

LSC Responses to TIS Redline Comments



LSC TRANSPORTATION CONSULTANTS, INC.
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Homestead North Filing No. 3

Traffic Impact Study

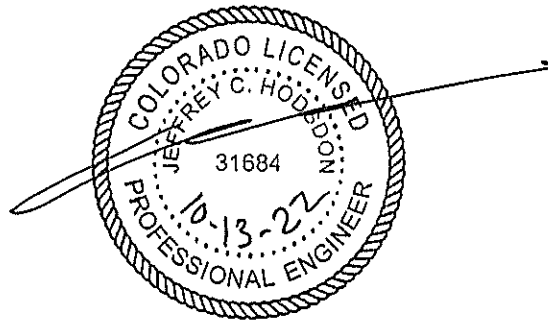
PCD File No.: P-22-015 **SF-22-29** ¹

(LSC #S224250)

October 13, 2022

Traffic Engineer's Statement

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



Developer's Statement


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

A handwritten signature in black ink that reads 'James Morley'. The signature is written in a cursive style and is positioned above a horizontal line.


10/25/2022
Date

LSC Responses to TIS Redline Comments

Page: 1

 Number: 1 Author: CDurham Subject: Text Box Date: 12/20/2022 10:16:21 AM

[SF-22-29](#)

 Author: kdferrin Subject: Sticky Note Date: 1/25/2023 11:45:46 AM

LSC Response: Revised as requested



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October 13, 2022

Mr. Jim Morley
SR Land, LLC
20 Boulder Crescent, 1st Floor
Colorado Springs, CO 80903

Final Plat ¹

RE: Homestead North Filing 3
Traffic Impact Study
El Paso County, Colorado
LSC #S224250

Dear Mr. Morley:

LSC Transportation Consultants, Inc. has prepared this updated Traffic Impact Study for Homestead North Filing 3 Preliminary Plan. As shown in Figure 1, Homestead North is located east of Vollmer Road and north of the future extension of Briargate Parkway in El Paso County, Colorado. Homestead North is part of the Sterling Ranch Master Plan area.

REPORT CONTENTS

The preparation of this report included the following:

- A list of previous Sterling Ranch traffic reports and traffic reports completed by LSC Transportation Consultants, Inc. for other area developments;
- A summary of the proposed land use and access plan;
- The existing roadway and traffic conditions in the site's vicinity, including the roadway widths, surface conditions, lane geometries, traffic controls, and posted speed limits;
- Existing (2022) traffic-volume data;
- Estimates of projected short-term and long-term traffic volumes;
- The projected average weekday and peak-hour vehicle trips to be generated by the proposed development;
- The assignment of the projected site-generated traffic volumes to the area roadways;
- The projected short-term and long-term total traffic volumes on the area roadways;
- The projected levels of service at the key intersections in the vicinity of the site;
- The recommended street classifications for the internal streets within the proposed development;
- The project's obligation to the County roadway improvement fee program; and

Number: 1 Author: CDurham Subject: Callout Date: 12/20/2022 10:25:54 AM

Final Plat

Author: kdferrin Subject: Sticky Note Date: 1/25/2023 11:45:49 AM

LSC Response: Revised as requested

- Recommended roadway improvements

RECENT TRAFFIC REPORTS

Include project number
associated with Sketch
Plan Amendment ¹

LSC prepared a traffic impact study (TIS) for the entire Sterling Ranch development dated June 5, 2008. A LSC update to the 2008 master study is nearly complete. This updated master TIS report will be submitted soon in support of the current Sketch Plan Amendment. The overall Sterling Ranch improvements table has been recently updated and portions of this updated table (relevant to this application) are presented in an updated improvements table in this report. The items in this table have been based on the updated table that will be included in the updated Master TIS.

LSC also prepared a traffic impact analysis for the first phase of the Sterling Ranch development, dated March 16, 2015; a memorandum for Phases 1-3, dated October 2, 2017; and a traffic impact analysis for the Sterling Ranch Phase 2 Preliminary Plan, dated December 20, 2018. The following site-specific, final plat traffic reports have also been prepared:

- Branding Iron at Sterling Ranch Filing No. 1 and Homestead at Sterling Ranch Filing No. 1, dated December 19, 2017
- Sterling Ranch Filing No. 2, dated April 3, 2018
- *Sterling Ranch Phase 2*, dated December 20, 2018
- Homestead at Sterling Ranch Filing No. 2, dated March 3, 2020
- *Branding Iron at Sterling Ranch Filing No. 2*, dated March 31, 2020 (revised May 6, 2020)
- Sterling Ranch Filing No. 2 and Sterling Ranch Phase 2, dated June 23, 2021.
- Sterling Ranch Filing No. 3 Transportation Memorandum, dated April 19, 2022
- Copper Chase at Sterling Ranch, dated December 14, 2021.
- Homestead North Phase 1 Updated Traffic Study, dated January 11, 2022
- Homestead North Filing No. 1 Traffic Technical Memorandum, dated February 2, 2022
- Homestead North Filing No. 1 Traffic Technical Memorandum, dated April 15, 2022

Add in reference to "Traffic Impact Study for Jaynes Property" May '22 (under review)


LSC prepared a TIS for the Retreat at TimberRidge, located just north of the Homestead North development, dated January 25, 2018. LSC also prepared transportation memoranda for the Retreat at TimberRidge Preliminary Plan, dated June 29th, 2018, and the Retreat at TimberRidge Filing No. 1, dated April 3, 2020.

STUDY AREA


Study-Area Land Use

Sketch Plan


Figure 2 shows the location of the currently-proposed Homestead North development. These parcels were included as part of traffic analysis zone (TAZ) 21 in the 2008 master traffic impact report. Table 1 shows the land uses assumed for TAZ 21 in the 2008 report and the land uses

 Number: 1 Author: CDurham Subject: Callout Date: 12/20/2022 10:23:07 AM


[Include project number associated with Sketch Plan Amendment](#)

 Author: kdferrin Subject: Sticky Note Date: 1/25/2023 12:03:40 PM

LSC Response: Revised as requested

 Number: 2 Author: CDurham Subject: Text Box Date: 12/20/2022 10:26:28 AM

[Add in reference to "Traffic Impact Study for Jaynes Property" May '22 \(under review\)](#)

 Author: kdferrin Subject: Sticky Note Date: 1/25/2023 12:03:50 PM

LSC Response: Revised as requested

and the roadway is extended east of Wheatland, the north leg serving Homestead North will be restricted to right-in/right-out only and the south leg will be restricted to three-quarter movements (left-in/right-in/right-out only).

The plan shows an “internal” full-movement access to Poco Road about 675 east of Vollmer Road as part of the currently proposed Homestead North Filing 3.

Sight Distance Analysis

Figure 3 shows a sight distance analysis at the future access to Poco Road. Based on a design speed of 25 miles per hour (mph) and the criteria contained in Table 2-21 of the *El Paso County Engineering Criteria Manual (ECM)*, the required intersection sight distance at the future intersections is 280 feet. Based on the criteria contained in Table 2-17 of the *ECM*, the required stopping sight distance approaching this intersection is 155 feet. As shown in Figure 4, the future intersection analyzed will meet the criteria.

Pedestrian and Bicycle Access

Figure 4 shows existing traffic counts & LOS

1

There are no existing schools within two miles of the site. However, there are planned future school sites within the Sterling Ranch Master Plan area south of Briargate Parkway. There are planned sidewalks along the subdivision streets, Vollmer Road, adjacent to the site, and Briargate Parkway. School crossings will be needed at the intersection of Briargate Parkway/Vollmer Road. School crossings should not be allowed at the intersection of Briargate Parkway/Wheatland Drive.

EXISTING ROAD AND TRAFFIC CONDITIONS

Study Area Roadways and Streets

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

Vollmer Road is currently a five-lane urban street within the City of Colorado Springs limits between Black Forest Road and Cowpoke Road; and a two-lane, rural, paved roadway north of Cowpoke Road extending to north of Hodgen Road. In the southbound direction, Vollmer Road has a posted speed limit of 45 miles per hour (mph). South of Cowpoke Road, Vollmer Road has a 40-mph posted speed limit. The *2040 El Paso County Major Transportation Corridors Plan (MTCP)* and the Sterling Ranch master traffic study show Vollmer Road as a four-lane Urban Minor Arterial adjacent to the site. Vollmer Road is planned to transition to a 2-lane Rural Minor Arterial north of Poco Road.

Number: 1 Author: CDurham Subject: Callout Date: 12/20/2022 10:28:17 AM

[Figure 4 shows existing traffic counts & LOS](#)

Author: kdferrin Subject: Sticky Note Date: 1/25/2023 12:04:48 PM

LSC Response: The text has been revised to refer Figure 3

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.

Does the future scenario take into account the Jaynes Property for the Briargate/Vollmer & Sam Bass/Vollmer intersections?

TRIP GENERATION

The site-generated vehicle trips were 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 estimates.

Homestead North Filing 3 is projected to generate about 727 new external vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 14 vehicles would enter and 43 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 48 vehicles would enter and 28 vehicles would exit the site. The trip-generation estimate shown in Table 1 is consistent with estimate shown for "Future Homestead North Phases" in the *Homestead North Phase 1 Updated Traffic Study*, dated January 11, 2022.

TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of the site-generated traffic volumes on the street and roadway system serving the site is one of the most important factors in determining the site's traffic impacts. The specific short-term and long-term distribution estimates are shown in Figure 7. The directional distribution estimates are based on the following factors: the location of the site with respect to the Colorado Springs metropolitan area, the planned access system for the site, the street and roadway system serving the site, the land uses proposed for the site, and the distribution of existing traffic volumes. The short-term distribution estimate assumes only the short section of Briargate Parkway between Vollmer Road and Wheatland Drive has been constructed in the vicinity of the site (Note: This condition will exist until Briargate Parkway is extended east to Sterling Ranch Road by late 2023. At that point, additional portions of the roadway network will become available for trip distribution) and the long-term distribution estimate assumes full buildout of the future roadway network in the vicinity of the site.

When the distribution percentages (from Figure 7 and discussed in the preceding paragraph) are applied to the trip-generation estimates (from Table 1), the resulting site-generated traffic volumes can be determined. Figures 8 and 9 show the short-term and 2042 site-generated traffic volume estimate for Homestead Filing 3

Looks like part of paragraph may be missing based on previous version of report.

2

☰ Number: 1 Author: CDurham Subject: Text Box Date: 12/20/2022 10:30:34 AM

[Does the future scenario take into account the Jaynes Property for the Briargate/Vollmer & Sam Bass/Vollmer intersections?](#)

👤 Author: jchodsdon Subject: Sticky Note Date: 2/7/2023 11:17:02 AM

LSC Response: This comment has been answered in the revised TIS report. The future scenario was estimated prior to the submittal of the the Jaynes Property TIS. Based on our discussion with Jeff Rice, it was agreed that the long-term scenario for this report resubmittal (with otherwise minor "housekeeping"/notational comments) would not need to be redone as the Jaynes Property TIS is under review. Please refer to the narrative added to this TIS resubmittal for additional notes. The report includes these notations:

- Refer to the Jaynes Property TIS by SM Rocha LLC for potential improvements needed at Sam Bass/Vollmer, and
- The recently submitted Sterling Ranch Master TIS accounted for the land use and access shown in the Jaynes Property TIS.

☰ Number: 2 Author: CDurham Subject: Text Box Date: 12/20/2022 1:49:55 PM

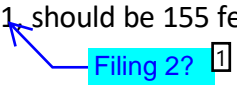
[Looks like part of paragraph may be missing based on previous version of report.](#)

👤 Author: kdferrin Subject: Sticky Note Date: 1/25/2023 12:09:40 PM

LSC Response: The text below was removed because Briargate Parkway is now planned to be constructed to its final cross section in the short-term future.

"The short-term site-generated traffic volumes assume the intersection of Briargate/Wheatland as an interim full-movement intersection. The long-term site-generated traffic volumes assume the north leg of this intersection has been restricted to right-in/right-out only."

AUXILIARY TURN LANES

- Based on the projected short-term background traffic volumes and the criteria contained in the *El Paso County Engineering Criteria Manual (ECM)*, a northbound right-turn deceleration lane is projected to be warranted on Vollmer Road approaching Sam Bass Drive. This lane, which was required with Homestead North Filing 1, should be 155 feet long plus a 160-foot taper. 
- Based on the projected short-term total traffic volumes and the criteria contained in the *El Paso County Engineering Criteria Manual (ECM)*, a northbound right-turn deceleration lane is projected to be warranted on Vollmer Road approaching Poco Road with Homestead North Filing 3. This lane should be 155 feet long plus a 160-foot taper.
- Based on the projected short-term and 2042 total traffic volumes and the criteria contained in the *El Paso County Engineering Criteria Manual (ECM)*, southbound left-turn lanes are **not** projected to be warranted on Vollmer Road approaching Poco Road and Sam Bass Drive. Vollmer Road is planned to be improved to a Minor Arterial cross section south of Poco Road. As left-turn lanes are included in the standard cross section for a Minor Arterial, LSC recommends a southbound left-turn turn lane approaching Sam Bass Drive be included in the design for the Vollmer Road improvements adjacent to the site. The recommended length for this lane is 205 feet plus a 160-foot taper. A left-turn lane is not needed on Vollmer approaching Poco Road as Vollmer is planned to remain a Rural Minor Arterial north of Poco Road.
- Based on the projected 2042 total traffic volumes and the criteria contained in the *El Paso County Engineering Criteria Manual (ECM)*, a westbound right-turn deceleration lane is projected to be warranted on Briargate Parkway approaching Wheatland Drive. This lane should be 235 feet long plus a 200-foot taper.


TRANSPORTATION IMPROVEMENT FEE PROGRAM

The applicant will be required to participate in the Countywide Transportation Improvement Fee Program. These projects will annex into the 10 mil PID, which has a per-lot upfront building permit fee of \$1,221 per dwelling unit. The total building permit fee amount for the 77 lots within Homestead Filing 3 would be \$94,017.


CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

Homestead North Filing 3 is projected to generate about 727 new external vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 14 vehicles would enter and 43 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 48 vehicles would enter and 28 vehicles would exit the site.

 Number: 1 Author: CDurham Subject: Callout Date: 12/20/2022 10:34:49 AM

[Filing 2?](#)

 Author: kdferrin Subject: Sticky Note Date: 1/25/2023 12:10:05 PM

LSC Response: The text has been revised

**Table 1
Trip Generation Estimate
Homestead North Filing 3**

Filing	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾				Total External Trips Generated					
				Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Evening Peak Hour In	Evening Peak Hour Out	Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Evening Peak Hour In	Evening Peak Hour Out
Trip Generation Estimate for the Currently Proposed Homestead North Filing 3													
3	210	Single-Family Detached Housing	77 DU ⁽²⁾	9.44	0.19	0.56	0.62	0.37	727	14	43	48	28
Trip Generation Estimate for Previous Homestead North Filings													
1	210	Single-Family Detached Housing	73 DU	9.44	0.19	0.56	0.62	0.37	689	14	41	46	27
2	210	Single-Family Detached Housing	74 DU	9.44	0.19	0.56	0.62	0.37	699	14	41	46	27
		Total Filings 1-3	224 DU						2,115	42	125	140	82
Trip Generation Estimate for TAZ 21 From the Sterling Ranch Updated Traffic Impact Analysis June 5, 2008													
	210	Single-Family Detached Housing	327 DU	9.57	0.19	0.56	0.64	0.37	3,129	61	184	208	122
		Change in trip generation estimate	-103 DU						-1,014	-19	-59	-68	-40

Notes:

(1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)

(2) DU = dwelling unit


Source: LSC Transportation Consultants, Inc.

May-22

Report says 11th Edition is being used. Update rates if different between the two editions.

Number: 1 Author: CDurham Subject: Callout Date: 12/20/2022 10:40:20 AM

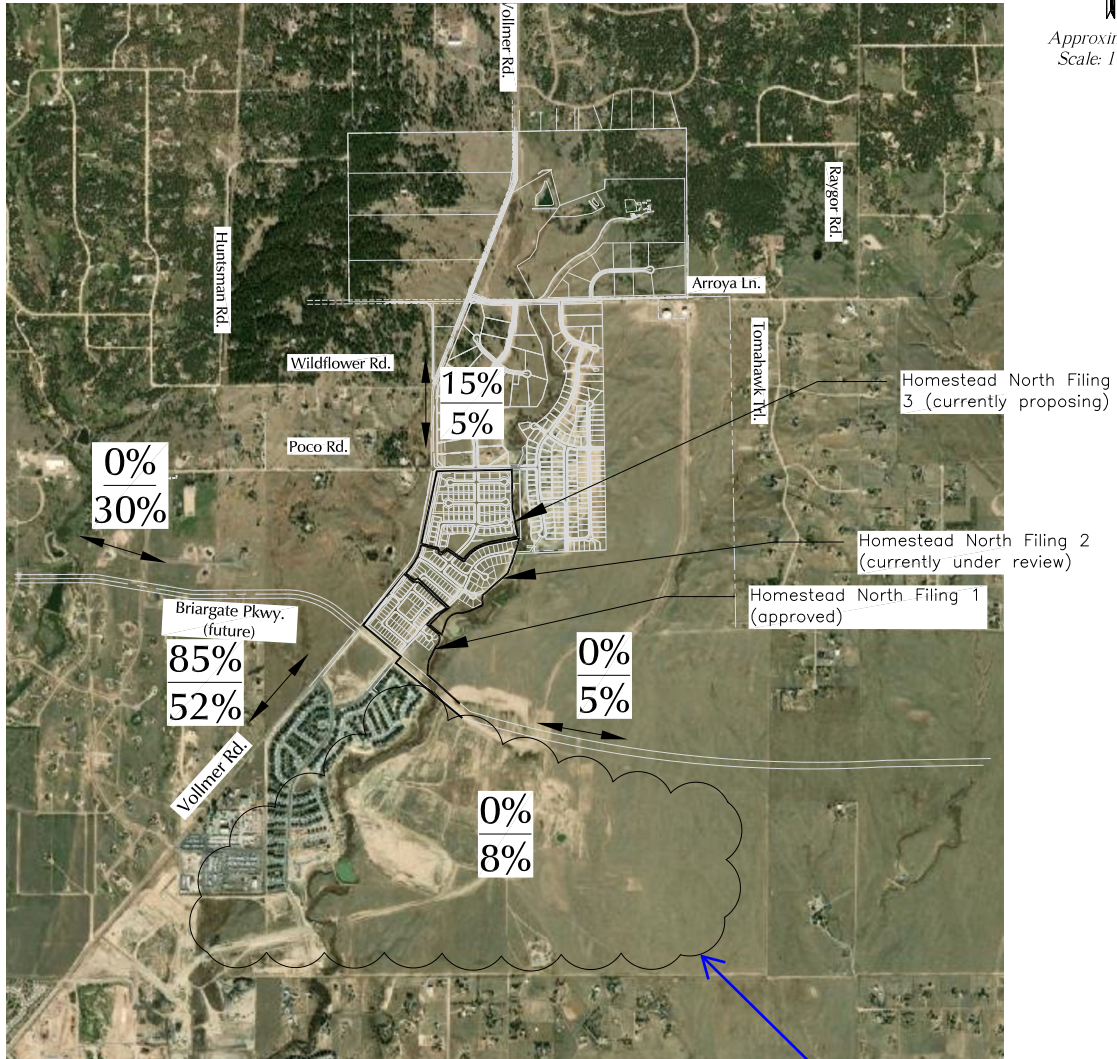
[Report says 11th Edition is being used. Update rates if different between the two editions.](#)

 Author: kdferrin Subject: Sticky Note Date: 1/25/2023 12:18:56 PM

LSC Response: The trip generation table and text have been revised based on the 11th edition rates. Note that the volumes have not been updated as the 10th Edition rates are slightly higher than the 11th Edition rates.



Approximate Scale
Scale: 1" = 3,000'



Is there a reason for this area to be clouded? If so, please state. ¹

LEGEND:

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

Figure 7


Directional Distribution of Site-Generated Traffic

Homestead North Filing 3 (LSC #S224250)



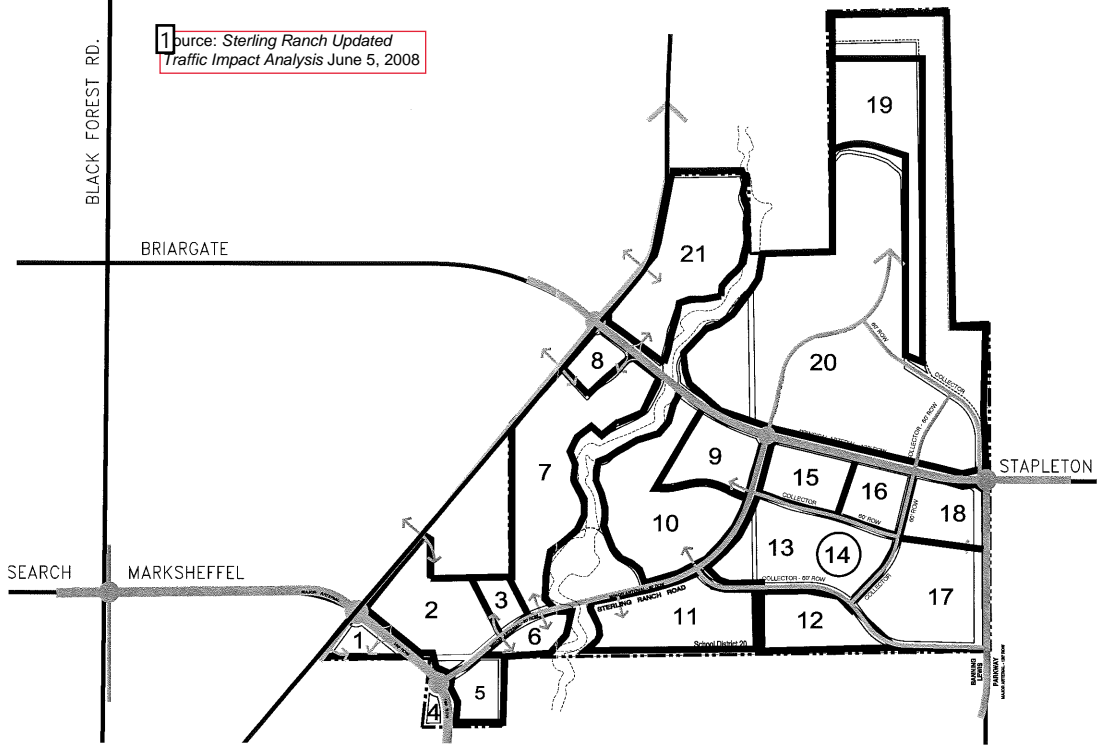
Number: 1 Author: CDurham Subject: Callout Date: 12/20/2022 10:42:47 AM

Is there a reason for this area to be clouded? If so, please state.

 Author: kdferrin Subject: Sticky Note Date: 1/25/2023 12:19:40 PM

LSC Response; The clouded area represents the future schools and retail areas planned for Sterling Ranch East

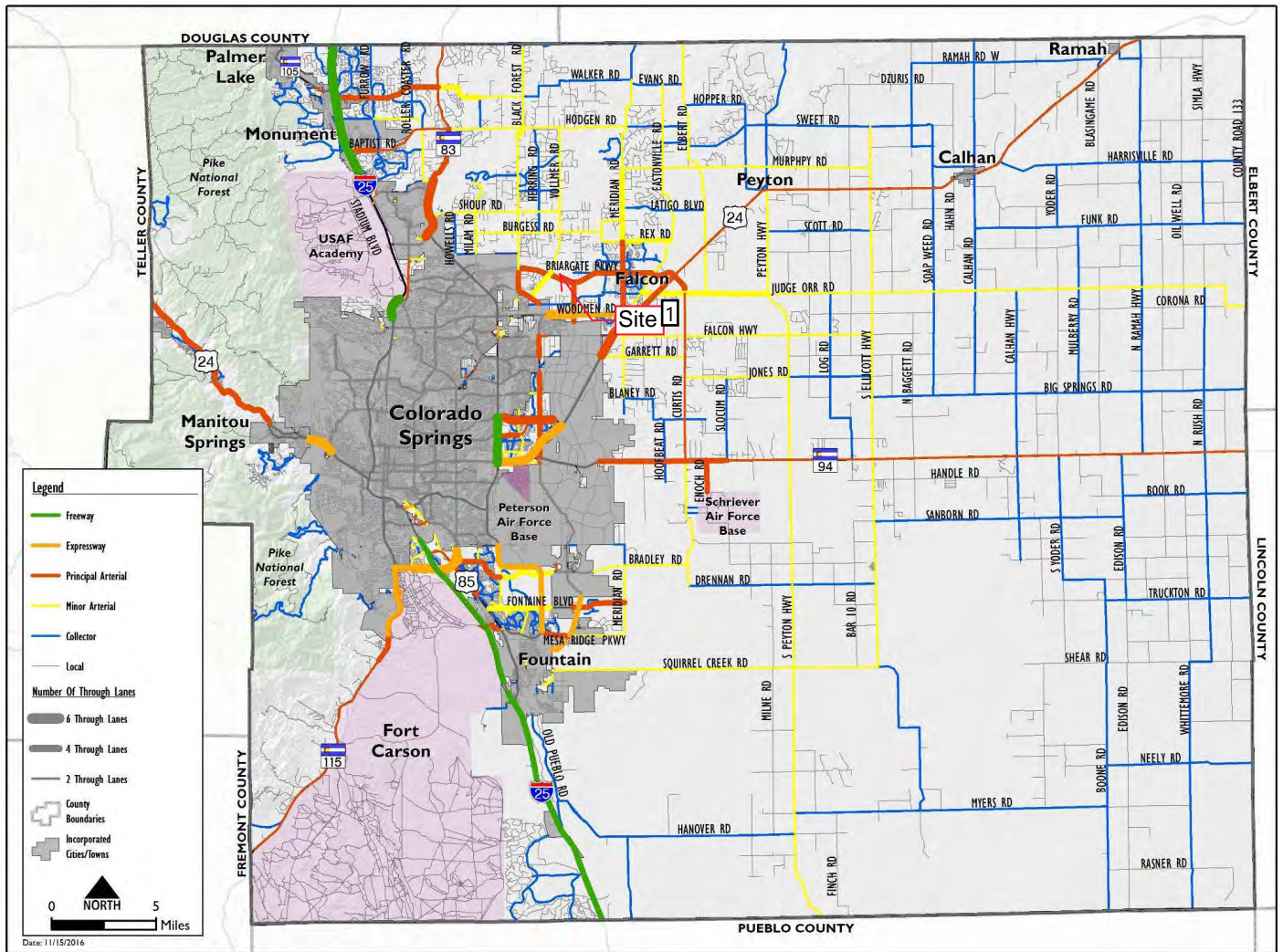
1 Source: Sterling Ranch Updated
Traffic Impact Analysis June 5, 2008



Traffic Analysis Zones
Sterling Ranch



Figure 3
LSC # 074230



Map 14: 2040 Roadway Plan (Classification and Lanes)

LSC Transportation Consultants, Inc.

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

File Name : Vollmer Rd - Poco Rd PM Construction

Site Code : S224250


Start Date : 5/11/2022

Page No : 1


Start Time	Vollmer Rd					Poco Rd					Vollmer Rd					Poco Rd					Int. Total
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
16:00	1	35	6	0	42	0	0	6	0	6	1	32	0	0	33	1	1	1	0	3	84
16:15	1	29	0	0	30	0	0	2	0	2	1	43	0	0	44	0	0	0	0	0	76
16:30	0	40	0	0	40	4	0	5	0	9	0	41	3	0	44	0	1	1	0	2	95
16:45	0	36	0	0	36	0	1	6	0	7	2	30	0	0	32	0	0	1	0	1	76
Total	2	140	6	0	148	4	1	19	0	24	4	146	3	0	153	1	2	3	0	6	331
17:00	0	33	1	0	34	0	0	1	0	1	1	45	0	0	46	0	0	0	0	0	81
17:15	1	31	0	0	32	0	0	3	0	3	2	39	2	0	43	2	0	1	0	3	81
17:30	0	37	0	0	37	0	0	6	0	6	2	37	0	0	39	1	0	0	0	1	83
17:45	0	34	0	0	34	0	0	1	0	1	1	35	1	0	37	0	0	0	0	0	72
Total	1	135	1	0	137	0	0	11	0	11	6	156	3	0	165	3	0	1	0	4	317
Grand Total	3	275	7	0	285	4	1	30	0	35	10	302	6	0	318	4	2	4	0	10	648
Apprch %	1.1	96.5	2.5	0		11.4	2.9	85.7	0		3.1	95	1.9	0		40	20	40	0		
Total %	0.5	42.4	1.1	0	44	0.6	0.2	4.6	0	5.4	1.5	46.6	0.9	0	49.1	0.6	0.3	0.6	0	1.5	

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1

 Number: 1 Author: CDurham Subject: Text Box Date: 12/20/2022 10:24:47 AM

[Missing second page for PM count information. Please add page back in.](#)

 Author: kdferrin Subject: Sticky Note Date: 1/25/2023 12:20:11 PM

LSC Response: The missing page has been included in the updated TIS