

Traffic Impact Study

Branding Iron Trailer Sales, Service

and Supply

February 19, 2026

Prepared for:

Branding Iron Trailer Sales, Service and Supply

13925 US-24
Peyton, CO 80831

and

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1. Introduction and Purpose

This Traffic Impact Study (TIS) has been prepared in accordance with the guidance provided as part of Early Assistance Meeting Number EA25117.

Based on our review of the existing information and notes from prior meetings, it appears that Branding Iron Trailer Sales is currently located on a parcel of land zoned as A-5 (Agricultural) and operates with under a special permit (Reference "Arrowhead Trailer Rural Home Occupation"). The property appears to be non-conforming with Condition of Approval 1 which states that "approval is limited to the sale and repair of recreational vehicles and the sale of hay, as discussed and depicted in the applicant's letter of intent and site plan drawings. The original site plan drawings depicts an outdoor trailer sales area of 90'x220', an indoor storage building approximately 225'x110'x18', and a shop approximately 40'x40'x16'.

Based on current aerial imagery, it would appear that one additional barn approximately 60'x65' has been constructed since the original approval. The outdoor sales area also appears to be expanded from the original 90'x220' (19,800 square feet) to approximately 120,000 square feet.

Based on the non-conforming use, it is recommended by El Paso County Planning Staff to rezone the property from the existing A-5 zoning to the Community Service (CS) Zoning District. This would provide the property owner with additional flexibility for uses on the property.

As such, the Zoning Amendment process requires the preparation and submittal of a Traffic Impact Study to support the application. Based on the number of trips generated per day, the project should be able to utilize the Traffic Memorandum Level of Study per Appendix B, Paragraph B.1.2.C; however, per email correspondence from Edward Schoenheit dated December 9th, 2025, an Intermediate Level TIS is required.

In the forthcoming pages, our team has performed the required analysis and documented our findings necessary to satisfy the Intermediate TIS requirements.

It should also be noted that the current CDOT Access Permit (AP #204114) is currently in place for the property. The allowable use on file is a single-family residence with 12 horse stables. As such, the study will also be provided to CDOT for review concurrently with the Rezoning Application since an amendment to the existing access permit will be required.

This Study has been prepared using reference material available from the El Paso County, CDOT, and other local published and applicable information.



BRANDING IRON TRAILER SALES, SERVICE AND SUPPLY
PEYTON, COLORADO
FIGURE 1 - SITE DESCRIPTION



2. Existing Conditions, Site and Study Area Boundaries

The proposed development is located at:

13925 East Highway 24

Peyton, CO 80831

As outlined in the introduction, the site currently lies in unincorporated El Paso County. The site is only accessed via a paved access onto US Highway 24 which is currently controlled by the Colorado Department of Transportation (CDOT). The site is located on a segment of Highway 24 between Judge Orr Road and Stapleton Road. The access is located approximately 2,750 feet northeast of the US-24 and Judge Orr Road intersection, and approximately 3,750 feet southwest of the US-24 and Stapleton Road intersection. The US-24 and Judge Orr Road intersection is signalized. The US-24 and Stapleton Road intersection is two-way stop controlled.

As described earlier, the existing site currently operates as a trailer sales, service and supply retailer operating under a Special Use Permit in an Agricultural Zoning District (A-5). Zone Map 423 depicts the surrounding zone districts as A-5 to the north, A-35 to the east, and RVP and PUD to the south. Property immediately to the west (and across US-24) is zoned A-35.

The site is bound to the north and east by open space (note that a Big R Retail Store is approximately 1,800 feet to the northeast). It is bound to the south by a combination of open space and a recently constructed RV Park.

To our knowledge, there have been no Traffic Impact Studies prepared to date that would include the subject referenced property. As such, our team will rely on study area guidance outlined in Appendix B of the Engineering Criteria Manual (ECM). Paragraph B.2.3.C defines the following limits:

- a. All Adjacent Roadways, Intersections, and high-volume accesses
- b. The nearest off-site major intersection(s) only if: the project contributes a 10 percent impact (during either the AM or PM Peak Hour) to any approach leg of the intersection where the intersection is operating at a LOS of C or better in the Short-Range Horizon, or the project contributes a 5 percent impact (during either the AM or PM Peak Hour) to any approach leg of the intersection where the intersection is operating at a LOS of D or worse in the Short-Range Horizon,
- c. Off-site collector and arterial links within the study area that have impacted intersections.

Note that there are other criteria; however, they are not applicable to this site based on the use and its location within the roadway network(s).

Based on the criteria above, our TIS will largely focus on the site access point to US-24 which is the only adjacent roadway, and the US-24 intersections with Judge Orr Road and Stapleton Road. Should the contributing traffic percentage from the site impact those two off-site major intersections less than 5%, no further evaluation will be performed. Should the contribution exceed the threshold's outlined in B.2.3.C, additional analysis will be performed as necessary to determine the overall LOS at the Short-Term and Long-Term Horizons.

3. Existing and Background Traffic

With the study boundary, background information and the purpose of this study outlined in the prior sections, our attention shifts to the development of existing traffic for use in this analysis.

As discussed, the focus of this study will center on two off-site intersections and the existing Site Access Point. ‘

- US Highway 24 and Judge Orr Road
- US Highway 24 and Stapleton Road

- US Highway 24 and Existing Site Access Point

Based on the site location, the two intersections and the existing site access will carry 100% of the project generated traffic.

It should be noted that this site access exists today and major changes to land uses that would notably increase the site generated traffic is not anticipated. As such, we are combining the Existing and Short-Range Horizon's into one analysis. the Long-Range Horizon will be evaluated at 20 years consistent with CDOT requirements.

As outlined in the prior statements, the first item our team evaluated was the volumetric impacts to traffic at the existing US Highway 24 intersection with Judge Orr Road and Stapleton Road to see if a more detailed analysis is required as this study progresses.

To determine the existing traffic on US-24, our team accessed the information provided via CDOT's Online Transportation Information System (OTIS). The proposed site is located on Route 024G. Data provided suggests the AADT on this segment of US-24 (Station ID 100854) is 12,000 Vehicles per Day (VPD) in 2024. The Design Hourly Volume (DHV) for this segment of roadway is 12% and the 20-year growth factor is 1.28.

Using the information provided by OTIS, we can calculate the DHV as 1,440 VPH.

We will provide a more detailed breakdown of the trips generated from the proposed site; however, it is assumed that the site will generate approximately 125 trips per day. This equates to approximately 1% of the overall AADT on US-24. That being the case, it is almost certain that the project site will contribute less than 5% of the traffic to any approach leg at either the Judge Orr Road or Stapleton Road intersections. Also note that current operating hours of the business are 8:00 am to 5:00 pm, Monday through Saturday, so it is only open during a portion of the AM and PM Peak Periods which further justifies the contributing percentage. Given this analysis, the remainder of our TIS will focus on the site's existing access to US-24.

a. Existing Conditions and Short-Term Horizon

This scenario establishes the existing and short-term traffic counts which will be utilized to determine the access Level of Service (LOS).

To establish the current conditions, we have made some assumptions to determine the background traffic on US-24.

1. The AADT provided by OTIS is 12,000 VPD in calendar year 2024. The 20-year Growth Factor is 1.28, equating to an annual growth rate of 1.24% or 12,300 VPD in calendar year 2026.
2. Using the 12,300 VPD in 2026 to determine DHV, we calculate 1,476 VPH. This figure was used for the Peak AM and Peak PM value for use in calculating the access' LOS during peak hours.
3. Given the rural nature of El Paso County northeast of the property, we assume that most trips will occur westbound towards Colorado Springs in the AM Peak and eastbound in the PM Peak. We have assumed a directional distribution of 75% westbound in the AM peak and 75% eastbound in the PM peak.
4. Traffic utilizing the existing access is assumed to be distributed at a 50% rate from/to north and south.

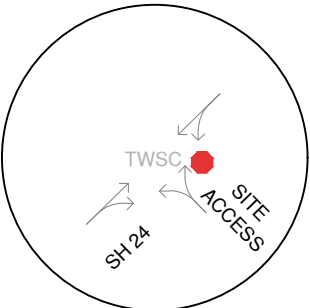
Figure 2, 3 and 4 on the following pages outlines the estimated trips per day using the existing access, the existing lane configuration at the access point, the existing traffic counts.

Table 1 – Trip Generation Rates for Existing Access

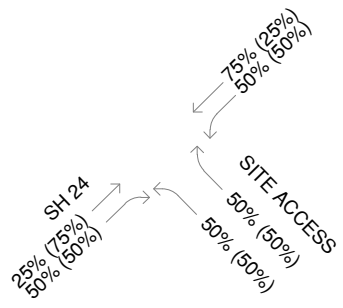
Use	SF	ITE Code	ADT Rate	ADT	Peak AM Rate	Peak PM Rate	Peak AM	Peak PM	AM		PM	
									Enter	Exit	Enter	Exit
Trailer Sales	25K	842	5	125	0.85	0.77	22	20	12	10	8	12

LEGEND

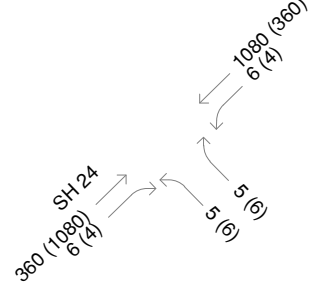
STOP SIGN
EXISTING MOVEMENT
PROPOSED MOVEMENT
TRAFFIC PERIOD
AM (PM)



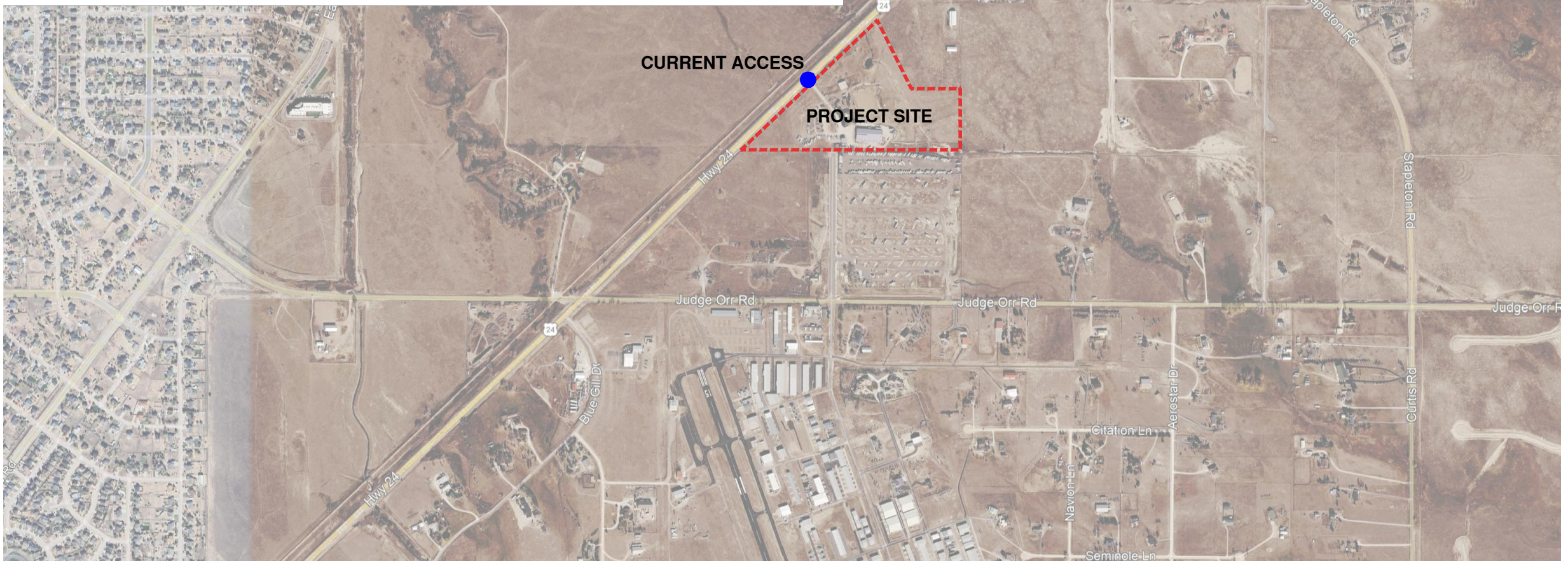
**SITE ACCESS
EXISTING LANE
CONFIGURATION**



**EXISTING/SHORT-TERM
ACCESS TRIP
DISTRIBUTION**



**EXISTING/SHORT-TERM
INTERSECTION
COUNTS**



**BRANDING IRON TRAILER SALES, SERVICE AND SUPPLY
PEYTON, COLORADO
FIGURE 2 - EXISTING LANE CONFIGURATION, ACCESS TRIP
DISTRIBUTION AND EXISTING/SHORT-TERM TRIP SUMMARY**



4. Proposed Traffic Conditions

As discussed in prior paragraphs, this project is proposing a rezone of the site to address some non-conforming uses resulting from the current Special Use Permit. At this time, there is no proposed expansion of the site, so the future traffic impacts are estimated to be a linear growth pattern resulting from increased visits to the existing site. No additional improvements are planned that would draw additional consumers. As such, in order to establish the long-term horizon scenario, we have made the following assumptions:

- a. The DHV determined in Paragraph 3.a.2 will be multiplied by the 20-year growth factor provided in OTIS. Therefore, the estimated DHV shall be 1,844 VPH. This figure will be used for the Peak AM and Peak PM analysis.
- b. The distribution developed in 3.a.3 will remain the same in the Long-Term Horizon.
- c. We have assumed a net increase of 15% in the traffic using the existing access into the site.
- d. The site access will continue to distribute trips at a rate of 50% to the north and 50% to the south (for both entering and exiting) the site.

With the trips developed, the next step for the proposed traffic is to establish the distribution of those trips onto the roadway network.

Distribution for this project is simple given the proposed plan. All traffic entering the site will originate from northbound and southbound US-24 at equal rates. All traffic exiting the site will turn right onto eastbound US-24 and left onto westbound US-24. Existing traffic will be evenly distributed east and west. The distribution in the AM and PM Peak is assumed to be the same with respect to site generated traffic.

A summary of the site generated traffic is provided in the table below.

Table 2 – Trip Generation Rates – Long-Term Horizon

	Site Generated Traffic – Background	Increase at 20-Year Horizon	Site Generated Traffic – 20-Year Horizon
AADT	125	15%	144
AM Peak	22	15%	25
PM Peak	20	15%	23
AM Enter	12	15%	14
AM Exit	10	15%	12
PM Enter	8	15%	10
PM Exit	12	15%	14

The figures on the following page outline the total AM and PM trips distributed on the roadway.

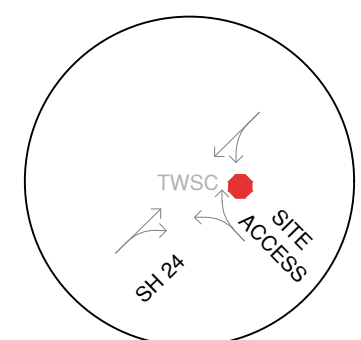
LEGEND

STOP SIGN 

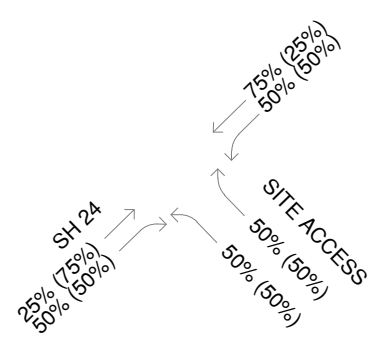
EXISTING MOVEMENT 

PROPOSED MOVEMENT 

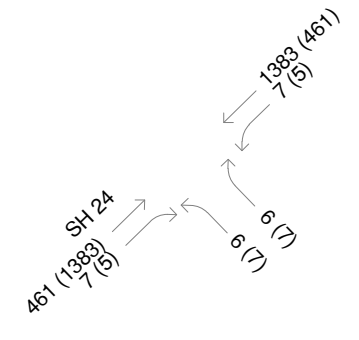
TRAFFIC PERIOD AM (PM)



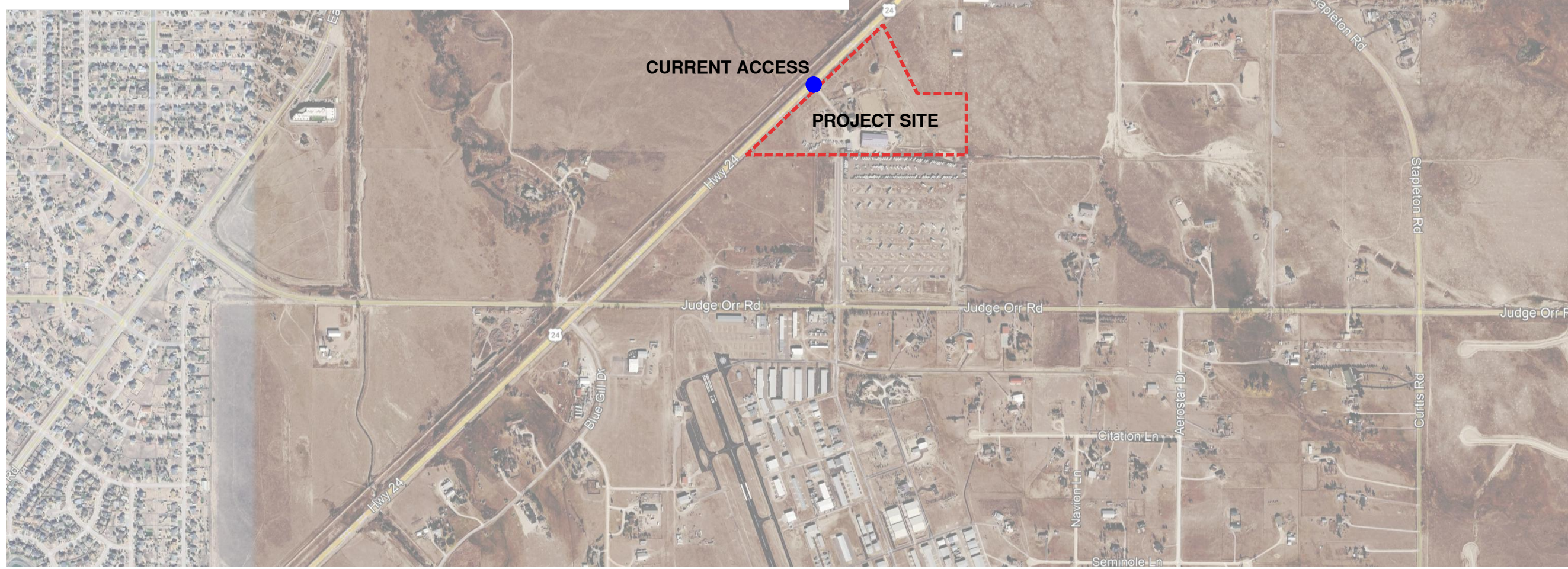
**SITE ACCESS
PROPOSED LANE
CONFIGURATION**



**LONG-TERM
ACCESS TRIP
DISTRIBUTION**



**LONG-TERM
INTERSECTION
COUNTS**



**BRANDING IRON TRAILER SALES, SERVICE AND SUPPLY
PEYTON, COLORADO
FIGURE 3 - PROPOSED LANE CONFIGURATION, ACCESS TRIP
DISTRIBUTION AND LONG-TERM TRIP SUMMARY**



5. Auxiliary Turn Lane Analysis

To assess the need for auxiliary turn lanes at each study intersection, SSD used Volume 2, Code of Regulations 601-1 of the State Highway Access Code.

Note our analysis focused solely on the existing site access onto US Highway 24. Note that the current access has no auxiliary turn lanes.

To determine the criteria, our team assumed that State Highway 24 will operate in accordance with CDOT's "*Category R-B – Rural Highway*". Per Section 3.9, the following criteria is used to establish the auxiliary turn lane requirements:

- 8(a) - A left turn deceleration lane with taper and additional storage length is required for any access with a projected peak hour left ingress turning volume greater than 10 VPH. The taper length shall be included within the required deceleration length.
- 8(b) - A right turn deceleration lane with taper is required for any access with a projected peak hour right ingress turning volume greater than 25 VPH. The taper length shall be included within the required deceleration length.
- 8(c) – A right turn acceleration lane with taper is required for any access with a projected peak hour right turning volume greater than 50 VPH when the posted speed on the highway is 45 mph or greater and the highway has only one lane for through traffic in the direction of the right turn. A right turn acceleration lane is not required on multi-lane highways of this category. The taper length will be included within the required acceleration length.
- 8(d) - A left turn acceleration lane with taper may be required if it would be a benefit to the safety and operation of the roadway or as determined by subsection 3.5. A left turn acceleration lane is generally not required where: the posted speed is less than 45 mph, or the intersection is signalized, or the acceleration lane would interfere with the left turn ingress movements to any other access.

Note the current posted speed limit on US-24 is 65 MPH.

The table below compares the proposed trip generation rates to the auxiliary turn lane requirements.

Table 3 – Auxiliary Turn Lane Analysis

Intersection	Movement	Posted Speed	Threshold	Existing/Short-Term Horizon			Long-Term Horizon		
				AM	PM	Warrant	AM	PM	Warrant
Site Access and State Highway 24	EB R	65	25	6	4	No	7	5	No
	WB L	65	10	6	4	No	7	5	No
	NB L	65	25	5	6	No	6	7	No
	NB R	65	50	5	6	No	6	7	No

As shown in the table, no auxiliary turn lanes are required at the site access point based on the AM and PM peak values identified herein and the thresholds outlined in the State Highway Access Code.

6. Intersection Operational Analysis

In this section, the information provided in this study up to this point will be used to determine the corresponding Level of Service (LOS) of each restricted movement at each study intersection/access. Each intersection/access will be evaluated based on existing and proposed traffic control devices. Our assessment will start with the stop-controlled intersections.

a) Two Way and All Way Stop Controlled (or unsignalized) Intersections

In the existing condition, the existing access into the subject site operates as a Two Way Stop Control (TWSC) (non-signalized) condition with the access being the restricted movement.

To assess the unsignalized intersections, our team determined the peak hour levels of motor vehicles and input those values into software that determines the corresponding LOS in accordance with Chapter 20 of the 7th Edition Highway Capacity Manual.

The LOS for an unsignalized intersection is a function of the average delay the motorist encounters while trying to execute the minor movement. A summary of the different LOS' is provided below.

Table 4 – Un-Signalized Intersection LOS Criteria

Level of Service	Control Delay per Vehicle (Seconds)	Description
A	≤10	No delay for stop controlled approach
B	10 to ≤15	Stop controlled approach operates with minor delay
C	>15 to ≤25	Stop controlled approach operates with moderate delay
D	>25 to ≤35	Stop controlled approach operates with long delays.
E	>35 to ≤50	Stop controlled approach operates with long delays and potentially long queues depending upon the approach traffic
F	>50	Stop controlled approach operates with extreme congestion with long delays and potentially long queues depending upon the approach traffic volume

The typical engineering practice outlined by most municipalities and government agencies requires the overall intersection approach to operate at LOS D and each individual approach movement to operate at LOS E as the minimum threshold(s) for acceptable operations. It should be noted that many studies have been drafted and approved where a LOS F is acceptable during the Peak Hour when a local classified minor approach intersects and arterial classified major street.

Figures 2 and 3 depict the existing and proposed lane configurations at each Study Intersection. These figures along with the corresponding traffic volumes were used to develop the LOS analysis for each intersection. Table 6 on the following page summarizes the LOS for each study intersection.

b) Signalized Intersections

The LOS for an unsignalized intersection is also defined in terms of the average total vehicle delay of all movements through an intersection. A summary of the different LOS' is provided below.

Table 5 – Signalized Intersection LOS Criteria

Level of Service	Control Delay per Vehicle (Seconds)	Description
A	≤10	Free flow
B	>10 to 20	Stable Flow (Slight Delays)
C	>20 to 35	Stable Flow (Acceptable Delays)
D	>35 to 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 to 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

This table is provided for reference. There are currently no signalized intersections within the study area.

Using Synchro 12 software, our team has performed a detailed intersection analysis using the criteria listed above. A summary of the results are provided on the following page.

Table 6 – LOS Summary Table

INTERSECTION	OPERATING CONDITION	STREET NAME	APPROACH/MOVEMENT	EXISTING/SHORT-TERM		LONG-TERM	
				AM PEAK HOUR	PM PEAK HOUR	AM PEAK HOUR	PM PEAK HOUR
1 State Highway 24 and Site Access	TWSC (Access is Stop Controlled)	Access	NW Left	C [24.1]	D [29.8]	E [42.1]	F [13.2]
		Access	NW Right	-	-	-	-
		SH 24	NE Right	-	-	-	-
		SH 24	SW Left	A [8.1]	B [11.1]	B [8.4]	B [13.2]

Table 6 includes the results from our TWSC analysis with LOS results for the NW Left out of the site onto US 24 and the SW Left into the site from US 24. As shown, the SW Left will operate at a minimum LOS of B or better and therefore no degradation of service is anticipated to occur in the Short-Term or Long-Term Scenarios.

Given the background traffic and future growth along this segment of US 24, the volume adversely impacts the LOS of the NW Left out of the subject site. As shown, the movement operates at LOS C in the current AM and LOS D in the current PM. In the Long-Term Scenario, the LOS will continue to degrade to LOS E in the AM and LOS F in the PM because of increased through traffic on US 24 and reduced gaps.

That said, due to the subject site's location, there are no other alternatives for access onto a lower classification street. It is not unusual for access points onto major collector and higher classification streets to operate at LOS F during the peak periods. The sites approach to US 24 have approximately 350 feet of storage length available to provide queuing during the peak so there are no impacts to motorists anticipated to result.

c) **Signalized Intersections**

There are no traffic signals currently installed within the study area. Based on the level of service. Signal warrants are

7. Traffic Signal Warrant Analysis

Based on the low volume of vehicles, our team has performed a limited analysis with respect to Traffic Signal Warrants. With a minor street approach of 14 VPH or less during the peak hours, there is no way the access would meet Warrants 1 (Eight-Hour Vehicular Volume), 2 (Four-Hour Vehicular Volume), and 3 (Peak Hour). Therefore our focus has been on Warrants 4 through 8.

Section 4C.05 - Warrant 4, Pedestrian Volume

Based on existing conditions and future plans for pedestrian connectivity, this Warrant is not applicable at this time.

Section 4C.06 – Warrant 5, School Crossing

Not applicable to this project.

Section 4C.07 – Warrant 6, Coordinated Signal System

Not applicable to this project.

Section 4C.08 – Warrant 7, Crash Experience

The need for a traffic control signal shall be considered if an engineering study finds that all of the following criteria are met:

- A. *Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and*
- B. *Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and*
- C. *For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in [Table 4C-1](#) (see [Section 4C.02](#)), or the vph in both of the 80 percent columns of Condition B in [Table 4C-1](#) exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.*

To assess this warrant, our team pulled the last two years of crash information provided by CDOT and looked for accidents along the segment of roadway directly at the existing access. Based on our review, the following accidents were reported at or near US 24 Mile Marker 323.

CUID	Date	Location	Type	Attributed to Access
1216681	7/10/2024	MM 323.088	Head on Collision	No

Several other accidents have happened between Judge Orr Road and Stapleton Road. Both of those intersections have several accidents noted, with the majority being rear-end type crashes. The accident listed above occurred as the result of reckless driving and had nothing to do with the access being studied herein. It should also be noted that several accidents have occurred at the Big R access to the north, which we attribute to being a higher volume use generating much larger traffic.

Based on this information, we do not find that the existing access meets all three criteria outlined above and therefore this warrant is not met.

Section 4C.09 – Warrant 8, Roadway Network

The need for a traffic control signal shall be considered if an engineering study finds that the common intersection of two or more major routes meets one or both of the following criteria:

- A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or*
- B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a nonnormal business day (Saturday or Sunday).*

Based on the Growth Projections herein through the studied horizon period, neither Criteria A or Criteria B will be met from a volume perspective.

Summary of Traffic Signal Warrant Analysis

As outlined in this section, the proposed access to Branding Iron Trailer Sales, Service, and Supply will operate for the next twenty years without warranting a Traffic Signal based on the Access Point's projected volume. As such, no further discussion on Signalization is required.

8. Pedestrian, Bicycles and Transit

Based on the existing configuration of State Highway 24, there are no alternative transit options such as bikes or pedestrian trails. US-24 is currently a 2-lane rural highway with a posted speed limit of 65 MPH, not ideal for use by bicycles without installation of a dedicated bike lane with an adequate separation zone within the ROW. This route is also not designated as a multi-modal corridor.

It should be noted that an existing trail is located approximately 125-feet west of US 24 which parallels the highway. This trail does not current provide a connection to the east between Judge Orr Road and Stapleton Road.

Note that this development as proposed is not anticipated to pose any adverse effects to existing transit, bike, or pedestrian facilities.

9. Sight Distance

Given the proposed access is located directly onto State Highway 24 with a posted speed limit through this segment of 65 MPH, ensuring that adequate sight distance available is key.

Our sight distance analysis is based on the Criteria outlined in Section 9.5, Intersection Sight Distance of the AASHTO Green Book. The proposed access will be evaluated based on the stop controlled minor street approach with Case B1 (Section 9.5.3.2.1) applied to the left turn and

Case B2 (Section 9.5.3.2.2) applied to the right turn movement. Since the roadway is constructed and currently posted, we have used the posted speed to determine the correspondence Stopping Sight Distance and Intersection Sight Distance. Per Table 9-7 for Case B1, Left Turn from Stop, the required intersection sight distance is 720 feet.

Evaluating the right turn movement, we referenced Table 9-9, Right Turn from Stop, the required intersection sight distance is 625 feet based on a posted speed limit of 65 MPH.

The figure on the following page depicts the required sight distance versus the available sight distance at the access location.

As shown on the exhibit, the required left and right turn sight distance is available along a straight segment of road. The existing access location lies in a low area with US-24 and provides more than the required 720-feet of visibility along both the east and westbound travel lanes.

Based on our analysis, we have no concerns with respect to adequate sight distance.



**BRANDING IRON TRAILER SALES, SERVICE AND SUPPLY
PEYTON, COLORADO
FIGURE 4 - SIGHT DISTANCE EXHIBIT**



10. Summary and Conclusion

Based on the analysis and subsequent results contained herein, the following conclusions can be made regarding the existing roadway network within the study area:

1. This TIS was prepared to support the rezoning application for the Branding Iron Trailer Sales, Service and Supply site located at 13925 US-24, Peyton, CO 80831.
2. The site is currently accessed via and paved access onto US-24 that transitions to gravel as you enter the site. The current access operates under TWSC conditions with the stop sign located on the NW approach. There are no auxiliary turn lanes located on US-24 to serve the site.
3. Based on our analysis, the existing access's northwest bound left operates at LOS C and D in the AM and PM Peaks in the current condition. In the Long-Term Horizon, the additional traffic on US-24 causes that approach to operate at LOS E and F in the AM and PM Peaks. As discussed, this LOS can be expected given the access is onto a rural highway expected to carry large volumes of traffic.
4. Based on the existing use and the anticipated traffic generated by the development in the Short-Term and Long-Term horizons, no auxiliary turn lanes are required based on the requirements outlined in the State Highway Access Code.
5. In our review of existing crash data for 2024 and 2025, we did not note any major accident at this specific access. There is one head on collision noted immediately northeast of the access but appears to have occurred as the result of a car overtaking another and hitting an on-coming car head on. There are also several accidents noted at both the Judge Orr Road and Stapleton Road intersections with US-24. Most of those accidents were front to rear accidents.
6. Our team also reviewed the intersection sight distance at the existing access due to the posted speed limit on this segment of US-24. Based on the requirements outlined in the AASHTO Green Book for Cases B1 and B2, sufficient sight distance is available to allow a motorist to merge onto US-24 without incident.

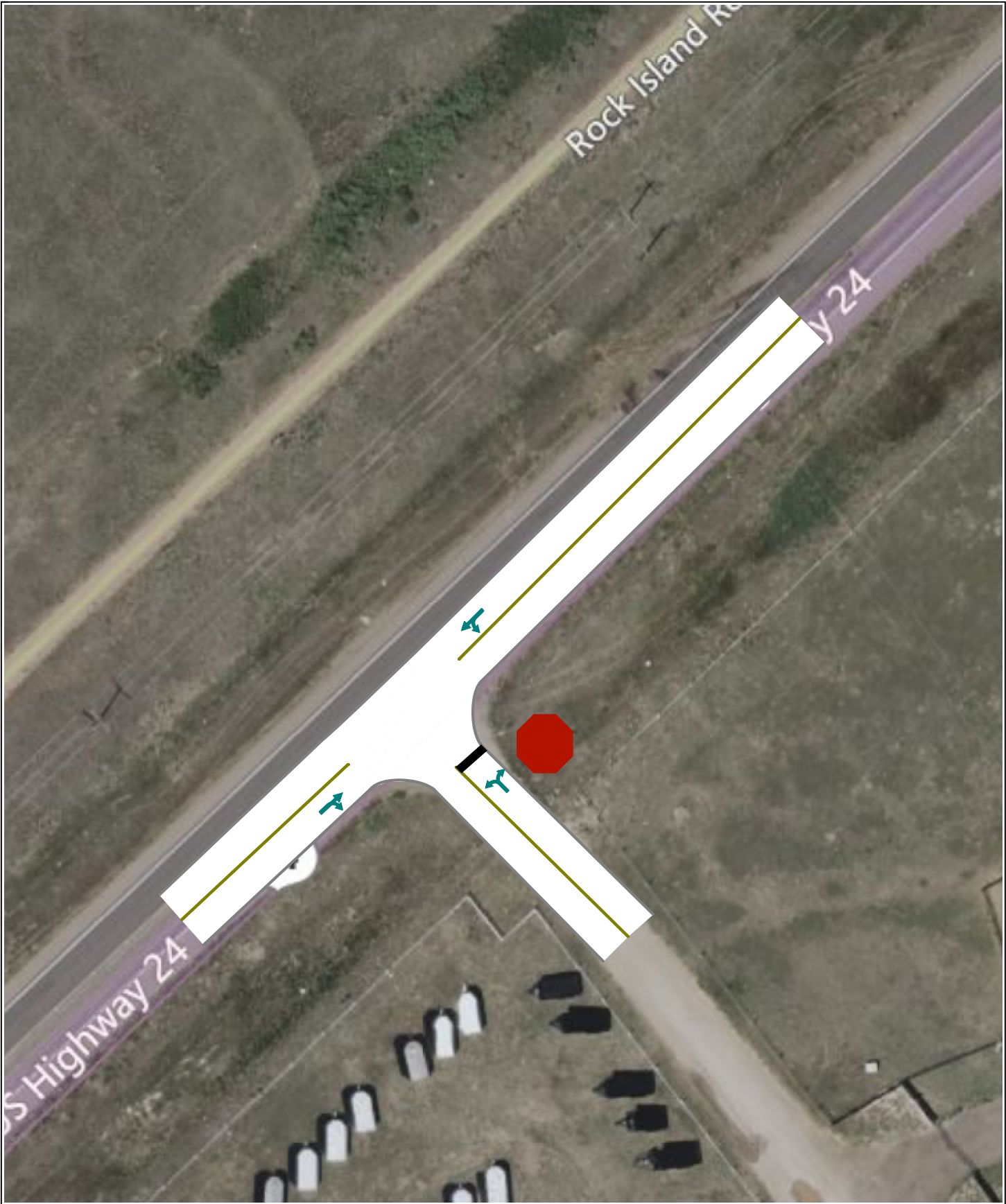
Based on these conclusions, our team finds that the existing access meets the requirements outlined in the current CDOT criteria and complies with recommendations/guidance provided in the Highway Capacity Manual and the AASHTO Green Book. Should the site choose to change the use or expand, an additional study should be performed to reassess the requirements for auxiliary turn lanes; particularly the southwest bound left into the site.

11. References

1. *Institute of Transportation Engineers (2021). Trip Generation Manual 11th Edition.*
2. *State of Colorado – State Highway Access Code. Volume 2, Code of Colorado Regulations 601-1 March 2022*
3. *Online Transportation Information System (Otis) [CDOT-OTIS Online Transportation Information System | Home \(coloradodot.info\)](https://coloradodot.info)*

APPENDIX A

Synchro 12 TWSC Analysis



Intersection

Int Delay, s/veh 0.2

Movement **NWL** **NWR** **NET** **NER** **SWL** **SWT**Lane Configurations     

Traffic Vol, veh/h 5 5 360 6 6 1080

Future Vol, veh/h 5 5 360 6 6 1080

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 5 2 2 5

Mvmt Flow 5 5 391 7 7 1174

Major/Minor **Minor1** **Major1** **Major2**

Conflicting Flow All 1582 395 0 0 398 0

Stage 1 395 - - - - -

Stage 2 1187 - - - - -

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 120 655 - - 1161 -

Stage 1 681 - - - - -

Stage 2 290 - - - - -

Platoon blocked, % - - - - - -

Mov Cap-1 Maneuver 118 655 - - 1161 -

Mov Cap-2 Maneuver 118 - - - - -

Stage 1 670 - - - - -

Stage 2 290 - - - - -

Approach **NW** **NE** **SW**

HCM Ctrl Dly, s/v 24.06 0 0.04

HCM LOS C

Minor Lane/Major Mvmt **NET** **NER** **NWL** **n1** **SWL** **SWT**

Capacity (veh/h) - - 200 1161 -

HCM Lane V/C Ratio - - 0.054 0.006 -

HCM Ctrl Dly (s/v) - - 24.1 8.1 -

HCM Lane LOS - - C A -

HCM 95th %tile Q(veh) - - 0.2 0 -

Intersection

Int Delay, s/veh 0.3

Movement NWL NWR NET NER SWL SWTLane Configurations 

Traffic Vol, veh/h 6 6 1080 4 4 360

Future Vol, veh/h 6 6 1080 4 4 360

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 5 2 2 5

Mvmt Flow 7 7 1174 4 4 391

Major/Minor Minor1 Major1 Major2

Conflicting Flow All 1576 1176 0 0 1178 0

Stage 1 1176 - - - - -

Stage 2 400 - - - - -

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 121 233 - - 593 -

Stage 1 293 - - - - -

Stage 2 677 - - - - -

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver 120 233 - - 593 -

Mov Cap-2 Maneuver 120 - - - - -

Stage 1 290 - - - - -

Stage 2 677 - - - - -

Approach NW NE SW

HCM Ctrl Dly, s/v 29.82 0 0.12

HCM LOS D

Minor Lane/Major Mvmt NET NERNWLn1 SWL SWT

Capacity (veh/h) - - 158 593 -

HCM Lane V/C Ratio - - 0.083 0.007 -

HCM Ctrl Dly (s/v) - - 29.8 11.1 -

HCM Lane LOS - - D B -

HCM 95th %tile Q(veh) - - 0.3 0 -

Intersection

Int Delay, s/veh 0.3

Movement NWL NWR NET NER SWL SWT

Lane Configurations						
Traffic Vol, veh/h	6	6	461	7	7	1383
Future Vol, veh/h	6	6	461	7	7	1383
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	5	2	2	5
Mvmt Flow	7	7	501	8	8	1503

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	2023	505	0	0	509	0
Stage 1	505	-	-	-	-	-
Stage 2	1518	-	-	-	-	-
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	64	567	-	-	1056	-
Stage 1	606	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	61	567	-	-	1056	-
Mov Cap-2 Maneuver	61	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	200	-	-	-	-	-

Approach NW NE SW

HCM Ctrl Dly, s/v 42.11 0 0.04

HCM LOS E

Minor Lane/Major Mvmt NET NERNWLn1 SWL SWT

Capacity (veh/h)	-	-	110	1056	-
HCM Lane V/C Ratio	-	-	0.119	0.007	-
HCM Ctrl Dly (s/v)	-	-	42.1	8.4	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection

Int Delay, s/veh 0.4

Movement **NWL** **NWR** **NET** **NER** **SWL** **SWT**Lane Configurations      

Traffic Vol, veh/h 7 7 1383 5 5 461

Future Vol, veh/h 7 7 1383 5 5 461

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 5 2 2 5

Mvmt Flow 8 8 1503 5 5 501

Major/Minor **Minor1** **Major1** **Major2**

Conflicting Flow All 2018 1506 0 0 1509 0

Stage 1 1506 - - - - -

Stage 2 512 - - - - -

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 64 149 - - 443 -

Stage 1 202 - - - - -

Stage 2 602 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 63 149 - - 443 -

Mov Cap-2 Maneuver 63 - - - - -

Stage 1 199 - - - - -

Stage 2 602 - - - - -

Approach **NW** **NE** **SW**

HCM Ctrl Dly, s/v 53.9 0 0.14

HCM LOS F

Minor Lane/Major Mvmt **NET** **NER** **NWL** **n1** **SWL** **SWT**

Capacity (veh/h) - - 89 443 -

HCM Lane V/C Ratio - - 0.172 0.012 -

HCM Ctrl Dly (s/v) - - 53.9 13.2 -

HCM Lane LOS - - F B -

HCM 95th %tile Q(veh) - - 0.6 0 -