

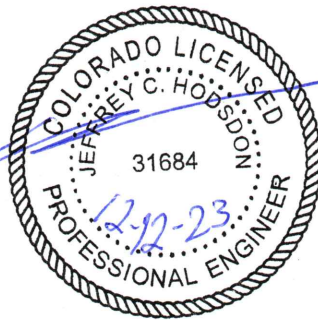


LSC TRANSPORTATION CONSULTANTS, INC.
2504 East Pikes Peak Avenue, Suite 304
Colorado Springs, CO 80909
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: <http://www.lsctrans.com>

16050 Old Denver Road Rezone
Traffic Impact Study
(LSC #S234320)
December 12, 2023

Traffic Engineer's Statement

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



Developer's Statement

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

Kristin Ottaway

12/12/2023

Date

16050 Old Denver Rd Rezone Traffic Impact Study

Prepared for:

All In Investments, LLC

PO Box 1204

Monument, CO 80132-1204

Contact: Kristin Ottaway, Manager

DECEMBER 12, 2023

LSC Transportation Consultants

Prepared by: Kirstin D. Ferrin, P.E.

Reviewed by: Jeffrey C. Hodsdon, P.E.

LSC #S234320



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2504 E. Pikes Peak Ave., Suite 304
Colorado Springs, CO 80909
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: <http://www.lsctrans.com>

December 12, 2023

Kristin Ottaway, Manager
All In Investments, LLC
PO Box 1204
Monument, CO 80132-1204

RE: 16050 Old Denver Road Rezone
El Paso County, CO
Traffic Impact Study
LSC #S234320

Dear Ms. Ottaway,

LSC Transportation Consultants, Inc. has prepared this traffic impact study for the proposed rezone of an eight-acre parcel at 16050 Old Denver Road in unincorporated El Paso County, Colorado. The site is located on the west side of Old Denver Road about one-half mile north of Baptist Road (El Paso County parcel ID 7126004010). This report has been prepared to accompany a rezone submittal to El Paso County.

REPORT CONTENTS

The preparation of this report included the following:

- An inventory of existing roadway and traffic conditions on major thoroughfares adjacent to the site, including surface conditions, functional classification, widths, pavement markings, traffic-control signs, posted speed limits, intersection and access spacing, roadway and intersection alignments, roadway grades, and auxiliary turn lanes;
- Weekday peak-hour turning-movement traffic counts at the current site-access driveway as well as several of the major intersections in the area;
- Estimated average weekday traffic (ADT) volumes on Old Denver Road;
- Projections of 20-year background traffic volumes on Old Denver Road;
- The proposed site land use and access plan;
- Estimates of average weekday and weekday peak-hour trip generation for the proposed site 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 site access points;

- Projected total daily and peak-hour traffic volumes at the study-area site-access points;
- Intersection level of service analysis at the site-access points;
- Evaluation of the long-term projected intersection volumes to determine potential requirements for any auxiliary right-/left-turn lanes at the proposed site-access points, based on the Town criteria; and
- Findings and recommendations.

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

LSC utilized the following previous traffic reports to assist in the production of this report:

- *Conexus Phases 2 & 3 Preliminary PUD Plan Traffic Impact Study* – dated January 14, 2022 (with minor revisions February 2 & 3, 2022)
- *Conexus Lost Island Traffic Technical Memorandum* – dated October 3, 2023
- *Conexus Filing 2 Lot 1 Traffic Technical Memorandum* – dated November 7, 2023

Appendix Table 1 contains a list of other traffic studies in the area of study completed within the past five years (that LSC is aware of). This study accounts for the land use, trip generation, and roadway network included in these studies.

LAND USE AND ACCESS

The eight-acre parcel at 16050 Old Denver Road is currently zoned RR-5 zoning. An existing single-family dwelling unit on the site was being leased as an office by a contractor but is now vacant.

The currently-proposed rezone would allow for the uses shown on the proposed site plan (shown in Figure 2). The site is divided by a 2.5-acre flood plain area that extends diagonally from the southwest corner to the northeast corner of the site. The northern 3.5 acres is planned to be rezoned to allow for outdoor boat & RV storage or outdoor contractor storage. The final use (one of these two) will be determined at the site development plan stage. The southern 2 acres is planned to be developed with a 15,000-square-foot warehouse use (as defined by the ITE Land Use).

The northern portion of the site is planned to access Old Denver Road via an existing full-movement access point located about 55 feet south of an access for a parcel owned by the Mountain View Electric Association (MVEA). The southern portion of the site is planned to access Old Denver Road via a full-movement intersection at the location of an existing driveway about 490 feet south of the northern access (centerline spacing).

SIGHT DISTANCE ANALYSIS

Entering Sight Distance

Figures 3a and 3b also show the available intersection sight distance at the north and south site-access points, respectively. Based on a design speed of 45 miles per hour (mph) and the Town criteria (references are shown on the figures), the required intersection sight distance at the site-access points is 500 feet. The following are the existing sight-distance measurements. These measurements were conducted in the field by LSC. The measurements were taken from a driver's eye height of 3.5 feet to an approaching vehicle height of 3.5 feet.

- North Access:
 - 545 feet looking to the north
 - 600 feet looking to the south
- South Access:
 - Over 1,000 feet looking to the north
 - Over 1,000 feet looking to the south

Please refer to Figures 3a and 3b for details. The lines of sight for both access-point intersections will need to be kept clear of any sight-distance obstructions. This includes roadside vegetation, landscaping, signage, etc. proposed for the development.

Stopping Sight Distance

Figures 3a and 3b also show the required stopping sight distance at the north and south site-access points, respectively. Based on a design speed of 45 miles per hour (mph) and the Town criteria, the stopping sight distance at the site-access points is 360 feet (or adjusted for grade as noted in the figures). As shown in Figures 3a and 3b, this requirement is met at both of the site-access points.

ROAD AND TRAFFIC CONDITIONS AND MTCP CLASSIFICATION

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shows the roads adjacent to and in the vicinity of the site. Adjacent roads serving the site are identified below followed by a brief description of each. Copies of the *2016 El Paso County Major Transportation Corridors Plan (MTCP) 2040 Roadway Plan* and *2016 MTCP 2060 Corridor Preservation Plan (CPP)* with the site location identified on them have been attached to this report.

Old Denver Road extends north from Baptist Road to Santa Fe Avenue and then continues north as Beacon Lite Road. Old Denver Road has one through lane in each direction and a posted speed limit of 40 miles per hour (mph) adjacent to the site. Old Denver Road was recently designed and approved as a three-lane, Major Collector facility. North of the Baptist Road roundabout, Old Denver Road is controlled and maintained by the Town of Monument.

2nd Street is a paved, two-lane Town of Monument street that extends east from Mitchell Road to State Highway 105. In the vicinity of Beacon Lite Road, the posted speed limit on 2nd Street is 25 mph. The intersection of 2nd Street/Beacon Lite Road is all-way, stop-sign controlled (AWSC).

Baptist Road is a Principal Arterial that extends east of Hay Creek Road to the intersection of Roller Coaster Road and Hodgen Road. Baptist Road has one through lane in each direction and a posted speed limit of 40 miles per hour (mph) between Hay Creek Road and Interstate 25. The intersection of Baptist/Denver is a one lane modern roundabout.

Existing Traffic Volumes

Figure 4 shows the exiting morning and afternoon peak-hour traffic volumes at the southern access point, based on traffic counts conducted by LSC in September 2023. Figure 4 also shows the estimated average weekday traffic volumes on Old Denver Road adjacent to the site. This volume is an estimate by LSC, based on the peak-hour counts.

Figure 4 also shows the morning and afternoon peak-hour traffic volumes at the intersections of 2nd Street/Beacon Lite Road and Baptist Road/Old Denver Road, based on traffic counts conducted by LSC in December 2022 and May 2023. Per Appendix B of El Paso County's *Engineering Criteria Manual (ECM)*, analysis at these intersections was not carried forward through this report as the proposed development is projected to contribute less than 3 percent to each approach volume. Traffic-count reports are attached.

BACKGROUND TRAFFIC

Figure 5 shows the projected 2043 background traffic volumes. Background traffic is the traffic estimated to be on the adjacent roadways without consideration of the proposed development. Background traffic includes existing traffic volumes plus the traffic expected to be generated by nearby existing and approved developments, but it assumes zero traffic generated by the site.

The 2043 background traffic-volume estimates were based on the current traffic conditions, the expected development in the surrounding area, the *Baptist Road West Traffic Report* by Felsburg Holt & Ullevig (dated August 2013), other traffic studies completed in the area by LSC (including studies for Conexus, Willow Springs Ranch, Forest Lakes, and Santa Fe Park), and traffic studies completed by other consultants including the *Falcon Commerce Center TIS* prepared by SM Rocha, LLC in August 2020.

The above procedure was followed for estimation of the long-term background traffic, rather than use of a blanket annual percentage growth rate(s) or application of a growth "factor." The above procedure was used because aside from known, approved and anticipated future area developments (and planned future roadway connections such as the extension of Synthes Avenue south to Baptist Road), there is minimal likelihood for general through traffic increases (typically estimated using general growth rates) given the limited continuity of the study-area

roadways (due to the limited continuity of these roadways to the west, south, and north and due to the Pike National Forest, the Air Force Academy, etc.).

TRIP GENERATION

The site-generated vehicle trips for southern portion of the site have been estimated using the nationally published trip-generation rates for warehouses from *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE).

Two scenarios were analyzed to determine the worst-case trip-generation scenario for the northern portion of the site. The first scenario assumed the northern portion of the site is developed for RV/Boat Storage and the second scenario assumed the northern portion of the site is developed for outdoor contractor storage. ITE does not have trip-generation rates for either of these uses. The number of site-generated vehicles expected if the northern portion of the site is developed for Boat/RV storage was based on trip-generation studies completed by other transportation consultants for similar facilities. Please refer to Appendix A for details. The number of site-generated vehicles expected if the northern portion of the site is developed for outdoor contractor was based on a trip-generation study of similar sites in El Paso and Arapahoe County, Colorado conducted by LSC in October 2023. Please refer to Appendix B for details. Table 1 shows the trip-generation estimate. As shown in Table 1, the northern portion of the site is expected to generate more vehicle trips if it is developed for outdoor contractor storage than if it is developed for RV/Boat storage. Therefore, the second scenario was carried forward through this report.

If the northern portion of the site is developed for the worst-case scenario with outdoor contractor storage the entire site is expected to generate 194 vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about nine vehicles would enter and six vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about nine vehicles would enter and eight vehicles would exit the site.

Provide analysis for the highest and best uses allowed by the proposed zoning.

TRIP DISTRIBUTION AND ASSIGNMENT

Figure 6 shows the distribution estimates for the site-generated trips. The trip distribution represents the percentages of site-generated traffic projected to be oriented to and from the major approaches to the site. The estimates are based on the following factors: the land use proposed for the site; the roadway system serving the site; the proposed access system for the site; the location of the site with respect to local area and regional residential, employment, commercial, and activity centers; the location of the site with respect to the Town of Monument, the Tri-Lakes region, and northern Colorado Springs; and recent traffic counts.

When the distribution percentages (from Figure 6) are applied to the worst-case buildout trip-generation estimates (from Table 2), the site-generated traffic volumes on the adjacent roadways can be determined. Figure 7 shows the projected site-generated traffic volumes at the site-access intersections.

TOTAL TRAFFIC

Existing-Plus-Site-Generated Traffic Volumes

Figure 8 shows the sum of the existing traffic volumes (from) and site-generated peak-hour traffic volumes (shown in Figure 6). These volumes represent the projected short-term total traffic following site buildout. Figure 8 also shows the lane geometry and traffic control assumed for these intersections in the short-term analysis.

2043 Total Traffic Volumes

Figure 9 shows the sum of 2043 background traffic volumes (from Figure 5) plus site-generated traffic volumes (from Figure 6). Figure 9 also shows the lane geometry and traffic control assumed for these intersections in the 2043 analysis. By 2043, it was assumed that the Town of Monument would improve Old Denver Road adjacent to the site to a three-lane, Major Collector facility.

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 site-access points have been analyzed to determine the projected future levels of service, based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The results of the analysis are shown in Figures 8 and 9. Both site-access points are projected to operate at LOS C or better for all movements through 2043 as stop-sign-controlled intersections.

AUXILIARY TURN-LANE ANALYSIS, INTERSECTION CONFIGURATION, AND TRAFFIC CONTROL

Auxiliary turn lanes at the access points would be required to meet design criteria specified in *The Town of Monument Roadway Design and Technical Criteria*. Based on the projected 2043 total traffic volumes shown in Figure 9, no auxiliary turn lanes would be required on Old Denver Road approaching the site-access points. It is our understanding that a portion of Old Denver Road to the north was recently designed and approved as a three-lane, Major Collector facility. It is likely that in the future, the section in the vicinity of this site will also have a similar cross section. When Old Denver Road is ultimately improved adjacent to the site, the center lane would provide a left-turn, striped median for left turns.

Both access points to Old Denver Road must be at 90 degrees and paving will be required for the first 50 feet.

DEVIATIONS

Deviations are not typically included with a rezone submittal.

COUNTY ROAD IMPROVEMENT FEE PROGRAM

Transportation Impact Fees

The applicant will select a PID option at the site development plan stage of development process, and the calculation of applicable fees will be determined at that time

MTCP Improvements


Per the County TIS Checklist: *State whether the MTCP or other approved corridor study calls for the construction of improvements in the immediate area.*

No improvement projects have been identified as being needed in the vicinity of the site by the year 2040 per Map 13: Roadway Improvement Projects and Table 4: 2040 Roadway Improvement Projects of El Paso County's 2016 *MTCP*.

MULTI-MODAL TRANSPORTATION AND TDM OPPORTUNITIES

The New Sante Fe Regional Trail is located east of Old Denver Road in the vicinity of the site. No new improvement projects have been identified as being needed by the year 2040 per Map 15: Bicycle and Pedestrian Network Improvements and Table 5 Multi-modal Improvement Projects of El Paso County's 2016 *MTCP*.

IMPROVEMENTS SUMMARY TABLE

Please refer to , which presents a summary of improvements.

FINDINGS AND CONCLUSIONS

- The northern portion of the site is planned to be developed for either RV/Boat storage or outdoor contractor storage. The final use (one of these two) will be determined at the site development plan stage. If the northern portion of the site is developed for the worst-case scenario with outdoor contractor storage the entire site is expected to generate 194 vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about nine vehicles would enter and six vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about nine vehicles would enter and eight vehicles would exit the site.
- Both site-access points are projected to operate at a satisfactory level of service as stop-sign-controlled intersections.
- Based on the Town criteria and the projected 2043 total traffic volumes shown in Figure 9, no auxiliary turn lanes would be required on Old Denver Road approaching the site-access points. When Old Denver Road is ultimately improved adjacent to the site, a striped center median for left turns will be provided.

* * * * *

Please contact me if you have any questions regarding this report.

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E.
Principal

JCH/KDF/JAB:jas

Enclosures: Table 2
Figures 1-9
Appendix Table 1
Traffic Count Reports
Synchro LOS Reports
MTCP Maps
Appendix A and Appendix B

Table 2

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**Table 2
Trip Generation Estimate
16050 Old Denver Road**

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾				Total Trips Generated					
			Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out
Trip Generation Estimate for the Southern Portion of the Site												
150	Warehousing	15 KSF ⁽²⁾	4.13	0.13	0.04	0.05	0.13	62	2	1	1	2
Scenario 1 Trip Generation Estimate for the Northern Portion of the Site												
---	RV/Boat Storage ⁽³⁾	3.5 acres	12.94	0.50	0.47	0.93	1.12	45	2	1	3	4
Scenario 2 Trip Generation Estimate for the Northern Portion of the Site - WORST CASE												
---	Contractor Outdoor Storage ⁽⁴⁾	3.5 acres	37.68	2.02	1.33	2.19	1.74	132	7	5	8	6
Total Worst Case Scenario Trip Generation Estimate								194	9	6	9	8

Notes:

(1) Source: "Trip Generation, 11th Edition, 2021" by the Institute of Transportation Engineers (ITE)

(2) KSF = thousand square feet

(3) For RV/Boat Storage Rates refer to Appendix A

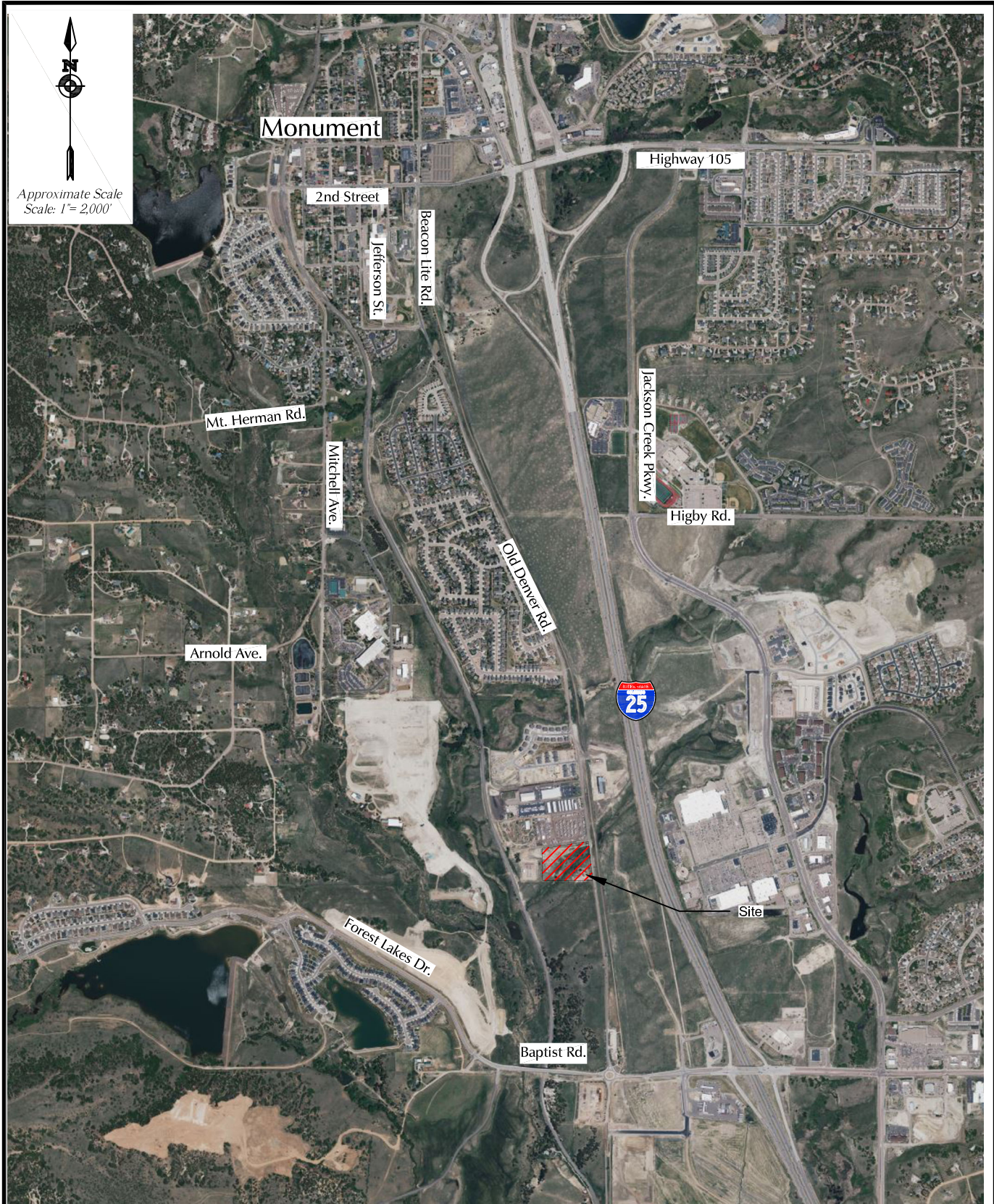
(3) For Contractor Outdoor Storage rates refer to Appendix B

Source: LSC Transportation Consultants, Inc.

Dec-23

Figures 1-9





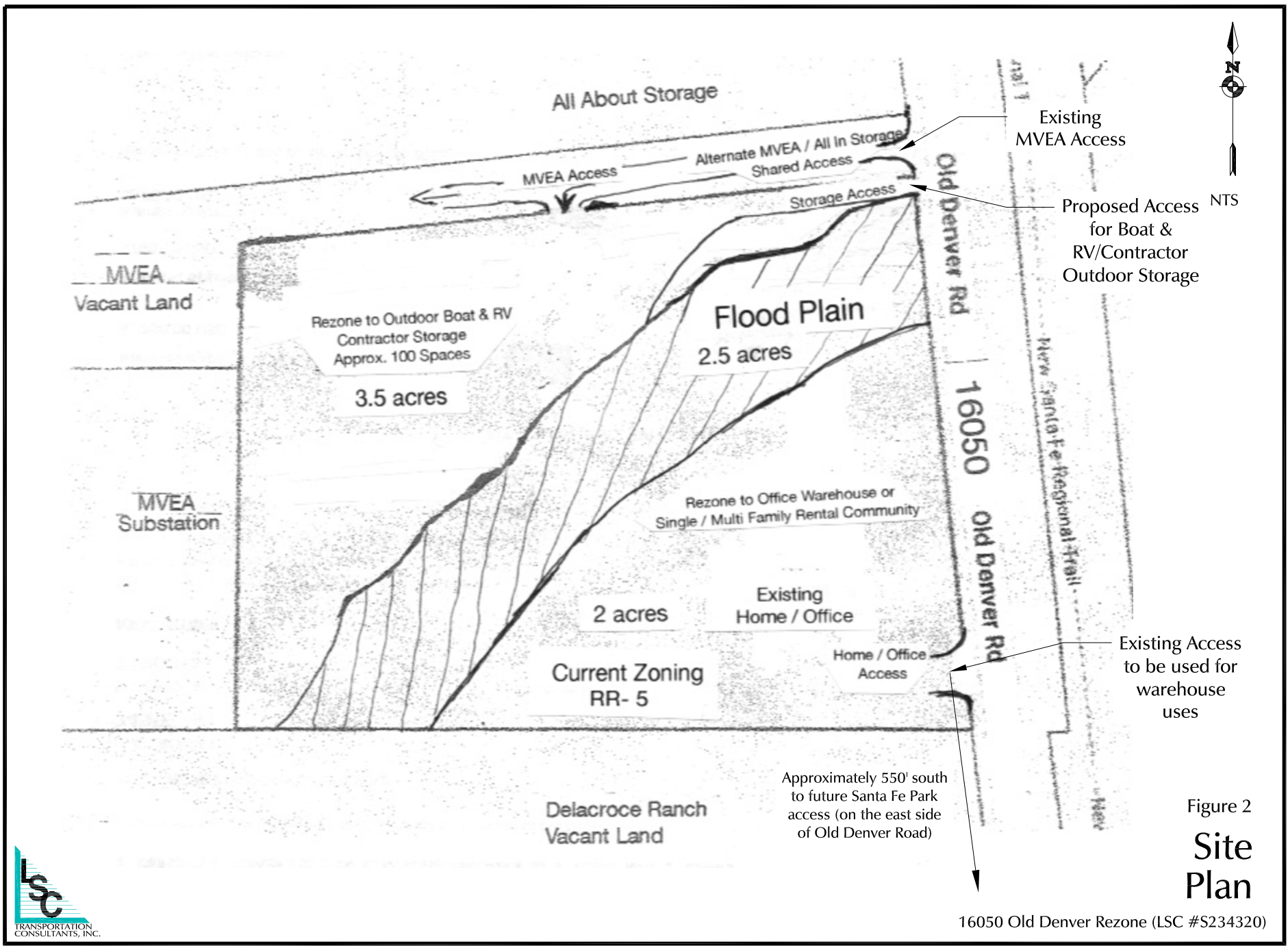


Figure 2
Site Plan

16050 Old Denver Rezone (LSC #S234320)





Approximate Scale
1" = 150'

Posted Speed: 40mph on Old Denver Road
Design Speed used in this evaluation:
45mph on Old Denver Road

Town Sight Distance Criteria:
Intersection Sight Distance: Page DT 25 of Appendix B, Town of Monument Roadway Design and Technical Criteria (and AASHTO "Green Book" Table 9-7).
Stopping Sight Distance: Table 5-6 of Appendix B, Town of Monument Roadway Design and Technical Criteria (and AASHTO "Green Book" Table 3-2). Assumes estimated grade of at least 3 percent, but less than 6 percent on Old Denver Road.

Field-measured sight distance (545'). Meets standard.

Drivers eye location for stopping sight distance

Prescribed Intersection Sight Distance (500').

Prescribed Stopping Sight Distance (378').

Proposed north site access.

Drivers eye location for intersection sight distance

Prescribed Stopping Sight Distance (360'). Meets standard.

Prescribed Stopping Sight Distance (378').

Site

Prescribed Intersection Sight Distance (500').

Drivers eye location for required stopping sight distance.

Field-measured sight distance (600'). Meets standard.

Figure 3a

Sight Distance Analysis North Site Access

16050 Old Denver Road Rezone (LSC #S234320)





Field-measured sight distance (over 1,000'). Meets standard.

Prescribed Intersection Sight Distance (500').

Proposed south site access.

Drivers eye location for intersection sight distance

Prescribed Intersection Sight Distance (500'). Meets standard.

Field-measured sight distance (over 1,000'). Meets standard.

Drivers eye location for stopping sight distance

Prescribed Stopping Sight Distance (360'). Meets standard.

Posted Speed: 40mph on Old Denver Road
Design Speed used in this evaluation: 45mph on Old Denver Road

Town Sight Distance Criteria:
Intersection Sight Distance: Page DT 25 of Appendix B, Town of Monument Roadway Design and Technical Criteria (and AASHTO "Green Book" Table 9-7).
Stopping Sight Distance: Table 5-6 of Appendix B, Town of Monument Roadway Design and Technical Criteria (and AASHTO "Green Book" Table 3-2).

Prescribed Stopping Sight Distance (360'). Meets standard.

Drivers eye location for required stopping sight distance.

Approximate Scale
1" = 150'

Figure 3b

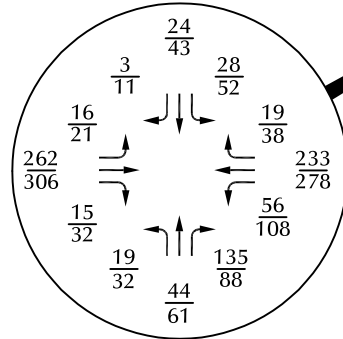
Sight Distance Analysis South Site Access

16050 Old Denver Road Rezone (LSC #S234320)

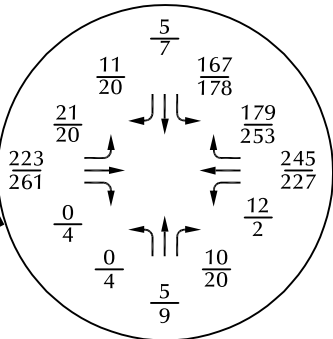
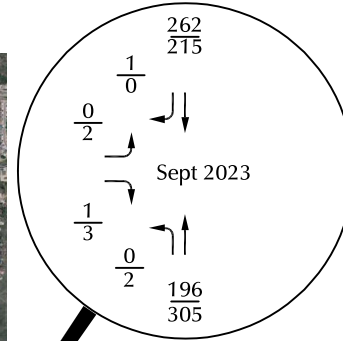
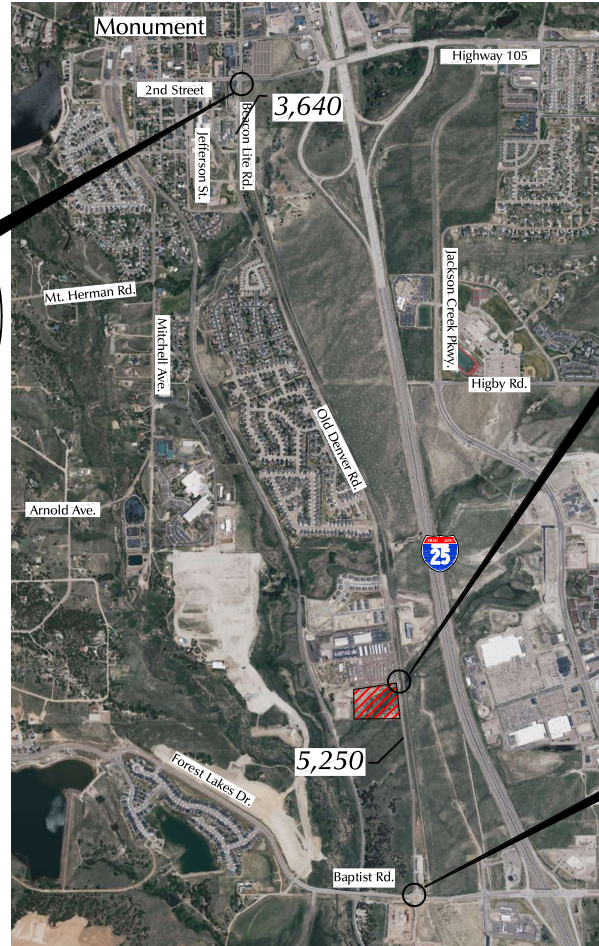




Not to scale



May 2023



Dec 2022

LEGEND:

$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$ (counts by LSC)

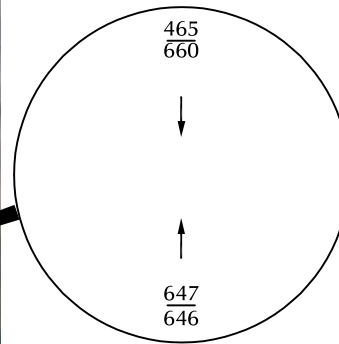
xxx = Average Weekday Traffic (vehicles per day) (est. by LSC)



Figure 4

Existing Traffic

16050 Old Denver Rezone (LSC #S234320)



LEGEND:

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)

XXX = Average Weekday Traffic (vehicles per day)

2043 Background Traffic

Figure 5

16050 Old Denver Rezone (LSC #S234320)



Not to scale

LEGEND:

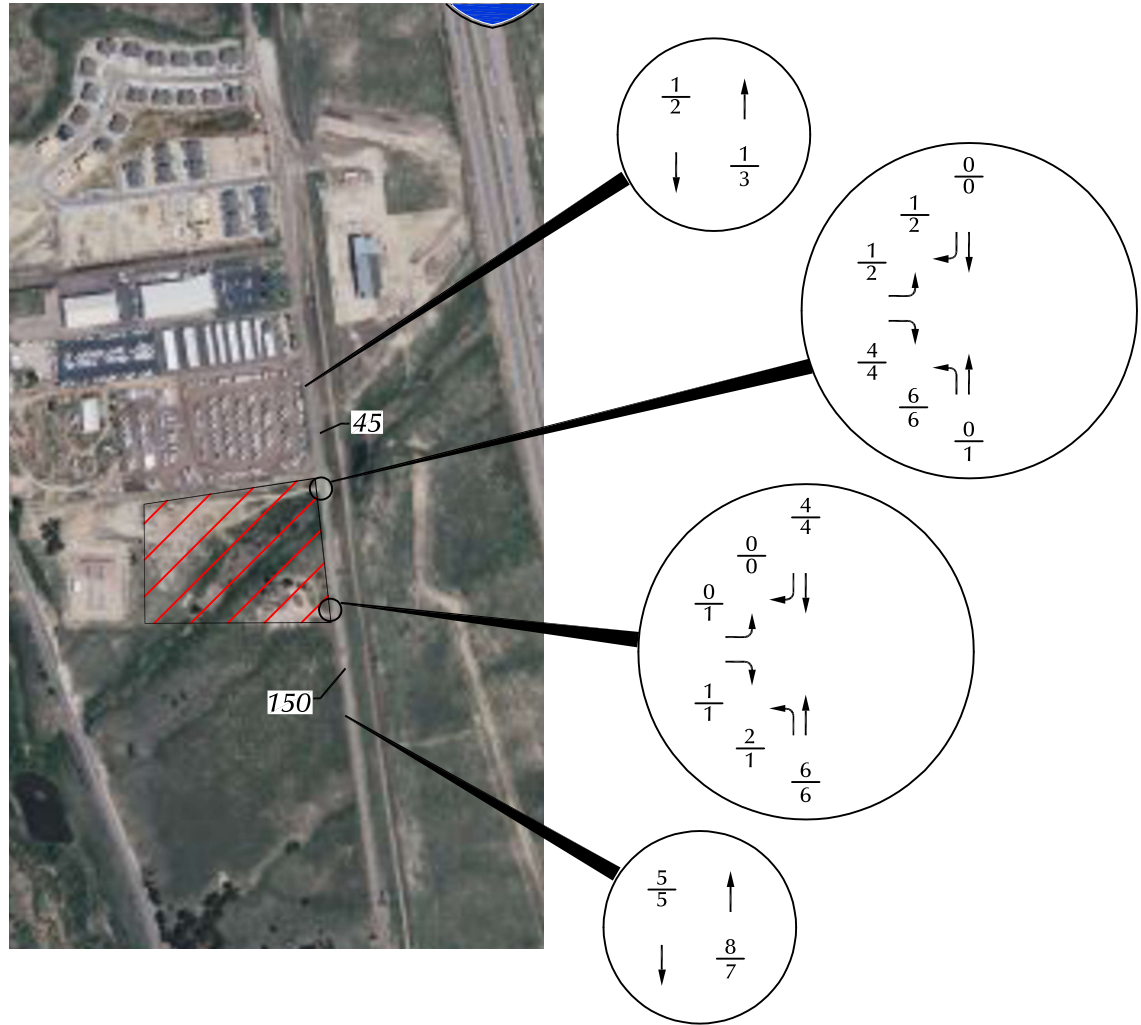


XX% = Percent Directional Distribution

Estimated Directional Distribution of Site-Generated Traffic

Figure 6

16050 Old Denver Rezone (LSC #S234320)



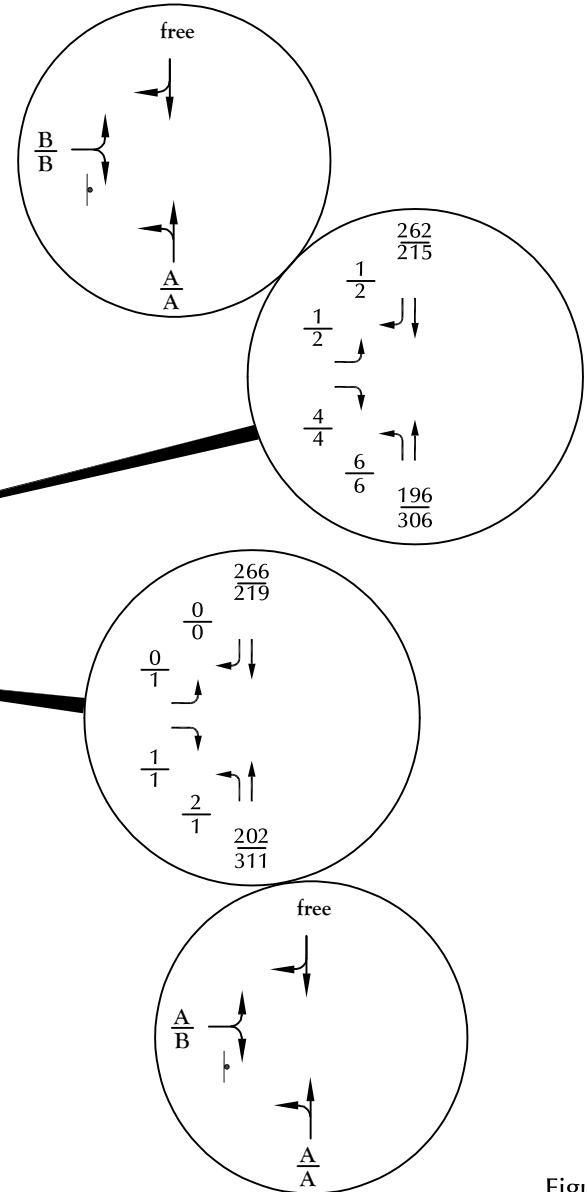
LEGEND:

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)

XXX = Average Weekday Traffic (vehicles per day)

Figure 7 Site-Generated Traffic

16050 Old Denver Rezone (LSC #S234320)



LEGEND:

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 PM Weekday Peak-Hour Traffic (vehicles per hour)

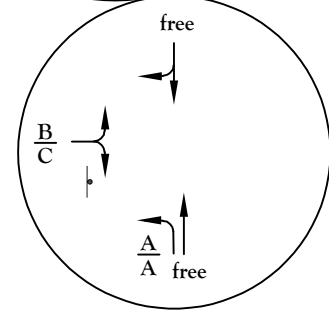
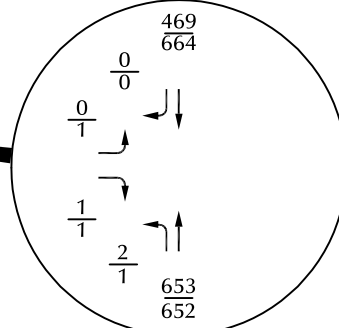
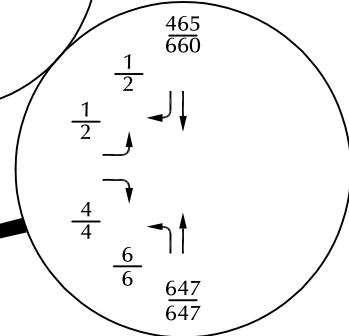
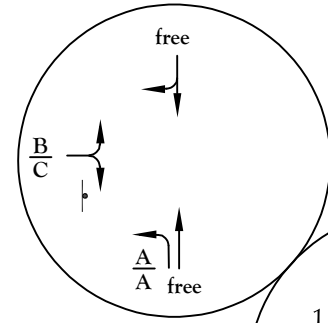
XXX = Average Weekday Traffic (vehicles per day)

⊥ = Stop Sign

$\frac{A}{B}$ = $\frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$

Existing plus Site-Generated Traffic

16050 Old Denver Rezone (LSC #S234320)



LEGEND:

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 PM Weekday Peak-Hour Traffic (vehicles per hour)

XXX = Average Weekday Traffic (vehicles per day)

\vdash = Stop Sign $\frac{A}{B}$ = $\frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$



Figure 9

2043 Total Traffic

16050 Old Denver Rezone (LSC #S234320)

Appendix Table 1



**Appendix Table 1
Area Traffic Impact Studies
16050 Old Denver Road**

Study	PCD File No⁽¹⁾	Consultant	Date
Baptist Road West Traffic Report		Felsburg Holt & Ullevig	August 27, 2013
Forest Lakes Filing No. 5 Transportation Memorandum	SF1915	LSC Transportation Consultants, Inc	August 30, 2019
Forest Lakes Filing No. 6 Transportation Memorandum	SF2027	LSC Transportation Consultants, Inc	October 6, 2020
Forest Lakes Filing No. 7 Transportation Memorandum	SF2149	LSC Transportation Consultants, Inc	August 3, 2021
Willow Springs Ranch Traffic Impact Study	OAR1959	LSC Transportation Consultants, Inc	February 12, 2020
Santa Fe Park 2022 Update Traffic Impact Study	OAR2243	LSC Transportation Consultants, Inc	April 8, 2022
Falcon Commerce Center Traffic Impact Study	OAR2023	SM Rocha, LLC	April 2020
Traffic Generation Analysis Eagle Rock	OAR2213	SM Rocha, LLC	February 25, 2022
Falcon Commerce Center Phase 2 Traffic Generation Analysis	OAR2238	SM Rocha, LLC	May 17, 2022 1/14/2022
Conexus Phases 2 & 3 Preliminary PUD Plan Traffic Impact Study	OAR2036	LSC Transportation Consultants, Inc	(with minor revisions 2/2/2022)
Conexus Lost Island Traffic Technical Memorandum		LSC Transportation Consultants, Inc	November 7, 2023
Conexus Filing 2 Lot 1 Traffic Technical Memorandum			
Notes:			
(1) Follow the links listed below to obtain the most recent version of each listed study. To obtain a copy of the version of each study used in preparing this report			
<i>Source: LSC Transportation Consultants, Inc.</i>			<i>Nov-23</i>

Traffic Counts



LSC Transportation Consultants, Inc.

2504 E. Pikes Peak Ave, Suite 304
 Colorado Springs, CO 80909
 719-633-2868

File Name : Old Denver Rd - Driveway Access AM

Site Code : S234320

Start Date : 9/14/2023

Page No : 1

Groups Printed- Unshifted

Start Time	Old Denver Rd Southbound					Westbound					Old Denver Rd Northbound					Driveway Access Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00	0	20	0	0	20	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	27
07:05	0	10	0	0	10	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	22
07:10	0	17	0	0	17	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	33
07:15	0	21	0	0	21	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	30
07:20	0	36	0	0	36	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	44
07:25	0	26	0	0	26	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	35
07:30	0	23	0	0	23	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	33
07:35	0	15	0	0	15	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	33
07:40	0	22	0	0	22	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	40
07:45	1	23	0	0	24	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	57
07:50	0	14	0	0	14	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	48
07:55	0	28	0	0	28	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	40
Total	1	255	0	0	256	0	0	0	0	0	0	186	0	0	186	0	0	0	0	0	442
08:00	0	21	0	0	21	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	33
08:05	0	16	0	0	16	0	0	0	0	0	0	17	0	0	17	1	0	0	0	1	34
08:10	0	16	0	0	16	0	0	0	0	0	0	13	1	0	14	0	0	0	0	0	30
08:15	0	15	0	0	15	0	0	0	0	0	0	15	1	0	16	0	0	0	0	0	31
08:20	0	17	0	0	17	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	21
08:25	1	16	0	0	17	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	28
08:30	0	10	0	0	10	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	24
08:35	0	11	0	0	11	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	16
08:40	0	15	0	0	15	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	35
08:45	0	12	0	0	12	0	0	0	0	0	0	14	1	0	15	0	0	0	0	0	27
08:50	0	13	0	0	13	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	29
*** BREAK ***																					
Total	1	162	0	0	163	0	0	0	0	0	0	141	3	0	144	1	0	0	0	1	308
Grand Total	2	417	0	0	419	0	0	0	0	0	0	327	3	0	330	1	0	0	0	1	750
Apprch %	0.5	99.5	0	0		0	0	0	0		0	99.1	0.9	0		100	0	0	0		
Total %	0.3	55.6	0	0	55.9	0	0	0	0		0	43.6	0.4	0	44	0.1	0	0	0	0.1	

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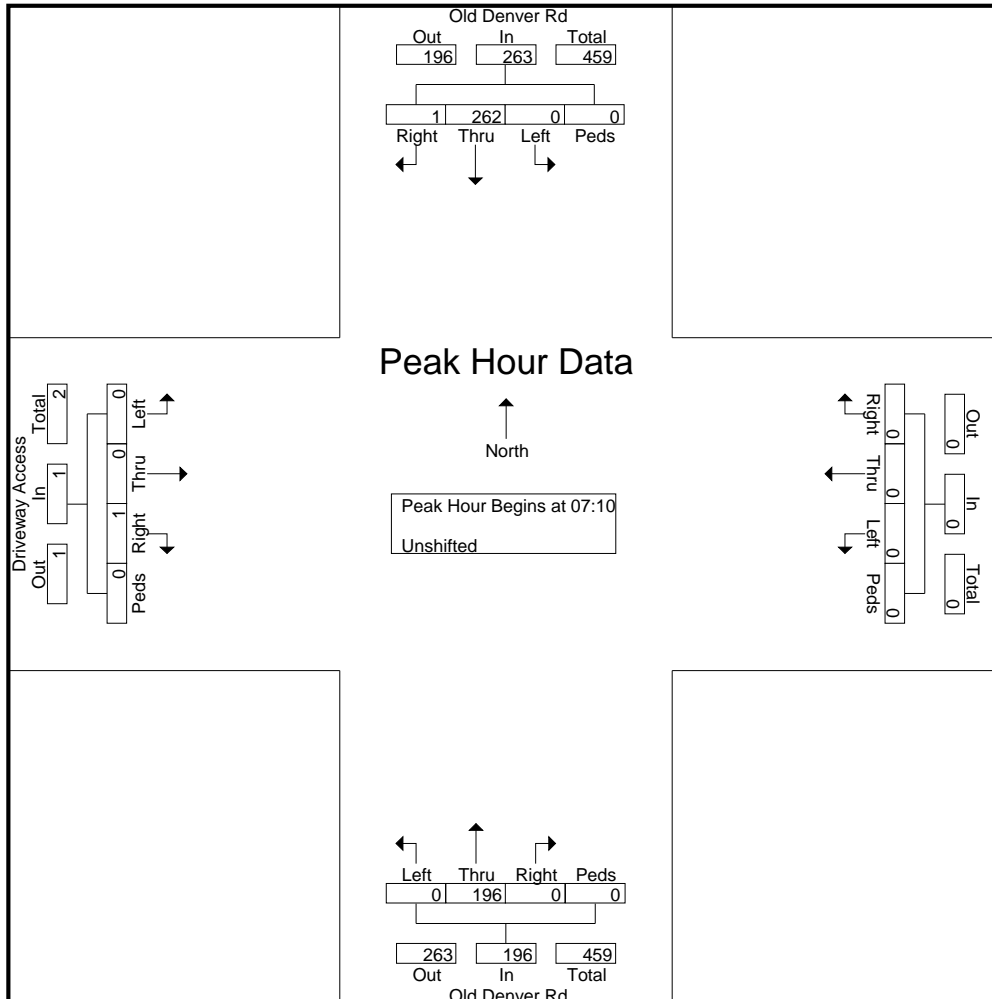
File Name : Old Denver Rd - Driveway Access AM

Site Code : S234320

Start Date : 9/14/2023

Page No : 2

Start Time	Old Denver Rd Southbound					Westbound					Old Denver Rd Northbound					Driveway Access Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 to 08:55 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:10																					
07:10	0	17	0	0	17	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	33
07:15	0	21	0	0	21	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	30
07:20	0	36	0	0	36	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	44
07:25	0	26	0	0	26	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	35
07:30	0	23	0	0	23	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	33
07:35	0	15	0	0	15	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	33
07:40	0	22	0	0	22	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	40
07:45	1	23	0	0	24	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	57
07:50	0	14	0	0	14	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	48
07:55	0	28	0	0	28	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	40
08:00	0	21	0	0	21	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	33
08:05	0	16	0	0	16	0	0	0	0	0	0	17	0	0	17	1	0	0	0	1	34
Total Volume	1	262	0	0	263	0	0	0	0	0	0	196	0	0	196	1	0	0	0	1	460
% App. Total	0.4	99.6	0	0		0	0	0	0		0	100	0	0		100	0	0	0		
PHF	.083	.606	.000	.000	.609	.000	.000	.000	.000	.000	.000	.480	.000	.000	.480	.083	.000	.000	.000	.083	.673



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Page No : 1

Groups Printed- Unshifted

Start Time	Old Denver Rd Southbound					Westbound					Old Denver Rd Northbound					Driveway Access Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
16:00	0	14	0	0	14	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	36
16:05	0	10	0	0	10	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	36
16:10	0	19	0	0	19	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	42
16:15	0	15	0	0	15	0	0	0	0	0	0	30	0	0	30	0	0	0	0	0	45
16:20	0	15	0	0	15	0	0	0	0	0	0	24	1	0	25	0	0	0	0	0	40
16:25	0	18	0	0	18	0	0	0	0	0	0	25	0	0	25	2	0	0	0	2	45
16:30	0	18	0	0	18	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	37
16:35	0	18	0	0	18	0	0	0	0	0	0	26	0	0	26	1	0	0	0	1	45
16:40	0	14	0	0	14	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	38
16:45	0	24	0	0	24	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	45
16:50	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	0	0	1	0	1	33
16:55	0	15	0	0	15	0	0	0	0	0	0	24	0	0	24	1	0	1	0	2	41
Total	0	195	0	0	195	0	0	0	0	0	0	281	1	0	282	4	0	2	0	6	483
17:00	0	22	0	0	22	0	0	0	0	0	0	25	0	0	25	0	0	1	0	1	48
17:05	0	27	0	0	27	0	0	0	0	0	0	27	1	0	28	2	0	0	0	2	57
17:10	0	11	0	0	11	0	0	0	0	0	0	27	0	0	27	1	0	0	0	1	39
17:15	0	23	0	0	23	0	0	0	0	0	0	28	1	0	29	0	0	1	0	1	53
17:20	0	9	0	0	9	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	33
17:25	0	9	0	0	9	0	0	0	0	0	0	37	0	0	37	0	0	0	0	0	46
17:30	0	18	0	0	18	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	37
17:35	0	13	0	0	13	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	40
17:40	0	23	0	0	23	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	43
17:45	0	13	0	0	13	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	32
17:50	0	22	0	0	22	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	45
17:55	0	25	0	0	25	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	54
Total	0	215	0	0	215	0	0	0	0	0	0	305	2	0	307	3	0	2	0	5	527
Grand Total	0	410	0	0	410	0	0	0	0	0	0	586	3	0	589	7	0	4	0	11	1010
Apprch %	0	100	0	0		0	0	0	0		0	99.5	0.5	0		63.6	0	36.4	0		
Total %	0	40.6	0	0	40.6	0	0	0	0	0	0	58	0.3	0	58.3	0.7	0	0.4	0	1.1	

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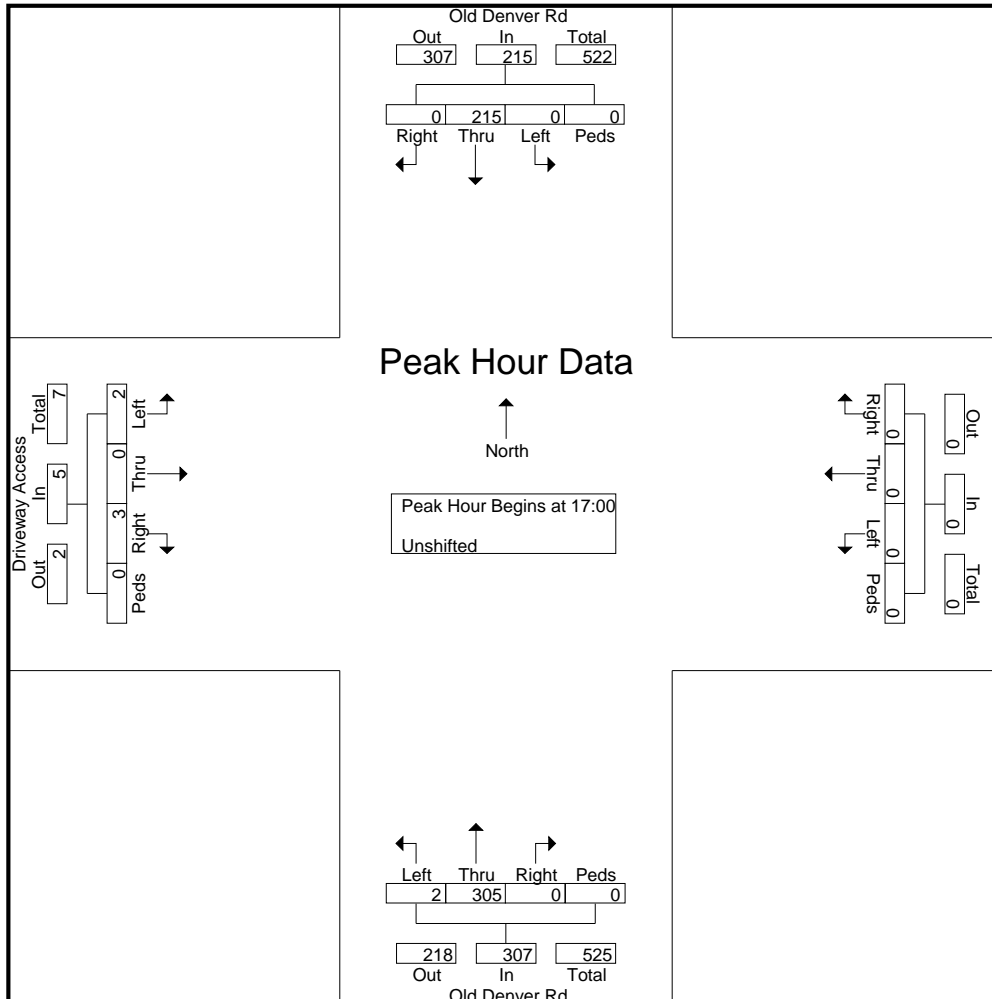
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	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 16:00 to 17:55 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	22	0	0	22	0	0	0	0	0	0	25	0	0	25	0	0	1	0	1	48
17:05	0	27	0	0	27	0	0	0	0	0	0	27	1	0	28	2	0	0	0	2	57
17:10	0	11	0	0	11	0	0	0	0	0	0	27	0	0	27	1	0	0	0	1	39
17:15	0	23	0	0	23	0	0	0	0	0	0	28	1	0	29	0	0	1	0	1	53
17:20	0	9	0	0	9	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	33
17:25	0	9	0	0	9	0	0	0	0	0	0	37	0	0	37	0	0	0	0	0	46
17:30	0	18	0	0	18	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	37
17:35	0	13	0	0	13	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	40
17:40	0	23	0	0	23	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	43
17:45	0	13	0	0	13	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	32
17:50	0	22	0	0	22	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	45
17:55	0	25	0	0	25	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	54
Total Volume	0	215	0	0	215	0	0	0	0	0	0	305	2	0	307	3	0	2	0	5	527
% App. Total	0	100	0	0		0	0	0	0		0	99.3	0.7	0		60	0	40	0		
PHF	.000	.664	.000	.000	.664	.000	.000	.000	.000	.000	.000	.687	.167	.000	.691	.125	.000	.167	.000	.208	.770



Level of Service Reports



HCM 6th TWSC
1: Old Denver Road & North Access

Short-Term Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	6	196	262	1
Future Vol, veh/h	1	4	6	196	262	1
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	78	78	58	58	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	10	338	301	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	660	302	302	0	-	0
Stage 1	302	-	-	-	-	-
Stage 2	358	-	-	-	-	-
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	428	738	1259	-	-	-
Stage 1	750	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	424	738	1259	-	-	-
Mov Cap-2 Maneuver	424	-	-	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	707	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1259	-	643	-	-
HCM Lane V/C Ratio	0.008	-	0.01	-	-
HCM Control Delay (s)	7.9	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	1	2	202	266	0
Future Vol, veh/h	0	1	2	202	266	0
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	78	78	58	58	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	3	348	306	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	660	306	306	0	-	0
Stage 1	306	-	-	-	-	-
Stage 2	354	-	-	-	-	-
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	428	734	1255	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	427	734	1255	-	-	-
Mov Cap-2 Maneuver	427	-	-	-	-	-
Stage 1	745	-	-	-	-	-
Stage 2	710	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1255	-	734	-	-
HCM Lane V/C Ratio	0.003	-	0.002	-	-
HCM Control Delay (s)	7.9	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
1: Old Denver Road & North Access

Short-Term Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	2	4	6	306	215	2
Future Vol, veh/h	2	4	6	306	215	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	78	78	87	87	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	5	7	352	239	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	606	240	241	0	0
Stage 1	240	-	-	-	-
Stage 2	366	-	-	-	-
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	460	799	1326	-	-
Stage 1	800	-	-	-	-
Stage 2	702	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	457	799	1326	-	-
Mov Cap-2 Maneuver	457	-	-	-	-
Stage 1	794	-	-	-	-
Stage 2	702	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1326	-	639	-	-
HCM Lane V/C Ratio	0.005	-	0.012	-	-
HCM Control Delay (s)	7.7	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	1	1	1	311	219	0
Future Vol, veh/h	1	1	1	311	219	0
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	78	78	87	87	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	1	357	243	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	602	243	243	0	-	0
Stage 1	243	-	-	-	-	-
Stage 2	359	-	-	-	-	-
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	463	796	1323	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	463	796	1323	-	-	-
Mov Cap-2 Maneuver	463	-	-	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	707	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1323	-	585	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.7	0	11.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	6	647	465	1
Future Vol, veh/h	1	4	6	647	465	1
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	-	100	-	-	-
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	1	4	7	703	505	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1223	506	506	0	-	0
Stage 1	506	-	-	-	-	-
Stage 2	717	-	-	-	-	-
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	198	566	1059	-	-	-
Stage 1	606	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	197	566	1059	-	-	-
Mov Cap-2 Maneuver	333	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1059	-	497	-	-
HCM Lane V/C Ratio	0.006	-	0.011	-	-
HCM Control Delay (s)	8.4	-	12.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
2: Old Denver Road & South Access

2043 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	0	1	2	653	469	0
Future Vol, veh/h	0	1	2	653	469	0
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	-	100	-	-	-
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	0	1	2	710	510	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1224	510	510	0	-	0
Stage 1	510	-	-	-	-	-
Stage 2	714	-	-	-	-	-
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	198	563	1055	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	198	563	1055	-	-	-
Mov Cap-2 Maneuver	334	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	485	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1055	-	563	-	-
HCM Lane V/C Ratio	0.002	-	0.002	-	-
HCM Control Delay (s)	8.4	-	11.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
 1: Old Denver Road & North Access

2043 Total Traffic
 PM Peak Hour

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	2	4	6	647	660	2
Future Vol, veh/h	2	4	6	647	660	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	-	100	-	-	-
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	2	4	7	703	717	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1435	718	719	0	-	0
Stage 1	718	-	-	-	-	-
Stage 2	717	-	-	-	-	-
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	147	429	882	-	-	-
Stage 1	483	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	146	429	882	-	-	-
Mov Cap-2 Maneuver	286	-	-	-	-	-
Stage 1	479	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	882	-	368	-	-
HCM Lane V/C Ratio	0.007	-	0.018	-	-
HCM Control Delay (s)	9.1	-	15	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	1	1	1	652	664	0
Future Vol, veh/h	1	1	1	652	664	0
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	-	100	-	-	-
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	1	1	1	709	722	0

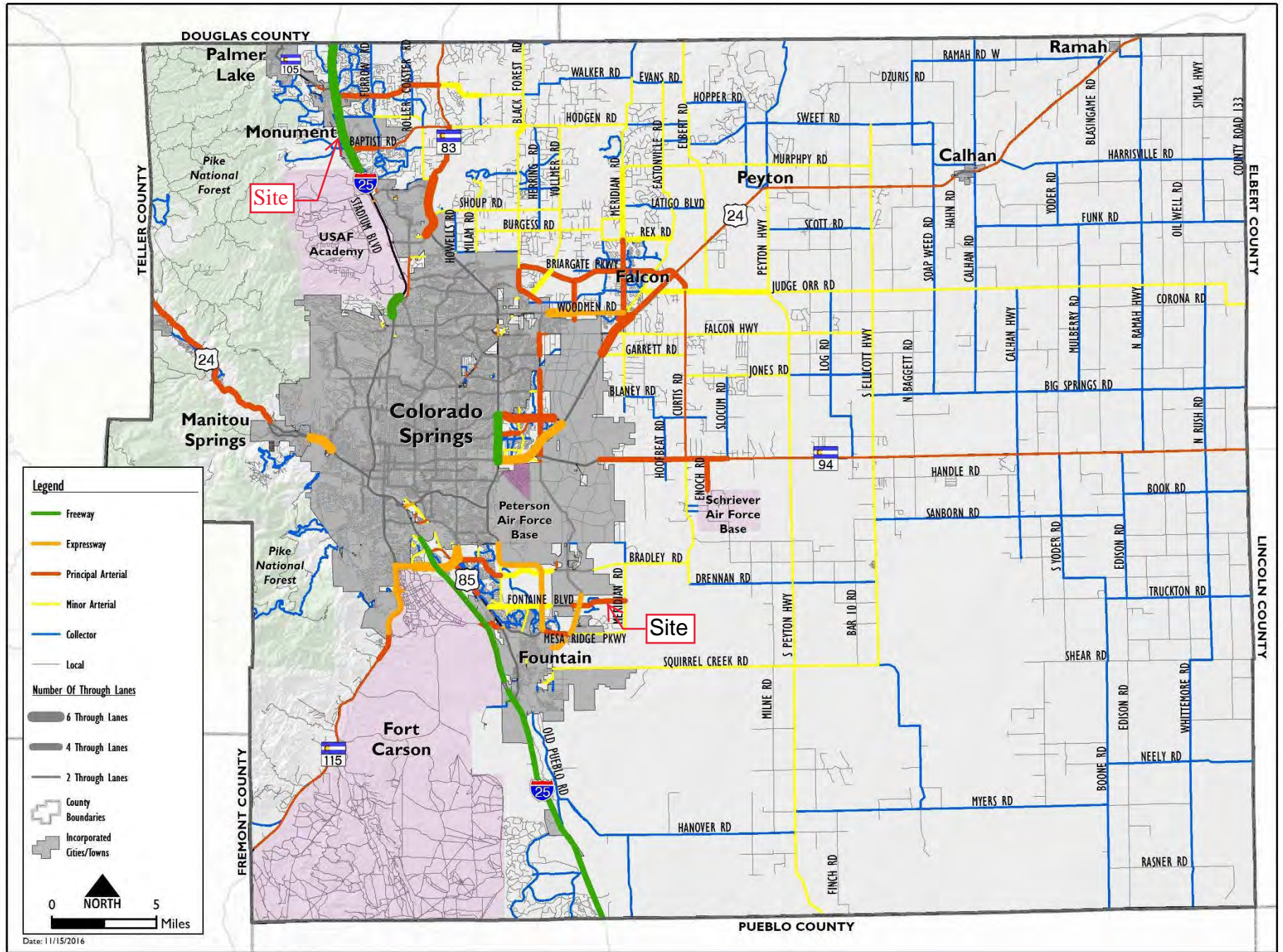
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1433	722	722	0	-	0
Stage 1	722	-	-	-	-	-
Stage 2	711	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	148	427	880	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	487	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	148	427	880	-	-	-
Mov Cap-2 Maneuver	288	-	-	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	487	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	880	-	344	-	-
HCM Lane V/C Ratio	0.001	-	0.006	-	-
HCM Control Delay (s)	9.1	-	15.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

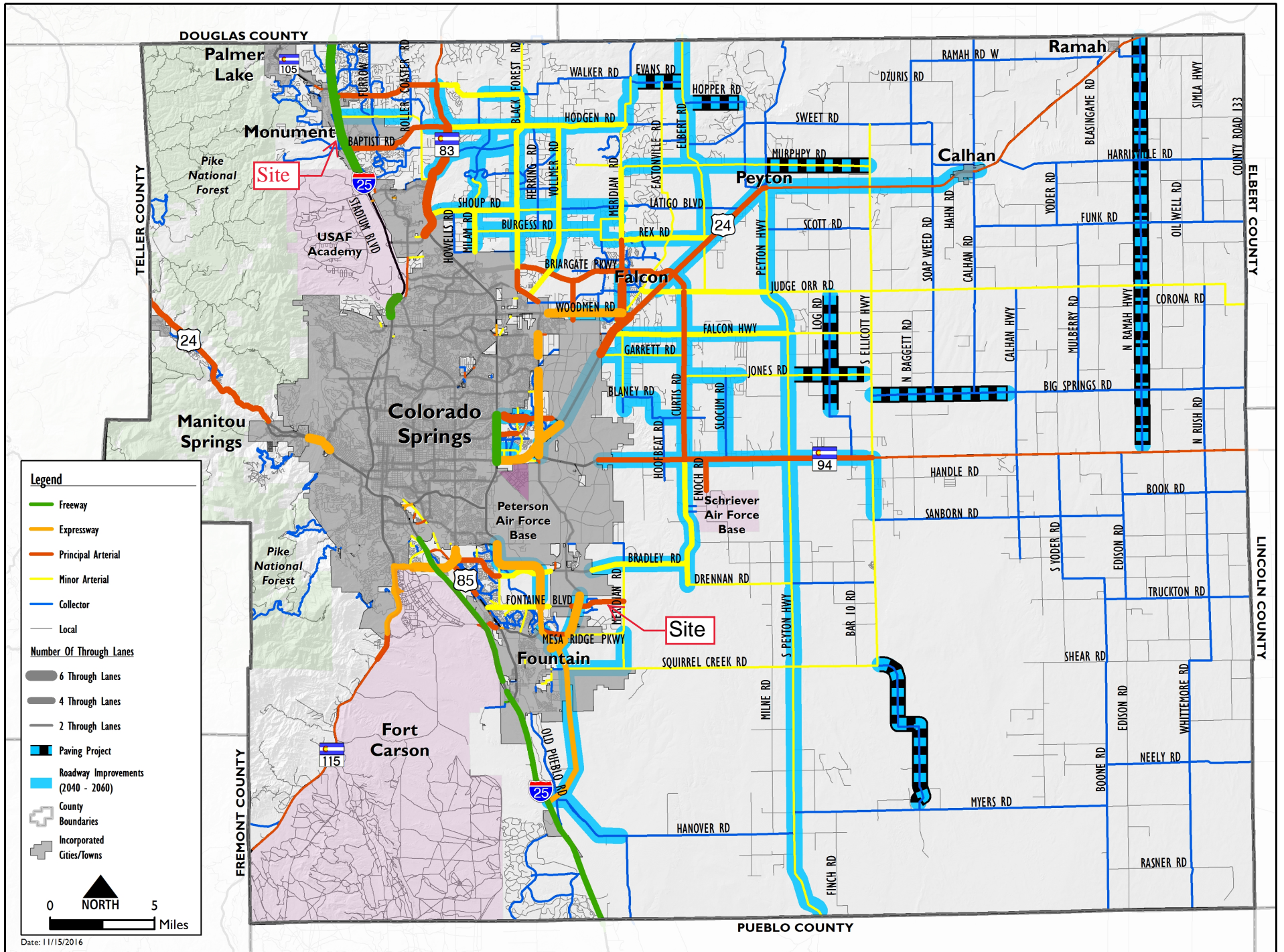
MTCP Maps





Map 14: 2040 Roadway Plan (Classification and Lanes)

Map 17: 2060 Corridor Preservation



Appendix A



Appendix A

Trip Generation Rate Estimate

Land Use: RV & Boat Storage

(LSC Revised 6-15-2023)

LSC estimates of trip-generation rates for the proposed RV & Boat Storage land use for this project have been based on averages of rates from other studies summarized in the following table:

ITE Land Use Code	Land Use	Units ¹	Trip Generation Rates				
			Average Weekday	Weekday A.M.		Weekday P.M.	
				In	Out	In	Out
<u>RV Storage Trip Generation Report - Valley Park, St. Louis, MO for the RV Storage facility to be located at 802 Forest Avenue by The Traffic Group</u>							
-	RV Storage - Data Point 1	100 Storage Units	10.78				
-	RV Storage - Data Point 2	100 Storage Units	10.8				
-	RV Storage - Data Point 3	100 Storage Units	17.23	(duplicate data point)			
<u>Trip Generation Analysis for the Proposed Self-Storage and RV Storage Facility at 3701 Pacific Place, Long Beach, California, by LSA Associates</u>							
-	RV Storage - Data Point 1	100 Storage Units	17.23	0.50	0.47	0.93	1.12
<u>Route 52 RV Traffic Impact Study in Weld County, CO (2017) -- by Sustainable Traffic Solutions, Inc.</u>							
-	RV Storage - Data Point 1	100 Storage Units				0.36	0.48
Average Rates			12.94	0.50	0.47	0.65	0.80
Revised JCH 6-15-2023							

LSC estimates of trip-generation rates shown in the table above and used to estimate the trip generation for the proposed RV & Boat Storage land use for this project have been based on averages of rates from the following studies:

Route 52 RV Traffic Impact Study 8/28/2017 by Sustainable Traffic Solutions, Inc.

Outdoor RV Storage Trip Generation

Trip Generation Summary

Location	Area (100 Spaces)	Peak Hour Volume					
		Weekday Evening			Sunday Afternoon		
		Total	In	Out	Total	In	Out
Recreational Storage Solutions	6.52	9	3	6	19	9	10
Brighton Outdoor Storage	9.67	5	3	2	36	25	16
Total	16.59	14	6	8	55	29	26
Average	8.30	7	3	4	28	15	13
Percentage	---	100%	43%	57%	100%	52%	47%
Rates (trips/100 spaces)	---	0.84	0.36	0.48	3.32	1.75	1.57

Data Summary

Recreational Storage Solutions				Brighton Outdoor Storage			
Weekday				Weekday			
Interval	In	Out	Total	Interval	In	Out	Total
1	1	2		1	0	0	
2	0	2		2	2	0	
3	2	2		3	0	1	
4	0	0	3	4	0	1	4
5	1	1	8	5	1	0	5
6	1	0	7	6	0	1	4
7	0	1	4	7	1	0	4
8	1	1	5	8	0	1	4
Total	6	9	---	Total	4	4	---
Sunday				Sunday			
Interval	In	Out	Total	Interval	In	Out	Total
1	2	3		1	5	0	
2	2	2		2	5	3	
3	2	2		3	6	6	
4	3	3	19	4	4	7	36
5	1	3	18	5	3	2	36
6	1	2	17	6	4	3	35
7	1	4	18	7	2	2	37
8	4	0	16	8	3	3	22
Total	16	19	---	Total	32	26	---

Trip-Generation Analysis for the Proposed Self-Storage and RV Storage Facility at 3701 Pacific Place, Long Beach, California, 2/27/2020 by LSA Associates

Table B: Project Trip Generation (Gate Trip Rates)

Land Use	Size	Unit	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates¹									
Self-Storage		100 storage units	12.90	0.53	0.40	0.93	0.93	0.79	1.72
RV Storage		100 RV spaces	17.23	0.50	0.47	0.97	0.93	1.12	2.05
Project Trip Generation									
Self-Storage	11.00	100 storage units	142	6	4	10	10	9	19
RV Storage	5.80	100 RV spaces	100	3	3	6	5	7	12
Total			242	9	7	16	15	16	31

¹ Trip rates developed from gate data for the Moreno Valley Self Storage and Desert Hot Springs Self Storage and RV Storage facilities (November 2019 to January 2020).

ADT = average daily traffic

RV = recreational vehicle

RV Storage Trip Generation Report - Valley Park, St. Louis, MO, for the RV storage facility to be located at 802 Forest Avenue 1/6/2022 by The Traffic Group

Source/Land Use		Daily
ITE -151 (Trip Generation Manual, 11th Ed.)		
Trip Rates	Rate per 100 spaces	17.96
RV Storage	265 RV Spaces	48
Fort Collins - 60% Reduction		
Trip Rates	Rate per 100 spaces	10.78
RV Storage	265 RV Spaces	29
McBride Traffic Study		
Trip Rates	Rate per 100 spaces	10.80
RV Storage	265 RV Spaces	29
Long Beach, CA		
Trip Rates	Rate per 100 spaces	17.23
RV Storage	265 RV Spaces	46
Average Trips for 265 RV Spaces		38

Appendix B



Appendix B

Trip Generation Rate Estimate

Land Use: General Outdoor Storage Yard

(by LSC 11-15-2023)

LSC estimates of trip-generation rates for a “General Outdoor Storage Yard” land use for this project have been based on data collected at similar sites in Colorado Springs and Arapahoe County, CO.

A “General Outdoor Storage Yard” land use is a commercial business which provides leasable outdoor spaces for businesses, including construction and industrial businesses, contractors, and others needing space store and vehicles, equipment, large machinery, materials, etc. The tenants are commonly, but not limited to, maintenance contractors, design-build contractors, and other contractors needing properly zoned storage space. The intent is to provide separate leasable spaces for several tenants, rather than for a single tenant.

Generally, this use does not include permanent buildings such as offices, warehouses or maintenance shops, although one of the sites counted did have a building on the site. As permanent buildings are not typically included, the independent/predictor variable used is “Acres.”

The businesses may offer 24-hour access with a gate and access keypad.

This use is similar to mini warehouse/self-storage but is primarily outdoor storage space for businesses and contractors, generally without permanent buildings. The use is also similar to outdoor RV/Boat storage and some of the sites surveyed allow for lease of space for RVs and boats and appear to provide vehicle parking spaces. However, this use allows for storage of materials and equipment other than or in addition to vehicles/trailers and has fenced off yard areas for storage in addition to vehicle/trailer parking spaces and is primarily intended for lease by contractors.

The data and average trip-generation rates are summarized in the following table:

ITE Code	Land Use	Survey Location	Value	Units ¹	Driveway Trips Counted ¹				Calculated Trip Generation Rates					
					Weekday	A.M. Peak Hour		P.M. Peak Hour		Weekday	A.M. Peak Hour		P.M. Peak Hour	
						In	Out	In	Out		In	Out	In	Out
N/A	General Outdoor Storage	Site No. 1 - Colorado Springs, CO	8.7	Acres	350	27	21	11	11	40.28	3.11	2.42	1.27	1.27
N/A	General Outdoor Storage	Site No. 2 - Arapahoe County, CO	9.8	Acres	517	13	10	45	28	52.76	1.33	1.02	4.59	2.86
N/A	General Outdoor Storage	Site No. 3 - Arapahoe County, CO	5.5	Acres	110	9	3	4	6	20.00	1.64	0.55	0.73	1.09
Average										37.68	2.02	1.33	2.19	1.74

¹ Source: local entering and exiting count data at contractor storage yards in Colorado Springs, CO and Arapahoe County, CO in October and November 2023

LSC estimates of trip-generation rates shown in the table above have been used to estimate the trip generation for the General Outdoor Storage land use for this project.