

## 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.

see comments on 1  
figures and revise as  
needed

### 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.

missing figure 2  
number

### ROAD AND TRAFFIC CONDITIONS AND *MTCP* CLASSIFICATION

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.

# LSC Responses to Town Comments

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 Number: 1      Author: M HEUGH      Subject: Callout      Date: 1/30/2024 12:31:30 PM  
[see comments on figures and revise as needed](#)

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 Number: 2      Author: M HEUGH      Subject: Callout      Date: 1/30/2024 12:16:07 PM  
[missing figure number](#)

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 Author: kdfer      Subject: Sticky Note      Date: 2/15/2024 2:08:59 PM  
LSC Response: Revised as requested.

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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 1 <sup>1</sup>

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) <sup>(1)</sup> |
| 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.

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Number: 1 Author: M HEUGH Subject: Callout Date: 1/30/2024 12:36:20 PM

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[table 1](#)

 Author: kdfer Subject: Sticky Note Date: 2/15/2024 2:30:44 PM  
LSC Response: Table references have been corrected as requested.

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## 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

is this section <sup>1</sup>  
applicable?

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.

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Number: 1 Author: M HEUGH Subject: Callout Date: 1/30/2024 12:40:52 PM

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[is this section applicable?](#)

 Author: kdfer Subject: Sticky Note Date: 2/15/2024 2:10:16 PM  
LSC Response: This section has been struck from the report.

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Approximate Scale  
1" = 150'

is this callout correct? based on Town criteria, ~380 should be the prescribed stopping distance, pointing to the black line. interpolating for 45mph @ 3% downgrade. 1

Figure 3a

# Sight Distance Analysis North Site Access

16050 Old Denver Road Rezone (LSC #S234320)



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Number: 1 Author: M HEUGH Subject: Callout Date: 1/30/2024 12:05:24 PM

is this callout correct? based on Town criteria, ~380 should be the prescribed stopping distance, pointing to the black line. interpolating for 45mph @ 3% downgrade.

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Author: kdfer Subject: Sticky Note Date: 2/15/2024 2:10:45 PM

LSC Response: There were duplicate but conflicting SSD labels. The incorrect one has been removed and the correct one remains on the figure (showing a prescribed stopping sight distance of 378' per AASHTO Table 3-2 as Table 5-6 does not have a criteria for 45 mph). The "Meets Standard" text was transferred to the correct label.



Approximate Scale  
1" = 150'

is this callout correct? based on Town criteria, ~350 should be the prescribed stopping distance, pointing to the black line. interpolating for 45mph @ 3% upgrade. [1]

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).

is this callout correct? based on Town criteria, ~350 should be the prescribed stopping distance, pointing to the black line. interpolating for 45mph @ 3% upgrade. [2]

Figure 3b

# Sight Distance Analysis South Site Access

16050 Old Denver Road Rezone (LSC #S234320)



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Number: 1 Author: M HEUGH Subject: Callout Date: 1/30/2024 12:06:07 PM

[is this callout correct? based on Town criteria, ~350 should be the prescribed stopping distance, pointing to the black line. interpolating for 45mph @ 3% upgrade.](#)

Author: jchodsdon Subject: Sticky Note Date: 2/15/2024 2:11:18 PM

LSC Response: The prescribed stopping sight distance of 360' is per AASHTO Table 3-1 as the Town stopping sight distance Table 5-5 does not list criteria for 45 mph. Note: To be conservative at this stage of the process, the criteria for level terrain was used instead of the criteria with adjustment for an upgrade. This is because a detailed roadway centerline profile is not available.

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Number: 2 Author: M HEUGH Subject: Callout Date: 1/30/2024 12:05:57 PM

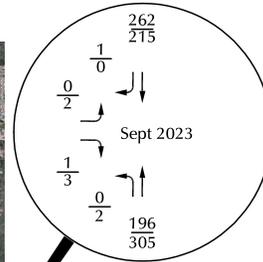
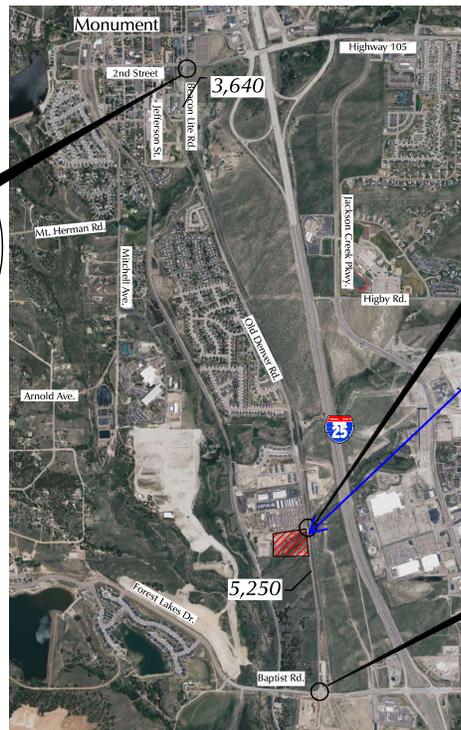
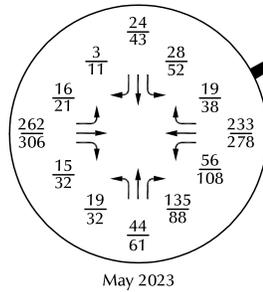
[is this callout correct? based on Town criteria, ~350 should be the prescribed stopping distance, pointing to the black line. interpolating for 45mph @ 3% upgrade.](#)

Author: kdfer Subject: Sticky Note Date: 2/15/2024 2:11:34 PM

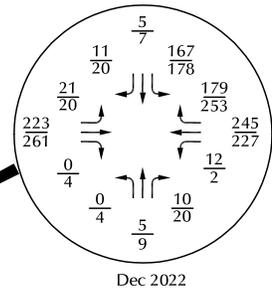
LSC Response: The prescribed stopping sight distance of 360' is per AASHTO Table 3-1 as Table 5-5 does not have a criteria for 45 mph. The label has been corrected to reflect use of AASHTO table 3-1.



Not to scale



Text says southern access. this looks like northern access. please adjust.



LEGEND:

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

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 Number: 1 Author: M HEUGH Subject: Callout Date: 1/30/2024 12:19:55 PM  
[text says southern access.](#) [this looks like northern access.](#) [please adjust.](#)

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 Author: kdfer Subject: Sticky Note Date: 2/15/2024 2:11:58 PM  
LSC Response: Revised to show the count location at the south access.

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