SMR Response
10/12/2026

TRANSPORTATION MEMORANDUM

For

Flying Horse North Filing 9
El Paso County, Colorado
PCD File No. PUDSP263

August 2026

Prepared for:

Flying Horse Development
2138 Flying Horse Club Drive
Colorado Springs, Colorado 80921

Prepared by:

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COLORADO LICENSED
BRANDON ADAM WILSON
68282
08/12/2026
PROFESSIONAL ENGINEER

Engineer in Responsible Charge:
Brandon Wilson, PE

25-122559

Traffic Engineer's Statement

The attached 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.

Brandon Wilson 08/12/2026

Brandon Wilson, P.E. #68282 Date

Developer's Statement

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

Drew Balsick Date
Flying Horse Development
2138 Flying Horse Club Drive
Colorado Springs, CO 80921

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I. Introduction

Project Overview

This Transportation Memorandum is provided as a planning document and addresses the capacity, geometric, and control requirements associated with the development entitled Flying Horse North Filing 9. This analysis was prepared in accordance with Appendix B of the County's Engineering Criteria Manual (ECM)[1] to support the Flying Horse North Filing No. 9 PUD & Preliminary Plan Major Amendment.

This traffic impact study has been revised to address County review comments made to the June 2026 version regarding the addition of missing evaluation elements from Section B.2.4.D of the County's ECM.

This proposed development consists of 11 residential lots designated for single-family detached homes. The development is located near the southwest corner of Old Stagecoach Road and Allen Ranch Road in El Paso County, Colorado.

Study Area

The study area to be examined in this analysis encompasses all adjacent roadways, intersections ,and high-volume access drives, which includes the Allen Ranch Road intersections with Old Stagecoach Road and the proposed Sorraia Way.

Figure 1 illustrates location of the site and study intersections.

Site Description

The current overall 2016 Flying Horse North PUD Preliminary Plan allows for construction of 283 residential lots on approximately 1,418 acres of land (PCD File No. PUD162). A Major PUD Amendment has been approved to increase the density by 16 lots for a gross total of 299 residential lots (PCD File No. PUDSP252).

Land for the development of Filing 9 is approximately 14 acres in size, currently vacant, and surrounded by a mix of residential and recreational land uses. The previously approved Flying Horse North Updated Traffic Impact Analysis (PCD File No. PUD162) had assumed development of 10 single-family detached homes in the same development area as currently proposed with this project.

[1] El Paso County Engineering Criteria Manual, El Paso County, January 9, 2025.

It is important to note that within subsequent plans for the area, a resort hotel with supporting casitas and verandas uses had been proposed. At that time, it is understood that surrounding infrastructure had been improved to support the anticipated traffic caused by the resort hotel and its supporting casitas and verandas. These improvements include the widening of Allen Ranch Road along Filing 9's frontage to accommodate a typical modified urban residential local cross-section.

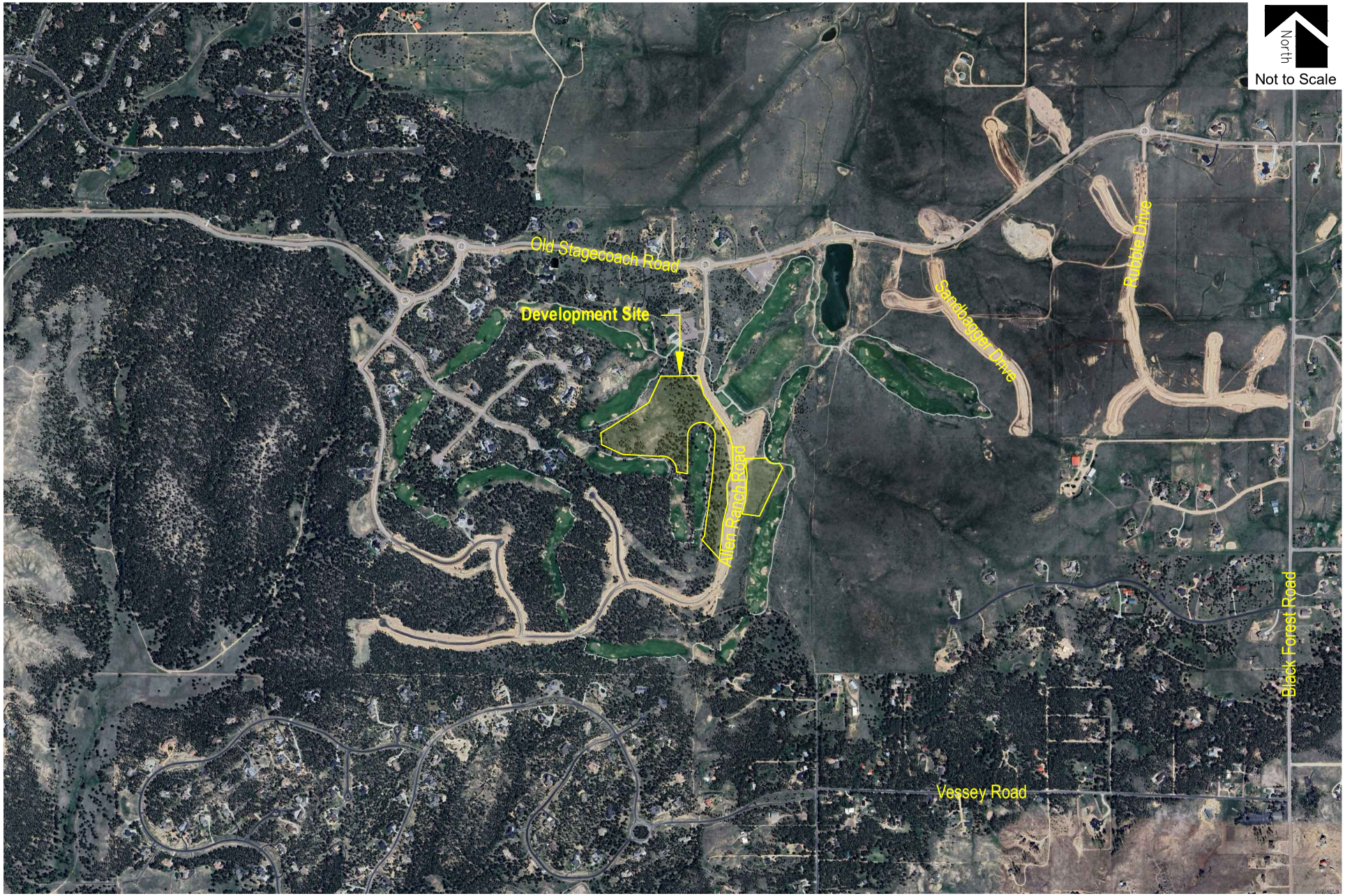
With development of Flying Horse North Filing 9, a resort hotel and its supporting uses are no longer being proposed. Instead, the development of Filing 9 is understood to entail the new construction of 11 single-family detached homes. This brings the total gross density for Flying Horse North to 310 residential lots.

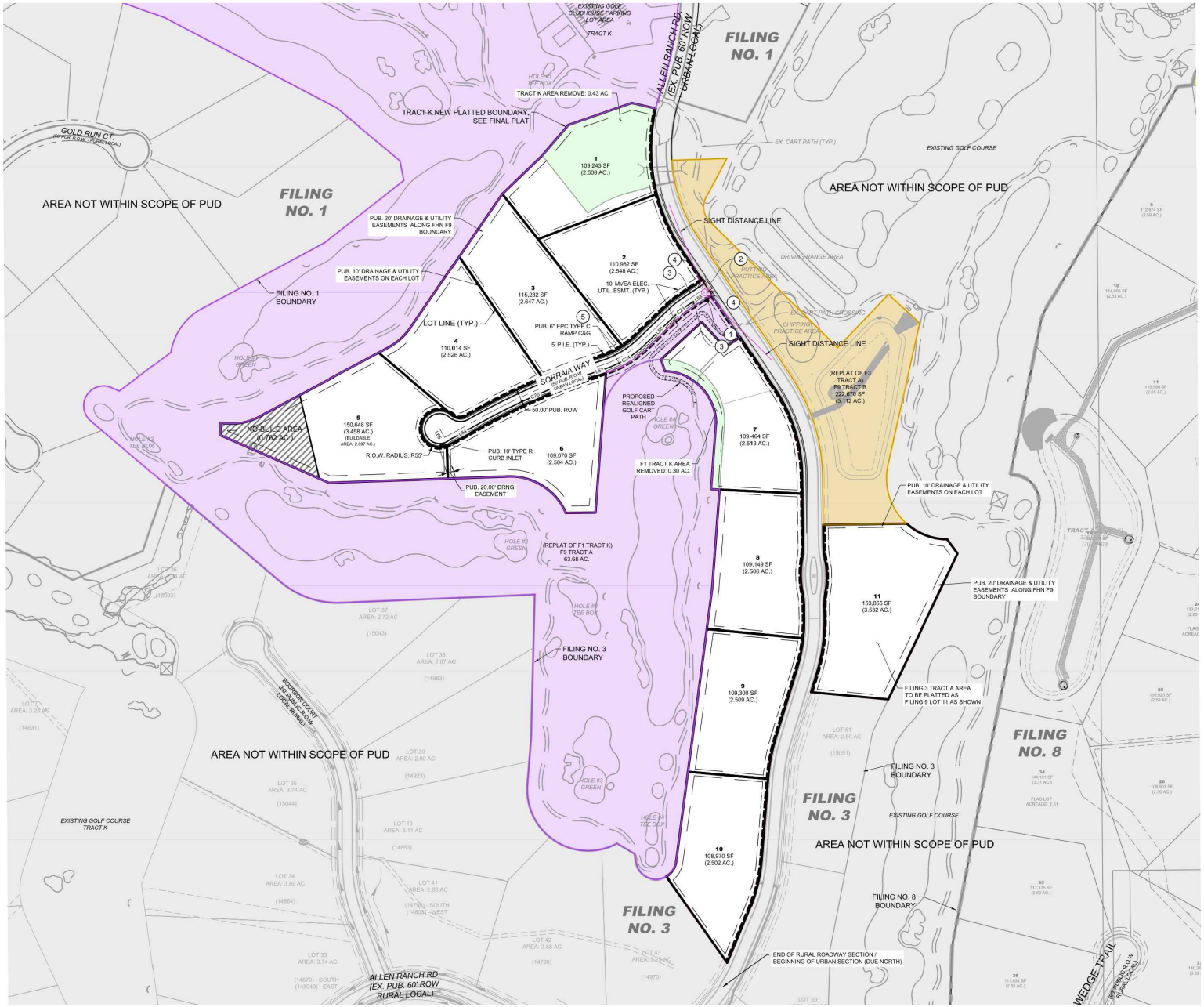
Proposed access to the development is general and provided via one full-movement access onto Old Stagecoach Road via Allen Ranch Road, and a proposed full-movement access onto Allen Ranch Road via Sorraia Way.

For purposes of this study, it is anticipated that development construction would be completed by end of Year 2028.

General site and access locations are shown on Figure 1.

The PUD site plan, as prepared by HR Green, is shown in Figure 2. This plan is provided for illustrative purposes only.


North
Not to Scale
Old Stagecoach Road
Development Site
Allen Ranch Road
Sandbagger Drive
Rubble Drive
Black Forest Road
Vessey Road



FLYING HORSE NORTH FILING 9
Transportation Memorandum

SM ROCHA, LLC
Traffic & Transportation Engineering

Figure 2
PUD SITE PLAN

August 2026
Page 4

Existing and Committed Surface Transportation Network

Within the study area, regional access to the proposed development area is provided by way of Old Stagecoach Road while local access is provided via Allen Ranch Road. A brief description of each roadway, based on the County's Major Transportation Corridors Plan (MTCP)[2] and the ECM, is provided below:

> Old Stagecoach Road is an east-west, El Paso County-owned roadway having two through lanes (one lane in each direction) with a combination of shared and exclusive turn lanes at the intersection within the study area. The County's MTCP categorizes Old Stagecoach Road as a rural minor collector roadway and accommodates a posted speed limit of 35 MPH. Old Stagecoach Road ends at Black Forest Road, continuing east as Terra Ridge Circle, and ends at Shortwall Drive, continuing west as Stagecoach Road.
>
> Allen Ranch Road is a north-south, El Paso County-owned roadway having two through lanes (one lane in each direction) with shared turn lanes at the intersection within the study area. Allen Ranch Road is unclassified in the County's MTCP. However, per Section 2.2.4 of the County's ECM and the roadway's estimated right-of-way (ROW) width, Allen Ranch Road has an urban residential local roadway classification with a design speed limit of 25 MPH.

All study intersections operate under stop-controlled or roundabout-controlled conditions. A stop-controlled intersection is defined as a roadway intersection where vehicle rights-of-way are controlled by one or more "STOP" signs.

No regional or specific improvements for the above-described roadway are known to be planned or committed at this time. The study area roadways appear to be built to their ultimate cross-sections.

[2] El Paso County Major Transportation Corridors Plan, Felsburg Holt & Ullevig, July 2024.

II. Existing Traffic Conditions

Morning (AM) and afternoon (PM) peak hour traffic counts were collected at the intersection of Old Stagecoach Road with Allen Ranch Road. Average daily traffic (ADT) volumes were collected over a 24-hour period on Old Stagecoach Road. Counts were collected on Thursday, December 12, 2024, with AM peak hour counts being collected during the period of 7:00 a.m. to 9:00 a.m., and PM peak hour counts being collected during the period of 4:00 p.m. to 6:00 p.m., and include existing Flying Horse traffic.

These peak hour and 24-hour traffic volume counts were obtained from the previously approved Flying Horse North Major PUD Amendment Master Traffic Impact Study[3]. These referenced counts were then grown to Year 2026 at a conservative annual growth of three percent. The three percent compounded annual growth rate was determined using population growth estimates provided by the Pike's Peak Area Council of Governments' (PPACG) 2045 Long Range Transportation Plan[4], as well as traffic data provided by CDOT's Online Transportation Information System (OTIS), along the adjacent segment of State Highway 83. PPACG's 2045 Long Range Transportation Plan anticipates a 20-year growth rate between one and two percent, while CDOT's OTIS anticipates a 20-year growth rate between two and three percent.

Existing volumes and intersection geometry are shown in Figure 3.

Referenced traffic count data is included for reference in Appendix A.

[3] Flying Horse North Major PUD Amendment: Master Traffic Impact Study, SM ROCHA, LLC, January 2026.
[4] Moving Forward 2045: Pikes Peak Area Regional Transportation Plan, Pikes Peak Area Council of Governments, January 2020.

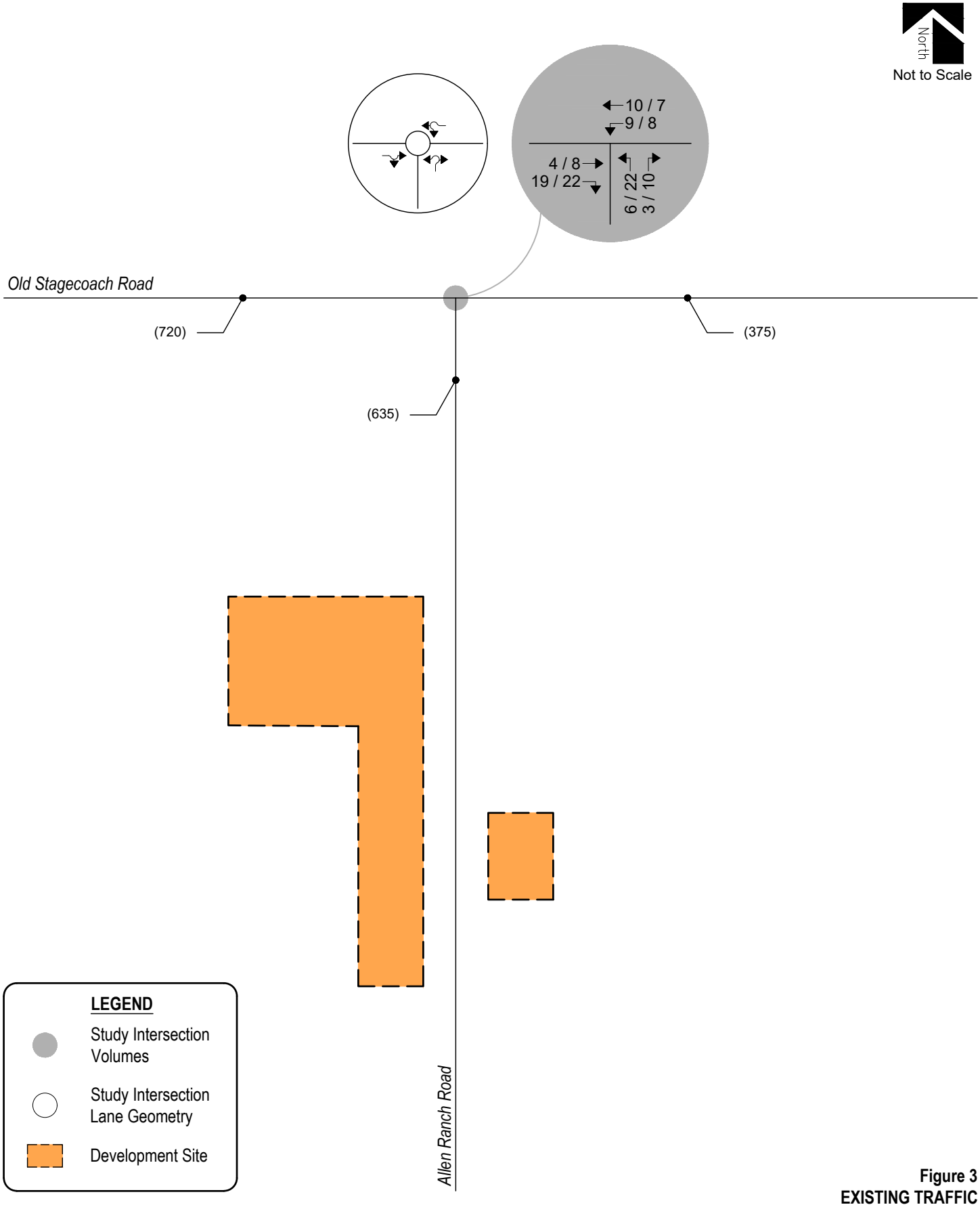


Figure 3
EXISTING TRAFFIC
Volumes & Intersection Geometry
AM / PM Peak Traffic Hour
(ADT) : Average Daily Traffic

Peak Hour Intersection Levels of Service – Existing Traffic

The Unsignalized and Roundabout Intersection Analysis techniques, as published in the Highway Capacity Manual (HCM), 7th Edition, by the Transportation Research Board and as incorporated into the SYNCHRO computer program, were used to analyze the study intersections for existing and future traffic conditions. These nationally accepted technique allows for the determination of intersection level of service (LOS) based on the congestion and delay of each traffic movement, the volume-to-capacity ratio, and control delay for each approach.

Pursuant to Section B.4.1.A of the County's ECM, the design objective for each scenario of this study shall be level of service "D". Level of service is a method of measurement used by transportation professionals to quantify a driver's perception of travel conditions that include travel time, number of stops, and total amount of stopped delay experienced on a roadway network. The HCM categorizes level of service into a range from "A" which indicates little, if any, vehicle delay, to "F" which indicates a level of operation considered unacceptable to most drivers. These levels of service grades with brief descriptions of the operating condition, for unsignalized and signalized intersections, are included for reference in Appendix B and have been used throughout this study.

The level of service analyses results for existing conditions are summarized in Table 1.

Intersection capacity worksheets developed for this study are provided in Appendix C.

Table 1 – Intersection Capacity Analysis Summary – Existing Traffic

INTERSECTION	LEVEL OF SERVICE	
LANE GROUPS	AM PEAK HOUR	PM PEAK HOUR
Old Stagecoach Road / Allen Ranch Road (Roundabout)		
Eastbound Through and Right	A	A
Westbound Left and Through	A	A
Northbound Left and Right	A	A

Key: Roundabout Intersection: Level of Service

Existing Traffic Analysis Results

Under existing conditions, operational analysis shows that the roundabout-controlled intersection of Old Stagecoach Road with Allen Ranch Road has overall operations at LOS A during the morning and afternoon peak traffic hours.

III. Future Traffic Conditions Without Proposed Development

Background traffic is the traffic projected to be on area roadways without consideration of the proposed development. Background traffic includes traffic generated by development of vacant parcels in the area.

To account for projected increases in background traffic for Year 2028, a compounded annual growth rate was determined using population growth estimates provided by PPACG's 2045 Long Range Transportation Plan, as well as traffic data provided by CDOT's OTIS, along the adjacent segment of State Highway 83. PPACG's 2045 Long Range Transportation Plan anticipates a 20-year growth rate between one and two percent, while CDOT's OTIS anticipates a 20-year growth rate between two and three percent. Therefore, in order to provide for a conservative analysis, a growth rate of three percent was applied to existing traffic volumes. This annual growth rate is also considered to be consistent with long-term regional growth projections and the level of in-fill development expected within the area.

It is important to note that ingress and egress traffic volumes along Allen Ranch Road at Old Stagecoach Road are not subject to annual growth patterns since this access drive does not provide connection to other roadways, therefore does not serve regional traffic.

To account for projected traffic from adjacent developments not yet built, trip generation estimates from traffic studies associated with adjacent future development were added to background traffic volumes. These future adjacent developments include:

- Flying Horse North Major PUD Amendment
- Flying Horse North Filing 4[5]
- Flying Horse North Filing 5[6]

Pursuant to the area roadway improvements discussed in Section I, Year 2028 background traffic conditions assume no roadway improvements to accommodate regional transportation demands. This assumption provides for a conservative analysis.

Projected background traffic volumes and intersection geometry for Year 2028 are shown in Figure 4.

[5] Flying Horse North Filing 4: Traffic Generation Analysis, SM ROCHA, LLC, February 2025.
[6] Flying Horse North Filing 5: Traffic Generation Analysis, SM ROCHA, LLC, November 2024.

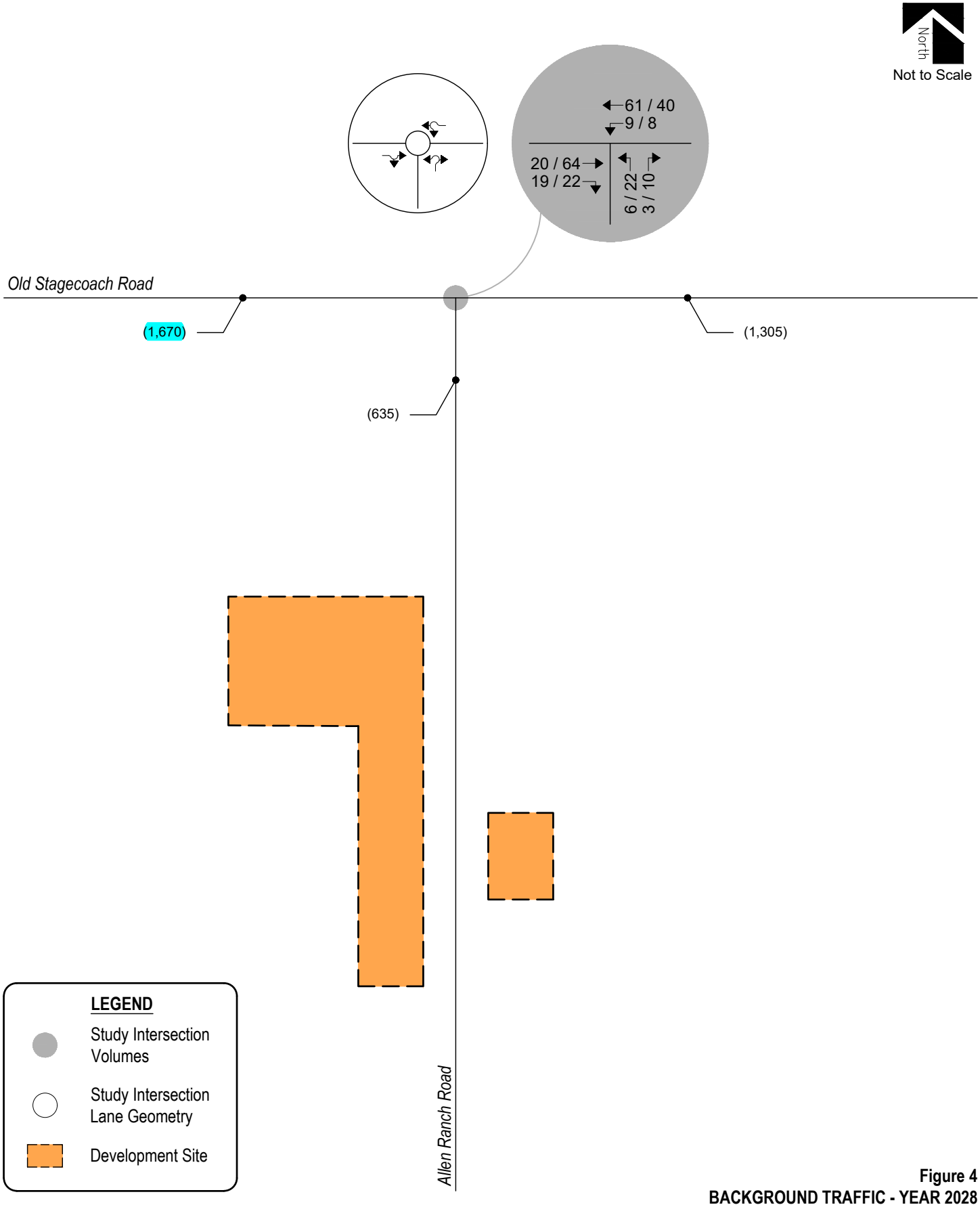


Figure 4
BACKGROUND TRAFFIC - YEAR 2028
Volumes & Intersection Geometry
AM / PM Peak Traffic Hour
(ADT) : Average Daily Traffic

Peak Hour Intersection Levels of Service – Background Traffic

As with existing traffic conditions, the operations of study intersections were analyzed under background conditions, without the proposed development, using the SYNCHRO computer program.

Background traffic level of service analysis results for Year 2028 are listed in Table 2.

Definitions of levels of service are given in Appendix B. Intersection capacity worksheets are provided in Appendix C.

Table 2 – Intersection Capacity Analysis Summary – Background Traffic – Year 2028

INTERSECTION	LEVEL OF SERVICE	
LANE GROUPS	AM PEAK HOUR	PM PEAK HOUR
Old Stagecoach Road / Allen Ranch Road (Roundabout)		
Eastbound Through and Right	A	A
Westbound Left and Through	A	A
Northbound Left and Right	A	A

Key: Roundabout Intersection: Level of Service

Background Traffic Analysis Results – Year 2028

Year 2028 background traffic analysis indicates that the roundabout-controlled intersection of Old Stagecoach Road with Allen Ranch Road continues to offer turning movement operations at LOS A during the morning and afternoon peak traffic hours.

These intersection operations are similar to existing conditions.

IV. Proposed Project Traffic

Trip Generation

Standard traffic generation characteristics compiled by the Institute of Transportation Engineers (ITE) in their report entitled Trip Generation Manual, 12th Edition, were applied to the proposed land use in order to estimate average daily traffic (ADT), AM Peak Hour, and PM Peak Hour vehicle trips. A vehicle trip is defined as a one-way vehicle movement from a point of origin to a point of destination.

The ITE land use code 210 (Single-Family Detached Housing) was used for estimating trip generation because of its best fit to the proposed land use description.

Trip generation rates used in this study are presented in Table 3.

Table 3 – Trip Generation Rates

			TRIP GENERATION RATES						
ITE			24	AM PEAK HOUR			PM PEAK HOUR		
CODE	LAND USE	UNIT	HOUR	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
210	Single-Family Detached Housing	DU	9.09	0.19	0.51	0.70	0.58	0.35	0.93

Key: DU = Dwelling Units.
Note: All data and calculations above are subject to being rounded to nearest value.

Table 4 illustrates projected ADT, AM Peak Hour, and PM Peak Hour traffic volumes likely generated by the proposed development upon build-out.

Table 4 – Trip Generation Summary

			TOTAL TRIPS GENERATED						
ITE			24	AM PEAK HOUR			PM PEAK HOUR		
CODE	LAND USE	SIZE	HOUR	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
210	Single-Family Detached Housing	11 DU	100	2	6	8	6	4	10
		Total:	*100*	*2*	*6*	*8*	*6*	*4*	*10*

Key: DU = Dwelling Units.
Note: All data and calculations above are subject to being rounded to nearest value.

Upon build-out, Table 4 illustrates that the proposed development has the potential to generate approximately 100 daily vehicle trips with 8 of those occurring during the morning peak hour and 10 during the afternoon peak hour.

Adjustments to Trip Generation Rates

A development of this type is not likely to attract trips from within area land uses nor pass-by or diverted link trips from the adjacent roadway system, therefore no trip reduction was taken in this analysis.

Trip Distribution

The overall directional distribution of site-generated traffic was determined based on the location of development site within the County, proposed and existing area land uses, allowed turning movements, available roadway network, and in reference to historical traffic count data provided by CDOT's Traffic Count Database System (TCDS)[7].

Overall trip distribution patterns for the development are shown on Figure 5.

Trip Assignment

Traffic assignment is how generated and distributed vehicle trips are expected to be loaded onto the available roadway network.

Applying trip distribution patterns to site-generated traffic provides the overall site-generated trip assignments shown on Figure 5.

[7] Transportation Data Management System, MS2, 2025.

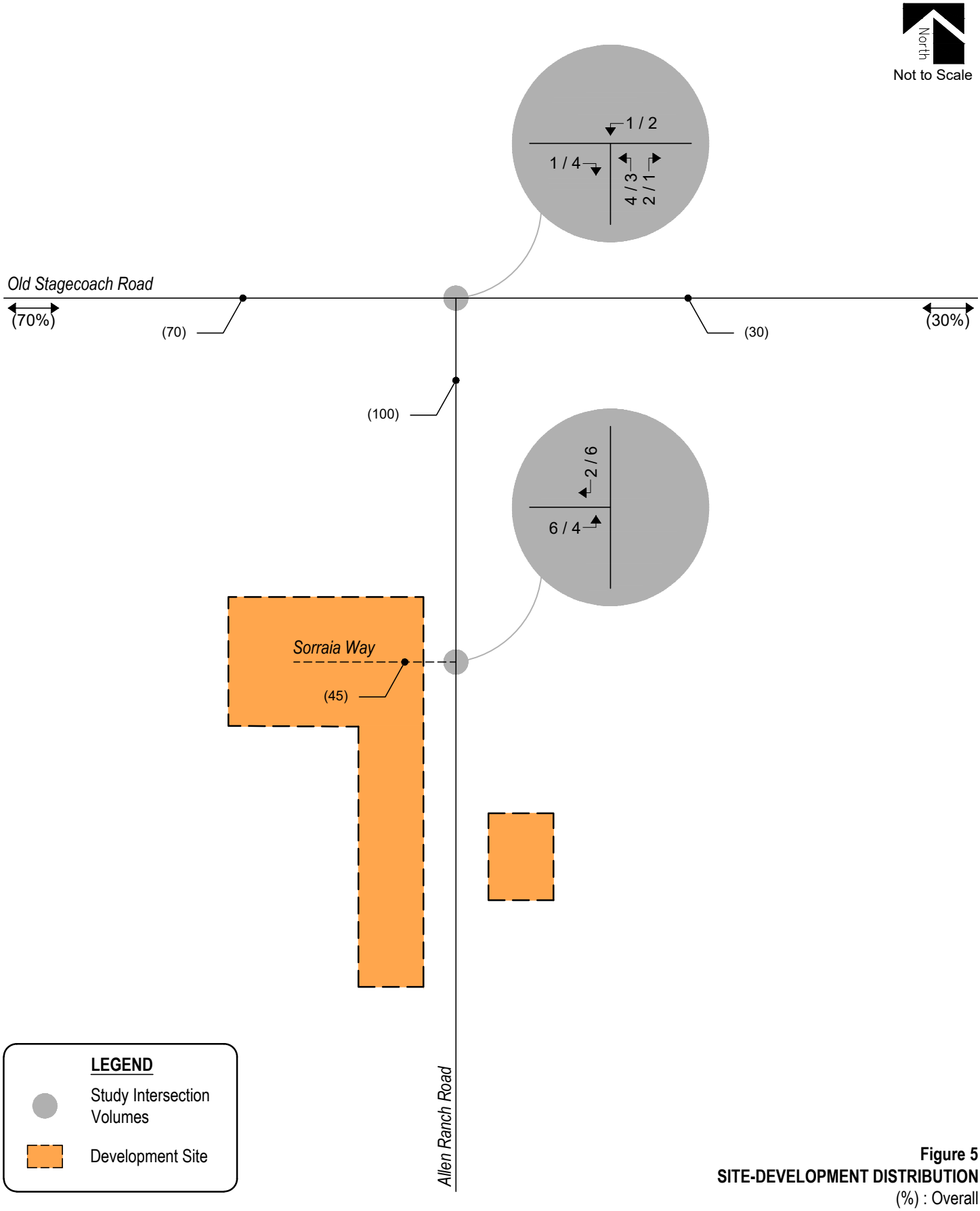


Figure 5
SITE-DEVELOPMENT DISTRIBUTION
(%) : Overall
SITE-GENERATED TRIPS
AM / PM Peak Hour
(ADT) : Average Daily Traffic

V. Future Traffic Conditions With Proposed Development

Total traffic is the traffic projected to be on area roadways with consideration of the proposed development. Total traffic includes background traffic projections for Year 2028 with consideration of site-generated traffic. For analysis purposes, it was assumed that development construction would be completed by end of Year 2028.

Pursuant to area roadway improvement discussions provided in Section III, Year 2028 total traffic conditions assume no roadway improvements to accommodate regional transportation demands. Roadway improvements associated with site development are expected to be limited to site access and frontage as required by the governing agency.

Total Traffic Auxiliary Lane Analysis

Auxiliary lanes for site development access onto Allen Ranch Road were evaluated based on the County's ECM.

Pursuant to Section 2.3.7 of the County's ECM, left and right turn deceleration lanes are required along minor arterial and lower classification roadways when the left and right turning volumes exceed 25 and 50 vehicles per hour, respectively.

Therefore, considering development build-out, an evaluation of auxiliary lane requirements reveals how exclusive left turn and right turn deceleration lanes along Allen Ranch Road are not warranted.

Projected Year 2028 total traffic volumes and intersection geometry are shown in Figure 6.

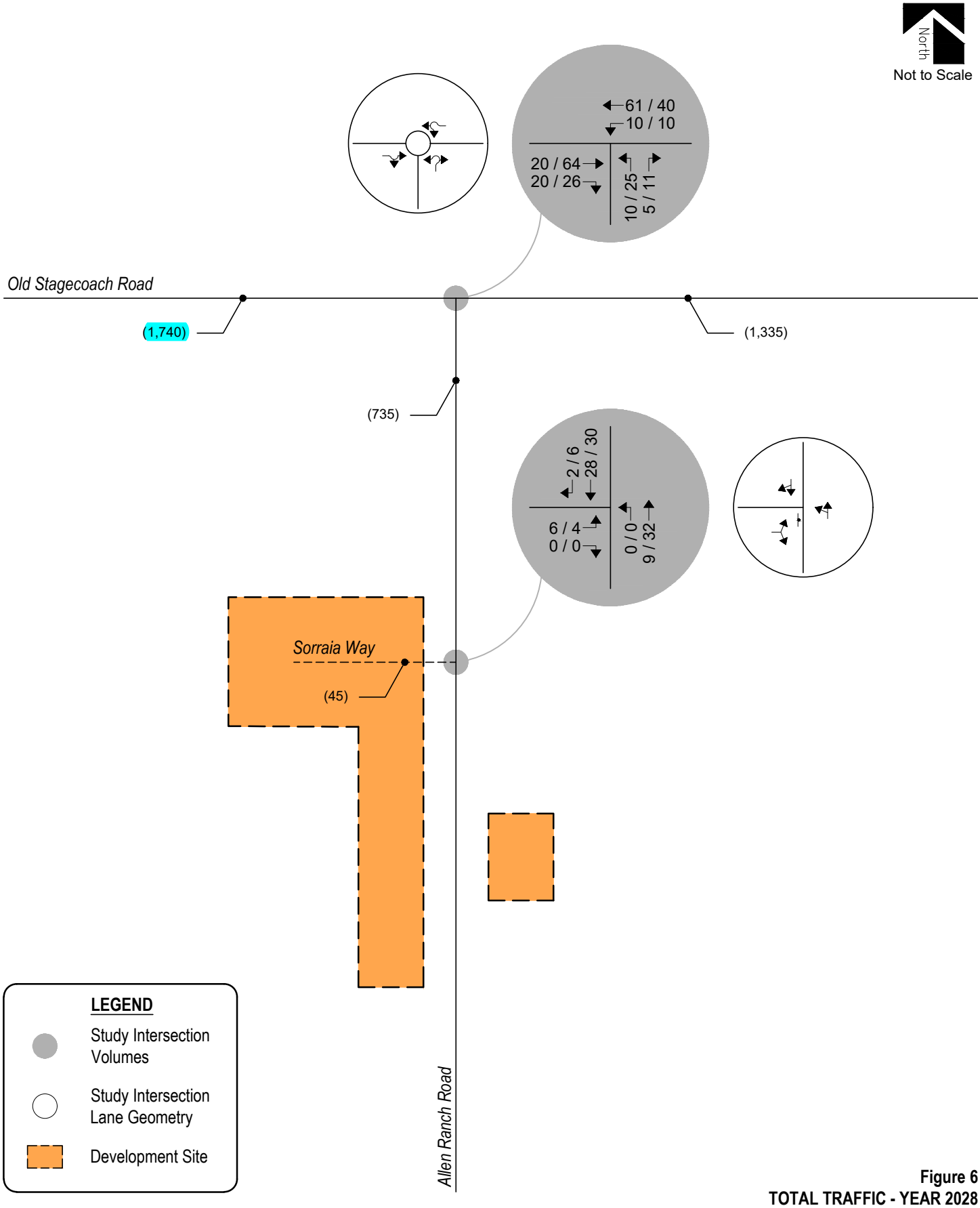


Figure 6
TOTAL TRAFFIC - YEAR 2028
Volumes & Intersection Geometry
AM / PM Peak Traffic Hour
(ADT) : Average Daily Traffic

Peak Hour Intersection Levels of Service – Total Traffic

As with background traffic, the operations of the study intersections were analyzed under projected total traffic conditions using the SYNCHRO computer program. The analyses and procedures were performed in accordance with the latest HCM and are based upon the worst-case conditions that occur during a typical weekday upon build-out of site development and analyzed land uses. Therefore, study intersections are likely to operate with traffic conditions better than those described within this study, which represent the peak hours of weekday operations only.

Total traffic level of service analysis results for Year 2028 are summarized in Table 5.

Definitions of levels of service are given in Appendix B. Intersection capacity worksheets are provided in Appendix C.

Table 5 – Intersection Capacity Analysis Summary – Total Traffic – Year 2028

INTERSECTION	LEVEL OF SERVICE	
LANE GROUPS	AM PEAK HOUR	PM PEAK HOUR
Old Stagecoach Road / Allen Ranch Road (Roundabout)		
Eastbound Through and Right	A	A
Westbound Left and Through	A	A
Northbound Left and Right	A	A
Allen Ranch Road / Sorraia Way (Stop-Controlled)		
Eastbound Left and Right	A	A
Northbound Left and Through	A	A

Key: Roundabout Intersection: Level of Service
Stop-Controlled Intersection: Level of Service

Total Traffic Analysis Results Upon Development Build-Out

Table 5 illustrates how, by Year 2028 and upon development build-out, the roundabout-controlled intersection of Old Stagecoach Road with Allen Ranch Road maintains LOS A operations during peak traffic periods. Compared to the background traffic analysis, the traffic generated by the proposed development is not expected to significantly change the operations of the study intersection.

The stop-controlled intersection of Allen Ranch Road with Sorraia Way forecasts turning movement operations at LOS A during peak traffic periods.

These intersection operations are similar to background conditions.

VI. Project Impacts

It is emphasized that the analyses and procedures described in this study were performed in accordance with the latest HCM and are based upon the worst-case conditions that occur during a typical weekday upon build-out of site development and analyzed land uses. Therefore, study intersections are likely to operate with traffic conditions better than those described within this study, which represent the peak hours of weekday operations only.

Development Impacts

Analysis of future traffic conditions indicates that the addition of site-generated traffic is expected to create no negative impact to traffic operations for the existing and surrounding roadway system upon roadway and intersection control improvements assumed within this analysis. With all conservative assumptions defined in this analysis, the study intersections are projected to operate at future levels of service comparable to background traffic conditions.

Sight Distance and Access Spacing

Pursuant to Section B.2.4.D of the County's ECM, an assessment of the appropriateness of proposed access locations was considered.

Table 2-35 of the County's ECM interprets that 390 feet of entering sight distance is required along Allen Ranch Road.

The PUD site plan further shows how approximately one-quarter-mile of spacing is being provided along Allen Ranch Road between Old Stagecoach Road and Sorraia Way. As a result, proposed site access drive location serving Filing 9 is believed to be appropriate.

With the understanding that this PUD site plan was prepared in accordance to Section 2.3.6 of the County's ECM and Section 9.5.3.2 of the American Association of State Highway and Transportation Officials' (AASHTO) A Policy on Geometric design of Highway and Streets (Green Book)[8], access spacing and sight distance along Allen Ranch Road is not expected to be an issue.

A conceptual sight distance exhibit illustrating approximate intersection sight distance triangles is included for reference in Appendix D.

[8] A Policy on Geometric Design of Highways and Streets (7th Edition), American Association of State Highway and Transportation Officials, 2018.

Pedestrian and Bicycle Facility Assessment

In accordance with Section B.2.4.D of the County's ECM, an assessment to adequacy of pedestrian and bicycle facilities within the study area was considered.

The study area already accommodates pedestrians and bicyclists with attached and detached sidewalks along either side of Allen Ranch Road.

The proposed development would accommodate pedestrians and bicyclists with attached sidewalks along either side of Sorraia Way and connecting to Allen Ranch Road, as well as preservation of the golf cart paths associated with Flying Horse North Golf Course.

Roadway Signage and Striping

An evaluation of roadway striping was assessed along the study segment of Allen Ranch Road following guidelines provided by the latest Manual on Uniform Traffic Control Devices (MUTCD)[9].

As discussed previously, Allen Ranch Road adjacent to the development site was recently improved to accommodate a typical modified urban residential local cross-section. As such, pursuant to Section 3B.02 of the MUTCD, Allen Ranch Road is not required to provide yellow center line markings due to its anticipated ADT being less than 6,000 vehicle trips per day. For these same reasons, white edge line pavement markings are not warranted pursuant to Section 3.10 of the MUTCD.

Similarly, Sorraia Way does not require yellow center line markings nor white edge line pavement markings due to its proposed rural local classification and projected ADT.

No other roadway markings and striping were identified to be warranted.

Recommended Improvements

Roadway and intersection improvement recommendations were assessed pursuant to roadway descriptions discussed in Section I, projected peak hour traffic volumes, level of service results, and per requirements defined within the County's ECM.

Upon development build-out of Filing 9 and considering the projected daily traffic volume along Allen Ranch Road illustrated in Figure 6 (735 vehicle trips per day), the modified urban residential local cross-section is considered to be adequate in order to accommodate future traffic demand. Therefore, no improvements to Allen Ranch Road are being recommended.

[9] Manual on Uniform Traffic Control Devices, 11th Edition, Federal Highway Administration, December 2023.

Figure 6 also illustrates projected 24-hour volumes along Old Stagecoach Road upon development build-out (1,335 to 1,740 vehicle trips per day east and west of Allen Ranch Road, respectively). With recently completed roadway widening improvements associated with Flying Horse North Filing 1, Old Stagecoach Road currently provides a rural minor collector cross-section with a design ADT of 1,500 vehicle trips per day, per Table 2-5 of the County's ECM. As such, the County's ECM suggests that the roadway may need to be improved to accommodate a higher design ADT. However, considering how the operational analyses performed throughout this study reports nothing less than exceptionally favorable results, no improvements to Old Stagecoach Road are being recommended.

As discussed previously, the Old Stagecoach Road intersection with Allen Ranch Road is expected to maintain adequate operations during their respective peak traffic hours. As such, no improvements to the intersection's current geometric design nor control type are recommended (i.e., provision of additional approach lanes, auxiliary lanes, bypass lanes, expansion of the roundabout's inscribed circle diameter, etc.). Moreover, no additional roadway signage nor striping improvements are recommended nor identified to be needed in order to meet governing requirements.

Please include any safety issues, speed limit concerns or other general discussion about why the section does not need to be improved to the major collector standard. Please include if the pavement thickness is sufficient for the additional traffic. The intersections operate with LOS A, however there has been no discussion related specifically to the cross section.

Under EPC project no. DEV1610, there is a BoCC-approved deviation that allows Stagecoach Road to remain a Rural Minor Collector with an ADT of 2,200 vpd.

Discussion will be provided in the revised traffic memo, and the approved deviation will be included in the Appendix.

VII. Conclusion

This Transportation Memorandum addressed the capacity, geometric, and control requirements associated with the development entitled Flying Horse North Filing 9. This analysis was prepared in accordance with Appendix B of the County's ECM to support the Flying Horse North Filing No. 9 PUD & Preliminary Plan Major Amendment. This proposed development consists of 11 residential lots designated for single-family detached homes and is located near the southwest corner of Old Stagecoach Road with Allen Ranch Road in El Paso County, Colorado.

The study area examined in this analysis encompassed all adjacent roadways, intersections ,and high-volume access drives, which includes the Allen Ranch Road intersections with Old Stagecoach Road and the proposed Sorraia Way.

Analysis was conducted for critical AM Peak Hour and PM Peak Hour traffic operations for existing traffic conditions, Year 2028 background traffic conditions, and Year 2028 total traffic conditions.

Analysis of existing traffic conditions indicates that the roundabout-controlled intersection of Old Stagecoach Road with Allen Ranch Road operates with LOS A turning movement operations during its respective peak hour periods.

Under Year 2028 background traffic conditions and assuming development of Flying Horse North Filing 4, Filing 5, and the Major PUD Amendment (Filings 6 through 8), operational analysis shows that the study intersection of Old Stagecoach Road with Allen Ranch Road is projected to maintain LOS A turning movement operations during peak traffic periods.

Analysis of future traffic conditions indicates that the addition of site-generated traffic is expected to create no negative impact to traffic operations for the existing and surrounding roadway system upon roadway and intersection control improvements assumed within this analysis. With all conservative assumptions defined in this analysis, the study intersections are projected to operate at future levels of service comparable to Year 2028 background traffic conditions. Proposed site access has long-term operations at LOS A during peak traffic periods and upon build-out.

Based on recommended roadway and intersection improvements evaluated, no improvements to the adjacent roadway network were determined to be warranted. Therefore, no improvements associated with Flying Horse North Filing 9 are being recommended.

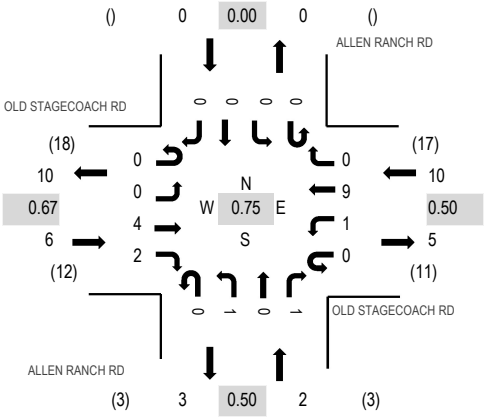
APPENDIX A

Traffic Count Data

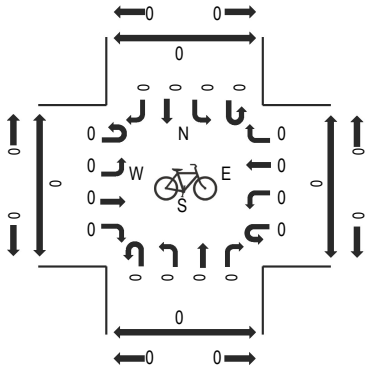
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 7 ALLEN RANCH RD & OLD STAGECOACH RD AM
Date: Thursday, December 12, 2024
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

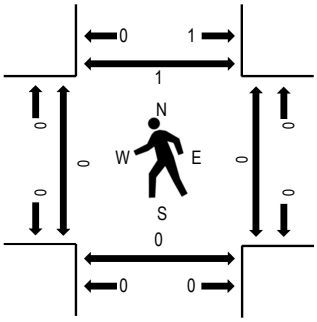
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

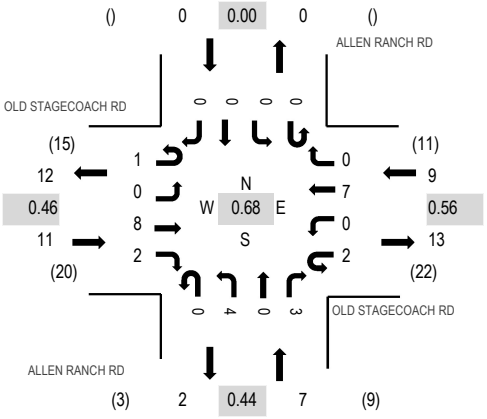
Traffic Counts - Motorized Vehicles

Interval Start Time	OLD STAGECOACH RD Eastbound				OLD STAGECOACH RD Westbound				ALLEN RANCH RD Northbound				ALLEN RANCH RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	5	17	0	0	0	0
7:15 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4	16	0	0	0	0
7:30 AM	0	0	1	1	0	1	2	0	0	0	0	1	0	0	0	0	6	18	0	0	0	0
7:45 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	15	0	0	0	1
8:00 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4	15	0	0	0	0
8:15 AM	0	0	0	1	0	0	5	0	0	0	0	0	0	0	0	0	6		0	0	0	0
8:30 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3		0	0	0	0
8:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2		0	0	0	0
Count Total	0	0	10	2	0	1	16	0	0	2	0	1	0	0	0	0	32		0	0	0	1
Peak Hour	0	0	4	2	0	1	9	0	0	1	0	1	0	0	0	0	18		0	0	0	1

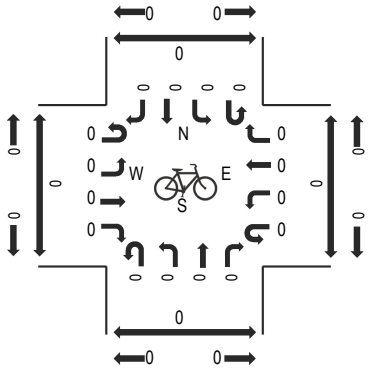
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 7 ALLEN RANCH RD & OLD STAGECOACH RD PM
Date: Thursday, December 12, 2024
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

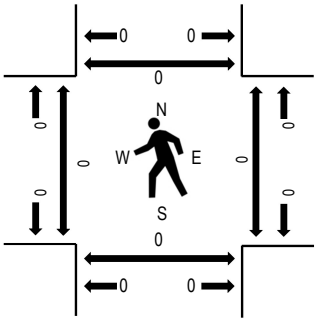
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	OLD STAGECOACH RD Eastbound				OLD STAGECOACH RD Westbound				ALLEN RANCH RD Northbound				ALLEN RANCH RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	4	2	0	0	2	0	0	2	0	0	0	0	0	0	10	27	0	0	0	0
4:15 PM	0	0	3	0	1	0	1	0	0	1	0	3	0	0	0	0	9	21	0	0	0	0
4:30 PM	0	0	1	0	1	0	3	0	0	0	0	0	0	0	0	0	5	14	0	0	0	0
4:45 PM	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	11	0	0	0	0
5:00 PM	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	4	13	0	0	0	0
5:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2		0	0	0	0
5:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2		0	0	0	0
5:45 PM	0	0	3	0	0	0	1	0	0	0	0	1	0	0	0	0	5		0	0	0	0
Count Total	1	0	16	3	2	0	9	0	0	5	0	4	0	0	0	0	40		0	0	0	0
Peak Hour	1	0	8	2	2	0	7	0	0	4	0	3	0	0	0	0	27		0	0	0	0

All Traffic Data Services
12200 W 52nd Ave
Wheat Ridge, CO 80033
www.alltrafficdata.net

Site Code: 17
Station ID: 17
OLD STAGECOACH RD W.O. BLACK FOREST RD

Start Time	12-Dec-24 Thu	EB	WB							Total
12:00 AM		0	0							0
01:00		0	0							0
02:00		0	0							0
03:00		0	0							0
04:00		0	0							0
05:00		0	1							1
06:00		1	4							5
07:00		**7**	8							15
08:00		5	**12**							**17**
09:00		3	3							6
10:00		4	6							10
11:00		3	4							7
12:00 PM		4	6							10
01:00		3	0							3
02:00		12	8							20
03:00		10	**10**							20
04:00		**17**	9							**26**
05:00		8	6							14
06:00		8	5							13
07:00		2	5							7
08:00		4	3							7
09:00		0	0							0
10:00		2	3							5
11:00		0	0							0
Total		93	93							186
Percent		50.0%	50.0%							
AM Peak	-	07:00	08:00	-	-	-	-	-	-	08:00
Vol.	-	7	12	-	-	-	-	-	-	17
PM Peak	-	16:00	15:00	-	-	-	-	-	-	16:00
Vol.	-	17	10	-	-	-	-	-	-	26
Grand Total		93	93							186
Percent		50.0%	50.0%							
ADT		ADT 186		AADT 186						

All Traffic Data Services
12200 W 52nd Ave
Wheat Ridge, CO 80033
www.alltrafficdata.net

Site Code: 18
Station ID: 18
OLD STAGECOACH RD E.O. SHORTWALL DR

Start Time	12-Dec-24 Thu	EB	WB							Total
12:00 AM		0	0							0
01:00		0	0							0
02:00		0	0							0
03:00		0	0							0
04:00		0	0							0
05:00		0	3							3
06:00		2	2							4
07:00		7	12							19
08:00		8	12							20
09:00		9	9							18
10:00		13	9							22
11:00		**14**	**13**							**27**
12:00 PM		4	11							15
01:00		9	5							14
02:00		16	15							31
03:00		15	9							24
04:00		**17**	**22**							**39**
05:00		14	9							23
06:00		7	9							16
07:00		3	1							4
08:00		6	2							8
09:00		3	1							4
10:00		2	1							3
11:00		0	0							0
Total		149	145							294
Percent		50.7%	49.3%							
AM Peak	-	11:00	11:00	-	-	-	-	-	-	11:00
Vol.	-	14	13	-	-	-	-	-	-	27
PM Peak	-	16:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	17	22	-	-	-	-	-	-	39
Grand Total		149	145							294
Percent		50.7%	49.3%							
ADT		ADT 294		AADT 294						

APPENDIX B

Level of Service Definitions

The following information is referenced from the Highway Capacity Manual: A Guide for Multimodal Mobility Analysis, 7th Edition, Transportation Research Board, 2022: Chapter 19 – Signalized Intersections.

Motorized Vehicle Level of Service (LOS) for Signalized Intersections

Levels of service are defined to represent reasonable ranges in control delay.

LOS A Describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B Describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C Describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

LOS D Describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

LOS E Describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F Describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio[a]	
	$v/c \leq 1.0$	$v/c > 1.0$
≤ 10	A	F
> 10 – 20	B	F
> 20 – 35	C	F
> 35 – 55	D	F
> 55 – 80	E	F
> 80	F	F

Note: [a] For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

The following information is referenced from the Highway Capacity Manual: A Guide for Multimodal Mobility Analysis, 7th Edition, Transportation Research Board, 2022: Chapter 20 – Two-Way Stop-Controlled Intersections, Chapter 21 – All-Way Stop-Controlled Intersections, and Chapter 22 - Roundabouts.

Motorized Vehicle Level of Service (LOS) for Unsignalized & Roundabout Intersections

LOS is a quantitative stratification of performance measure(s) representing quality of service. Quality of service describes how well a transportation facility or service operates from a traveler's perspective. LOS is measured on an A – F scale, with LOS A representing the best operating conditions from a traveler's perspective.

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio[a]	
	$v/c \leq 1.0$	$v/c > 1.0$
0 – 10	A	F
> 10 – 15	B	F
> 15 – 25	C	F
> 25 – 35	D	F
> 35 – 50	E	F
> 50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

[a] For approaches and intersectionwide assessment, LOS is defined solely by control delay.

APPENDIX C

Capacity Worksheets

Intersection	
Intersection Delay, s/veh	2.8
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	25	21	10
Demand Flow Rate, veh/h	25	21	10
Vehicles Circulating, veh/h	10	7	4
Vehicles Exiting, veh/h	18	7	31
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	2.8	2.8	2.7
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	25	21	10
Cap Entry Lane, veh/h	1366	1370	1374
Entry HV Adj Factor	0.997	0.990	1.000
Flow Entry, veh/h	25	21	10
Cap Entry, veh/h	1362	1356	1374
V/C Ratio	0.018	0.015	0.007
Control Delay, s/veh	2.8	2.8	2.7
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection	
Intersection Delay, s/veh	2.8
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	33	17	35
Demand Flow Rate, veh/h	33	17	35
Vehicles Circulating, veh/h	9	24	9
Vehicles Exiting, veh/h	32	20	33
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	2.8	2.8	2.8
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	33	17	35
Cap Entry Lane, veh/h	1367	1346	1367
Entry HV Adj Factor	0.995	0.991	1.000
Flow Entry, veh/h	33	17	35
Cap Entry, veh/h	1360	1334	1367
V/C Ratio	0.024	0.013	0.026
Control Delay, s/veh	2.8	2.8	2.8
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection	
Intersection Delay, s/veh	3.0
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	43	76	10
Demand Flow Rate, veh/h	43	77	10
Vehicles Circulating, veh/h	10	7	22
Vehicles Exiting, veh/h	74	25	31
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	2.9	3.1	2.7
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	43	77	10
Cap Entry Lane, veh/h	1366	1370	1349
Entry HV Adj Factor	0.990	0.983	1.000
Flow Entry, veh/h	43	76	10
Cap Entry, veh/h	1352	1347	1349
V/C Ratio	0.031	0.056	0.007
Control Delay, s/veh	2.9	3.1	2.7
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection	
Intersection Delay, s/veh	3.1
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	94	52	35
Demand Flow Rate, veh/h	95	53	35
Vehicles Circulating, veh/h	9	24	71
Vehicles Exiting, veh/h	68	82	33
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.2	3.0	3.0
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	95	53	35
Cap Entry Lane, veh/h	1367	1346	1283
Entry HV Adj Factor	0.985	0.984	1.000
Flow Entry, veh/h	94	52	35
Cap Entry, veh/h	1347	1325	1283
V/C Ratio	0.069	0.039	0.027
Control Delay, s/veh	3.2	3.0	3.0
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection	
Intersection Delay, s/veh	3.0
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	44	77	16
Demand Flow Rate, veh/h	44	78	16
Vehicles Circulating, veh/h	11	11	22
Vehicles Exiting, veh/h	78	27	33
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	2.9	3.1	2.8
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	44	78	16
Cap Entry Lane, veh/h	1364	1364	1349
Entry HV Adj Factor	0.990	0.983	1.000
Flow Entry, veh/h	44	77	16
Cap Entry, veh/h	1351	1341	1349
V/C Ratio	0.032	0.057	0.012
Control Delay, s/veh	2.9	3.1	2.8
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	0	0	9	28	2
Future Vol, veh/h	6	0	0	9	28	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	0	0	10	30	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	41	32	33	0	-	0
Stage 1	32	-	-	-	-	-
Stage 2	10	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	970	1042	1579	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	1013	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	970	1042	1579	-	-	-
Mov Cap-2 Maneuver	970	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	1013	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.74	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1579	-	970	-	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Ctrl Dly (s/v)	0	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	3.2
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	98	54	39
Demand Flow Rate, veh/h	100	55	40
Vehicles Circulating, veh/h	11	28	71
Vehicles Exiting, veh/h	72	83	40
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.3	3.0	3.1
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	100	55	40
Cap Entry Lane, veh/h	1364	1341	1283
Entry HV Adj Factor	0.976	0.984	0.975
Flow Entry, veh/h	98	54	39
Cap Entry, veh/h	1332	1320	1251
V/C Ratio	0.073	0.041	0.031
Control Delay, s/veh	3.3	3.0	3.1
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	0	0	32	30	6
Future Vol, veh/h	4	0	0	32	30	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	0	0	35	33	7

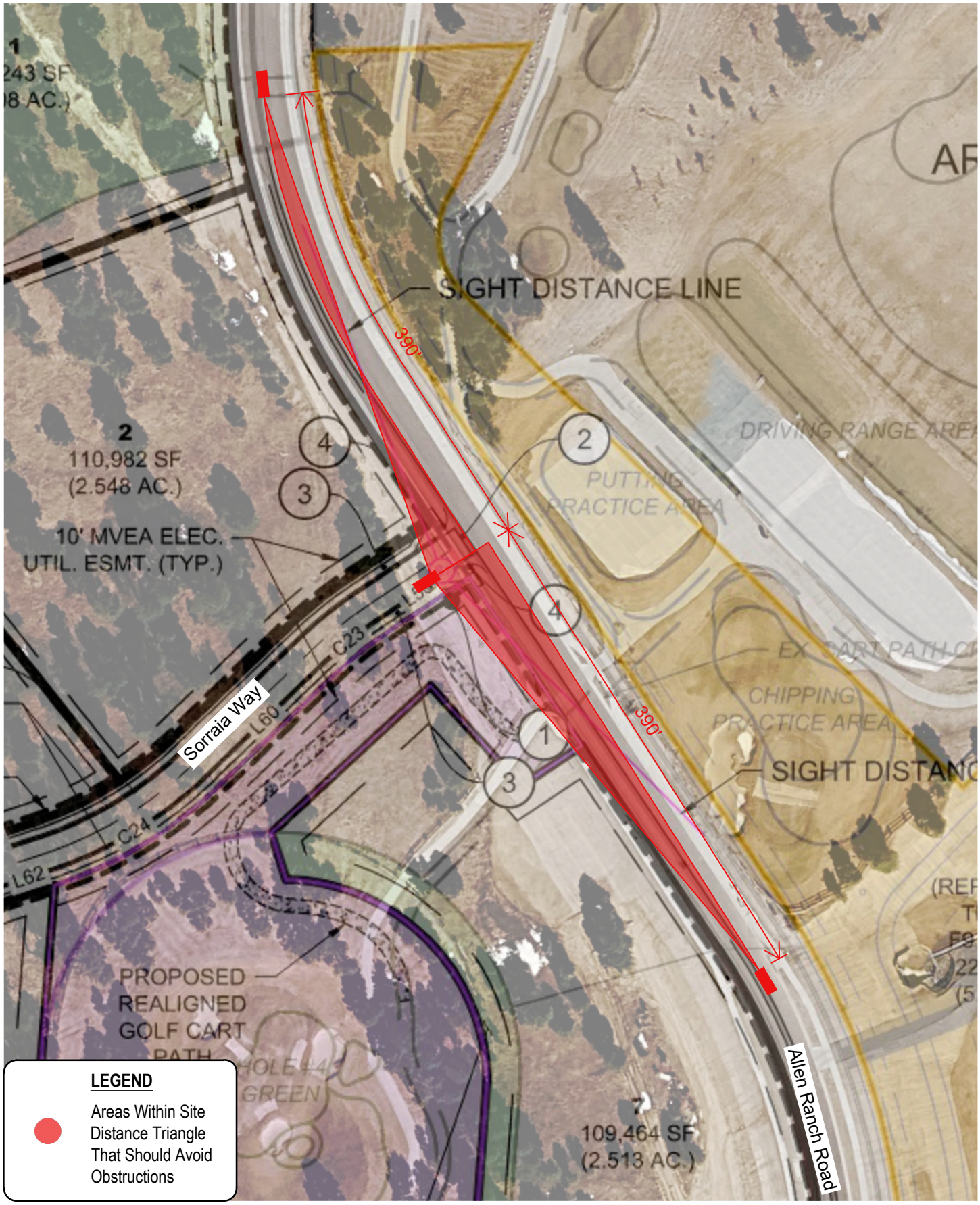
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	71	36	39	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	934	1037	1571	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	988	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	934	1037	1571	-	-	-
Mov Cap-2 Maneuver	934	-	-	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	988	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.87	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1571	-	934	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Ctrl Dly (s/v)	0	-	8.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

APPENDIX D

Conceptual Sight Distance Exhibit



FLYING HORSE NORTH FILING 9
Conceptual Sight Distance Exhibit

August 2026

SM ROCHA, LLC
Traffic and Transportation Engineering

0 100

North