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Esteban Rodriguez Subdivision Sketch Plan
Master Traffic Impact Study
(LSC #S224630)
August 15, 2023

Add PCD File No. SKP237

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.



Developer's Statement

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

Please include developer information

2

Date

LSC Responses to EPC TIS Redline Comments

Page: 1

☰ Number: 1 Author: Daniel Torres Subject: Text Box Date: 12/3/2023 8:37:32 PM -07'00'

[Add PCD File No. SKP237](#)

🔄 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:12:41 PM
LSC Response: Added.

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:21:29 AM -07'00'


[Please include developer information](#)

🔄 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:18:30 PM
LSC Response: Included as requested.

US Highway 24/Elbert Road	11
Short Term	11
ROADWAY IMPROVEMENTS	11
Auxiliary Turn-Lane Thresholds	11
Stapleton Road/Proposed Northwest Site Access	12
Judge Orr Road/Proposed Southeast Site Access	12
Elbert Road/Proposed East Site Access	12
Elbert Road/Proposed Northeast Site Access	12
US Highway 24/Judge Orr Road	12
Intersection Configuration and Traffic Control	12
ROADWAY CLASSIFICATIONS	12
COUNTY ROAD IMPROVEMENT FEE PROGRAM	13
Transportation Impact Fees	13
Reimbursable Improvements	13
MULTI-MODAL TRANSPORTATION AND TDM OPPORTUNITIES	13
Pedestrian and Bicycle Accommodations	13
DEVIATIONS	14
Potentially-Required Deviations	14
Approved Deviations (for Reference)	14
Judge Orr Road	14
Curtis Road	14
CDOT PROCESS AND REQUIREMENTS	14
FINDINGS AND CONCLUSIONS	15
Enclosures:	16
Table 4	
LOS Tables 1-12	
Figures 1-3	
Vistro Reports	
Traffic Count Reports	
Synchro LOS Reports	

ECM B.2.4.A requires a discussion of safety and accident analysis. 1

Number: 1 Author: Max Rusch Subject: Callout Date: 11/22/2023 9:22:09 AM -07'00'
ECM B.2.4.A requires a discussion of safety and accident analysis.

 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:12:33 PM
LSC Response: Added as requested.

- Estimated average daily traffic (ADT) volumes on the following study area roadway segments: US Highway 24, Judge Orr Road, Stapleton Road, Curtis Road, Elbert Road;
- Projections of 20-year background traffic volumes on the following study area roadways: US Highway 24, Judge Orr Road, Stapleton Road, Curtis Road, Elbert Road;
- The proposed sketch plan land uses and access plan;
- Estimates of average weekday and weekday peak-hour trip generation for the proposed 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:
 - US Highway 24/Stapleton Road
 - US Highway 24/Judge Orr Road
 - US Highway 24/Elbert Road
 - Judge Orr Road/Curtis Road/Stapleton Road
 - Judge Orr Road/Elbert Road
 - Judge Orr/proposed east access (full-movement)
- Projected total daily and peak-hour traffic volumes at the study-area intersections;
- Intersection level of service (LOS) analysis at the study-area intersections;
- Evaluation of short- and long-term projected intersection volumes to determine requirements for any auxiliary right-/left-turn lanes at the proposed site based on the criteria in El Paso County's *Engineering Criteria Manual (ECM)*; and
- Findings and recommendations for submittal to El Paso County.

1
Per recent EA there was discussion regarding zoning the commercial properties to CC where warehouse uses are only allowed via special use approval. Coordinate with applicant and adjust accordingly. regardless of zone chosen, highest and best use shall be analyzed. revise accordingly.

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

The following previously-completed traffic reports are located adjacent to the proposed Esteban Rodriguez Ranch subdivision and were used to provide reference and background information:

- Davis Sketch Plan
- Saddlehorn Ranch - Several
- Meadowlake Industrial Park

2
Please include relevant excerpts of these studies in the appendix

LAND USE AND ACCESS

Proposed Land Uses

Figure 1 shows the site location relative to the adjacent and nearby roadways. The proposed 493-acre Esteban Rodriguez Ranch Subdivision Sketch Plan in El Paso County, Colorado is located southeast of the intersection of Judge Orr Road and Elbert Road. Approximately 144 single-family dwelling units and approximately 19 acres of commercial uses are the land uses shown on the proposed sketch plan. For purposes of estimating trip generation, this report assumes 10,000 square feet of "strip retail" building square footage and 190,000 square feet of warehousing uses

3
Is the lot being rezoned? Please mention the existing/proposed zoning.

☰ Number: 1 Author: Daniel Torres Subject: Callout Date: 12/3/2023 10:42:00 PM -07'00'

Per recent EA there was discussion regarding zoning the commercial properties to CC where warehouse uses are only allowed via special use approval. Coordinate with applicant and adjust accordingly. regardless of zone chosen, highest and best use shall be analyzed. revise accordingly.

🔄 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 11:45:24 AM

LSC Response: Additional narrative has been added to the TIS to address this comment and explain the rationale. Similar to the approach taken by a couple other recent projects in El Paso County (one located near this property), a condition could be added which would require an updated TIS at any point in the process at which a more "trip-generation-intensive" land use mix is proposed.

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:22:21 AM -07'00'

Please include relevant excerpts of these studies in the appendix

🔄 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:12:26 PM

LSC Response: These have been added, as requested. We have also provided the EPC PCD File numbers and links.

☰ Number: 3 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:22:24 AM -07'00'

Is the lot being rezoned? Please mention the existing/proposed zoning.

🔄 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:12:22 PM

LSC Response: This is a Sketch Plan application, not a zoning application. This report refers to the master plan land use designations. This report includes explanation of a reasonable mix of land uses by ITE Land Use code assumed by LSC in this report, and the associated rationale for the assumptions. The existing zoning is A-35 and this has been added to the report. Also added to the narrative is the the anticipated zoning. However, zoning information will be documented with the rezone application.

for the parcels with the “commercial” designation. The strip retail use is assumed to be located on the southeast corner of the Judge Orr/Elbert Road intersection.

ECM B.2.1: Please discuss phasing of the development and the anticipated completion date. 1

Access and Circulation

The Sketch Plan shows the following proposed public roadway intersection spacings:

- Full-movement access as a new southern leg to Judge Orr/Elbert (currently a T-intersection)
- Full-movement access on Judge Orr Road 2,230 feet east of Elbert Road

Figure 2 contains the proposed Sketch Plan showing the proposed general sketch plan land uses, on-site roadway network, and proposed access points to Judge Orr Road.

please also state that analysis will be provided when access layout is finalized at the subdivision stage of the development. 2

SIGHT DISTANCE ←

Intersection sight distance at all proposed public road/site access intersection locations on Judge Orr Road, and Elbert Road shown in the site plan must meet intersection sight distance requirements in *ECM* Table 2-21. Intersections not meeting sight distance may need to be shifted or otherwise mitigated for sight distance. Lines of sight for all public road intersections/access points will need to be kept clear of any sight distance obstructions, including landscaping, signage, etc.

ROAD AND TRAFFIC CONDITIONS AND MTCP CLASSIFICATION

Figure 1 shows the roads adjacent to and in the vicinity of the site. Study area roads serving the site are identified below followed by a brief description of each:

Mention expected year for expansion to 4-lanes 3

US Highway 24 (US Hwy 24) is a state highway extending locally from the City of Colorado Springs to Peyton in a northeasterly direction and then continuing east. US Hwy 24 is planned to be widened to four lanes through the Falcon area and is classified as an E-X – Expressway by the Colorado Department of Transportation (CDOT) and a 4-lane Principal Arterial on the *El Paso County Major Transportation Corridors Plan (MTCP)*. The posted speed limit on US Hwy 24 at Stapleton Road is 65 miles per hour (mph). Auxiliary left-turn lanes currently exist on the northbound and southbound approaches at the signalized intersections of Stapleton/US Hwy 24 and US Hwy 24/Judge Orr.

US 24/Stapleton isn't signalized 4

Judge Orr Road is a two-lane roadway that extends east from Eastonville Road across most of El Paso County. It is shown on the *El Paso County 2040 Major Transportation Corridors Plan* and the *Preserved Corridor Network Plan* as a four-lane Minor Arterial adjacent to the site (and west of Curtis Road). Posted speed limits within the study area range from 45 to 55 mph. West of Curtis Road, the speed limit is 45 mph, while it generally increases to 55 mph east of Curtis Road. The intersection of US Hwy 24/Judge Orr is currently signalized. Due to the oblique angle of this intersection, the eastbound and westbound approaches are split-phased. The *US 24 Access*

There are some discrepancies between Synchro models, figures, and descriptions about whether Judge Orr Road is a two-lane or four-lane highway at the location of the E Access. Please make this consistent throughout the study. 5

Please provide signal timings for US-24 & Judge Orr in the appendix. 6

☰ Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:22:29 AM -07'00'

ECM B.2.1: Please discuss phasing of the development and the anticipated completion date.

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:12:13 PM

LSC Response: This has been added as requested.

☰ Number: 2 Author: Daniel Torres Subject: Callout Date: 12/3/2023 10:29:21 PM -07'00'

please also state that analysis will be provided when access layout is finalized at the subdivision stage of the development.

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:12:09 PM

LSC Response: This has been added as requested.

☰ Number: 3 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:22:52 AM -07'00'

Mention expected year for expansion to 4-lanes

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:12:05 PM

LSC Response: Discussion and some recent information regarding plans for Highway 24 has been added to the updated TIS.

☰ Number: 4 Author: Max Rusch Subject: Callout Date: 11/22/2023 9:22:48 AM -07'00'

US 24/Stapleton isn't signalized

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:12:01 PM

LSC Response: This has been corrected.

☰ Number: 5 Author: Max Rusch Subject: Text Box Date: 5/5/2024 4:57:17 PM

There are some discrepancies between Synchro models, figures, and descriptions about whether Judge Orr Road is a two-lane or four-lane highway at the location of the E Access. Please make this consistent throughout the study.

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:57 PM

LSC Response: Figures and LOS analysis results have been updated along with the Synchro models, the figures, and the report narrative.

☰ Number: 6 Author: Max Rusch Subject: Text Box Date: 5/5/2024 5:00:23 PM

Please provide signal timings for US-24 & Judge Orr in the appendix.

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:52 PM

LSC Response: Included as requested.

Control Plan/PEL Study shows future plans for realignment of Judge Orr at US Hwy 24 to improve the intersection and provide an intersection angle closer to 90 degrees.

Curtis Road is a two-lane roadway that extends south from the intersection of US Hwy 24/Stapleton Road intersection to Drennan Road. It is shown as a two-lane, rural Principal Arterial on El Paso County's *2040 Major Transportation Corridors Plan* and a four-lane Principal Arterial on the *Preserved Corridor Network Plan*. In the vicinity of Judge Orr Road, the posted speed limit is 45 mph. Both intersections of Curtis Road/Judge Orr Road and Curtis Road/Falcon Highway are two-way, stop-sign controlled. The newer section north of Judge Orr was constructed to current *ECM* standards with paved shoulders, etc. Generally, Curtis Road is an "unimproved," two-lane paved road between Judge Orr and Falcon Highway. However, upgrades are planned as part of the Saddlehorn Development.

Stapleton Road is shown as an Urban four-lane Principal Arterial on the El Paso County *Major Transportation Corridors Plan (MTCP)* and El Paso County *Corridor Preservation Plan (CPP)*. Stapleton Road extends east from Towner Drive to US Hwy 24. Stapleton continues southeast then south as Curtis Road. It is planned to be ultimately extended west to connect with the Briargate Parkway extension. Stapleton Road currently is a half-section of a four-lane Principal Arterial (one through lane in each direction) between Meridian Road and US Hwy 24.

Elbert Road is a two-lane roadway that extends north from Judge Orr Road in El Paso County to State Highway 86 in Elbert Road. Shown on the *El Paso County 2040 Major Transportation Corridors Plan* as a four-lane Minor Arterial, the posted speed on Elbert Road is 55 mph. Elbert Road is paved without shoulders in the vicinity of the site (paved, unimproved roadway).

Existing Traffic Volumes

EMC B.2.2 requires that an existing conditions scenario be analyzed

EMC B.3.1 Roadway links shall be analyzed. Acceptable maximum traffic volumes allowed for the specific class of roadway are shown in Table B-1

Vehicular turning-movement counts were conducted for the following dates and times at the following intersections. Raw count data is attached.

- Judge Orr Road/Elbert Road
 - Wednesday, January 11, 2023 from 6:30 – 8:30 a.m.
 - Wednesday, January 11, 2023 from 4:00 – 6:00 p.m.
- Judge Orr Road/Curtis Road
 - Thursday, April 21, 2022 from 6:30 – 8:30 a.m.
 - Thursday, April 21, 2022 from 4:00 – 6:00 p.m.
- US Hwy 24/Elbert Road
 - Tuesday, January 17, 2023 from 6:30 – 8:30 a.m.
 - Tuesday, January 17, 2023 from 4:00 – 6:00 p.m.
- US Hwy 24/Judge Orr Road
 - Tuesday, May 10, 2022 from 6:30 – 8:30 a.m.
 - Tuesday, May 10, 2022 from 4:00 – 6:00 p.m.
- US Hwy 24/Stapleton Road

Please discuss existing counts in further detail (e.g. peak hour, heavy vehicle percentage, were counts balanced)

ECM B.3.1 requires counts to be no more than 1 year old from date of application, but Judge Orr Rd/Curtis Rd and US 24/Judge Orr Rd counts exceed that limit.

☰ Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:24:35 AM -07'00'

EMC B.3.1 Roadway links shall be analyzed. Acceptable maximum traffic volumes allowed for the specific class of roadway are shown in Table B-1

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:50 PM

LSC Response: This analysis has been added to the TIS per this comment.

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:24:06 AM -07'00'

EMC B.2.2 requires that an existing conditions scenario be analyzed

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:46 PM

LSC Response: The existing conditions scenario has been included in the updated report.

☰ Number: 3 Author: Max Rusch Subject: Text Box Date: 3/17/2024 5:09:44 PM

Please discuss existing counts in further detail (e.g. peak hour, heavy vehicle percentage, were counts balanced)

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:42 PM

LSC Response: References to the peak hours have been added; ECM Appendix B indicates "*Vehicle classification counts may be required,*" However, 1) this has not been required of other studies in this area, 2) the study-area roadways do not likely carry an unusually high percentage of heavy vehicles, and 3) this is a "high level" Sketch Plan report.

☰ Number: 4 Author: Max Rusch Subject: Text Box Date: 3/17/2024 8:26:25 PM

EMC B.3.1 requires counts to be no more than 1 year old from date of application, but Judge Orr Rd/Curtis Rd and US 24/Judge Orr Rd counts exceed that limit.

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:33 PM

LSC Response: A new count at the intersection of Curtis Road/Judge Orr/Stapleton was conducted recently - within the past year. Regarding Judge Orr/US Highway 24, the 2022 count was adjusted to 2023 using 2023 counts on US Hwy 24 to the southwest, northeast, and the count at the Curtis Road/Judge Orr/Stapleton intersection.

Refer to MTCP table 5 and identify the bicycle improvement indicated along Judge Orr

- Tuesday, January 10, 2023 from 6:30 – 8:30 a.m.
- Tuesday, January 10, 2023 from 4:00 – 6:00 p.m.

Is the site expected to generate any multimodal trips and are there any future sidewalks/bike lanes through the study area planned by El Paso County? Is the developer providing any pedestrian/bicycle infrastructure

PEDESTRIAN AND BICYCLE FACILITIES

Judge Orr Road, Stapleton Road, and Elbert Road do not currently have sidewalks. Stapleton Road between Judge Orr and US Highway 24 has paved outside shoulders, which accommodate bicycles. Proposed subdivision roads are likely to be primarily Rural Local and potentially Minor Collector roadways and, per *ECM* criteria, would not require sidewalks.

TRIP GENERATION

Estimates of the vehicle trips projected to be generated by the proposed Esteban Rodriguez Subdivision residential development have been made using the nationally published trip-generation rates from *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE). Corresponding trip-generation rates from ITE Land Use category “210 – Single-Family Detached Housing” have been used to develop trip-generation estimates for the proposed 144-dwelling units. ITE Land Use categories “821 – Strip Retail Plaza without a Supermarket (40-150 KSF)” and “150 – Warehousing” were used to estimate potential trip generation for the approximately 19 acres of commercial on the property (on two separate parcels). LSC has assumed that a 15-percent floor-area-ratio for the assumed 10,000 square feet of “strip retail” space, with the remainder of the 19 acres associated with warehousing land uses.

Why was such a small percentage (8%) of the commercial area assumed to be retail?

Table 1 below presents a summary of the estimated site trip generation. A detailed trip-generation estimate for the site, including ITE rates land uses, is presented in Table 4 (attached). The proposed sketch plan is attached for reference.

The sketch plan land uses are projected to generate about 2,425 total vehicle trips on the average weekday during a 24-hour period, with approximately half entering and half exiting the site. During the morning peak hour, approximately 73 entering vehicles and 94 exiting vehicles are estimated to be generated. Approximately 127 entering and 114 exiting vehicles are estimated to be generated by the site during the afternoon peak hour.

☰ Number: 1 Author: Daniel Torres Subject: Callout Date: 12/3/2023 10:40:00 PM -07'00'

Refer to MTCP table 5 and identify the bicycle improvement indicated along Judge Orr

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:27 PM

LSC Response: Added as requested. Also, this note has been added: "The section of this report entitled "MULTI-MODAL TRANSPORTATION AND TDM OPPORTUNITIES" provides additional information and detail regarding MTCP plans and future facilities."

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:25:01 AM -07'00'

Is the site expected to generate any multimodal trips and are there any future sidewalks/bike lanes through the study area planned by El Paso County? Is the developer providing any pedestrian/bicycle infrastructure

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:22 PM

LSC Response: This comment has been addressed in the updated report.

☰ Number: 3 Author: Max Rusch Subject: Callout Date: 11/22/2023 9:25:09 AM -07'00'

Why was such a small percentage (8%) of the commercial area assumed to be retail?

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:18 PM

LSC Response: This comment has been addressed in the updated report.

TRIP DISTRIBUTION AND ASSIGNMENT

Trip Directional Distribution

The directional-distribution estimate of site-generated vehicle trips to the study-area roads and intersections is a necessary component in determining the site's traffic impacts. The attached trip distribution exhibits and Vistro trip distribution reports show the percentages of the site-generated vehicle trips projected to be oriented to and from the site's major approaches. Estimates have been based on the following factors: the proposed new land uses, the area roadway system serving the site, and the site's geographic location relative to the overall greater El Paso County/Colorado Springs area. The attached reports show estimated distribution splits.

Site-Generated Traffic

Site-generated traffic volumes have been estimated at the following intersections:

- US Hwy 24/Stapleton Road
- US Hwy 24/Judge Orr Road
- US Hwy 24/Elbert Road
- Judge Orr Road/Curtis Road/Stapleton Road
- Judge Orr Road/Elbert Road
- Judge Orr/proposed east access (full-movement)

Site-generated volumes have been calculated by applying the directional-distribution percentages estimated by LSC (from the attached distribution exhibit and Vostro trip distribution tables) to the trip-generation estimates (from Table 4). The attached Vistro volume printouts include the projected short-term site-generated traffic volumes ("net new site trips") for the weekday morning and afternoon peak hours.

Short-Term Total Traffic Volumes

1 It is unclear how the short term background traffic volumes were calculated. Please detail the steps that were taken to go from the existing volumes to the short term background volumes. This includes discussing the background growth rate and the trips that were generated from the Saddlehorn development

The attached Vistro traffic volume reports show the sum of the short-term total traffic volumes and short-term site-generated peak-hour traffic volumes. These volumes represent the projected short-term total traffic following site buildout. Laneage and traffic control at the study-area intersections following site buildout are shown in the attached Synchro reports.

Note: short-term background traffic volumes assume buildout of the entire Saddlehorn residential development to the south.

2043 Background Traffic Volumes

2 Similar to the comment on the short term background volumes, it is not clear how the long term background volumes were calculated. Please detail each of the pipeline developments (location, land use, trip generation, trip distribution), and how each one was factored into the long term background volume forecasts. In addition, please provide detail on the background growth rate that was used?

Long-term background traffic volumes are estimates by LSC, based on projected 2043 volumes adjacent to the site shown in Map 9 of the *MTCP*. Additionally, traffic generated by planned adjacent and nearby developments, such as Saddlehorn Ranch, Meadowlake Ranch, Meadowlake

☰ Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:26:06 AM -07'00'

It is unclear how the short term background traffic volumes were calculated. Please detail the steps that were taken to go from the existing volumes to the short term background volumes. This includes discussing the background growth rate and the trips that were generated from the Saddlehorn development

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:16 PM

LSC Response: This has been detailed in the updated TIS report.

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:26:13 AM -07'00'

Similar to the comment on the short term background volumes, it is not clear how the long term background volumes were calculated. Please detail each of the pipeline developments (location, land use, trip generation, trip distribution), and how each one was factored into the long term background volume forecasts. In addition, please provide detail on the background growth rate that was used?

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:13 PM

LSC Response: Added to the updated TIS.

Industrial Park, Davis Ranch, and Falcon Crossing, has been included in 2043 background traffic volumes. Please refer to the attached Vistro traffic volume reports for estimated long-term background volumes and assumed laneage at the study-area intersections.

Projected long-term background traffic volume projections in this vicinity have been based on LSC’s recent Saddlehorn and Meadowlake Industrial Park traffic studies. Site-generated traffic from other nearby planned developments has also been considered.

Note: long-term background traffic volumes assume buildout of the entire Saddlehorn residential development to the south and estimates of future residential development to the southeast.

2043 Total Traffic Volumes

The attached Vistro traffic volume reports show the sum of 2043 background traffic volumes plus long-term site-generated traffic volumes.

ECM B.5: "When a project's vehicular impacts do not meet the minimum acceptable LOS standard, the TIS shall include feasible measures, which would mitigate the project's impacts. The mitigation measures are intended to be in addition to the minimum required improvements necessary to meet these standards" Please suggest mitigation measures at all intersections that do not operate at an acceptable LOS in accordance with the ECM.

LEVEL OF SERVICE ANALYSIS

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 2 shows the level of service delay ranges for signalized and unsignalized intersections.

Table 2: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) ¹
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

¹ For unsignalized intersections, if V/C ratio is greater than 1.0 the level of service is LOS F, regardless of the projected average control delay per vehicle.

The attached **LOS Tables 1-9** show the LOS values results for the weekday morning and afternoon peak hours for the proposed site-access intersections and off-site intersections in the study area. All LOS calculations for long-term scenarios were based upon the recommended lane geometries and traffic controls shown in the attached Vistro Lane Configuration and Traffic Control reports and in the Synchro LOS reports.

☰ Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:26:23 AM -07'00'

ECM B.5: "When a project's vehicular impacts do not meet the minimum acceptable LOS standard, the TIS shall include feasible measures, which would mitigate the project's impacts. The mitigation measures are intended to be in addition to the minimum required improvements necessary to meet these standards" Please suggest mitigation measures at all intersections that do not operate at an acceptable LOS in accordance with the ECM.

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:10 PM

LSC Response: Regarding the US Highway 24/Stapleton intersection, CDOT has indicated that this intersection is on the list of intersections programmed for signalization. Area development projects are being required to escrow funds as contribution toward signalization. The mitigation for side-street level of service at this intersection will be signalization.

Judge Orr Road/Proposed East Site Access

Judge Orr & Proposed East Site Access:

Short term lane configuration figure shows EBTR turn lane, while Synchro model shows separate EBT & EBR turn lanes. Please make figures, Synchro models, LOS tables, and descriptions consistent
Long term lane configuration figure shows Judge Orr as a four lane highway at this point, while the Synchro model shows it as a two lane highway. Please update to make figures, Synchro models, LOS tables, and descriptions consistent

All individual turning movements and approaches are projected to operate at LOS B or better through the long term with the addition of site-generated traffic.

Judge Orr Road/Curtis Road

Short Term

All individual turning movements are projected to operate at LOS C or better during the short term with the addition of site-generated traffic. Short-term analysis assumes two-way stop-sign control (TWSC) at Judge Orr/Curtis.

Long Term

Assuming the intersection of Judge Orr/Curtis is converted from TWSC to a two-lane roundabout in the future, all individual turning movements would operate at LOS B or better during both peak hours of the long-term buildout scenario. This intersection improvement was previously recommended in the *Saddlehorn Ranch* traffic study. Additionally, eastbound and westbound approaches on Judge Orr Road and the southbound approach on Curtis Road are assumed to be two through lanes in each direction (per the 2040 MTCP).

US Highway 24/Stapleton Road

US-24 & Stapleton Rd

Long term lane configuration figure shows this as a stop controlled intersection and with dual northbound left turn lanes and single left turn lanes for the other three approaches. The Synchro models model this intersection with dual NB and SB left turn lanes. Please update to make figures, Synchro models, LOS tables, and descriptions consistent

Short-Term

Currently, the intersection of US Hwy 24/Stapleton is two-way stop-sign-controlled (TWSC). The following turning movements currently operate at LOS E or worse, with or without the addition of site-generated traffic: northwest-bound left, northwest-bound through, southeast-bound left, and southeast-bound through.

Mention that several of the movements operate at LOS F and exceed capacity. It should also be noted that the site trips push the failing movements even farther over capacity.

Once signalized, all individual turning movements and the intersection overall are projected to operate at and are projected to operate at LOS C or better during both short-term peak hours, with or without the addition of site-generated traffic. CDOT has indicated that this intersection is on the list of intersections programmed for signalization.

Long-Term

Please discuss possible interim solutions for the intersection of US-24 & Stapleton Rd to prevent the intersection from operating over capacity until a signal is constructed.

Based on the long-term scenario analyzed in this report, dual left-turn lanes are projected to be constructed to all approaches at the intersection of US Hwy 24/Stapleton Road. Additionally, all approaches on US Hwy 24 and Stapleton Road would be improved to two through lanes in each direction. Assuming the planned f

Please indicate what this developments possible responsibility is for upgrading the intersection to satisfactory conditions. Is it providing escrow? or does this development trigger the signal warrants? If there are no feasible interim solutions then please state that. please address.

☰ Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:26:39 AM -07'00'

Judge Orr & Proposed East Site Access: Short term lane configuration figure shows EBTR turn lane, while Synchro model shows separate EBT & EBR turn lanes. Please make figures, Synchro models, LOS tables, and descriptions consistent. Long term lane configuration figure shows Judge Orr as a four lane highway at this point, while the Synchro model shows it as a two lane highway. Please update to make figures, Synchro models, LOS tables, and descriptions consistent.

👉 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:06 PM

LSC Response: Figures and LOS analysis results have been updated along with the Synchro models, the figures, and the report narrative.

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:26:47 AM -07'00'

US-24 & Stapleton Rd: Long term lane configuration figure shows this as a stop controlled intersection and with dual northbound left turn lanes and single left turn lanes for the other three approaches. The Synchro models model this intersection with dual NB and SB left turn lanes. Please update to make figures, Synchro models, LOS tables, and descriptions consistent.

👉 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:11:00 PM

LSC Response: Figures and LOS analysis results have been updated along with the Synchro models, the figures, and the report narrative.

☰ Number: 3 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:26:51 AM -07'00'

Mention that several of the movements operate at LOS F and exceed capacity. It should also be noted that the site trips push the failing movements even farther over capacity.

👉 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:10:42 PM

LSC Response: Figures have been created for this updated TIS which graphically show all the individual levels of service. Regarding the US Highway 24/Stapleton intersection, CDOT has indicated that this intersection is on the list of intersections programmed for signalization. Area development projects are being required to escrow funds as contribution toward signalization. The mitigation for side-street level of service at this intersection will be signalization.

☰ Number: 4 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:26:55 AM -07'00'

Please discuss possible interim solutions for the intersection of US-24 & Stapleton Rd to prevent the intersection from operating over capacity until a signal is constructed.

👉 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:10:38 PM

LSC Response: CDOT has indicated that this intersection is on the list of intersections programmed for signalization. Area development projects are being required to escrow funds as contribution toward signalization. The mitigation for side-street level of service at this intersection will be signalization.

The signal **will be** the mitigation for the current LOS. It would **not** be practical to implement an interim solution such as restricting turning movements or installing AWSC traffic control. This development will contribute to the signal as development moves forward. The more projects contributing, the more matching funds will become available, and the signalization will likely move up on the priority list.

☰ Number: 5 Author: Daniel Torres Subject: Callout Date: 12/3/2023 11:02:01 PM -07'00'

Please indicate what this development's possible responsibility is for upgrading the intersection to satisfactory conditions. Is it providing escrow? or does this development trigger the signal warrants? If there are no feasible interim solutions then please state that. please address.

👉 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:10:33 PM

LSC Response: Yes. This development's responsibility will likely be to provide an escrow contribution toward signalization. The signal is already warranted and it is on CDOT's list to signalize and area development projects are being required to escrow funds as contribution toward signalization. This is only the sketch plan stage, so the escrow would not be required at this point, rather at a later stage of the County process, and with the CDOT access permit process. This has been added to the updated report.

The signal **will be** the mitigation for the current LOS. It would **not** be practical to implement an interim solution such as restricting turning movements or installing AWSC traffic control. This development will contribute to the signal as development moves forward. The more projects contributing, the more matching funds will become available, and the signalization will likely move up on the priority list.

through, and southwest-left turn lanes are projected to operate at LOS E during at least one peak hour.

All other individual turning movements and the intersection overall are projected to operate at LOS D or better during both long-term peak hours, with or without the addition of site-generated traffic. Please refer to the attached Synchro sheets for anticipated/assumed future lane geometry and LOS at this intersection.

US Highway 24/Judge Orr Road

Short Term

The intersection of US Hwy 24/Judge Orr is currently signalized. The *US 24 Access Control Plan* shows this intersection realigned to one of two alternate alignments that would provide an intersection angle closer to 90 degrees. All movements at this intersection except for the westbound and eastbound single-lane turning movements are currently operating at LOS D or better during both peak hours. ¹

what is the LOS for these movements

Short-term analysis assumes the proposed realignment has not yet been constructed, nor does it assume that the future southbound right-turn deceleration, a southbound right-turn acceleration, and an eastbound right-turn lane would be constructed in the short term. These turn lanes are shown at the intersection of US Hwy 24/Judge Orr in CDOT's *US 24 Planning & Environmental Linkages (PEL) Study*.

Long-Term

By 2043, it was assumed that this intersection would be realigned and both Judge Orr Road and US Hwy 24 would be widened to provide two through lanes in each direction. Based on the projected 2043 background and total traffic volumes and lane geometry shown in the Synchro reports, this intersection is projected to operate at an overall LOS C during the peak hours. Some minor movements are projected to operate at LOS E during the peak hours simply because of the likelihood of arrival at the traffic signal at the beginning of the red phase at an intersection with many phases and a long cycle length. These movements would not be considered "failing" since the volume-to-capacity ratios would be less than 1.0. The justification is that to progress through traffic along an arterial corridor, the traffic signal offsets and left-turn and side street phase times have been adjusted to favor the through traffic band, which can often result in higher delay for the left-turn movements even though there is sufficient capacity for them.

Number: 1 Author: Daniel Torres Subject: Callout Date: 12/3/2023 11:03:48 PM -07'00'

[what is the LOS for these movements](#)

 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 11:52:57 AM

LSC Response: Figures have been created for this updated TIS which graphically show all the individual levels of service.

US Highway 24/Elbert Road

Short Term

Why is there no long term analysis?

provide long term analysis

All individual turning movements are projected to operate at LOS D or better during the short-term with the addition of site-generated traffic. Short-term analysis assumes two-way stop-sign control (TWSC) at US Hwy 24/Elbert Road.

Judge Orr & Elbert

Long term lane configuration figure shows a seperate EBL turn lane while the lane configuration figure shows a shared EBTL turn lane. Please make consistent across figures, synchro models, and LOS tables.

Judge Orr Road/Elbert Road

All single-lane approaches are projected to operate at LOS C or better through the long term with the addition of site-generated traffic.

ROADWAY IMPROVEMENTS

Auxiliary Turn-Lane Thresholds

Section 2.3.7.D of the *ECM* lists ingress/egress volume thresholds in which exclusive right- or left-turn lanes would be required, by classification:

- Principal Arterial
- Left-turn deceleration lane – 10 vehicles per hour (vph) or greater
- Right-turn deceleration lane – 25 vph or greater
- Right-turn acceleration lane – 50 vph or greater (if speed limit greater than 40 mph)
- Minor Arterial
- Left-turn deceleration lane – 25 vph or greater
- Right-turn deceleration lane – 50 vph or greater
- Right-turn acceleration lane – not generally required

Major roadways in the study area have the following 2040 *ECM* roadway classifications:

- Stapleton Road – Principal Arterial
- Judge Orr Road – Minor Arterial
- Elbert Road – Minor Arterial

All proposed auxiliary turn lanes would be required to meet design criteria outlined in Section 2.3.7.E of the *ECM*.

This assessment and findings are based on the preliminary estimates of trip generation and traffic volumes in this report. Additional turn lanes may be needed if trip generation is higher than projected herein. The evaluation of auxiliary turn lane needs should be revisited with the Preliminary Plan(s).

☰ Number: 1 Author: Daniel Torres Subject: Text Box Date: 12/3/2023 11:05:25 PM -07'00'

[provide long term analysis](#)

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:10:22 PM

LSC Response: This has been included in the updated study.

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:27:03 AM -07'00'

[Why is there no long term analysis?](#)

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:10:13 PM

LSC Response: This has been included in the updated study.

☰ Number: 3 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:27:08 AM -07'00'

[Judge Orr & Elbert Long term lane configuration figure shows a separate EBL turn lane while the lane configuration figure shows a shared EBTL turn lane. Please make consistent across figures, synchro models, and LOS tables.](#)

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 11:53:48 AM

LSC Response: Figures and LOS analysis results have been updated along with the Synchro models, the figures, and the report narrative.

Judge Orr Road/Elbert Road

Based on projected left-turn and right-turn peak-hour turning volumes, the following auxiliary turn lane would be required at the proposed site access at Judge Orr Road/Elbert Road:

- Eastbound-right-turn deceleration lane

Storage/taper/decel length should be given ¹

The following auxiliary turn lanes would **not** be required at the proposed northwest site access on Stapleton Road:

- Westbound-left-turn deceleration lane
- Northbound-to-eastbound-right-turn acceleration lane

judge Orr? ³

identify any aux. lanes on the new southern leg of Elbert road approaching Judge Orr ⁴

Judge Orr Road/Proposed East Site Access

Based on projected northbound-left and southbound-right peak-hour turning volumes, no auxiliary turn lanes would be required at the proposed east site access on Judge Orr Road.

US Highway 24/Judge Orr Road

Auxiliary turn lanes are planned to be added at this intersection as part of El Paso County intersection improvement project C14. This roadway improvement project has been identified as being needed by the year 2040 per Map 13 and Table 4 of El Paso County's 2016 MTCP:

- C14 – Judge Orr Road from Eastonville Road to Peyton Highway (\$38,248,000)
- Existing conditions – 2-lane Rural Minor Arterial
- Future conditions – 4-lane Rural Minor Arterial

Discuss that several movements warrant turn lanes under existing traffic volumes. Are there any operational or safety issues that may occur prior to these lanes being constructed? ⁵

As such, no modifications would be required by the applicant at the intersection of US Hwy 24/Judge Orr as a result of additional site-generated traffic from this development.

provide aux. lane analysis for Judge Orr/Stapleton. ⁶

Intersection Configuration and Traffic Control

All proposed site-access points would be two-way, Stop sign-controlled intersections.

ROADWAY CLASSIFICATIONS

Generally, roadways within the sketch plan should be classified as Rural Local or Rural Minor Collector as shown in Figure 3. The entry street segments are projected to carry about 1,500 and 675 vehicles per day (ADT) for the west and east access street connections to Judge Orr, respectively. Most of the streets south of these entry streets are projected to carry ADT volumes below 750 vehicles per day. These recommended classifications should be revisited at the preliminary plan stage when commercial land uses are more defined relative to trip generation. The classifications shown in Figure 3 are preliminary recommendations by LSC based on

As previously comment, a roadway segment analysis needs to be conducted for the public roads within the study area as well. Refer to ECM B.3.1. ⁷

☰ Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:27:15 AM -07'00'
Storage/taper/decel length should be given

↻ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:09:59 PM
LSC Response: An additional note "Details can be addressed at the Preliminary Plan stage" has been added to the note indicating "All proposed auxiliary turn lanes would be required to meet design criteria outlined in Section 2.3.7.E of the ECM." Also note: an improvements table has been added to the TIS report.

☰ Number: 2 Author: Daniel Torres Subject: Highlight Date: 12/3/2023 11:07:29 PM -07'00'
Stapleton Road:

☰ Number: 3 Author: Daniel Torres Subject: Callout Date: 12/3/2023 11:15:05 PM -07'00'
judge Orr?

↻ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:09:51 PM
LSC Response: Corrected in the updated report.

☰ Number: 4 Author: Daniel Torres Subject: Callout Date: 12/3/2023 11:16:15 PM -07'00'
identify any aux. lanes on the new southern leg of Elbert road approaching Judge Orr

↻ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 11:54:30 AM
LSC Response: This information was provided, but the adjacent road name was incorrect. "Stapleton Road" was corrected to read "Judge Orr Road." Also, this section has been rewritten in the updated report for clarification.

☰ Number: 5 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:27:23 AM -07'00'
Discuss that several movements warrant turn lanes under existing traffic volumes. Are there any operational or safety issues that may occur prior to these lanes being constructed?

↻ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 11:54:46 AM
LSC Response: An improvements table has been added to the TIS report, which includes additional detail regarding future improvements at this intersection.

☰ Number: 6 Author: Daniel Torres Subject: Text Box Date: 3/17/2024 4:43:25 PM
provide aux. lane analysis for Judge Orr/Stapleton.

↻ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:09:44 PM
LSC Response: An improvements table has been added to the TIS report, which includes additional analysis and recommendations for lane needs, timing, and "triggers" for auxiliary turn lanes at this intersection.

☰ Number: 7 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:27:31 AM -07'00'
As previously comment, a roadway segment analysis needs to be conducted for the public roads within the study area as well. Refer to ECM B.3.1.

↻ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 11:55:12 AM
LSC Response: Included in the updated TIS report.

The following is a list of known and planned multi-modal and pedestrian accommodations in the general area:

- A park-and-ride facility has been constructed near Meridian Road and US Highway 24.
- The Rock Island Regional Trail runs along the north side of Highway 24 generally between Falcon and Peyton.
- Many of the area County roads have been or will be upgraded to provide paved shoulders for cyclists. Stapleton is shown as a future “bike route.”
- The Highway 24 PEL study also includes multi-modal elements.

DEVIATIONS

Potentially-Required Deviations

None with this Sketch Plan submittal. However, the locations of future commercial access points south of Judge Orr along the entry roads will need to be evaluated against criteria in ECM section 2.4. Also, internal public roads/streets not depicted on the sketch plan but shown on the preliminary plan(s) will need to meet intersection criteria, including spacing criteria shown in ECM Table 2-5 for Rural Minor Collector roadways (or Rural Local roadways, as applicable). Deviation(s) will likely be required for any internal commercial access or internal public street intersection spacing not meeting criteria.

Approved Deviations (for Reference)

Judge Orr Road

As part of the Saddlehorn Ranch development, a deviation (by JR Engineering, dated September 4, 2020) was approved for modification to the standard *ECM* cross section of Judge Orr Road, which has a 2040 classification of Rural Four-Lane, Minor Arterial roadway (*ECM* Section 2.2.4 criteria). Although Judge Orr Road is shown as a four-lane Rural Minor Arterial in the 2040 *MTCP*, the *ECM* does not have a standard cross-section for this type of roadway functional classification. The deviation shows an interim four-lane Rural Minor Arterial cross-section with an additional eastbound 12-foot travel lane on the south side (Saddlehorn side).

Additional ROW would be required for completion of the full 4-lane section, but additional ROW is not available (not controlled by this development) on the north side of Judge Orr. Currently, Saddlehorn Ranch is dedicating an additional 40 feet of ROW to facilitate this in the future.

CDOT PROCESS AND REQUIREMENTS


The following is for information only, as this is a sketch plan application. The following can be revisited at the next stage of the process.

identify that ROW along the southern portion of Judge Orr will be provided by the development.

1

Number: 1 Author: Daniel Torres Subject: Callout Date: 12/3/2023 11:21:37 PM -07'00'

identify that ROW along the southern portion of Judge Orr will be provided by the development.

 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 11:55:42 AM

LSC Response: This has been included in the improvements table, which has been added to the updated version of the TIS report.

- US Hwy 24/Stapleton is planned to be signalized. The CDOT has indicated for other area projects a requirement to escrow a fair share amount toward this future traffic signal.
- The “formula” for calculating the development responsibility has been based on the average AM & PM site-generated passenger cars directly impacting the 4-hour warrant, the development would be responsible an amount based on the number of site-generated new vehicles / 60 vehicles-to-warrant x ~\$700K/signal cost.
- **LSC Note:** There are a number of developments – in progress and future/planned – in the area which will also add traffic to this intersection and impact the 4-hour warrant. As CDOT collects escrow for other developments, LSC recommends that as the collective impact trips (directly impacting the 4-hour warrant volumes) by area developments begins to exceed the 60-vehicle-per-hour denominator, fair-share recalculation of pro-rata share escrow amounts and credit be provided to developments according to the updated fair-share calculations. Also, once the signal is installed, credit should be provided from the Countywide Fee Program based on a ratio of fee program unit signal cost divided by the \$700K signal cost.

Please summarize any proposed improvements that will be made by the developer in the findings and conclusions section


FINDINGS AND CONCLUSIONS

- The site is projected to generate about 2,425 new driveway vehicle-trips on the average weekday.
- During the weekday morning peak hour of adjacent street traffic, 73 vehicles would enter the site while 94 vehicles would exit.
- During the weekday afternoon peak hour of adjacent street traffic, 127 vehicles would enter the site while 114 vehicles would exit.
- Projected levels of service would be LOS C or better at all proposed site access locations. Please refer to the “Level of Service” section above for detailed LOS results and discussion regarding all study-area intersections.
- Please refer to the “Auxiliary Turn-Lane Analysis” section for evaluation of potential turn-lane needs at the study-area intersections.
- All internal site access roadways are proposed to be public streets with LSC-recommended classifications (preliminary) of Rural Minor Collector and Rural Local.
- Deviations are not included with this submittal.

* * * * *

 Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:27:42 AM -07'00'

Please summarize any proposed improvements that will be made by the developer in the findings and conclusions section

 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 11:56:08 AM

LSC Response: An improvements table has been added to the TIS report, which contains this information.

Per ECM B.2.4. the peak hour link LOS should be reported for each scenario

Please include second of delay for each movement

A subnote may be added to your table that references the synchro reports have the second of delay for each movement.

Table 1: LOS Summary – US 24 + Judge Orr Road (Short Term)

Traffic Control	Signal		Signal	
	ST Baseline		ST Baseline + Site	
	AM	PM	AM	PM
SW T/R	D	C	D	C
SWL	B	C	B	C
WB	E	D	E	E
NE T/R	B	C	B	D
NEL	B	B	C	C
EB	D	E	D	E
Overall	D	D	D	D

Table 2: LOS Summary – US 24 + Judge Orr Road (Long Term)

Traffic Control	Signal		Signal	
	2043 BG		2043 BG + Site	
	AM	PM	AM	PM
SWR	A	A	A	A
SWT	C	C	C	C
SWL	B	D	B	E
NWR	A	A	A	A
NWT	D	D	D	D
NWL	D	E	E	E
NER	A	A	A	A
NET	B	C	B	C
NEL	D	E	D	E
SER	C	D	C	D
SET	D	D	D	D
SEL	C	C	C	C
Overall	C	C	C	C

☰ Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:28:00 AM -07'00'

Please include second of delay for each movement

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:07:05 PM

LSC Response: The LOS values are shown in Figures in the updated TIS rather than these tables. Seconds of delay are shown on the attached Synchro reports. A note has been added to this effect in the narrative - within the paragraph calling out the figures which present the LOS results.

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:28:01 AM -07'00'

Per ECM B.2.4. the peak hour link LOS should be reported for each scenario

↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:07:17 PM

LSC Response: Link Levels of service have been included in the updated TIS.

☰ Number: 3 Author: Daniel Torres Subject: Text Box Date: 12/3/2023 11:12:05 PM -07'00'

A subnote may be added to your table that references the synchro reports have the second of delay for each movement.


↩ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:08:03 PM


LSC Response: Subnote added to the tables. General note: we concur with adding this reference in lieu of copying all the values to the report tables. The Synchro reports include these values as well as the other metrics (in addition to delay values) for evaluating traffic operations in more detail beyond LOS (and specific delay value within the LOS range), such as v/c ratios, Synchro queue calculations, and other operational details.




See Detail Sheet 1

Trip Distribution Exhibit 3

 Number: 1 Author: jchodsdon Subject: Callout Date: 8/15/2023 11:54:17 PM
[See Detail Sheet](#)

 Number: 2 Author: jchodsdon Subject: Rectangle Date: 8/15/2023 11:54:27 PM

 Number: 3 Author: jchodsdon Subject: Text Box Date: 8/15/2023 11:53:20 PM

[Trip Distribution
Exhibit](#)

Zone 32 - Not Used

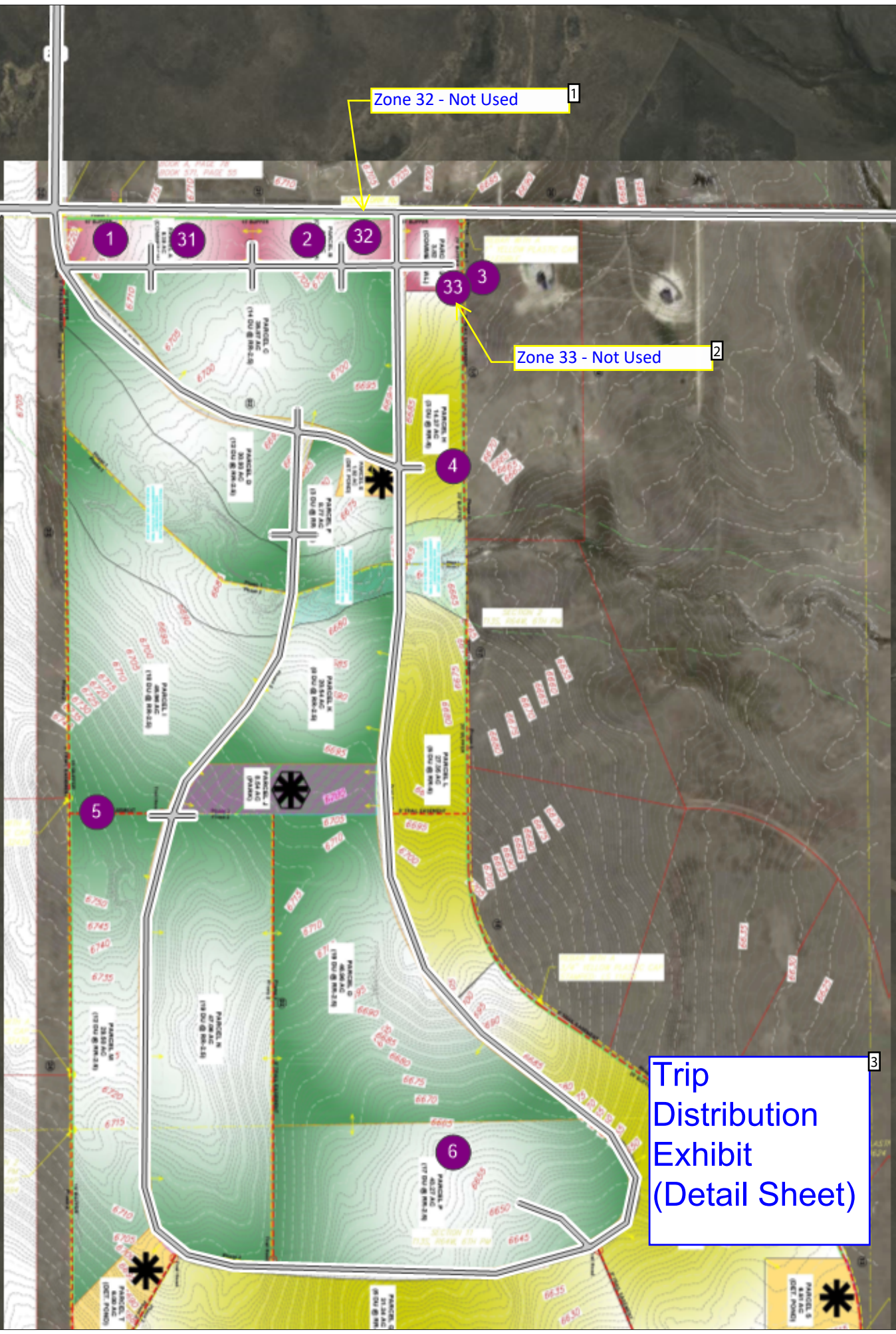
1

Zone 33 - Not Used

2

Trip
Distribution
Exhibit
(Detail Sheet)

3



☰ Number: 1 Author: jchodsdon Subject: Callout Date: 8/15/2023 11:56:45 PM
[Zone 32 - Not Used](#)

☰ Number: 2 Author: jchodsdon Subject: Callout Date: 8/15/2023 11:56:26 PM
[Zone 33 - Not Used](#)

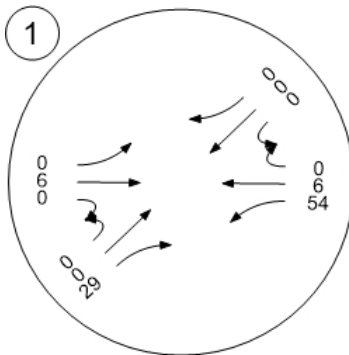
☰ Number: 3 Author: jchodsdon Subject: Text Box Date: 8/15/2023 11:55:41 PM

[Trip
Distribution
Exhibit
\(Detail Sheet\)](#)

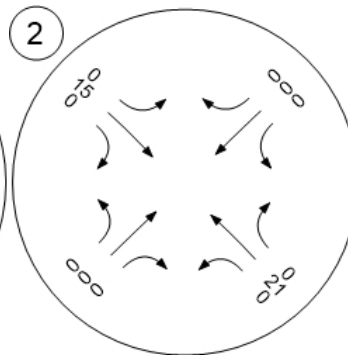
Traffic Volume - Net New Site Trips



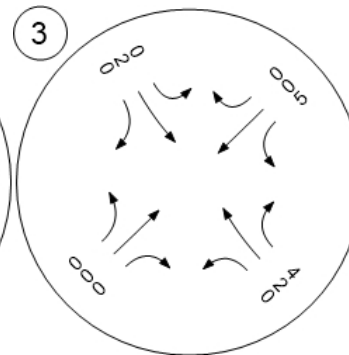
US 24 + Judge Orr



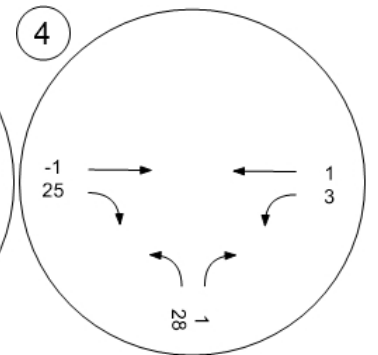
US 24 + Stapleton



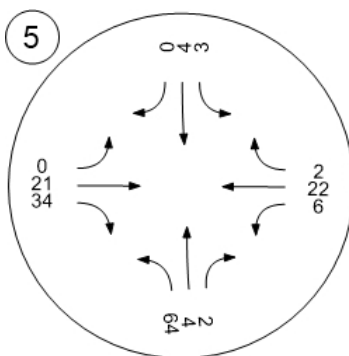
US 24 + Elbert



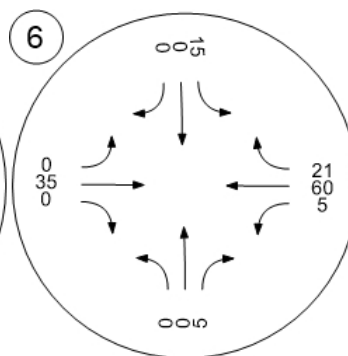
Judge Orr + E Access



Judge Orr + Elbert



Judge Orr + Curtis



Trip generation table shows 94 exiting trips while this figure shows 99 exiting trips ¹

Intersection #4 and #5 do not balance in the EB direction ²



☰ Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:28:46 AM -07'00'

Trip generation table shows 94 exiting trips while this figure shows 99 exiting trips

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:08:11 PM

LSC Response: Figures have been updated in the new TIS.

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:28:51 AM -07'00'

Intersection #4 and #5 do not balance in the EB direction

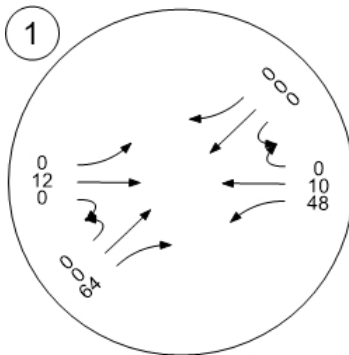
↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:08:19 PM

LSC Response: Figures have been updated in the new TIS.

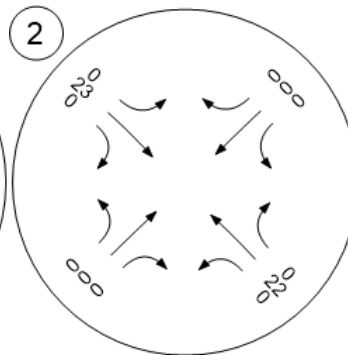
Traffic Volume - Net New Site Trips



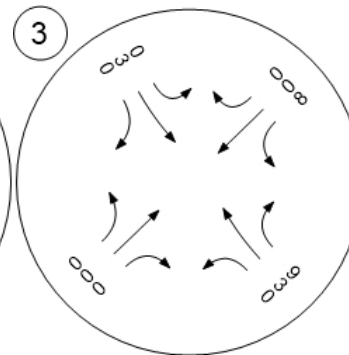
US 24 + Judge Orr



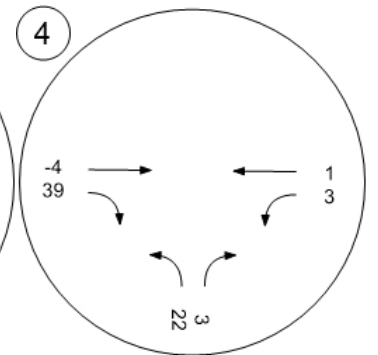
US 24 + Stapleton



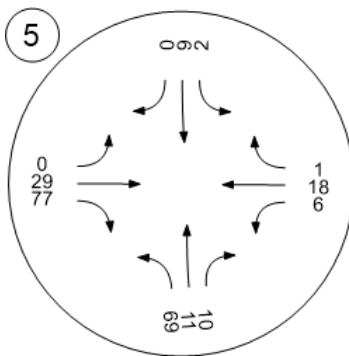
US 24 + Elbert



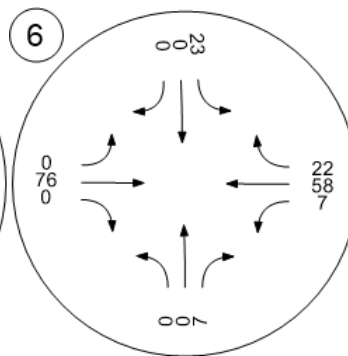
Judge Orr + E Access



Judge Orr + Elbert



Judge Orr + Curtis



1
Trip generation table forecasts 127 entering trips while this figure shows 134 entering trips

2
Intersection #4 and #5 do not balance in the EB direction



☰ Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:29:08 AM -07'00'

Trip generation table forecasts 127 entering trips while this figure shows 134 entering trips

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:08:27 PM
LSC Response: Figures have been updated in the new TIS.

☰ Number: 2 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:29:12 AM -07'00'

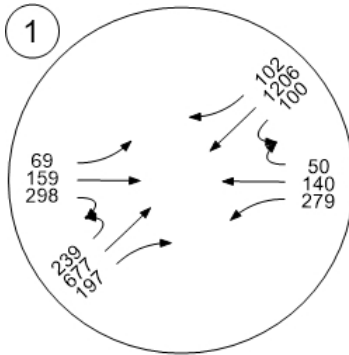
Intersection #4 and #5 do not balance in the EB direction

↶ Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:08:34 PM
LSC Response: Figures have been updated in the new TIS.

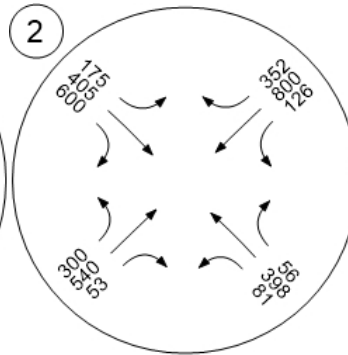
Traffic Volume - Base Volume



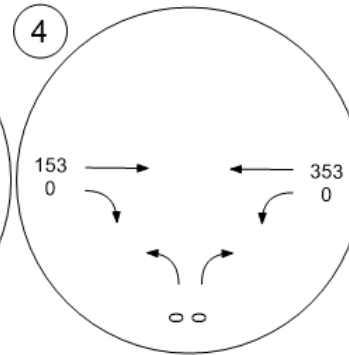
US 24 + Judge Orr



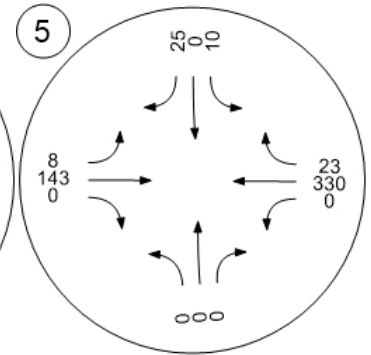
US 24 + Stapleton



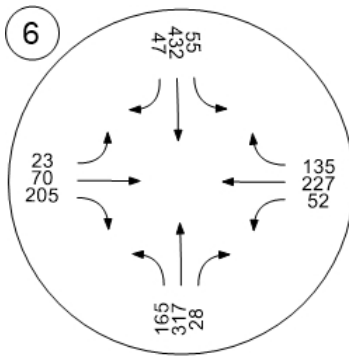
Judge Orr + E Access




Judge Orr + Elbert




Judge Orr + Curtis



Why is intersection #3 not shown?

 Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:29:24 AM -07'00'

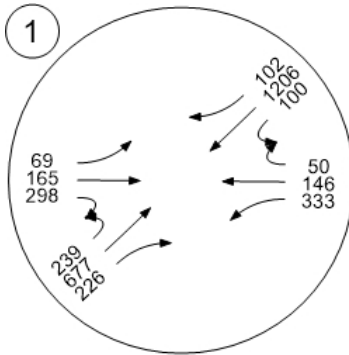
Why is intersection #3 not shown?

 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:08:41 PM
LSC Response: Figures have been updated in the new TIS.

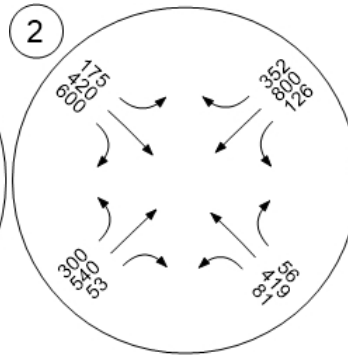
Traffic Volume - Future Total Volume



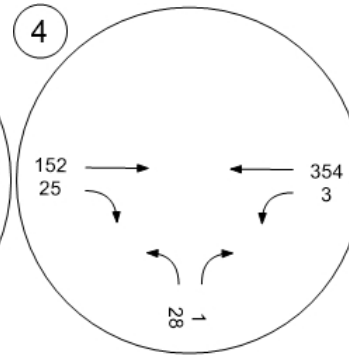
US 24 + Judge Orr



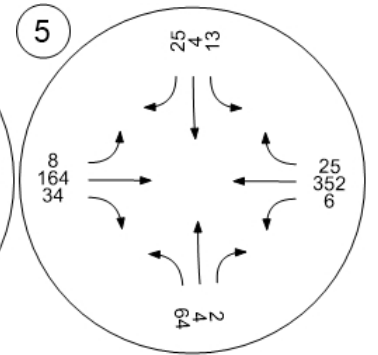
US 24 + Stapleton



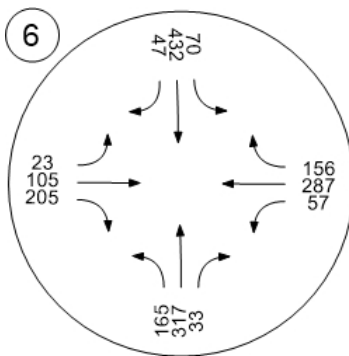
Judge Orr + E Access




Judge Orr + Elbert




Judge Orr + Curtis



Why is intersection #3 not shown?

 Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:29:30 AM -07'00'

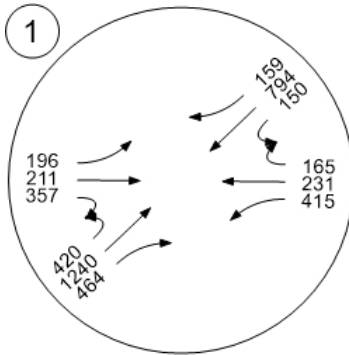
Why is intersection #3 not shown?

 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:08:47 PM
LSC Response: Figures have been updated in the new TIS.

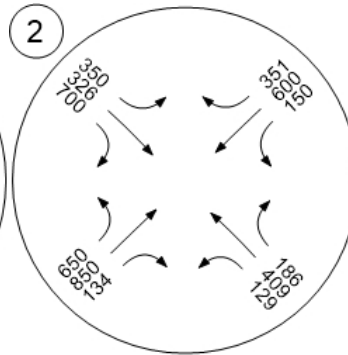
Traffic Volume - Base Volume



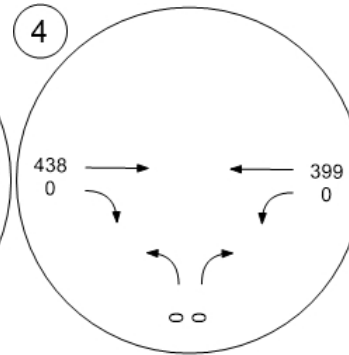
US 24 + Judge Orr



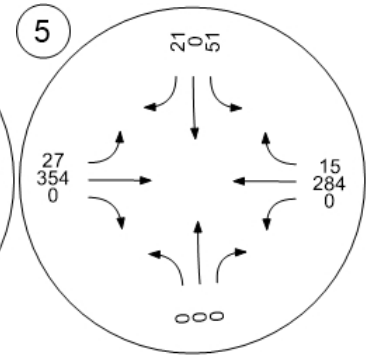
US 24 + Stapleton



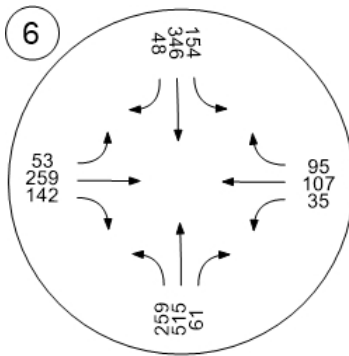
Judge Orr + E Access




Judge Orr + Elbert




Judge Orr + Curtis



Why is intersection #3 not shown? 1

 Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:29:34 AM -07'00'

Why is intersection #3 not shown?

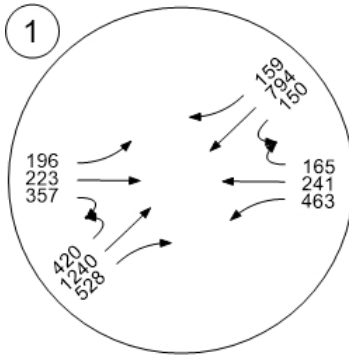
 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:08:55 PM

LSC Response: Figures have been updated in the new TIS.

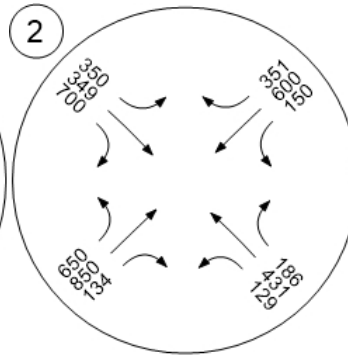
Traffic Volume - Future Total Volume



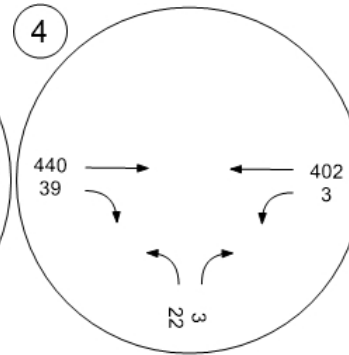
US 24 + Judge Orr



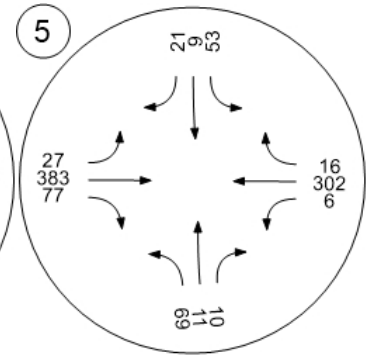
US 24 + Stapleton



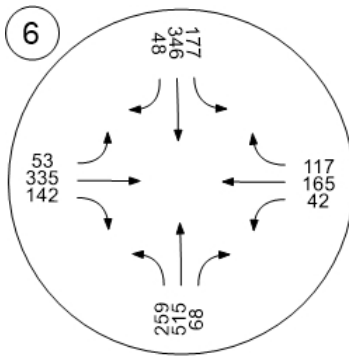
Judge Orr + E Access



Judge Orr + Elbert



Judge Orr + Curtis



Why is intersection #3 not shown? ¹

 Number: 1 Author: Max Rusch Subject: Text Box Date: 11/22/2023 9:29:41 AM -07'00'

Why is intersection #3 not shown?

 Author: jchodsdon Subject: Sticky Note Date: 5/6/2024 12:09:17 PM

LSC Response: Figures have been updated in the new TIS.