

LSC Responses to EPC TIS Redline Comments

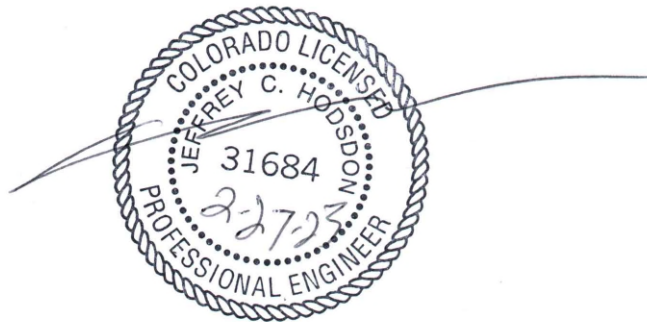


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Saddlehorn Ranch Filing No. 4 Traffic Impact Study (LSC #S224650) February 27, 2023

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.


Bill Moran FOR RO1
PROPERTIES, LTD. 02-24-2023
Date

LSC Responses to EPC TIS Redline Comments

Page: 1

 Number: 1 Author: Jeff Rice - EPC Engineering Review Subject: Text Box Date: 8/2/2023 12:46:18 PM -06'00'

[SF-23-006](#)

 Author: jchodsdon Subject: Sticky Note Date: 12/27/2023 12:28:17 PM
LSC Response: Added as requested.

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 7 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 8 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 8 assume full buildout of all 218 dwelling units during the long term.

Short-Term Total Traffic Volumes

Figure 9 shows the sum of the existing traffic volumes (from Figure 4) and short-term site-generated peak-hour traffic volumes (shown in Figure 7). These volumes represent the projected short-term total traffic following full buildout of **Filings 1-5**. Laneage and traffic control at the study-area intersections following short-term site buildout are shown in Figure 9.

2043 Background Traffic Volumes

The 2043²⁰⁴³ background traffic volumes, shown in Figure 10, 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 11 shows the sum of 2043 background traffic volumes (from Figure 10) plus long-term site-generated traffic volumes (from Figure 8).

LEVEL OF SERVICE ANALYSIS

LOS values have been included on each figure 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:

- Figure 4: Existing Traffic, Lane Geometry, Traffic Control, and LOS
- Figure 9: Existing + Site Traffic, Lane Geometry, Traffic Control, and LOS
- Figure 10: 2043 Background Traffic, Lane Geometry, Traffic Control, and LOS
- Figure 11: 2043 Background + Site Traffic, Lane Geometry, Traffic Control, and LOS

this intersection in case the actual volume (once developed) is higher than projected and exceeds the threshold requiring a turn lane.

Judge Orr Road/Curtis Road

The intersection will likely require future improvements/upgrades, including AWSC, roundabout, or signal 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 could potentially be converted to a modern roundabout in the future, as recommended in LSC's Preliminary Plan study for Saddlehorn and the *Meadowlake Industrial Park* (July 2022) traffic study.

All individual turning movements are projected to operate at LOS C or better during the short term for this project (assuming no traffic yet added by the proposed Meadowlake Industrial Park site to the southwest).

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

Reference the discussion of the eastbound right turn lane in the Filing 3 TIS, escrow, and what the resolution ends up being with that filing. 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

Number: 1 Author: Jeff Rice - EPC Engineering Review Subject: Callout Date: 8/3/2023 9:53:49 AM -06'00'

Reference the discussion of the eastbound right turn lane in the Filing 3 TIS, escrow, and what the resolution ends up being with that filing.

 Author: jchodsdon Subject: Sticky Note Date: 12/27/2023 12:28:00 PM
LSC Response: Added as requested.

- Eastbound left-turn deceleration lane
 - 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

Please refer to the attached Improvements Table for additional details.

ROADWAY CLASSIFICATIONS

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

ROADWAY SEGMENT IMPROVEMENTS

The segments of Curtis Road and Judge Orr Road adjacent to Filing No. 3 will be improved with Filing No. 3, per the approved deviations (see the next section for details). Also, please refer to the Filing No. 3 construction plans. Right-of-way along the west side of Curtis Road and the south side of Judge Orr Road will be dedicated with adjacent Filings 1, 2, and 3. Details are presented in Table 4 (attached) and shown in the construction drawings.

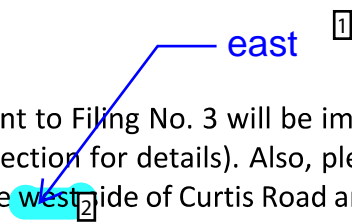
Please refer to the Filing No. 1, Filing No. 2, and Filing No. 3 construction drawing sets for plans for upgrades to Curtis Road adjacent to those respective subdivision filings.


Curtis Road Improvements

The construction plans for Curtis Road with Filing No. 2 indicate that improvements will extend about 775 feet north of Benito Wells Trail and 1,100 feet south of Benito Wells Trail. Travel lanes will be 12-foot wide. The cross section will include an 8-foot outside paved shoulder and 2-foot gravel shoulder along the east side of Curtis Road and a 2-foot outside paved shoulder and 2-foot gravel shoulder on the west side of Curtis Road.


Auxiliary turn lanes to be constructed at the intersection of Benito Wells Trail/Curtis Road will include a northbound right-turn deceleration lane and a southbound left-turn deceleration lane.

Adjacent to the northbound right-turn lane on the east side of the roadway, there will be a 2-foot-wide outside paved shoulder and a 2-foot-wide gravel shoulder. The Curtis Road section which will include the southbound left-turn lane will have a cross section including 2-foot outside paved shoulders (both sides) and 2-foot gravel shoulders.



 Number: 1 Author: Jeff Rice - EPC Engineering Review Subject: Callout Date: 8/3/2023 9:55:46 AM -06'00'

east

 Author: jchodsdon Subject: Sticky Note Date: 12/27/2023 12:27:52 PM
LSC Response: Corrected.


 Number: 2 Author: Jeff Rice - EPC Engineering Review Date: 8/3/2023 9:55:33 AM -06'00'

Table 4*: Roadway Improvements			
Saddlehorn Ranch Filing No. 4			
Item #	Improvement	Offsite Intersections	
		Timing	Responsibility
US Highway 24/Judge Orr Intersection			
1.1	Realignment of Judge Orr Road at US Highway 24 per CDOT Hwy 24 PEL Study	Future (the PEL study identified this as a high priority project with a time frame of less than 5 years)	CDOT
1.2	Southwest-bound right-turn deceleration lane on US Hwy 24 approaching Judge Orr Road	As required by other development(s) or with realignment of US Hwy 24/Judge Orr	CDOT or by others
1.3	Construct southwest-bound right-turn acceleration lane on US Hwy 24 at Judge Orr Road	As required by other development(s) or with realignment of US Hwy 24/Judge Orr	CDOT or by others
1.4	Eastbound left-turn lane on Judge Orr Road approaching US Hwy 24	With realignment of US Hwy 24/Judge Orr	CDOT
1.5	Westbound dual left-turn lanes on Judge Orr Road approaching US Hwy 24	With realignment of US Hwy 24/Judge Orr	CDOT
1.6	Northeast-bound right-turn deceleration lane on US 24 approaching Judge Orr Road	With realignment of US Hwy 24/Judge Orr	CDOT
1.7	Eastbound right-turn deceleration lane on Judge Orr Road approaching US Hwy 24	As required by other development(s) or with realignment of US Hwy 24/Judge Orr	CDOT or by others
US Highway 24/Stapleton Intersection			
2.1a	CDOT Escrow for Participation in the cost of future signalization - \$75,000** (Note: Opportunity for County fee Program credit/reimbursement for a portion; also opportunity for cost recovery as other area project are required to escrow funds and if/when this development's overall fair share percentage is reduced accordingly in the future.	With the Filing No. 4 Plat	Applicant
2.1b	Signalize the intersection	Once warrants are met	CDOT is collecting escrow from area developments impacting this intersection.
Curtis Road/Falcon Highway			
3.1	Filing No. 4 Escrow toward the cost of future lengthening of the eastbound left-turn lane to FCM standards on Falcon Highway approaching Curtis Road	Currently warranted by ECM; may require deviation to allow interim use of the existing lane and taper or potentially a striping modification to allow restriping for a shorter taper and standard length lane (based on short term turning volumes / associated queue length)	Escrow for construction at the time of Filing No. 4 development (fee program credit per fee program provisions)
3.2	Long Term: In the case of a future signalized intersection - Construct southbound right-turn deceleration lane on Curtis Road approaching Falcon Highway	Upon Signalization	Escrow for pro-rata share of improvement or construction if warranted at the time of development (fee program credit per fee program provisions)
3.2	Long Term: Reconstruct intersection as a modern roundabout (or signalize the intersection)	Once LOS of AWSC drops below acceptable levels (roundabout); or once signal warrants are met (for conversion to a signal or roundabout)	El Paso County - This intersection will be fee-program eligible for a signal/roundabout and applicant will pay fee program traffic impact fees.
Adjacent County Arterial Roadway ROW Requirements			
4.1	Judge Orr Right-of-Way Dedication - 4 Lane Minor Arterial, Rural 130' to 150 estimated right-of-way dedication (Note: 4-lane Rural Principal is 180')	Shown in 2040 MTCP; Dedicate adjacent ROW with the Filing No. 4	Applicant
4.2	Judge Orr - 4 Lane Minor Arterial - Beyond above dedication, no additional right-of-way preservation needed.	Shown in 2060 Corridor Pres Plan	Applicant
4.3	Curtis Road - 2 Lane Rural Principal Arterial 72' from existing centerline/section line to proposed ROW line. This translates to 42 feet of ROW dedication. (Note: 4-lane Rural Principal is 180')	Dedicate adjacent ROW with the Filing No. 3 Plat	Applicant
4.4	Curtis Road - 4 Lane Rural Principal Arterial 180' right-of-way preservation (90 feet east of the existing centerline/section line)	Shown in 2060 Corridor Pres Plan; Reserve up to 90 feet as required with the Filing No. 3 plat.	Applicant
Roadway Segment Improvements			
5.1	Falcon Highway - Upgrade to Two-Lane Rural Minor Arterial	Shown in 2040 MTCP	MITCP Project No. U5; Details TBD; applicant will pay fee program traffic impact fees.
5.2a	Judge Orr Road (Short Term) - Filing No. 3 construction plans show widening of the south side along the site frontage to a half-section of the ultimate/future Four Lane Rural Minor Arterial. Please see Judge Orr Road approved deviation.	With development of Filing No. 3	Applicant with potential for negotiated fee program credit based on construction of the ultimate four-lane Rural Minor Arterial half section. This will be subject to submission and review and potential acceptance of a proposed fee program credit agreement by EPC and the Fee Program Committee.
5.2b	Judge Orr Road (Long Term) - Future widening on the north side to complete the ultimate four-lane Rural Minor Arterial	Four-lane Rural Minor Arterial Shown in 2040 MTCP	MITCP Project No. C15; Details TBD; - applicant will pay fee program traffic impact fees.
5.3a	Short Term: Curtis Road Adjacent to Filing No. 1 - Interim upgrades to Curtis Road - to be constructed with Filing No. 1- Please refer approved Filing No. 1 CDs.	To be constructed with Filing No. 2	Applicant with potential for negotiated fee program credit based on constructed half-section. This will be subject to submission and review and potential acceptance of a proposed fee program credit agreement by EPC and the Fee Program Committee.
5.3b	Short Term: Curtis Road Adjacent to Filing No. 2 - Interim upgrades to Curtis Road - to be constructed with Filing No. 2 - Please refer to Filing No. 2 CDs.	To be constructed with Filing No. 2	Applicant with potential for negotiated fee program credit based on constructed half-section. This will be subject to submission and review and potential acceptance of a proposed fee program credit agreement by EPC and the Fee Program Committee.
5.3c	Short Term: Curtis Road Adjacent to Filing No. 3 - Interim upgrades to Curtis Road - to be constructed with Filing No. 3 - Please refer to Filing No. 3 CDs.	To be constructed with Filing No. 3	Applicant with potential for negotiated fee program credit based on constructed half-section. This will be subject to submission and review and potential acceptance of a proposed fee program credit agreement by EPC and the Fee Program Committee.
5.3d	Long Term: Curtis Road - Upgrade to Two-Lane Rural Principal Arterial	Shown in 2040 MTCP; (Future - TBD - Limited ROW available on the west side. Please refer to approved Curtis Road Deviation). The segment from the south border of Saddlehorn and Falcon Highway is adjacent to the Meadowlake Industrial Park development. Please refer to the most recent TIS for that project for additional information.	MITCP Project No. U1; Applicant per rezone condition of approval, potentially subject to fee program credit.
Internal Subdivision Roadways			
6.1	Construct internal Filing No. 4 streets to County Rural Local Standards	Per the Filing 4 Construction Plans	Applicant
Adjacent Intersection and Access Intersections			
Judge Orr/Curtis Road Intersection			
7.1	Westbound right-turn deceleration lane	Once peak-hour westbound right-turn volume exceeds 50 vehicles per hour.	Escrow a pro-rata share for future construction with Filing No.4 (fee program credit per fee program provisions)
7.2	Eastbound right-turn deceleration lane	Currently warranted by ECM	Escrow a pro-rata share for future construction with Filing No. 4 (fee program credit per fee program provisions)
7.3	Potentially sign for all-way stop-sign control (AWSC)	Once warrants for AWSC are met	El Paso County
7.4	Long Term: Reconstruct intersection as a modern roundabout (or signalize the intersection)	Once LOS of AWSC drops below acceptable levels (roundabout); or once signal warrants are met (for conversion to a signal or roundabout)	El Paso County. This intersection will be fee-program eligible for a signal/roundabout and applicant will pay fee program traffic impact fees.
7.5	Long Term: In the case of a future signalized intersection - lengthening of northbound and southbound left-turn deceleration lanes.	As needed based on future speed limit and turning volume/stacking length criteria.	Escrow for improvement or construction if warranted at the time of development (fee program credit per fee program provisions)
Judge Orr/Borreshto Trail			
8.1	No Auxiliary Turn Lanes Required Construction Plans show an eastbound right-turn deceleration lane to be constructed with Filing 3	To be constructed with Filing No. 3	Applicant
Judge Orr/Del Cumbre Trail			
9.1	No Auxiliary Turn Lanes Required Construction Plans show an eastbound right-turn deceleration lane to be constructed with Filing 3	To be constructed with Filing No. 3	Applicant
Curtis Road/Oscuro Trail			
10.1	Short Term Please Refer to Filing No. 2 TIS. Filing 4 is not projected to generate any left- or right-turning movements at this intersection		
10.2	Long Term Please Refer to Filing No. 2 TIS. Filing 4 is not projected to generate any left- or right-turning movements at this intersection		
Curtis Road/Benito Wells Trail			
11.1	Short Term Construction Plans show Auxiliary Turn Lanes to be constructed with Filing 2	Construction Plans show Auxiliary Turn Lanes to be constructed with Filing 2	Applicant
11.2	Long Term Construct southbound left-turn deceleration lane on Curtis Rd approaching the site access	To be constructed with Filing No. 2	Applicant
11.3	Long Term Construct northbound right-turn deceleration lane on Curtis Rd approaching the site access	To be constructed with Filing No. 2	Applicant

Construct with Filing 4 if not required with Filing 3

3

and 4 5

Is this correct?

1

6

7

8

Add 7.6 per Filing 3?

9

* Modified version of Table 10 From the Saddlehorn Ranch Preliminary Plan TIS dated March 11, 2020.
 Note: Items with red borders - modifications with this Filing No. 4 revised table; items in blue border - modifications associated with Filings 1, 2 or 3.
 ** Note: CDOT Formula taken from Filing No. 2 review letter: [for Filing 2] The development is required to participate in the cost of the future traffic signal at Stapleton and Hwy 24. Based on the average AM&PM site-generated passenger cars directly impacting the 4-hour warrant, the development would be responsible for ~\$75,000 [Filing 2 amount], (6.5 new vehicles / 60 vehicles-to-warrant x ~\$700k/signal cost). Filing 4 amount calculated using 42 lots/42 lots x Filing 2 amount
 Source: LSC Transportation Consultants, Inc. REVISIONS: 2/8/2022, 11/18/2022 for Filing No. 2, 1/20/2023 for Filing No. 3, 2/27/2023 for Filing No. 4.

Number: 1 Author: Jeff Rice - EPC Engineering Review Subject: Callout Date: 8/3/2023 1:43:17 PM -06'00'

Construct with Filing 4 if not required with Filing 3

Author: jchodsdon Subject: Sticky Note Date: 12/27/2023 12:27:44 PM
LSC Response: A Deviation request was submitted with Filing 3 in October 2023. A reference to that deviation has been included in this TIS report. Also, a copy has been attached to the resubmitted TIS report.

The Escrow note has been retained in the table, and this notation has been added: **[Pending Deviation Request Action]** has been added in the responsibility column.

Number: 2 Author: Jeff Rice - EPC Engineering Review Subject: Arrow Date: 8/3/2023 1:40:40 PM -06'00'

Number: 3 Author: Jeff Rice - EPC Engineering Review Subject: Highlight Date: 8/3/2023 1:36:07 PM -06'00'

Number: 4 Author: Jeff Rice - EPC Engineering Review Date: 8/3/2023 12:14:10 PM -06'00'

Number: 5 Author: Jeff Rice - EPC Engineering Review Subject: Callout Date: 8/3/2023 1:33:16 PM -06'00'

and 4

Author: jchodsdon Subject: Sticky Note Date: 12/27/2023 12:27:19 PM
LSC Response: Added as requested.

Number: 6 Author: Jeff Rice - EPC Engineering Review Subject: Cloud+ Date: 8/3/2023 1:34:32 PM -06'00'

Is this correct?

Author: jchodsdon Subject: Sticky Note Date: 12/27/2023 12:27:02 PM
LSC Response: This has been updated to match Sheet 4 of the CD Set by JR Engineering.

Number: 7 Author: Jeff Rice - EPC Engineering Review Subject: Highlight Date: 8/3/2023 1:35:41 PM -06'00'

Number: 8 Author: Jeff Rice - EPC Engineering Review Subject: Highlight Date: 8/3/2023 1:35:43 PM -06'00'

Number: 9 Author: Jeff Rice - EPC Engineering Review Subject: Callout Date: 8/3/2023 1:38:26 PM -06'00'

Add 7.6 per Filing 3?

Author: jchodsdon Subject: Sticky Note Date: 12/27/2023 12:26:52 PM
LSC Response: Added as requested.