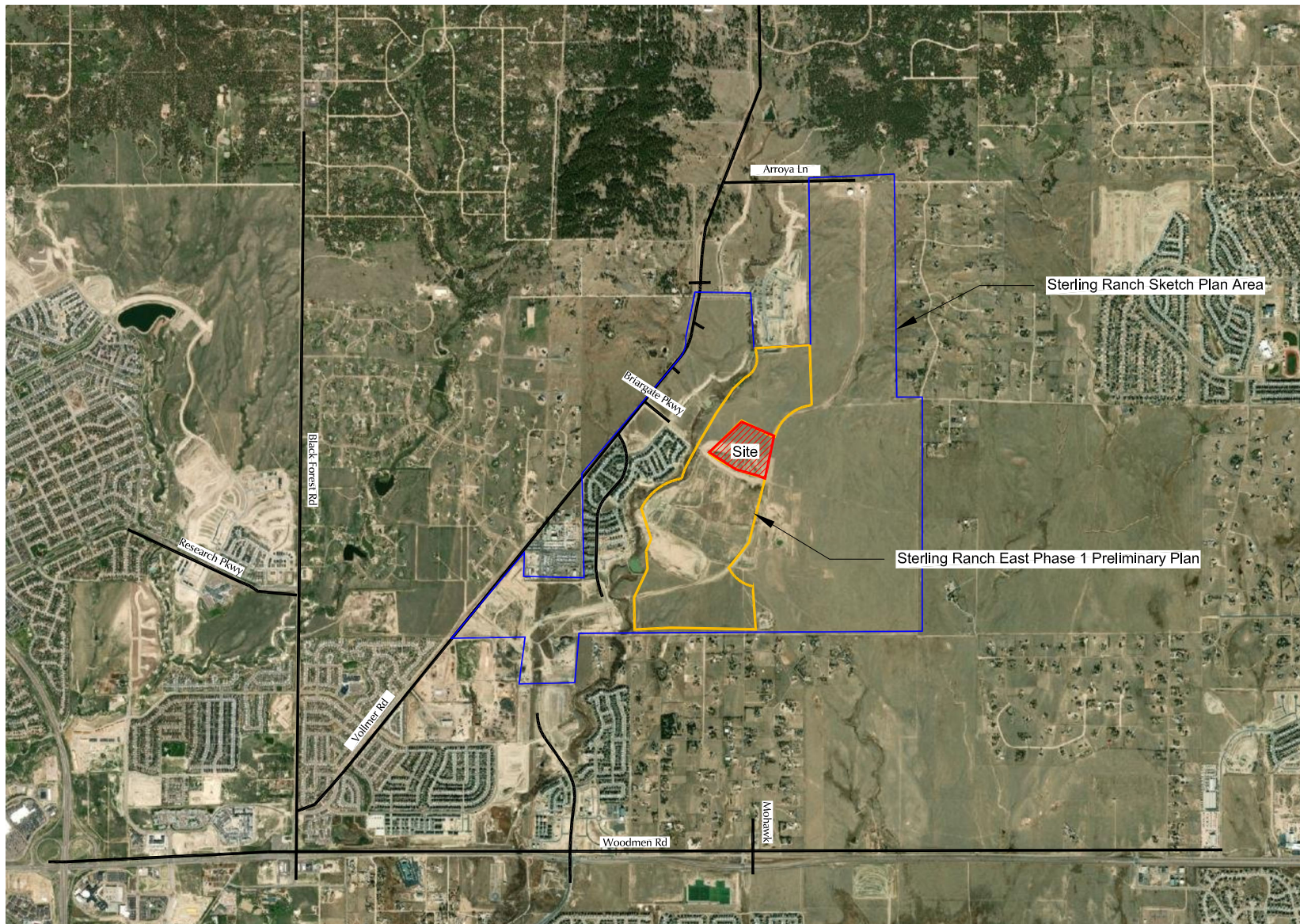
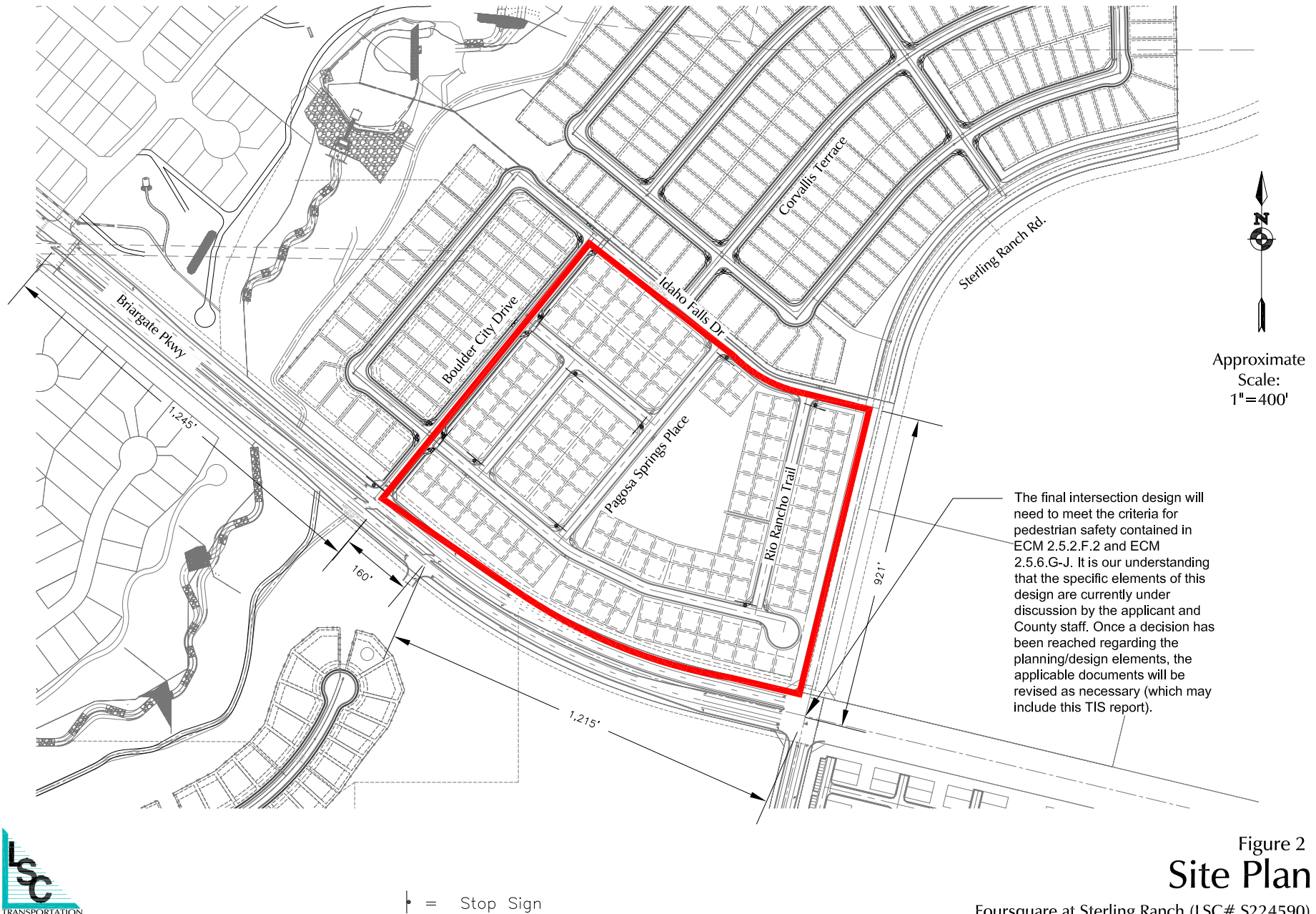


Figure 1

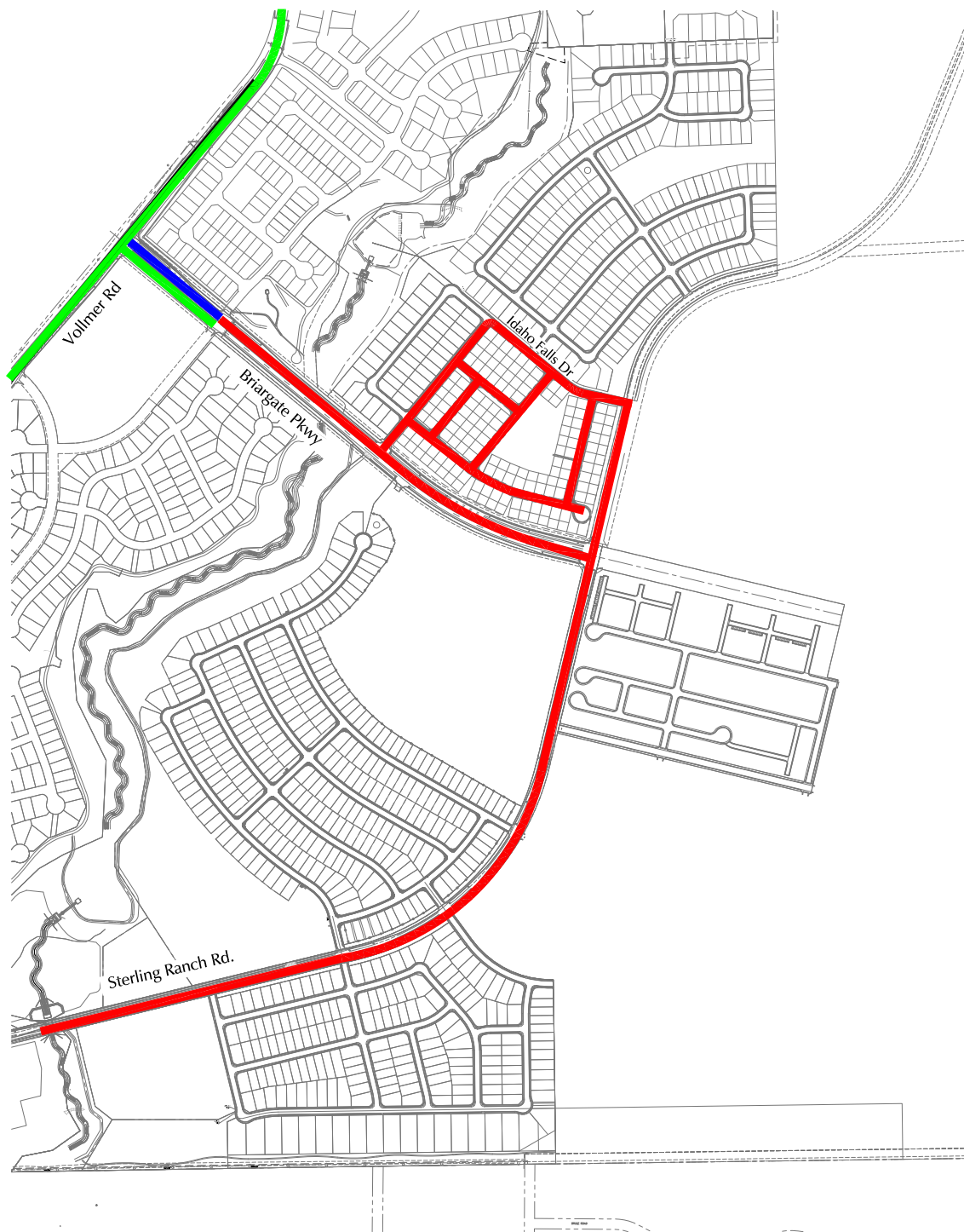
Vicinity Map

Foursquare at Sterling Ranch (LSC# S224590)





Not to
scale



LEGEND:

- Roadway Connection Planned with Foursquare at Sterling Ranch or Earlier Filings
- The north half of the Briargate Pkwy cross-section is planned to be constructed in the short-term
- Existing Roadway

Figure 3

Short-Term Roadway Connections

Foursquare at Sterling Ranch (LSC# S224590)

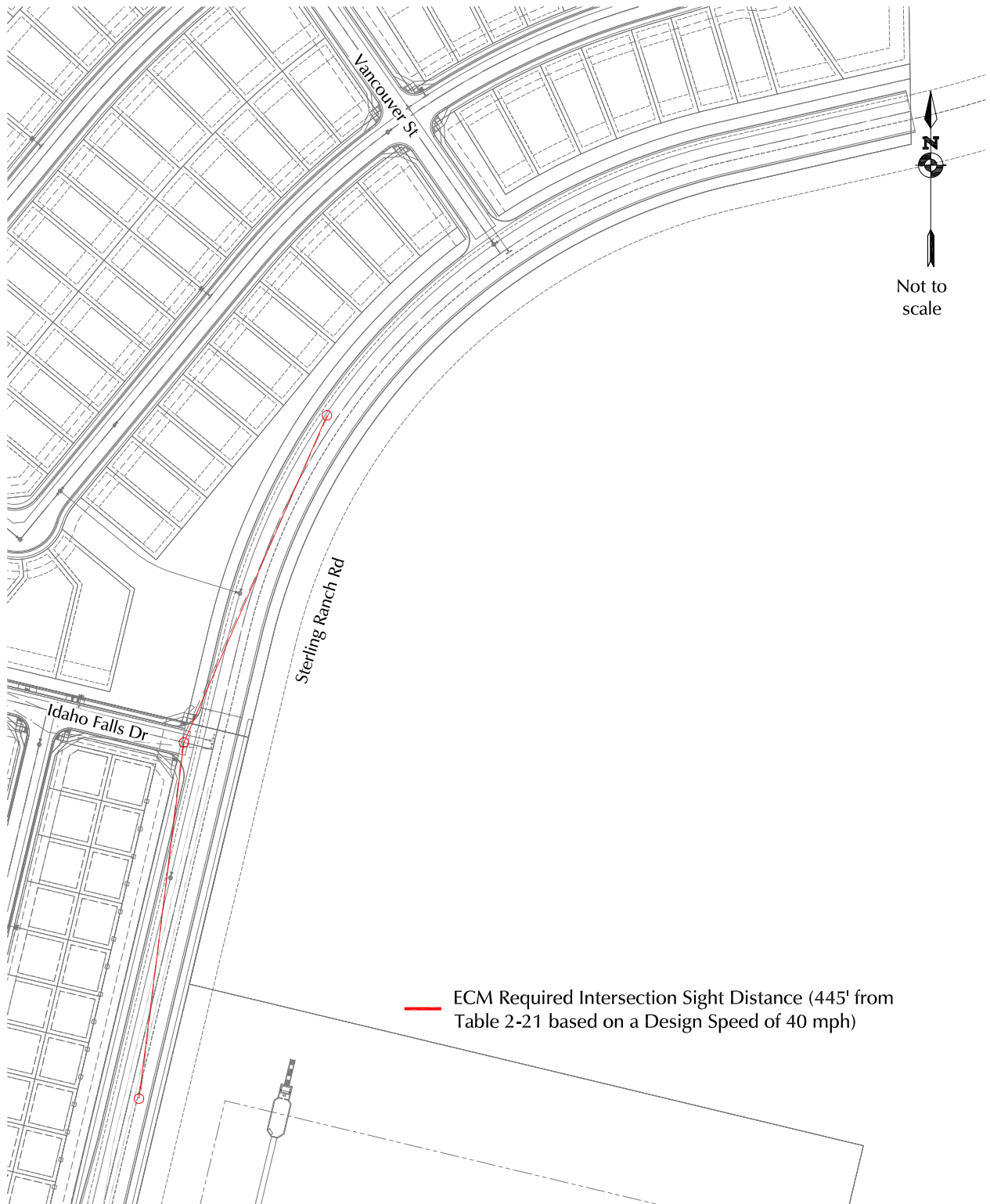
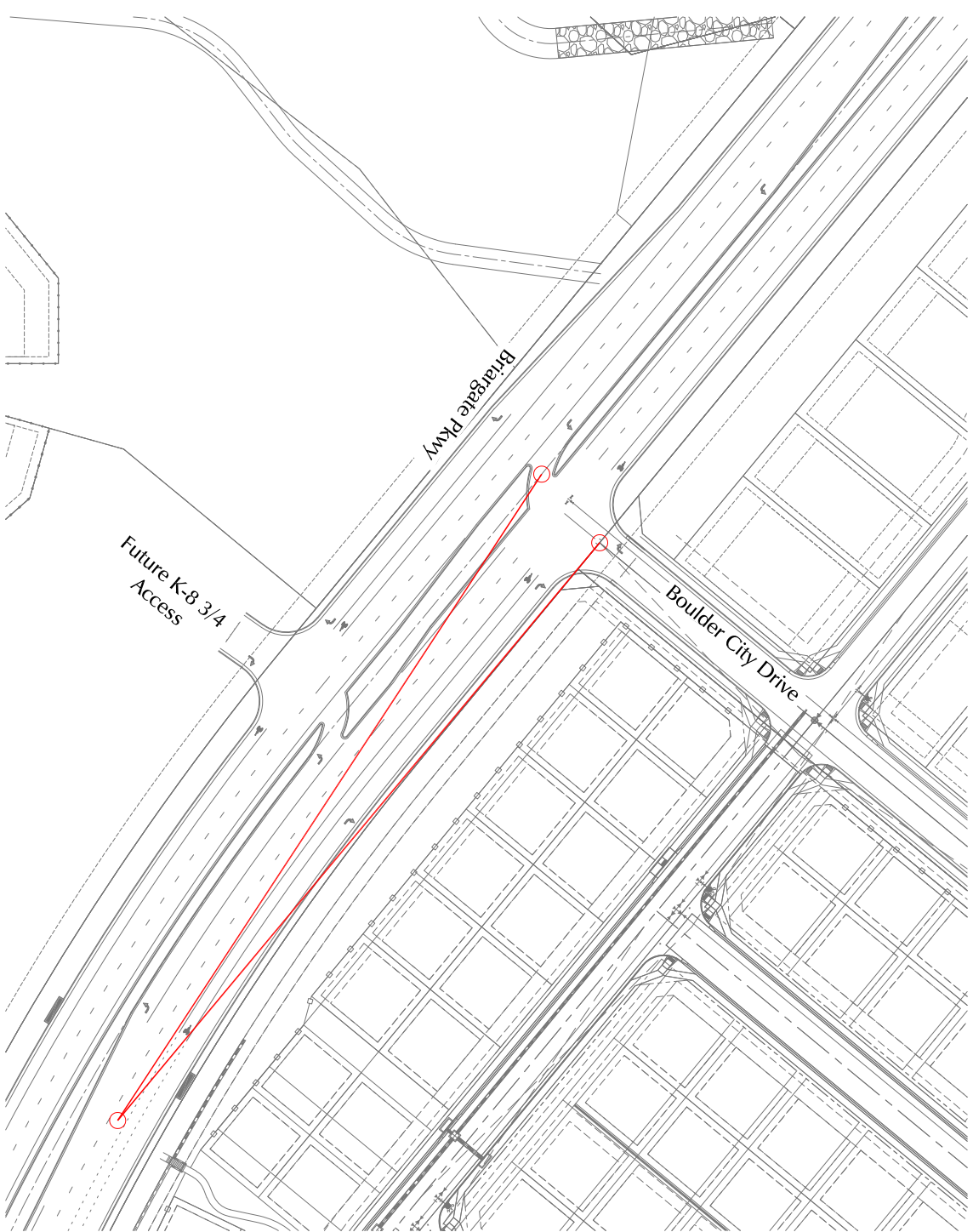
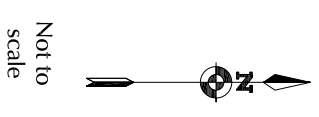


Figure 4a

Sight Distance Analysis - Sterling Ranch Road/Idaho Falls Drive

Foursquare at Sterling Ranch (LSC# S224590)

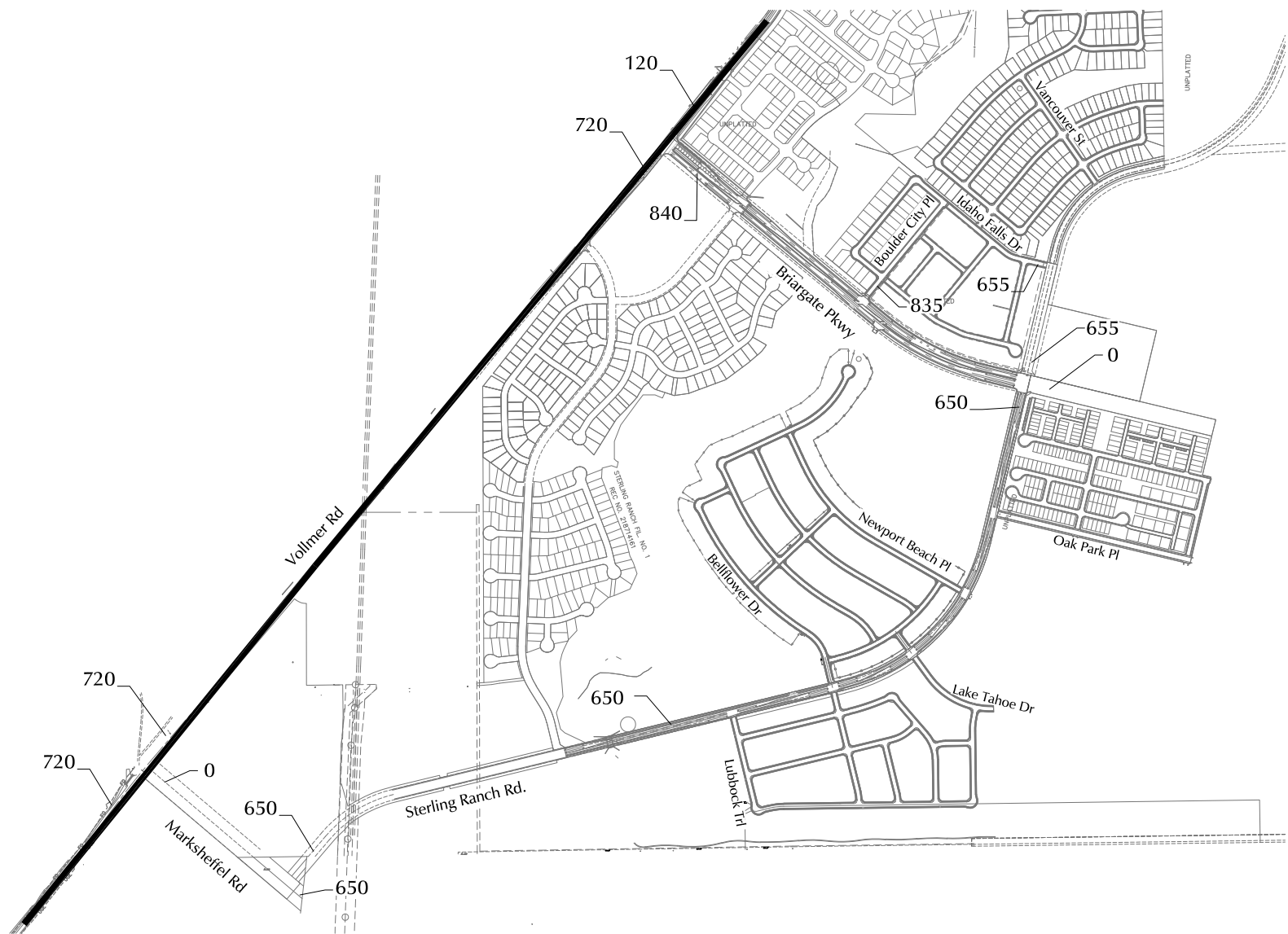


— ECM Required Intersection Sight Distance (555' from Table 2-21 based on a Design Speed of 50 mph)

Sight Distance Analysis - Briargate Parkway/Boulder City Drive

Foursquare at Sterling Ranch (LSC# S22.4590)



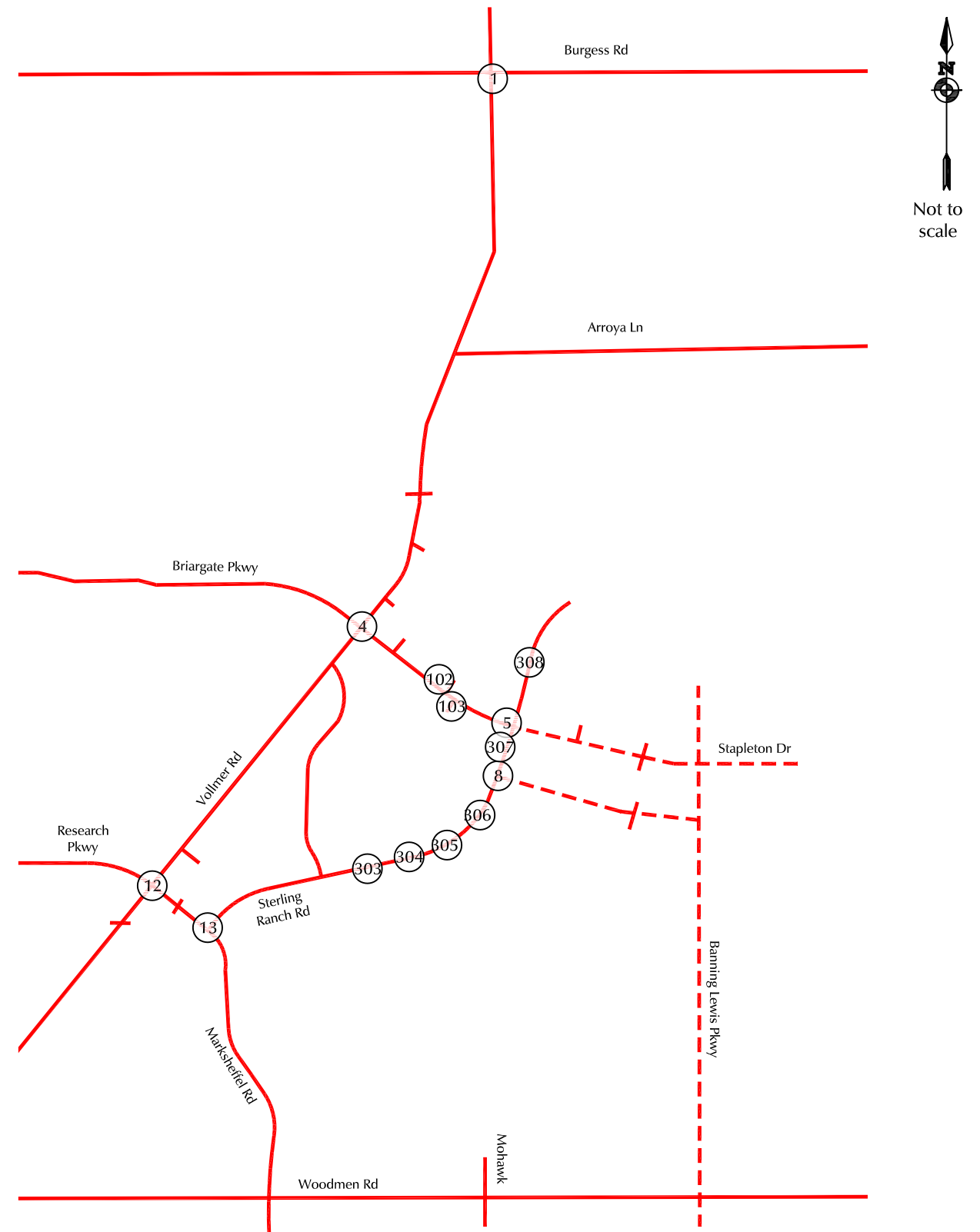
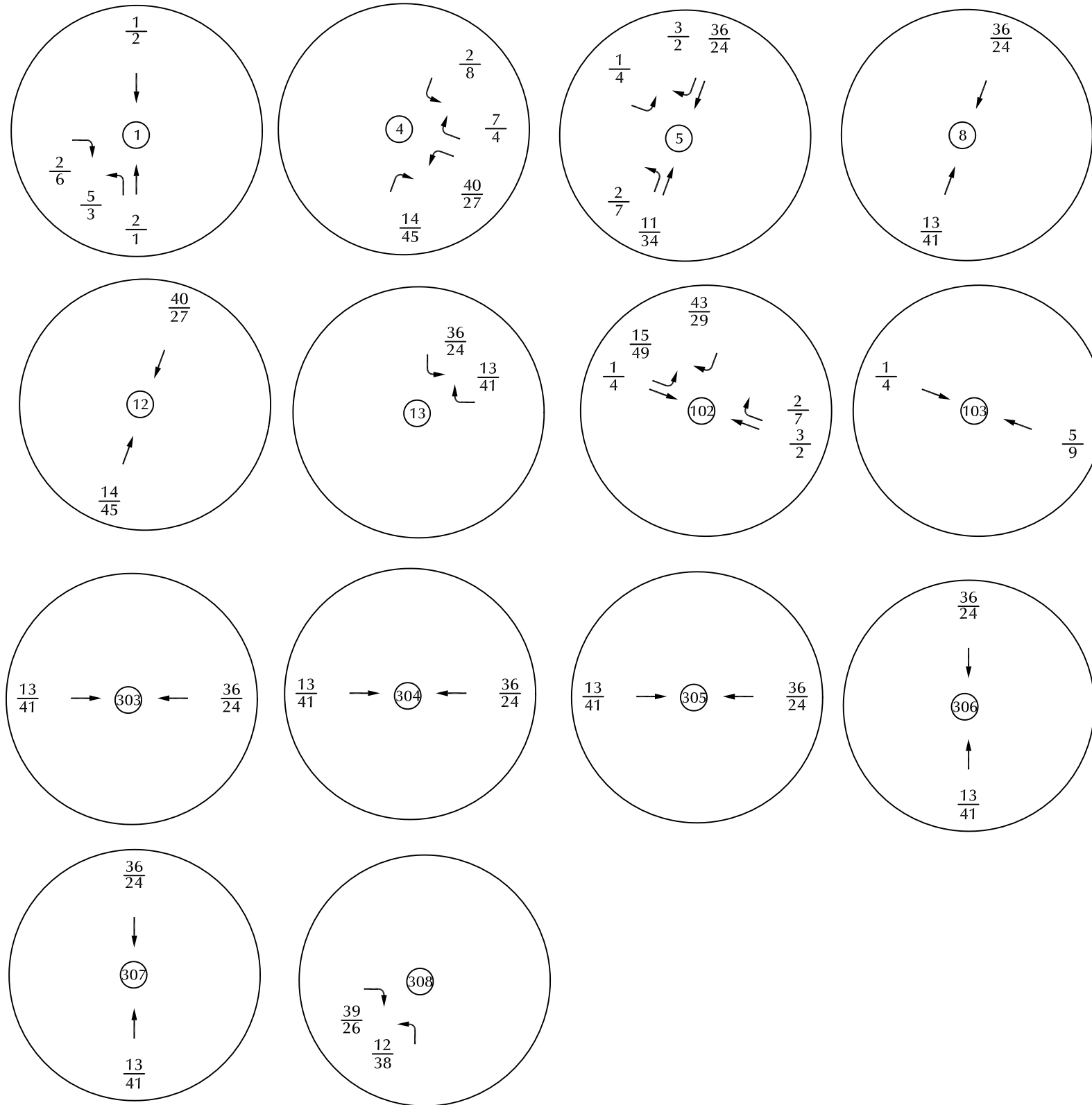


LEGEND: XXX = Average Weekday Traffic (vehicles per day)(AWT)

Short-Term Site-Generated Average Weekday Traffic

Figure 5a

Foursquare at Sterling Ranch (LSC# S224590)

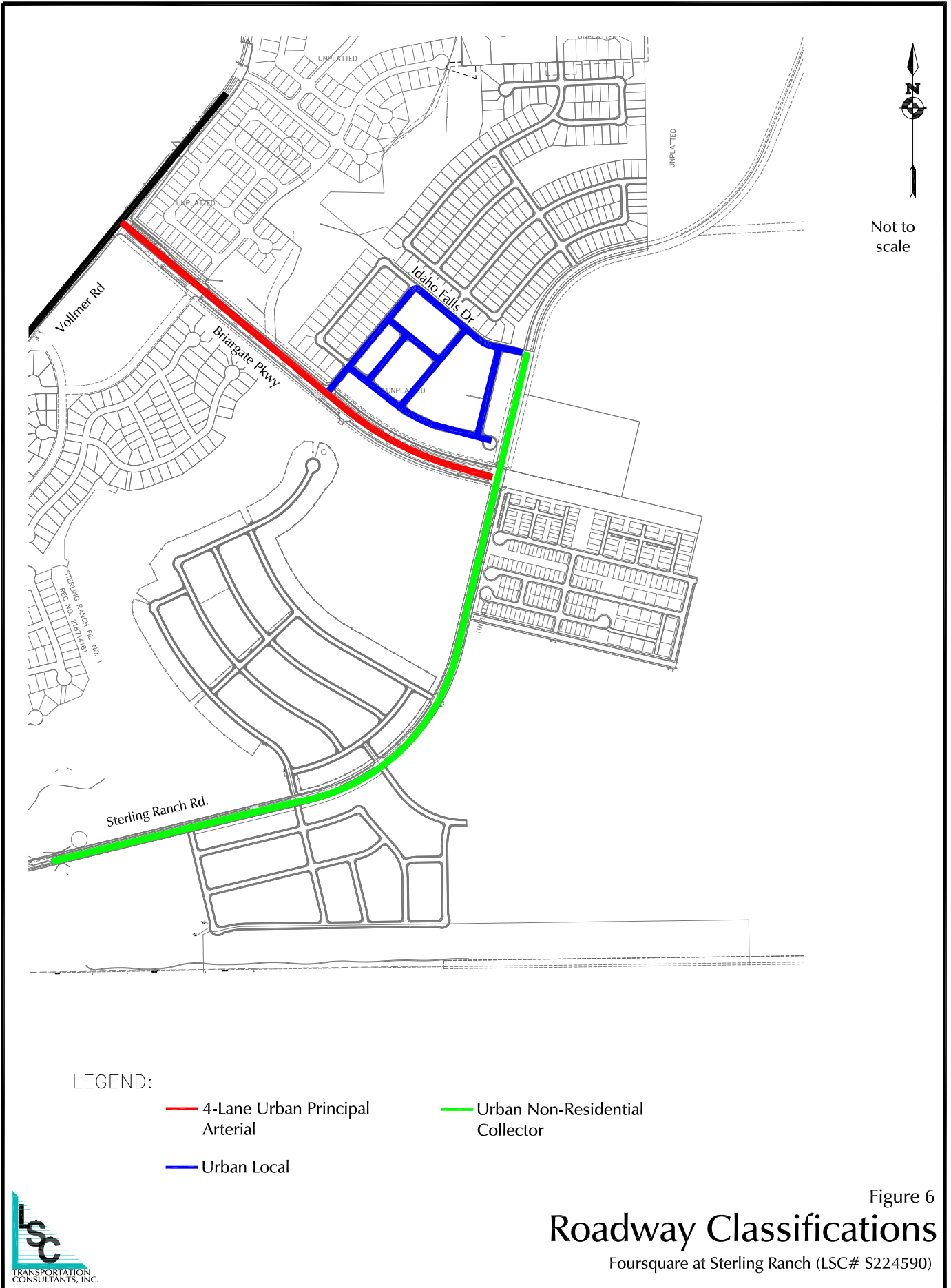


LEGEND: $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$



Figure 5b
Short-Term Site-Generated Traffic

Foursquare at Sterling Ranch (LSC# S224590)



Appendix Table 1

Appendix Table 1
Area Traffic Impact Studies
Foursquare Sterling Ranch East

Study	PCD File No⁽¹⁾	Consultant	Date
Sterling Ranch Reports			
Sterling Ranch Updated Traffic Impact Analysis	SKP07007	LSC Transportation Consultants, Inc	June 5, 2008
Sterling Ranch Phase 1 Traffic Impact Study	P151	LSC Transportation Consultants, Inc	March 16, 2015
Sterling Ranch Phases 1-3 Transportation Memorandum	SP1415	LSC Transportation Consultants, Inc	October 2, 2017
Branding Iron at Sterling Ranch Filing No. 1 and Homestead at Sterling Ranch Filing No. 1 Transportation	SF1724 SF1725	LSC Transportation Consultants, Inc	December 19, 2017
Sterling Ranch Filing No. 2 Transportation Memorandum	SF1820	LSC Transportation Consultants, Inc	April 3, 2018
Sterling Ranch Phase 2 Preliminary Plan Traffic Impact Study	SP203	LSC Transportation Consultants, Inc	December 20, 2018
Homestead at Sterling Ranch Filing No. 2 Transportation Memorandum	SF194	LSC Transportation Consultants, Inc	March 3, 2020
Branding Iron at Sterling Ranch Filing No. 2 Transportation Memorandum	SF1918	LSC Transportation Consultants, Inc	May 6, 2020
Sterling Ranch Filing No. 2 and Phase 2 Traffic Impact Study	SF2015 SP191	LSC Transportation Consultants, Inc	June 23, 2021
Sterling Ranch Filing No. 3 Transportation Memorandum	SF2132	LSC Transportation Consultants, Inc	April 19, 2022
Copper Chase at Sterling Ranch Transportation Memorandum	PUDSP222	LSC Transportation Consultants, Inc	December 14, 2021
Homestead North Phase 1 Updated Transportation Memorandum	SP208	LSC Transportation Consultants, Inc	January 11, 2022
Homestead North Filing No. 1 Traffic Technical Memorandum	SF2213	LSC Transportation Consultants, Inc	February 2, 2022
Homestead North Filing No. 2 Traffic Technical Memorandum	SF2218	LSC Transportation Consultants, Inc	April 15, 2022
Homestead North Filing 3 Traffic Impact Study	SF2229	LSC Transportation Consultants, Inc	June 17, 2022
The Villages at Sterling Ranch East Preliminary Plan/Traffic Generation Analysis	PUDSP226	SM Rocha, LLC	July 1, 2022
Sterling Ranch Sketch Plan Amendment Master Traffic Impact Study	SKP224	LSC Transportation Consultants, Inc	February 10, 2023
Sterling Ranch East - Rezoning & Preliminary Plan Traffic Impact Study	SP-22-004, P-22-012, P-22-013	LSC Transportation Consultants, Inc	February 10, 2023
Sterling Ranch East Filing Nos 1 & 2 Traffic Technical Memorandum	SF2235 SF2237	LSC Transportation Consultants, Inc	February 10, 2023
Sterling Ranch Filing No. 4 Transportation Memorandum	SF2230	LSC Transportation Consultants, Inc	February 21, 2023
Retreat at TimberRidge Reports			
The Retreat at TimberRidge Traffic Impact Analysis	PUD173	LSC Transportation Consultants, Inc	January 25, 2018
The Retreat at TimberRidge Preliminary Plan Traffic Technical Memorandum	SP182	LSC Transportation Consultants, Inc	June 29, 2018
The Retreat at TimberRidge Filing No. 1 Traffic Technical Memorandum	SF199	LSC Transportation Consultants, Inc	April 3, 2020
The Retreat at TimberRidge Filing No. 2 Updated Traffic Technical Memorandum	SF2121	LSC Transportation Consultants, Inc	October 4, 2021
The Retreat at TimberRidge Filing No. 3 Traffic Technical Memorandum		LSC Transportation Consultants, Inc	July 1, 2022
Other Area Reports			
Wolf Ranch School Site Traffic Impact Study	OAR1720	Matrix Design Group, Inc.	5-May-17
The Ranch Sketch Plan Traffic Impact Analysis	SKP186	LSC Transportation Consultants, Inc	July 9, 2019
Lodge III Traffic Impact Study	OAR	LSC Transportation Consultants, Inc	December 13, 2019
Continental 613 Traffic Impact Study	OAR2177	LSC Transportation Consultants, Inc	July 16, 2021
Solace at Black Forest Traffic Impact and Access Analysis	OAR2134	LSC Transportation Consultants, Inc	August 13, 2021
Traffic Impact Study Addendum for Percheron	OAR2173	SM Rocha, LLC	October, 2021
Woodmen East Commercial Center Traffic Impact Analysis	OAR2191	LSC Transportation Consultants, Inc	December 8, 2021
Traffic Impact Study for Jaynes Property	SKP225	SM Rocha, LLC	May, 2022
Traffic Impact Study for Rhetoric Site	P2216	SM Rocha, LLC	June, 2022
Briargate-Stapleton Corridor Study (DRAFT)	briargate-stapleton.com	Wilson & Company	December 9, 2021
Notes:			
(1) Follow the links listed below to obtain the most recent version of each listed study. To obtain a copy of the version of each study used in preparing this report please contact LSC Transportation Consultants, Inc.			
Source: LSC Transportation Consultants, Inc.			

Additional Attachments

Tables 5 and 6 from *Sterling Ranch East Rezoning and Preliminary Plan TIS* with notes by LSC



Table 5 Sterling Ranch East Phase 1 Preliminary Plan Intersection Improvements				
Item #	Improvement	Trigger	Timing	Responsibility
1) Burgess Road/Vollmer Road				
1	Reconstruct as a modern one-lane roundabout	When the LOS degrades below LOS F	Existing deficiency	This intersection may be eligible intersection under the fee impact program
12) Marksheffel Road/Vollmer Road				
2	Signalization of the intersection	Once warrants are met. The decision on timing of traffic signal installation rests with El Paso County Public Works.	Anticipated by buildout of Sterling Ranch East Phase 1 Preliminary Plan	This intersection may be eligible intersection under the fee impact program
14) Marksheffel Road/Sterling Ranch Road				
3	Signalization of the intersection	Once warrants are met. The decision on timing of traffic signal installation rests with El Paso County Public Works.	Anticipated by buildout of Sterling Ranch East Phase 1 Preliminary Plan	SRMD#3
102) Briargate Parkway/Boulder City Drive				
4	Construct an eastbound left-turn lane on Briargate Parkway approaching Boulder City Drive. The lane should be 285' long plus a 200' taper.	eastbound left-turn volume > 10 vph	With Sterling Ranch East Phase 1 Preliminary Plan or Foursquare at Sterling Ranch	Sterling Ranch
5	Construct a westbound right-turn deceleration lane on Briargate Parkway approaching Boulder City Drive. The lane should be 235' long plus a 200' taper.	westbound right-turn volume > 25 vph	Long Term	Sterling Ranch
103) Briargate Parkway/Future School 3/4 Movement Access				
6	Construct a westbound left-turn lane on Briargate Parkway approaching the school access. The lane should be 285' long plus a 200' taper.	westbound left-turn volume > 10 vph	Long Term With development of the K-8 School Parcel (Tract M)	Sterling Ranch
7	Construct an eastbound right-turn deceleration lane on Briargate Parkway approaching the school access. The lane should be 235' long plus a 200' taper.	eastbound right-turn volume > 25 vph	Long Term With development of the K-8 School Parcel (Tract M)	Sterling Ranch
5) Briargate Parkway/Sterling Ranch Road				
8	Construct an eastbound left-turn lane on Briargate Parkway approaching Sterling Ranch Road. The lane should be 435' long plus a 200' taper.	eastbound left-turn volume > 10 vph	With Sterling Ranch East Phase 1 Preliminary Plan or Foursquare at Sterling Ranch	Sterling Ranch
9	Construct an eastbound right-turn deceleration lane on Briargate Parkway approaching Sterling Ranch Road. The lane should be 235' long plus a 200' taper.	eastbound right-turn volume > 25 vph	Long Term With development of the K-8 School Parcel (Tract M)	Sterling Ranch
10	Construct a northbound to eastbound right-turn acceleration lane on Briargate Parkway at Sterling Ranch Road. The lane should be 580' long plus a 180' taper.	northbound right-turn volume > 50 vph	Long Term With development of the K-8 School Parcel (Tract M)	Sterling Ranch
11	Construct a westbound left-turn lane on Briargate Parkway approaching Sterling Ranch Road. The lane should be 285' long plus a 200' taper.	westbound left-turn volume > 10 vph	Long Term	Sterling Ranch
12	Construct an eastbound right-turn deceleration lane on Briargate Parkway approaching Sterling Ranch Road. The lane should be 235' long plus a 200' taper.	eastbound right-turn volume > 25 vph	Long Term	Sterling Ranch
13	Construct a southbound to westbound right-turn acceleration lane on Briargate Parkway at Sterling Ranch Road. The lane should be 580' long plus a 180' taper.	southbound right-turn volume > 50 vph	With Sterling Ranch East Phase 1 Preliminary Plan	Sterling Ranch
303) Sterling Ranch Road/Lubbock Trail				
14	Construct an northeastbound right-turn deceleration lane on Sterling Ranch Road approaching Lubbock Trail. The lane should be 155' long plus a 160' taper	northeastbound right-turn volume > 50 vph	Long Term With development of the Elementary School Parcel (Tract F)	Sterling Ranch
15	Construct a southwestbound left-turn lane on Sterling Ranch Road approaching Lubbock Trail. The lane should be 305' long plus a 200' taper.	southwestbound-turn volume > 25 vph	Long Term With development of the Elementary School Parcel (Tract F)	Sterling Ranch
304) Sterling Ranch Road/Westmont Drive				
16	Construct an northeastbound left-turn deceleration lane on Sterling Ranch Road approaching Westmont Drive. The lane should be 205' long plus a 160' taper	northeastbound left-turn volume > 25 vph	With Sterling Ranch East Phase 1 Preliminary Plan	Sterling Ranch
17	Construct a southwestbound left-turn lane on Sterling Ranch Road approaching Westmont Drive. The lane should be 205' long plus a 200' taper.	southwestbound-turn volume > 25 vph	Long Term (Needed with construction of a northeastbound left-turn lane)	Sterling Ranch
305) Sterling Ranch Road/Lake Tahoe Drive				
18	Construct an northeastbound left-turn deceleration lane on Sterling Ranch Road approaching Lake Tahoe Drive. The lane should be 225' long plus a 160' taper	northeastbound left-turn volume > 25 vph	With Sterling Ranch East Phase 1 Preliminary Plan	Sterling Ranch
19	Construct a southwestbound left-turn lane on Sterling Ranch Road approaching Lake Tahoe Drive. The lane should be 205' long plus a 200' taper.	southwestbound-turn volume > 25 vph	Not Required (Needed with construction of a northeastbound left-turn lane)	Sterling Ranch
20	Construct an northeastbound right-turn deceleration lane on Sterling Ranch Road approaching Lake Tahoe Drive. The lane should be 155' long plus a 160' taper	northeastbound right-turn volume > 50 vph	Long Term	Sterling Ranch
306) Sterling Ranch Road/Newport Beach Drive				
21	Construct a northeastbound left-turn lane on Sterling Ranch Road approaching Newport Beach Drive. The lane should be 205' long plus a 200' taper.	northeastbound left-turn volume > 25 vph	With Sterling Ranch East Phase 1 Preliminary Plan	Sterling Ranch
308) Sterling Ranch Road/Idaho Falls Drive				
22	Construct a northeastbound left-turn lane on Sterling Ranch Road approaching Idaho Falls Drive. The lane should be 240' long plus a 200' taper.	northeastbound left-turn volume > 25 vph	With Sterling Ranch East Phase 1 Preliminary Plan	Sterling Ranch
309) Sterling Ranch Road/Vancouver Street				
23	Construct a northeastbound left-turn lane on Sterling Ranch Road approaching Vancouver Street. The lane should be 265' long plus a 200' taper.	northeastbound left-turn volume > 25 vph	With Sterling Ranch East Phase 1 Preliminary Plan	Sterling Ranch
Notes: Source: LSC Transportation Consultants, Inc. (February 2023)				

Future SRE Filings

SRE Fil 2

SRE Fil 2

Future SRE Filings

SRE Fil 1

SRE Fil 1

SRE Fil 1

SRE Fil 2 or Foursquare

Future SRE Filings

LSC recommends at least eight hours of traffic count volume data be collected at the intersection of Marksheffel/Sterling Ranch following completion of Marksheffel Road between Vollmer Road and Woodmen Road, which is planned to be done in 2023. Once the traffic data is completed traffic-signal warrant analysis can be reanalyzed based on the existing conditions at that time.
The decision to require a signal to be installed rests with the County.

Source: Sterling Ranch East Phase 1 Rezoning and Preliminary Plan TIS, February 10, 2023. Improvements needed prior to Sterling Ranch East Filings 1 and 2 and/or Foursquare at Sterling Ranch East have been highlighted in green. Improvements needed with Sterling Ranch East Filings 1 and 2 and/or Foursquare at Sterling Ranch East hare highlighted in yellow and noted.

Table 6					
(Page 1 of 2)					
Sterling Ranch East Rezoning and Preliminary Plan					
Roadway Segment Improvements					
Segment ID ⁽¹⁾ (See Figure 12 for map)	Improvement Description	Timing	Design ADT (vpd)	Projected 2042 ADT (vpd)	Responsibility
V1 northbound	Per the City of Colorado Springs, an outside paved shoulder will need to be added along the east side of Vollmer Road from Dry Needle Place up to the south end of segment V2 improvements.	With Sterling Ranch Filing No. 4 but potentially complete concurrently with the construction of the right-turn lane at Pioneer Landscape Center access for the Sterling Ranch Recycling Facility (PCD No. PPR2241)	5,500 (Directional northbound)	16,275	Sterling Ranch
V1 southbound			10,000 (Directional southbound)		
V1	Improve Vollmer Road between Dry Needle Place and the Sterling Ranch south boundary to a standard 4-Lane Urban Minor Arterial Cross Section (add a second northbound through lane and painted center median). ⁽²⁾	The need driven by anticipated traffic from each development impacting this section of Vollmer Road.	20,000		Sterling Ranch, if necessary, prior to construction by others.
V2	Improve Vollmer Road between the Sterling Ranch south boundary to Lochwinnoch Lane/Sterling property boundary to a standard 4-Lane Urban Minor Arterial Cross Section. ⁽²⁾	Short-Term Future (With Sterling Ranch Fil No. 2 Or Sterling Ranch Phase 2)	20,000 (Note: Existing Capacity 8,000 ⁽³⁾)	17,475	Sterling Ranch
V3	Short Term: Improve Vollmer Road from Lochwinnoch Lane to Sterling Ranch boundary (northeast of Glider Loop) to provide 36’ of pavement (existing pavement 1 approx. 23.38’) and stripe for one through lane plus a 6’ paved, striped outside shoulder in each direction. ⁽²⁾	Short-Term Future (With Homestead North)	11,000 (Note: Existing Capacity 8,000)	17,380	Sterling Ranch
	Long Term: Improve Vollmer Road from Lochwinnoch Lane to Sterling Ranch boundary (northeast of Glider Loop) to a standard 4-Lane Urban Minor Arterial Cross Section. ⁽²⁾	Long-Term Future	20,000		Sterling Ranch with potential County assistance with ROW acquisition - pursuant to the recent development agreement between Sterling Ranch and EPC.
V4	Improve Vollmer Road from Sterling Ranch boundary (northeast of Glider Loop) to Briargate Parkway to a standard 4-Lane Urban Minor Arterial Cross Section. ⁽²⁾	Short-Term Future— May 2024 Updated 10/15/2022 - Sections V4, V5, V6 to be constructed by May 2024 (prior note: With Homestead North Filing 1)	20,000	16,445	Sterling Ranch
V5	Improve Vollmer Road from Briargate Parkway to Jane Kirkham Drive to a standard 4-Lane Urban Minor Arterial Cross Section. ⁽²⁾	Short-Term Future— May 2024 Updated 10/15/2022 - Sections V4, V5, V6 to be constructed by May 2024 (prior note: prior note: With Homestead North Filing 1)	20,000	11,690	Sterling Ranch
V6	Improve Vollmer Road from Jane Kirkham Drive to Sam Bass Drive to a standard 4-Lane Urban Minor Arterial Cross Section. ⁽²⁾	Short-Term Future— May 2024 Updated 10/15/2022 - Sections V4, V5, V6 to be constructed by May 2024 (prior note: prior note: With Homestead North Filing 2)	20,000	11,425	Sterling Ranch
V7	Improve Vollmer Road between Sam Bass Drive and Poco Road to a 4-lane Urban Minor Arterial but with necessary lane transitions, redirect tapers, etc. south of Poco to adequately transition between the 4-Lane Urban Minor Arterial Cross Section and the 2-Lane Rural Arterial Cross Section north of Poco Road.	Short-Term Future – May 2024 Updated 10/15/2022 - Sections V4, V5, V6 to be constructed by May 2024 (prior note: With Homestead North Filing 3)	20,000	10,030	Sterling Ranch
V8	Improve Vollmer Road from Poco Road to Shoup Road to a Rural 2-Lane Arterial Cross Section. ⁽²⁾	Long-Term Future	10,000	11,790	El Paso County Project ID U-12
Part 1/2 of this table (see Part 2 on next page)					
Notes:					
(1) See Figure 10					
(2) Adequate transition/redirect tapers would be needed between the various cross sections on Vollmer Road. Based on the criteria contained in Table 2-29 of the <i>El Paso Engineering Criteria Manual</i> , an appropriate taper ratio for a roadway with a design speed of 40 miles per hour is 20:1					
(3) Source: Table 20 <i>Road Impact Fee Study Updated</i> November 16, 2016					
Source: LSC Transportation Consultants, Inc. (February 10, 2023)					

Table 6					
(Page 2 of 2)					
Sterling Ranch East Phase 1 Preliminary Plan					
Roadway Segment Improvements					
Segment ID ⁽¹⁾ (See Figure 12 for map)	Improvement Description	Timing	Design ADT (vpd)	Projected 2042 ADT (vpd)	Responsibility
SR1	Construct Sterling Ranch Road as an Urban Non-Residential Collector from Marksheffel Road to Dines Boulevard.	Short Term - with Sterling Ranch Fil No. 2	20,000	14,840	Sterling Ranch
SR2	Construct Sterling Ranch Road as an Urban Non-Residential Collector from Dines Boulevard to Briargate Parkway.	Short-Term	20,000	10,275	Sterling Ranch
SR3	Construct Sterling Ranch Road as an Urban Collector from Briargate Parkway to Vancouver Street.	Short Term	10,000	9,300	Sterling Ranch
SR4	Construct Sterling Ranch Road from Vancouver Street north to Arroya (or ultimate north terminus).	Long-Term Future	10,000	4,260	Sterling Ranch
M1	Construct Marksheffel Road as an Urban Principal Arterial to City of Colorado Springs standards in 107' of right-of-way between Vollmer Road and Sterling Ranch Road.	Updated 10/15/2022: to be completed by the end of 2022 (prior note: With Sterling Ranch Fil No. 2)	40,000	23,370	Sterling Ranch
M2	Construct Marksheffel Road as an Urban Principal Arterial to City of Colorado Springs standards in 107' of right-of-way between Sterling Ranch Road and the south boundary of the Sterling Ranch Master Plan Area. 10/16/2022 NOTE: With the completion of M2 in 2023, the connection between Vollmer and Woodmen Road (via M3) will be completed.	Short Term Updated 10/15/2022: to be completed in 2023 (prior note: With Sterling Ranch Phase 2)	40,000	29,600	Sterling Ranch
M3	Construct Marksheffel Road between the south boundary of the Sterling Ranch Master Plan Area and Woodmen Road. (Note this segment is located within the City of Colorado Springs). 10/16/2022 NOTE: With the completion of M2 in 2023, the connection between Vollmer and Woodmen Road (via M3) will be completed.	Updated 10/15/2022: Completed (by Others)	40,000	24,525	Others (Completed)
M4	Construct Marksheffel Road between Black Forest Road and Vollmer Road.	Long-Term Future	40,000	27,910	Others
B1	Construct the south half section of Briargate Pkwy (4-Lane Principal Arterial) between Vollmer Road and Wheatland Drive [now full section by 2023] .	Short-Term Future Updated 10/15/2022: Full section to be completed in 2023 with Homestead at Sterling Ranch Filing No. 1 (prior note: With Homestead at Sterling Ranch Fil 2)	20,000	24,745	Sterling Ranch
	Construct the north half section of Briargate Pkwy (4-Lane Principal Arterial) between Vollmer Road and Wheatland Drive [now full section by 2023] .	Short-Term Future Updated 10/15/2022: Full section to be completed in 2023 with Homestead at Sterling Ranch Filing No. 1 (prior note: Long-Term Future)	40,000		Sterling Ranch
B2	Construct Briargate Pkwy (full section) as a 4-Lane Principal Arterial between Wheatland Dr and Sterling Ranch Road.	Short-Term Future Updated 10/15/2022: Full section to be completed in 2023 or Spring 2024 (prior note: Long-Term Future)	40,000	26,375	Sterling Ranch
B3	Construct Briargate Pkwy as a 4-Lane Principal Arterial between Sterling Ranch Road and Banning Lewis Parkway.	Intermediate Term	40,000	22,365	Sterling Ranch
B4	Construct Stapleton Road as a 4-Lane Principal Arterial between Banning Lewis Parkway and Meridian Road (including upgrade of existing rural two-lane segment between Towner and Meridian).	Long-Term Future	40,000	17,945	Others
B5	Construct Briargate Pkwy as a 4-Lane Principal Arterial between Black Forest Road and Vollmer Road.	Long-Term Future	40,000	24,340	Others; PPRTA A List Project
BL1	Construct Banning Lewis Parkway as a 4-Lane Principal Arterial between the south Sterling Ranch boundary and Briargate Pkwy.	Long-Term Future	40,000	20,320	Financial assurances for half-section, Sterling Ranch half-section or full-section w/ cost recovery
BL2	Construct Banning Lewis Parkway as a 4-Lane Principal Arterial between Woodmen Road and the south Sterling Ranch boundary. (Note this segment will be located within the City of Colorado Springs)	Long-Term Future	40,000	28,480	Others
W1	Widen Woodmen Road from 4-lane to 6-lane section from Powers Boulevard to US 24.	Long-Term Future	72,000	66,690	PPRTA A-List Project; City of Colorado Springs ConnectCOS Index No.476
B1	Widen Black Forest Road between Woodmen Road to just north of Research Road to two northbound and southbound through lanes.	Black Forest Widening Project	40,000	28,420	City of Colorado Springs
B2	Widen Black Forest Road from just north of Research Road to Briargate Parkway.	Long-Term Future	40,000	25,145	Others/City of Colorado Springs
B3	Widen Black Forest Rd from Briargate Pkwy to Old Ranch Rd as a 4-lane Principal Arterial with bike and pedestrian facilities.	Long-Term Future	40,000	19,135	PPRTA B List Project ConnectCOS Index No. 479
Part 2/2 of this table					
Notes:					
(1) See Figure 10					
(2) Adequate transition/redirect tapers would be needed between the various cross sections on Vollmer Road. Based on the criteria contained in Table 2-29 of the <i>El Paso Engineering Criteria Manual</i> , an appropriate taper ratio for a roadway with a design speed of 40 miles per hour is 20:1					
(3) Source: Table 20 <i>Road Impact Fee Study Updated</i> November 16, 2016					
Source: LSC Transportation Consultants, Inc. (February 10, 2023)					

With either SRE Fil 1,
SRE Fil 2 or Foursquare

From Briargate Parkway to Idaho Falls Drive with SRE Fil 2 or Foursquare
From Idaho Falls Drive to Vancouver Street with future filings