

LSC Responses to EPC TIS Redline Comments



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

Saddlehorn Ranch Traffic Impact Analysis PCD File No. SP-19-006 (LSC #184751) March 11, 2020

Date & Project # need to be updated. ¹

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.



Date on Seal is "out of date" Please resign & date stamp ²

Developer's Statement


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


Bill Mann FOR ROI
PROPERTIES, LLC


02/06/2023
Date


LSC Responses to EPC TIS Redline Comments

Page: 1

 Number: 1 Author: CDurham Subject: Text Box Date: 2/27/2023 4:20:20 PM
[Date & Project # need to be updated.](#)

 Author: jchodsdon Subject: Sticky Note Date: 3/9/2023 7:34:28 PM
LSC Response: Updated as requested.

 Number: 2 Author: CDurham Subject: Callout Date: 2/27/2023 4:21:01 PM
[Date on Seal is "out of date" Please resign & date stamp](#)

 Author: jchodsdon Subject: Sticky Note Date: 3/9/2023 7:34:34 PM
LSC Response: Updated as requested.

- Estimates of average weekday and weekday peak-hour trip generation for the Filing No. 2 residential development and the estimated directional distribution of site-generated vehicle trips on roadways and intersections adjacent to and in the vicinity of the site;
- Projected site-generated and resulting total peak-hour intersection traffic volumes at the following “study-area” intersections:
 - Falcon Highway/Curtis Road
 - Curtis Road/Judge Orr Road
 - Judge Orr Road/Del Cambre Trail
 - Judge Orr/Barrosito Trail
 - Curtis Road/Benito Wells Trail
 - Curtis Road/Oscuro Trail
 - US Highway (Hwy) 24/Stapleton Road
- Intersection level of service analysis at the study-area intersections;
- Evaluation of the short- and long-term projected intersection volumes to determine, for Filing No. 2, requirements for any auxiliary right-/left-turn lanes at the proposed site-access points, based on the criteria in El Paso County’s *Engineering Criteria Manual (ECM)*. Also included are potential long-term lane requirements;
- Findings and recommendations for Filing No. 2 relative to those identified in the Preliminary Plan TIS. This report includes a modified-version improvements table from the Preliminary Plan report. This modified version focuses on Filing No. 2 improvements; and
- CDOT process and requirements for Filing No. 2, specifically for the US Hwy 24/Stapleton intersection. [Include Hwy 24/Judge Orr intersection](#) ¹

LIST OF OTHER TRAFFIC REPORTS USED IN THE PREPARATION OF THIS REPORT


The following previously-completed traffic reports were referenced when the preparing this report:

- Saddlehorn Ranch Preliminary Plan TIS – dated March 11, 2020
- Meadowlake Industrial Park Rezone TIS report – dated July 29, 2022
- Saddlehorn Ranch (Filing 2 Memo) – dated November 18, 2022
- Saddlehorn Ranch Filing 3 TIS Report – dated January 24, 2023


LAND USE AND ACCESS

Figure 1 shows a vicinity map of the Filing No. 2 site location and study area. The site is located generally south of Judge Orr Road and east of Curtis Road. The greater 824-acre Saddlehorn Ranch development is also shown for reference. Saddlehorn at buildout of all five filings is planned to contain a total of 218 single-family residential lots. The following is a summary of the lot count by subdivision filing:

- Filing 1 – 49 dwelling units
- Filing 2 – 42 dwelling units (this application)
- Filing 3 – 44 dwelling units
- Filing 4 – 42 dwelling units
- Filing 5 – 41 dwelling units

 Number: 1 Author: CDurham Subject: Text Box Date: 2/27/2023 4:23:35 PM

[Include Hwy 24/Judge Orr intersection](#)

 Author: jchodsdon Subject: Sticky Note Date: 3/9/2023 7:34:46 PM

LSC Response: Included as requested.

- US Hwy 24/Stapleton Drive
 - January 10, 2023 from 6:30 – 8:30 a.m.
 - January 10, 2023 from 4:00 – 6:00 p.m.

Existing Level of service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from “A” to “F.” LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 1 shows the level of service delay ranges for signalized and unsignalized intersections.

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.

Level of service values for existing conditions have been included on Figure 4 for each turning movement/approach during the weekday morning and evening peak hours for the proposed site-access intersections and off-site intersections in the study area. Please refer to the figure and attached LOS reports for additional detail.


TRIP GENERATION


Estimates of the vehicle trips projected to be generated by the proposed Saddlehorn Ranch Filing No. 2 have been made using the nationally published trip-generation rates for land-use code “210 – Single-Family (Detached) Housing” from *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE).

Filing No. 2 42 units ¹

Forty-four dwelling units would be constructed in Filing No. 2. Resulting trip-generation estimates for Filing No. 2 are as follows:

- A.M. peak hour – 8 entering and 23 exiting trips

 Number: 1 Author: CDurham Subject: Callout Date: 2/27/2023 5:54:30 PM
[42 units](#)

 Author: jchodsdon Subject: Sticky Note Date: 3/9/2023 7:35:47 PM
LSC Response: Corrected.

- P.M. peak hour – 26 entering and 15 exiting trips
- Daily 24-hour – 424 total trips, with half entering and half exiting

Table 2 below presents a summary of the estimated site trip generation for Filing No. 2. A detailed trip-generation estimate, including ITE rates for the proposed land use is presented in Table 5 (attached).

Table 1: Estimated Filing No. 2 Vehicle-Trip Generation

Filing 2			
Analysis Period	In	Out	Total
Morning Peak Hour	8	23	31
Afternoon Peak Hour	26	15	42
Daily 24-Hour	212	212	424

Prior and Future Filings and Overall Saddlehorn Buildout (for Reference)

Filing 3 – 44 Dwelling Units (Recently Submitted – Not part of this application)

Filing 3 would consist of an additional 44 dwelling units to be constructed. Resulting trip-generation estimates for Filing 4 are as follows:

- A.M. peak hour – 9 entering and 24 exiting trips
- P.M. peak hour – 28 entering and 16 exiting trips
- Daily 24-hour – 444 total trips, with half entering and half exiting

Filing 4 – 42 Dwelling Units (Future – Not part of this application)

Filing 4 would consist of an additional 42 dwelling units to be constructed. Resulting trip-generation estimates for Filing 4 are as follows:


- A.M. peak hour – 8 entering and 23 exiting trips
- P.M. peak hour – 26 entering and 15 exiting trips
- Daily 24-hour – 424 total trips, with half entering and half exiting

Filing 5 – 41 Dwelling Units (Future – Not part of this application)


The final 41 dwelling units would be constructed during Filing 5. Resulting trip-generation estimates for Filing 5 are as follows:

- A.M. peak hour – 8 entering and 23 exiting trips
- P.M. peak hour – 26 entering and 15 exiting trips
- Daily 24-hour – 424 total trips, with half entering and half exiting

Does not match count shown in Table 5 1

 Number: 1 Author: CDurham Subject: Callout Date: 3/9/2023 7:36:53 PM

[Does not match count shown in Table 5](#)

 Author: jchodsdon Subject: Sticky Note Date: 3/9/2023 7:37:28 PM

LSC Response: Corrected to match Table 5..

Short Term (Filings 1-5 Combined – Saddlehorn Buildout – For Reference)

Short-term Saddlehorn buildout site-generated traffic volumes have been estimated at the study-area intersections by applying the short-term directional-distribution percentages estimated by LSC (from Figure 5) to the trip-generation estimates (from Table 5). Figure 8 shows projected short-term site-generated traffic volumes for all Filings 1-5 combined during the weekday morning and evening peak hours, as well as the estimated average daily traffic volumes (ADTs). Site-generated traffic volumes for Saddlehorn buildout in Figure 8 assume full buildout of all 218 dwelling units to be constructed during the short term for Filings 1-5 combined.

Long Term (Filings 1-5 Combined – Saddlehorn Buildout – For Reference)

Long-term site-generated traffic volumes have been estimated at the study-area intersections. The volumes have been calculated by applying the long-term directional-distribution percentages estimated by LSC (from Figure 5) to the trip-generation estimates (from Table 5). Figure 9 shows projected long-term site-generated traffic volumes for the weekday morning and evening peak hours. The figure also shows the estimated average daily traffic volumes (ADTs). Site-generated traffic volumes on Figure 9 assume full buildout of all 218 dwelling units during the long term.

Short-Term Total Traffic Volumes

Figure 10 shows the sum of the existing traffic volumes (from Figure 4) and short-term site-generated peak-hour traffic volumes (shown in Figure 8). These volumes represent the projected short-term total traffic following full site buildout of Filings 1-5. Laneage and traffic control at the study-area intersections are shown in Figure 10.


Figures & LOS reports show 2042. Please revise accordingly so all items reference same year

2043 Background Traffic Volumes


The 2043 background traffic volumes, shown in Figure 11, are generally based on the projections presented in the Preliminary Plan report, but adjustments have been made, including adjustments based on more recent traffic count data and projections in LSC's recent *Meadowlake Industrial Park* report (dated July 29, 2022). Traffic projected for Saddlehorn Ranch (all Filings) is **not** included in the 2043 **background** traffic volumes.

2043 Total Traffic Volumes

Figure 12 shows the sum of 2043 background traffic volumes (from Figure 11) plus long-term site-generated traffic volumes (from Figure 9).

 Number: 1 Author: CDurham Subject: Callout Date: 2/27/2023 5:58:22 PM

[Figures & LOS reports show 2042. Please revise accordingly so all items reference same year](#)

 Author: jchodsdon Subject: Sticky Note Date: 3/9/2023 7:38:09 PM

LSC Response: Figures and LOS Reports have been revised to show 2043.

Note: The following future auxiliary turn-lane upgrade would not be required if a roundabout is selected as the ultimate traffic control in the future at the intersection of Judge Orr Road/Curtis Road. However, this auxiliary turn lane may be needed if two-way stop control remains the intermediate traffic-control condition or with future traffic-signal control:

- Eastbound right-turn deceleration lane
- 290-foot deceleration lane
- 240-foot approach taper

Indicate with what filing this interim condition would be built with and what would trigger the need. ¹

Falcon Highway/Curtis Road

The intersection will likely require future improvements/upgrades, including traffic control, in order for all individual turning movements/approaches to operate at an acceptable level of service in the long term. The development may be required to participate in future improvements or construct improvements. The intersection of Falcon Highway/Curtis Road could potentially be converted to a roundabout in the long term, as all approaches would operate at LOS D or better as shown in the analysis.

Note: The following auxiliary turn-lane **upgrades** would not be required if a roundabout were to be constructed at the intersection of Falcon Highway/Curtis Road. However, these auxiliary turn lanes may be needed as long as two-way stop-sign control remains the traffic control or with future traffic-signal control:

- Southbound right-turn deceleration lane (New Lane – with signal control or if needed for operations)
 - 235-foot deceleration lane
 - 200-foot approach taper
- Eastbound left-turn deceleration lane (Lengthening)
 - 290-foot deceleration lane
 - 100 feet of storage length
 - 240-foot approach taper
 - 55:1 redirect taper length
- Westbound right-turn deceleration lane
 - 290-foot deceleration lane
 - 240-foot approach taper

Indicate with what filing this interim condition would be built with and what would trigger the need. ²

Please refer to the attached Improvements Table (Table 4) for additional details.

ROADWAY CLASSIFICATIONS

All roadways within this subdivision filing should be classified as Rural Local.

☰ Number: 1 Author: CDurham Subject: Text Box Date: 3/6/2023 6:29:52 AM

Indicate with what filing this interim condition would be built with and what would trigger the need.

↩ Author: jchodsdon Subject: Sticky Note Date: 3/9/2023 7:43:00 PM

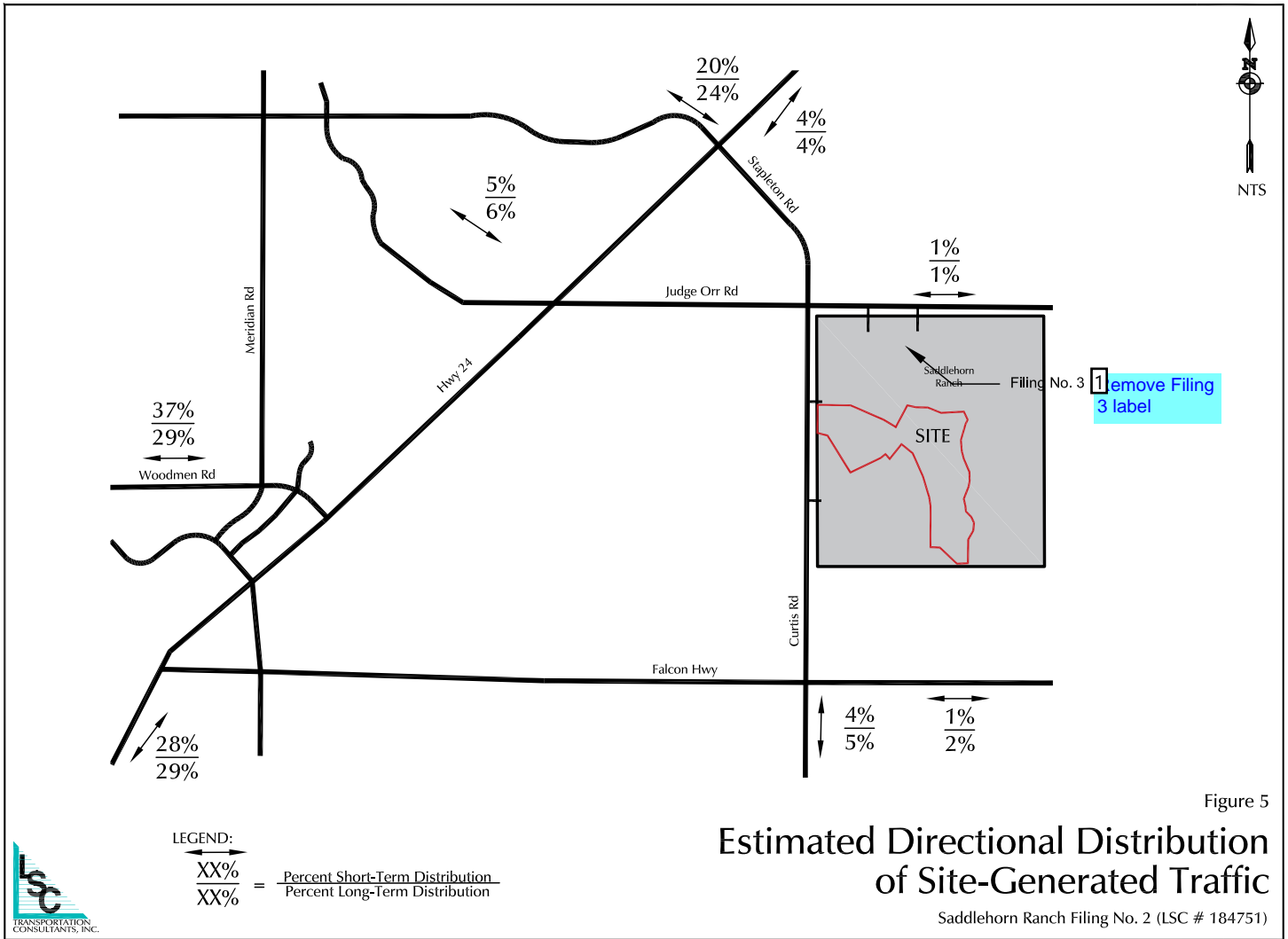
LSC Response: The report has been updated to address this comment.

☰ Number: 2 Author: CDurham Subject: Text Box Date: 3/1/2023 9:14:25 AM


Indicate with what filing this interim condition would be built with and what would trigger the need.

↩ Author: jchodsdon Subject: Sticky Note Date: 3/9/2023 7:43:10 PM


LSC Response: The report has been updated to address this comment.



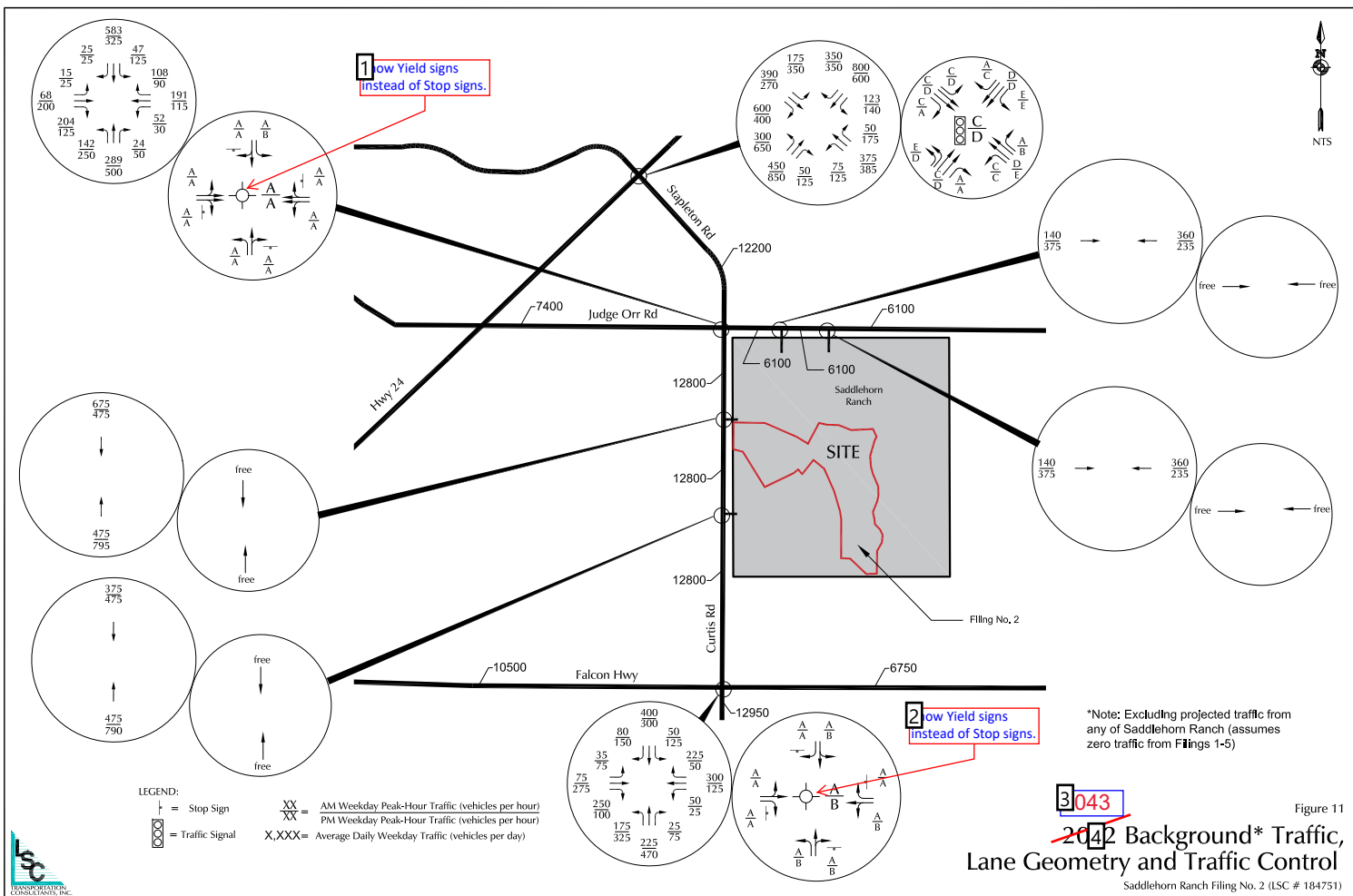
1 remove Filing 3 label

 Number: 1 Author: CDurham Subject: Text Box Date: 2/28/2023 3:20:46 PM

[Remove Filing 3 label](#)

 Author: jchodsdon Subject: Sticky Note Date: 3/9/2023 7:43:33 PM

LSC Response: Removed.



☰ Number: 1 Author: jchodsdon Subject: Callout Date: 3/10/2023 8:13:32 AM

[LSC Note: This schematic has been corrected to show Yield signs instead of Stop signs.](#)

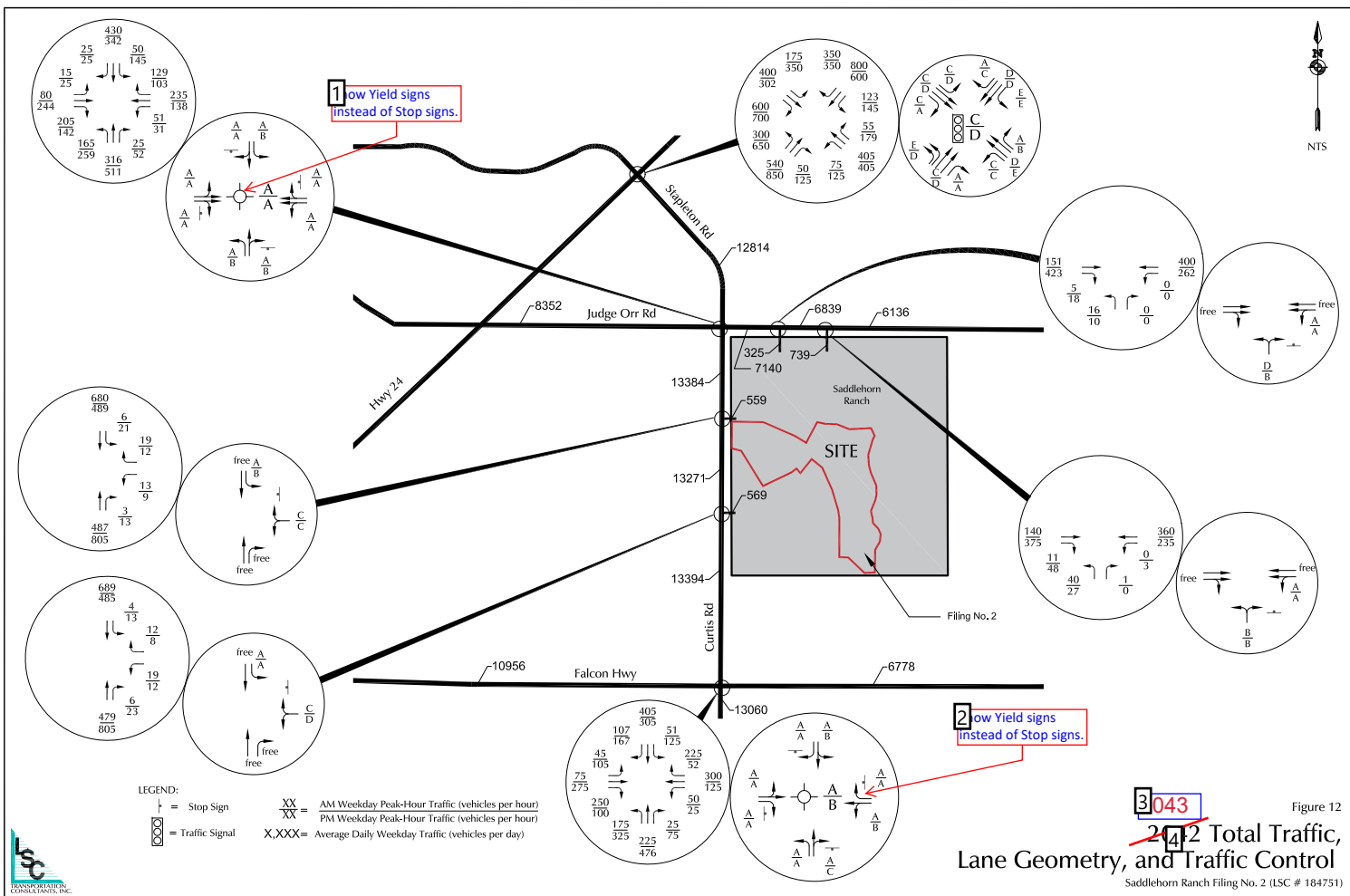
☰ Number: 2 Author: jchodsdon Subject: Callout Date: 3/10/2023 8:13:55 AM

[LSC Note: This schematic has been corrected to show Yield signs instead of Stop signs.](#)

☰ Number: 3 Author: jchodsdon Subject: Text Box Date: 3/6/2023 6:59:42 AM

2043

✍ Number: 4 Author: jchodsdon Subject: Line Date: 3/6/2023 6:59:31 AM



☰ Number: 1 Author: jchodsdon Subject: Callout Date: 3/10/2023 8:14:14 AM

[LSC Note: This schematic has been corrected to show Yield signs instead of Stop signs.](#)

☰ Number: 2 Author: jchodsdon Subject: Callout Date: 3/10/2023 8:14:23 AM

[LSC Note: This schematic has been corrected to show Yield signs instead of Stop signs.](#)

☰ Number: 3 Author: jchodsdon Subject: Text Box Date: 3/6/2023 7:00:40 AM

2043

✍ Number: 4 Author: jchodsdon Subject: Line Date: 3/6/2023 7:00:40 AM
