



Traffic Impact Study

Please revise to Master Traffic Impact Study.

This has been changed to Master Traffic Impact Study.

Caliber at Constitution

El Paso County, Colorado

Please be sure to update the Letter of intent with any changes to this traffic study.

The letter of intent has been revised to be consistent with the updated traffic study.

Prepared for:

The Garrett Companies, Inc.

Kimley»»Horn

T R A F F I C I M P A C T S T U D Y

Traffic Engineer's Statement

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



Jeffrey R. Planck, P.E., PE #53006

October 8, 2021
Date

Developer's Statement

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

Mr. Karl Stout
The Garrett Companies, Inc.
1051 Greenwood Springs Boulevard
Suite 101
Greenwood, Indiana 46143

Date

Caliber at Constitution

El Paso County, Colorado

Prepared for
The Garrett Companies, Inc.
1051 Greenwood Springs Boulevard
Suite 101
Greenwood, Indiana 46143

Prepared by
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4582 South Ulster Street
Suite 1500
Denver, Colorado 80237
(303) 228-2300

October 2021



This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

1.0 EXECUTIVE SUMMARY

This report has been prepared to document the results of the Traffic Study for the Caliber at Constitution development proposed to be located on the southwest corner of Constitution Avenue and Marksheffel Road intersection in El Paso County, Colorado. For the purposes of this analysis, Caliber at Constitution is anticipated to include approximately 226 multifamily housing residences. It is expected that Caliber at Constitution will be completed in the next couple of years; therefore, analysis was conducted for the 2023 and 2045 horizons.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with the El Paso County standards and requirements:

Please provide a description of these roadways, identifying the classification of the roadways per ECM Appendix B.8.

- Constitution Avenue and Akers Drive
- Constitution Avenue and Marksheffel Road

In addition, the proposed full movement access along the future extension of Akers Drive and a Road were evaluated.

The descriptions of the roadways are provided in Section 3, and the classification of the studied roadways are now included in that section.

Constitution project will be provided by US Highway 24 (US-24), Powers Boulevard (SH-21), and State Highway 94 (SH-94). Primary access will be provided by Constitution Avenue and Marksheffel Road. Direct access will be provided by a full movement access along Akers Drive located approximately 155 feet south of Constitution Avenue (measured edge line to centerline) and a right-out access along Marksheffel Road approximately 400 feet south of Constitution Avenue (measured edge line to center).

Caliber at Constitution is expected to generate approximately 1,230 weekday daily trips, with 76 of these trips occurring during the morning peak hour and 97 of these trips occurring during the afternoon peak hour.

Based on the analysis presented in this report, Kimley-Horn believes Caliber at Constitution will be successfully incorporated into the existing and future roadway network. Analysis of the existing

street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

2023 Recommendations:

- With construction of the Caliber at Constitution development, a south leg is proposed to be constructed at the existing Constitution Avenue and Akers Drive intersection. Based on configuration of the north leg of this intersection providing chevron striping for a future through lane, it is believed that this leg will provide a southbound through lane when the south leg is constructed. Based on El Paso County Engineering Criteria Manual (ECM), a northbound left turn lane will likely be warranted at the Constitution Avenue and Akers Drive intersection; however, a separate northbound right turn lane is not expected to be warranted with buildout future traffic projections. As such, it is recommended that the south leg of the Constitution Avenue and Akers Drive intersection provide a left turn lane and a shared through/right turn lane. It is also recommended that this intersection continue to operate with stop control and a R1-1 “STOP” sign be installed on the northbound approach. To meet El Paso County standards, an eastbound right turn lane should be provided at this intersection. To be consistent with the intersections in the surrounding area, it is recommended that the **third eastbound through lane (outside through lane) at this intersection be dropped as a forced right turn lane.**
An exclusive right turn lane may be required so as not to impact the through lanes. This will be brought to the attention of the ECM administrator. As this is a rezone, final decisions on these and other proposals will be provided at the subdivision stage.
- With completion of the proposed right-out only access is proposed along the new south leg of Akers Drive approximately 155 feet south of Constitution Avenue (measured edge of Akers Drive) and Marksheffel Road approximately 155 feet west of Constitution Avenue (measured edge of Marksheffel Road). It is recommended that this decision will occur at the subdivision stage and changes to the traffic study may be needed at that time. If both accesses. To further restrict right turn entrance as well, a R3-1 “NO RIGHT TURN” sign should be installed facing drivers traveling southbound along Marksheffel Road as well as a R5-1 “DO NOT ENTER” sign to be placed behind the STOP sign. The driveway throat at the proposed right-out only access should be oriented to further restrict entering movements. To restrict right turn entrance as well, a R3-2 “NO LEFT TURN” sign be placed underneath the STOP sign. Further, a R6-1(R) “ONE WAY” sign should also be installed within the raised center median of Marksheffel Road. To restrict right turn entrance as well, a R3-1 “NO RIGHT TURN” sign should be installed facing drivers traveling southbound along Marksheffel Road as well as a R5-1 “DO NOT ENTER” sign to be placed behind the STOP sign. The driveway throat at the proposed right-out only access should be oriented to further restrict entering movements.

Deviations Required

Please indicate that these deviations will be provided at the subdivision stage (i.e. preliminary plan/final plat) for the ECM administrators consideration.

FYI: Please be aware that submittal of deviation requests does not imply that they will be approved by the ECM administrator.

- A deviation will be provided to request full movement access from a future south leg of Akers Drive at Constitution Avenue (measured edge line to center), and approximately 825 feet east of Hannah Ridge Drive. Additional clarification for the timing and process of the proposed deviations have been provided in the revised traffic study. It is understood that deviation requests may not be approved by the ECM administrator. Engineering Criteria Manual (ECM), spacing of roads accessing that will result in a full movement intersection shall be planned at one-half mile. However, as stated in the ECM, one parcel access shall be granted to each existing lot, if it does not create safety or operational problems. The intersection of Constitution Avenue and Akers Drive is expected to meet operational, vehicle queue, and sight distance standards; therefore, it is believed that a south leg of Akers Drive at Constitution Avenue should be granted to allow for one full movement access to the existing lot. Please include the ECM section (ECM 2.2.5.B)
- A deviation will be provided in support of allowing a right-out only access along Marksheffel Road. The proposed right-out access along Marksheffel Road will be located approximately 400 feet south of Constitution Avenue (measured edge line to center). The appropriate ECM sections have been referenced in the revised traffic study. The proposed right-out only access along Marksheffel Road is expected to meet operational, vehicle queue, and sight distance standards; therefore, it is believed that this access should be granted to only allow right-turn exiting movements. Please include the ECM section (ECM 2.2.5.D)
- The access along the new south leg of Akers Drive will be approximately 155 feet south of Constitution Avenue (measured edge line to center). According to the El Paso County Engineering Criteria Manual, spacing of intersections along urban local roadways from an arterial roadway should be 330 feet from the right-of-way line of the arterial to the centerline of the access roadway. Therefore, the proposed access along the new south leg of Akers Drive does not meet ECM standards. The access along Akers Drive is expected to meet operational, vehicle queue, and sight distance standards. However, the required northbound left turn lane at the Constitution Avenue and Akers Drive intersection will extend beyond the access to the proposed development. A deviation will need to be provided to request for this proposed access to remain at the proposed location.
- A southbound left turn lane is warranted at Akers Drive Access based on projected 2023 total traffic volumes being 59 northbound left turns during the peak hour and the threshold being

FYI: Staff is not inclined to allow removal of a warranted turn lane although this will be reviewed by the ECM administrator at the subdivision stage when the deviation request is submitted.

25 vehicles per hour. However, there are no traffic volumes conflicting with the turning vehicles and there is no vehicle delay at this intersection. Therefore, it is recommended that the intersection be controlled by roundabout control. According to Colorado Department of Transportation, roundabout control is preferred if the opposing traffic is not expected to be any greater than the project traffic. There are not expected to be any volumes during the peak hour in the project area. A deviation will be requested for a warranted southbound left turn lane.

It is understood that deviation requests may not be approved by the ECM administrator and that decisions will occur at the subdivision stage. An additional analysis has been provided with roundabout control at the project access along Akers Drive to remove the need for a southbound left turn lane at the project access, as well as the potential removal of the taper for the northbound left turn lane at Constitution Avenue and Akers Drive.

2045 Recommendation

- A traffic signal is warranted with 2045 traffic volume projections at the intersection of Constitution Avenue and Akers Drive. It is recommended that El Paso County monitor traffic volumes at this intersection in the future to determine if signalization is the appropriate control. It should be noted the north leg of this intersection is the controlling approach that triggers the need for signal control and project traffic is only expected to utilize the south leg of this intersection.

General Recommendations

- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the El Paso County and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.

This appears low. Please use the El Paso County MTCP to calculate the growth rate. Per the recently approved Urban collection subdivision traffic study (<https://epcdevplanreview.com/Public/ProjectDetails/166845>) immediately to the west of this site, a 1.3 growth factor was identified from the MTCP and 1.5 growth factor was used to be conservative.

the study intersections on Tuesday, September 21, 2021 during the morning and afternoon peak hours. The counts were conducted during the morning and afternoon peak hours of adjacent street traffic in 15-minute intervals from

The adjacent residential traffic study to the west has been obtained and the volumes from MTCP were a 25-year growth factor as existing counts were collected in 2015 in the MTCP and projected out to 2040. Therefore, the 25-year growth factor is approximately 1.31 which should have been equated to annual growth rate of 1.1 percent. However, similar to the adjacent residential traffic study to the west, an annual growth rate of 2.0 percent was utilized in the revised traffic study to provide a conservative analysis.

ent date. The existing intersection traffic is shown in **Appendix A**.

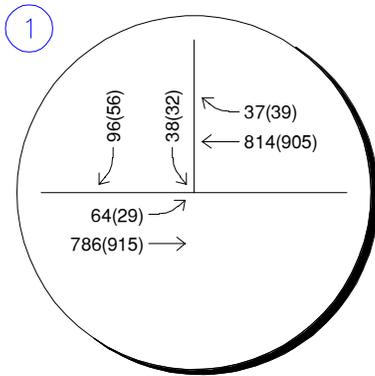
the Council of Governments (PPACOG) have an average 25-year growth factor rate of 0.62 percent. Future traffic volume is shown in **Appendix B**. Therefore, a 0.62 percent

annual growth rate was used to calculate future traffic volumes at the study area key intersections.

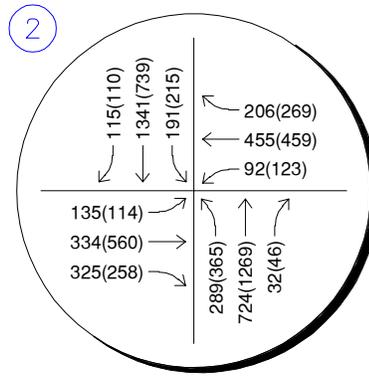
This annual growth rate was used to estimate short-term 2023 and long-term 2045 traffic volume projections at the key intersections. In addition, traffic volume potential from the undeveloped parcels surrounding the future Akers Drive south of Constitution Avenue was conservatively included as background traffic in 2045. In addition, it is believed that Akers Drive will eventually provide a connection with Talus Ridge Drive in the long-term future; therefore, some traffic was rerouted to the south leg of Akers Drive at Constitution Avenue due to this future connection. The calculated background traffic volumes for 2023 and 2045 are shown in **Figure 4** and **Figure 5**, respectively.

Where/How did these volumes come from? Growth rate table in appendix only shows 2015 & 2040.

Existing turning movement traffic volumes collected in 2021 were previously grown annually by 0.62 percent from year 2021 to 2023 to obtain background traffic volumes in 2023. Likewise, existing traffic volumes were grown annually by 0.62 percent from year 2021 to 2045 to obtain background traffic volumes in 2045. In addition, a parcel (south of the project) of multi-family use was assigned as background traffic 2045 to the south leg of Akers Drive at Constitution Avenue. A connection of Akers Drive to Colorado Tech Drive is possible in the future; however, all adjacent development residential traffic was routed to the Constitution Avenue and Akers Drive intersection to provide a conservative analysis. To provide a conservative analysis, a 2.0% growth rate was used in the revised study to be consistent with the Urban Collection at Palmer Village traffic study.



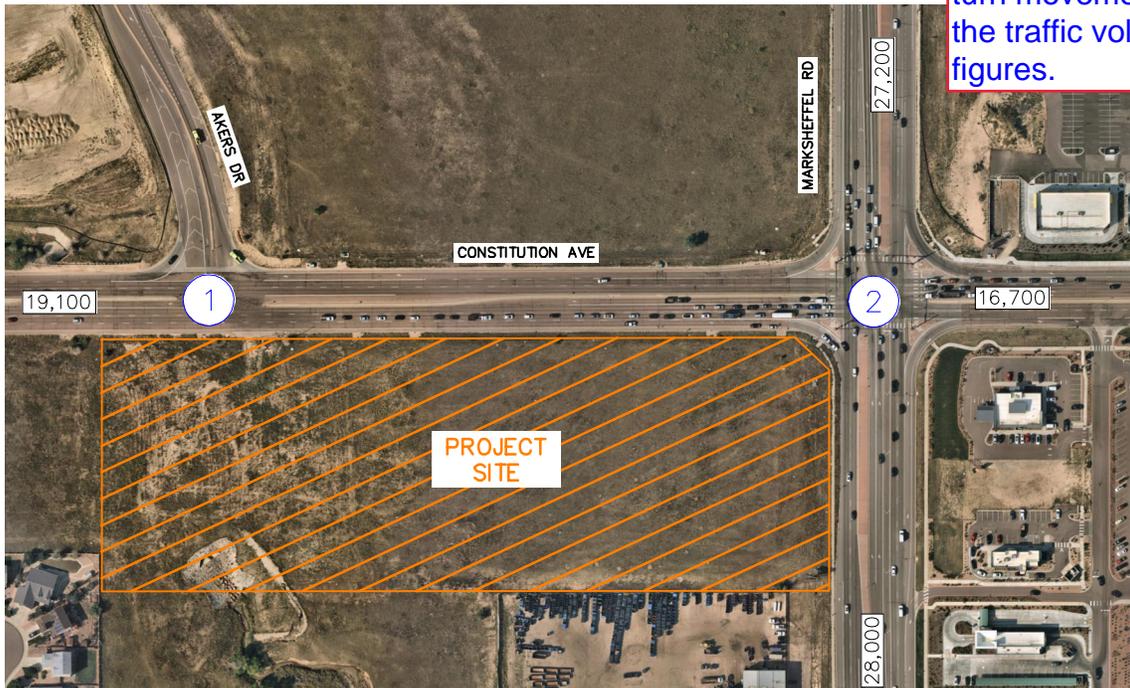
Tuesday, September 21, 2021
7:15 to 8:15AM (4:15 to 5:15PM)



Tuesday, September 21, 2021
7:00 to 8:00AM (4:30 to 5:30PM)

Where did u-turns get accounted for?

U-turns have been evaluated in the revised traffic study and have been included as left turn movements on the traffic volume figures.



LEGEND

- (X) Study Area Key Intersection
- XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes
- XX,X00 Estimated Daily Traffic Volume

CALIBER AT CONSTITUTION
EL PASO COUNTY, COLORADO
2021 EXISTING TRAFFIC VOLUMES

FIGURE 3

Please elaborate on your reasoning for the distributions shown.

4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project trip distribution for the proposed development is illustrated in **Figure 6**.

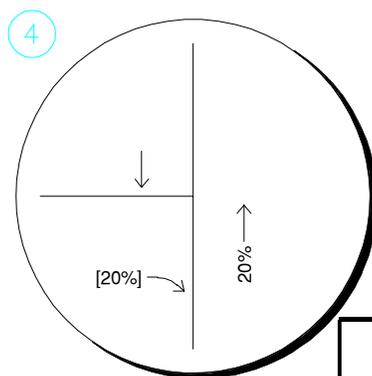
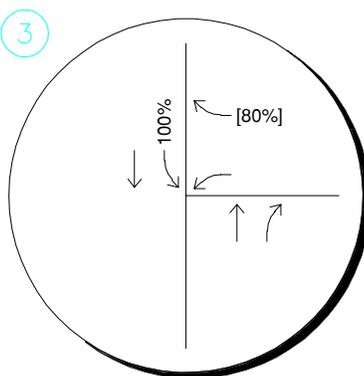
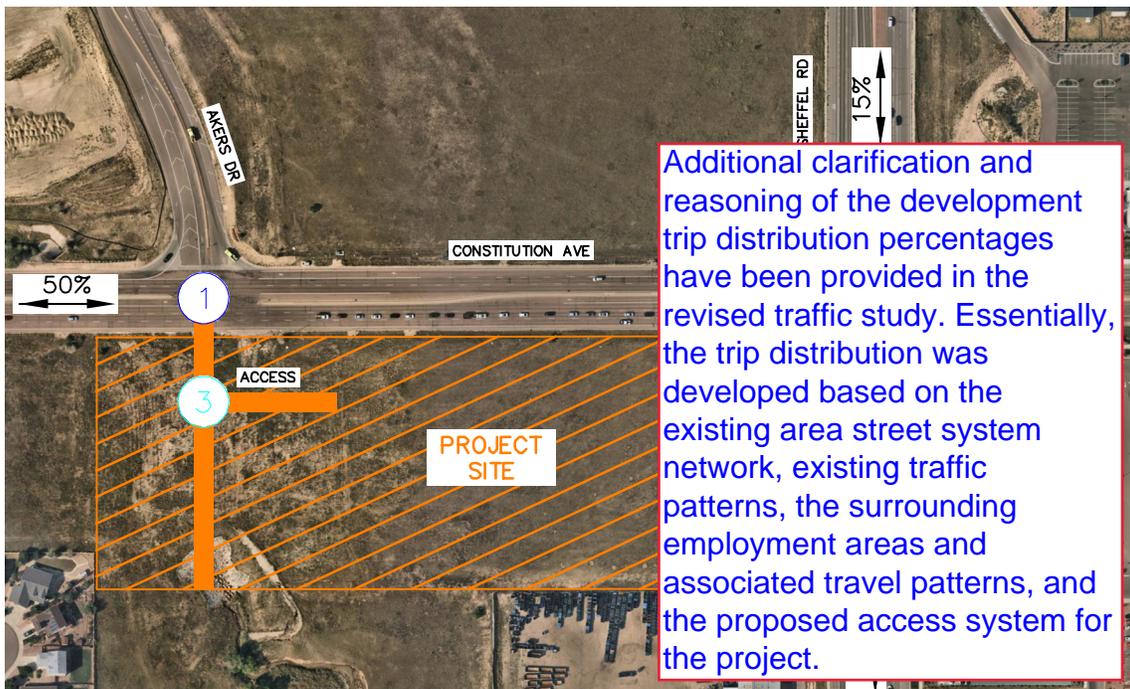
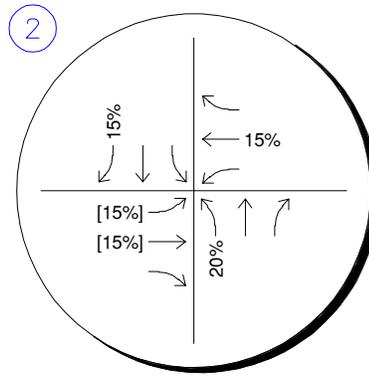
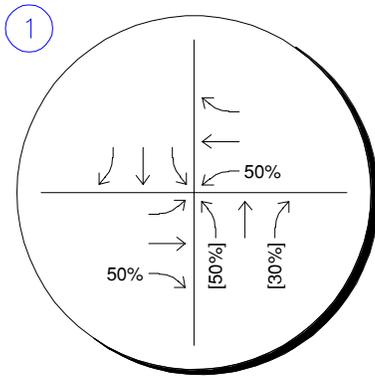
Additional clarification and reasoning of the development trip distribution percentages have been provided in the revised traffic study.

4.3 Traffic Assignment

Caliber at Constitution traffic assignment was obtained from the traffic study. The contribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 7**.

4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2023 buildout horizon and long-term 2045 twenty-year planning horizon. These total traffic volumes for the study area are illustrated for the 2023 and 2045 horizon years in **Figures 8** and **9**, respectively.



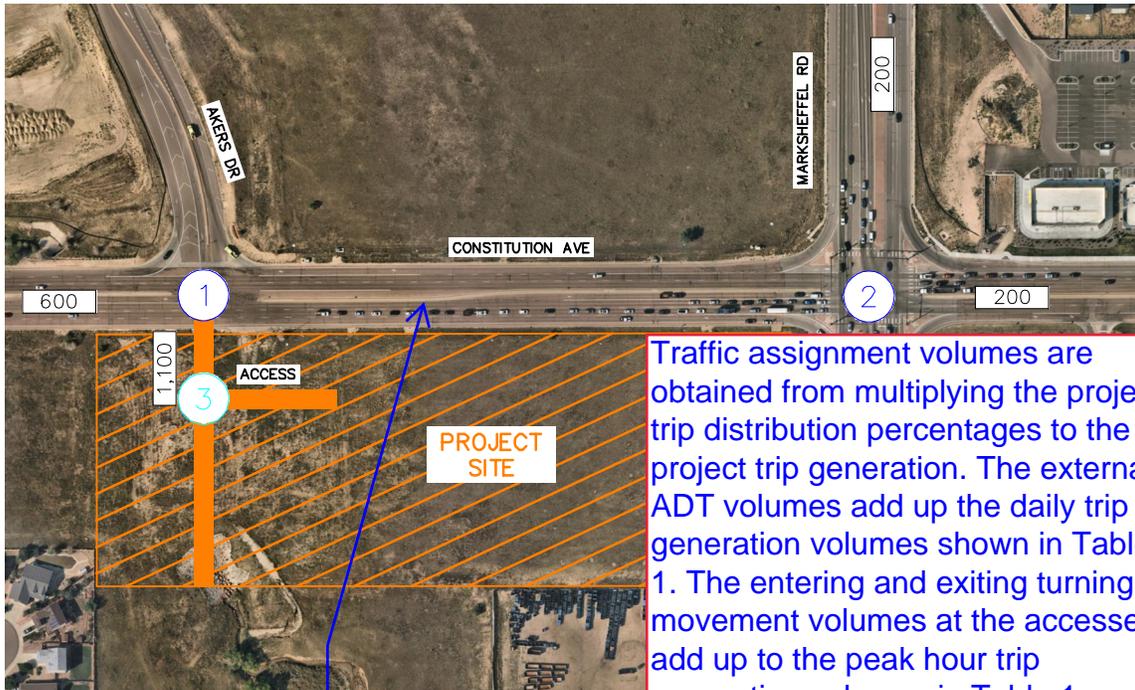
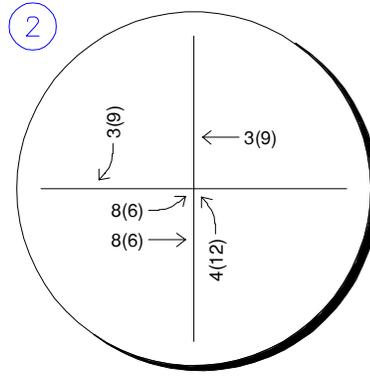
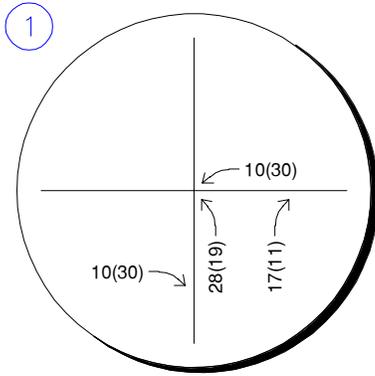
Where did distribution ratios come from?

LEGEND

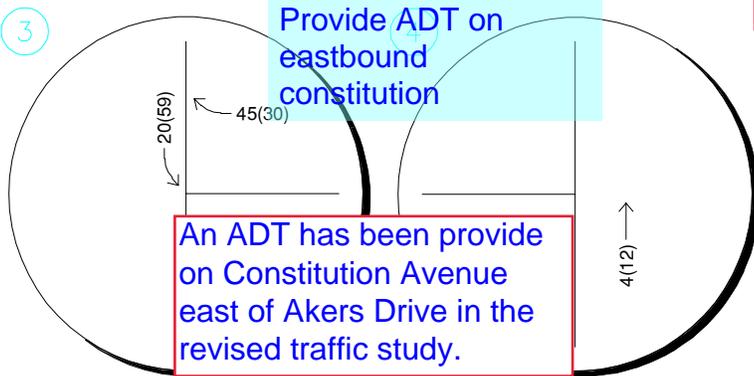
- Study Area Key Intersection
- Project Access Intersection
- External Trip Distribution Percentage
- Entering[Exiting] Trip Distribution Percentage

CALIBER AT CONSTITUTION
EL PASO COUNTY, COLORADO
PROJECT TRIP DISTRIBUTION

FIGURE 6



Traffic assignment volumes are obtained from multiplying the project trip distribution percentages to the project trip generation. The external ADT volumes add up the daily trip generation volumes shown in Table 1. The entering and exiting turning movement volumes at the accesses add up to the peak hour trip generation volumes in Table 1.



An ADT has been provide on Constitution Avenue east of Akers Drive in the revised traffic study.

Where/How were these volumes obtained? Can't find any information in appendix to compare with.

LEGEND

- Study Area Key Intersection
- Project Access Intersection
- XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes
- Estimated Daily Traffic Volume

CALIBER AT CONSTITUTION
EL PASO COUNTY, COLORADO
PROJECT TRAFFIC ASSIGNMENT

FIGURE 7

5.2 Key Intersection Operational Analysis

Calculations for the operational level of service at the key intersections for the study area are provided in **Appendix D**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 2**. Existing peak hour factors were utilized in the existing and 2023 horizon analysis years while the HCM urban standard of 0.92 was used for the long-term 2045 horizon analysis. The signalized intersection analysis utilizes the observed cycle lengths with optimized phasing and timing. Based on increased national attention given to establishing appropriate yellow and all-red clearance intervals to improve intersection safety, these have been calculated and are applied for approaches at the signalized intersections. The increase in yellow and all red time sacrifices intersection capacity for improved safety. Synchro traffic analysis software was used to analyze the signalized, and unsignalized key intersections for HCM level of service.

Constitution Avenue & Akers Drive (#1)

The unsignalized T-intersection of Constitution Avenue and Akers Drive (#1) operates with stop control on the southbound approach. The intersection movements operate acceptably at LOS C or better during both peak hours under existing conditions. With construction of the Caliber at Constitution development, a south leg is proposed to be constructed at this intersection to align with Akers Drive to the north. Based on configuration of the north leg of this intersection providing chevron striping for a future through lane, it is believed **Updated.** leg will provide a southbound through lane when the south leg is constructed. Based on El Paso County Engineering Criteria Manual (ECM), a northbound left turn lane will likely be warranted at this intersection; however, a separate northbound right turn lane is not expected to be warranted with buildout future traffic projections. As such, it is recommended that the south leg of the Constitution Avenue and Akers Drive intersection provide a left turn lane and a shared through/right turn lane. It is also recommended that this intersection continue to operate with stop control and a R1-1 “STOP” sign be installed on the northbound approach. To meet El Paso County standards, an eastbound right turn lane should be provided at this intersection. To be consistent with the intersections in the surrounding area, it is recommended that the third eastbound through lane (outside through lane) at this intersection be dropped as a forced right turn lane. With these improvements and project traffic, all movements at this intersection are anticipated to continue operating at an acceptable LOS D or better during the peak hours in 2023.

What about the other signal warrants? Do those warrants also indicate that a signal is needed? Please address.

Since there are currently not any known plans to develop the surrounding parcels on the south side of Constitution Avenue, evaluation scenarios with and without the trip generation potential of the surrounding parcels was provided in 2045 to better understand the impacts if the surrounding

It is common traffic engineering practice to utilize the four-hour vehicular volume signal warrant when determining the need for signalization. It should be noted that only one warrant needs to be met to appropriately include signal control. The four hour warrant is the typical warrant to be evaluated, and it is met in this study so it is not necessary to evaluate other warrants.

in 2045 without the development of the the northbound and southbound left turn with LOS E during the peak hours in 2045. development of the surrounding parcels south Talus Ridge Drive, the southbound left turn F during the afternoon peak hour in 2045.

To meet El Paso County standards for acceptable intersection operations, a four-hour vehicular volume signal warrant was completed at this intersection and it was found that a signal is warranted in 2045 (warrant Figure attached in **Appendix E**). It should be noted that the signal warrant was met due to traffic on the north leg of the intersection and not project traffic. With signalization, this intersection is anticipated to operate acceptably in 2045 with project traffic.

Table 3 provides the results of the LOS analysis conducted at this intersection.

Table 3 – Constitution Avenue & Akers Drive LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2021 Existing				
Eastbound Left	10.7	B	10.7	B
Southbound Left	23.9	C	23.3	C
Southbound Right	0.0	A	0.0	A
2023 Background				
Eastbound Left	10.7	B	10.7	B
Southbound Left	24.3	C	23.6	C
Southbound Right	0.0	A	0.0	A
2023 Background Plus Project #				
Northbound Left	32.7	D	31.6	D
Northbound Through/Right	11.7	B	12.2	B
Eastbound Left	10.7	B	10.7	B
Westbound Left	9.9	A	10.8	B
Southbound Left	34.1	D	34.7	D
Southbound Through	0.0	A	0.0	A
Southbound Right	0.0	A	0.0	A
2045 Background				
Eastbound Left	11.4	B	11.6	B
Southbound Left	28.4	D	29.0	D
Southbound Right	0.0	A	0.0	A
2045 Background w/ Adjacent Development Parcels #				
Northbound Left	11.4	B	11.6	B

Project Accesses

With completion of the Caliber at Constitution project, a full movement access is proposed along the new south leg of Akers Drive approximately 155 feet south of Constitution Avenue (measured edge line to center) and a right-out only access is proposed along Marksheffel Road approximately 400 feet south of Constitution Avenue (measured edge line to center). It is recommended that a R1-1 "STOP" sign be installed on the exiting approach of both accesses. To further identify the proposed access along Marksheffel Road as a right-out only driveway, it is recommended that a R3-2 "NO LEFT TURN" sign be placed underneath the STOP sign. Further, a R6-1(R) "ONE WAY" sign should also be installed within the raised center median of Marksheffel Road. To restrict right turn entrance as well, a R3-1 "NO RIGHT TURN" sign should be installed facing drivers traveling southbound along Marksheffel Road as well as a R5-1 "DO NOT ENTER" sign to be placed behind the STOP sign. The driveway throat at the proposed right-out only access should be oriented to further restrict entering movements. **Table 5** provides the results of the level of service for these project street accesses. As shown in the table, the project access intersections are anticipated to have all movements operating with acceptable LOS C or better during the peak hours in both the buildout year 2023 and the 2045 long term horizons. It should be noted that the access along Akers Drive will not have any conflicting movements in the short-term; therefore, vehicle delays are not reported at this access intersection.

Table 5 – Project Access Level of Service Results

Intersection	2023 Total Traffic				2045 Total Traffic			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Akers Drive								
Westbound	0.0	A	0.0	A	8.5	A	8.7	A
Southbound	0.0	A	0.0	A	7.3	A	7.4	A
Marksheffel Road								
Eastbound	1.0	B	1.0	B	22.6	C	11.9	B

An additional analysis with roundabout control has been evaluated at the proposed project access along Akers Drive. In addition, the access has been shifted to the south and evaluated with stop control.

Please be sure to update your analysis per comments provided by staff in the meeting on 12/2/2021 such as (but not limited to) analyzing for a roundabout and moving the proposed access further to the south.

Please account for the development of the parcels to the south in your anticipated classification of this roadway. They are currently zoned industrial which would lead to a large amount of truck traffic on Akers Drive. Additionally these may be rezoned to high dense residential which may add a large amount of trips to Akers.

and right turn lanes are warranted along Constitution Avenue and Marksheffel Road. El Paso County classifies Constitution Avenue and Marksheffel Road as Principal Arterial roadways. According to El Paso County ECM guidelines

for Principal Arterial roadways, a left turn lane is required for any access with a projected peak hour left turning volume of 25 vehicles per hour or greater, and a right turn lane is required for any access with a projected peak hour right turning volume of 50 vehicles per hour or greater, and a right turn acceleration lane is generally not required.

Based on the meeting held with County Staff and the project team on 12/02/2021, it was believed that the surrounding parcel would be developed with multi-family use. This classification of Akers Drive has been updated to a collector roadway consistent with the El Paso County 2016 Major Transportation Corridors Plan Update (MTCP).

access with a projected peak hour left turning volume of 25 vehicles per hour or greater, and a right turn lane is required for any access with a projected peak hour right turning volume of 50 vehicles per hour or greater, and a right turn acceleration lane is generally not required.

It is anticipated that the roadway will be classified as local roadway. According to El Paso County ECM guidelines, a left turn lane is required for any access with a projected peak hour left turning volume of 25 vehicles per hour or greater, a right turn lane is required for any access with a projected peak hour right turning volume of 50 vehicles per hour or greater, and a right turn acceleration lane is generally not required.

classified as local roadway. According to El Paso County ECM guidelines, a left turn lane is required for any access with a projected peak hour left turning volume of 25 vehicles per hour or greater, a right turn lane is required for any access with a projected peak hour right turning volume of 50 vehicles per hour or greater, and a right turn acceleration lane is generally not required.

Constitution Avenue and Akers Drive:

- A westbound left turn lane exists and **is** warranted at this intersection based on projected 2023 total traffic volumes being 30 westbound left turns during the peak hour and the threshold being 10 vehicles per hour. The existing westbound left turn lane is 285 feet with a 200-foot taper. Based on the 50-mile per hour speed limit, the deceleration lane length is 235 feet, plus a 200-foot taper. Additionally, 50 feet of storage is required by El Paso County. **Revised.** Therefore, this left turn lane should provide a length of 285 feet, plus a 200-foot taper. The current length of this turn lane.
- A northbound left turn lane is warranted at this intersection based on projected 2023 total traffic volume being 25 vehicles per hour during the peak hour and the threshold being 10 vehicles per hour. Based on the 30-mile per hour speed limit, the deceleration lane length is 165 feet, plus a 120-foot taper. Additionally, 50 feet of storage is required by El Paso County due to the peak hour volume. Therefore, this left turn lane is recommended to provide a length of 165 feet plus a 120-foot taper. It should be noted that this turn lane will extend beyond the access to the proposed development.

This classification of Akers Drive has been updated to a collector roadway consistent with the MTCP. It is believed that 30 MPH speed limit is appropriate for both local and residential collector roadways.

fix typo

Please revise per comment above regarding the classification of Akers

see previous comments above and adjust accordingly.

5.5 Access Spacing Requirements and Internal Roadway Classifications

According to El Paso County 2016 Major Transportation Corridors Plan Update, Constitution Avenue and Marksheffel Road are classified as Principal Arterial. Akers Drive will have the character of a local roadway. The following are the spacing requirements for the access intersections associated with Akers Drive.

This classification of Akers Drive has been updated to a collector roadway consistent with the MTCP.

Constitution Avenue and Akers Drive

The future south leg of Akers Drive along Constitution Avenue will be located approximately 1,050 feet west of Marksheffel Road (measured edge line to center), and approximately 825 feet east of Hannah Ridge Drive. According to the El Paso Engineering Criteria Manual (ECM), spacing of roads accessing an urban principal arterial that will result in a full movement intersection shall be planned at one-half mile and should the one-half mile spacing not be “viable of practical” for providing access to adjacent lane, a deviation may be considered by the ECM administrator. However, as stated in the ECM, one parcel access shall be granted to each existing lot, if it does not create safety or operational problems. The intersection of Constitution Avenue and Akers Drive is expected to meet operational, vehicle queue, and sight distance standards; therefore, it is believed that a south leg of Akers Drive at Constitution Avenue should be granted to allow for one full movement access to the existing lot. A deviation will be provided to request full movement access from a future south leg of Akers Drive at Constitution Avenue.

Akers Drive Access

The access along the new south leg of Akers Drive will be approximately 155 feet south of Constitution Avenue (measured edge line to center). According to the El Paso County Engineering Criteria Manual, spacing of intersections along urban local roadways from an arterial roadway should be 330 feet from the right-of-way line of the arterial to the centerline of the access roadway. Therefore, the proposed access along the new south leg of Akers Drive does not meet ECM standards. The access along Akers Drive is expected to meet operational, vehicle queue, and sight distance standards. However, and as stated previously, the required northbound left turn lane at the Constitution Avenue and Akers Drive intersection will extend beyond the access to the proposed development. A deviation will need to be provided to request for this proposed access to remain at the proposed location.

5.6 Sight Distance Evaluation

It is recommended that sight triangles be provided at all site access points to give drivers exiting the site a clear view of oncoming traffic. Landscaping and objects within sight triangles must not obstruct drivers' views of the adjacent travel lanes. ECM design intersection sight distances for left turn from stop were evaluated at the accesses along Constitution Avenue, Akers Drive, and Marksheffel Road. ECM does not provide sight distances for right-turning vehicles from stop; therefore, AASHTO standards were used for right-turn from stop distances at the project accesses. The following identifies sight distance requirements for the access intersections associated with

Please refer to ECM table 2-35 for entering sight distance values and revise accordingly. Please be aware that the sight distance in the table is based on posted speed.

Marksheffel Road

With AASHTO standards, the intersection sight distance for a vehicle turning right from stop is 480 feet. Therefore, all obstructions for right turning vehicles from stop should be clear to the left within the triangle created with a vertex point located 13 feet from the edge of the major road traveled way and a line-of-sight distance of 480 feet located in the middle of the nearest southbound through lane along Marksheffel Road for the right-out access. It is believed that the proposed right-out only access along Marksheffel Road is appropriately located to provide the necessary sight distance needed for through volumes along Marksheffel Road. As this access is located approximately 400 feet from Constitution Avenue, sight distances of 480 feet will not be provided for vehicles turning from Constitution Avenue to southbound Marksheffel Road; however, these vehicles will be traveling at speeds much slower than 50 miles per hour. Therefore, it is believed that the proposed access along Marksheffel Road is appropriately located to provide necessary sight distances.

ECM Table 2-35 has been referenced and utilized for entering sight distance in the revised traffic study.

table 2-21

Constitution Avenue and Akers Drive

Revised.

According to Table 2-22 from ECM and a roadway design speed of 50 miles per hour along Constitution Avenue, the intersection sight distance for a vehicle turning left from stop is 555 feet. With AASHTO standards, the sight distance for a vehicle turning right from stop is 480 feet. Therefore, all obstructions for left turning vehicles from stop should be clear to the right within the triangle created with a vertex point located 13 feet from the edge of the major road traveled way (typical position of the minor road driver's eye when stopped) and a line-of-sight distance of 555 feet located in the middle of the nearest westbound through lane along Constitution Avenue for the Constitution Avenue and Akers Drive intersection. Likewise, all obstructions for right turning

should be 555 ft. revise accordingly.

Please update accordingly the location of the access per comments provided in the meeting with staff. Please be aware that ECM table 2-21 is roadway intersection sight distance and table 2-35 is sight distance for driveways (access design).

The ECM does not provide sight distances for right-turning vehicles from stop; therefore, AASHTO standards were used for right-turn from stop distances at the project accesses.

located 180 feet Avenue.

13 feet from the edge of the major road traveled located in the middle of the nearest eastbound. Therefore, it is believed that the intersection of Constitution Avenue and Akers Drive is appropriately located to provide necessary sight distances.

update as necessary per previous comments regarding the classification of akers

Akers Drive Access

An additional analysis has been provided with roundabout control at the project access along Akers Drive to remove the need for a southbound left turn lane at the project access, as well as the potential removal of the taper for the northbound left turn lane at Constitution Avenue and Akers Drive. A continuous northbound left turn lane could extend along Akers Drive from Constitution Avenue to the proposed roundabout.

by design speed of 25 miles per hour along Akers vehicle turning left from stop is 280 feet, while with

This section has been appropriately updated based on the classification of Akers Drive in the revised traffic study.

top should be clear from the edge of the middle of the southbound through lane along AKERS ing vehicles from stop should be clear to the left located 13 feet from the edge of the major road traveled way and a line-of-sight distance of 240 feet located in the middle of the northbound through lane along Akers Drive. This access is located approximately 155 feet from Constitution Avenue; therefore, sight distances of 280 feet will not be provided for vehicles turning from Constitution Avenue to southbound Akers Drive. However, vehicles turning from Constitution Avenue will be traveling at speeds much slower than 25 miles per hour. Further, there is not any project traffic expected to perform westbound to southbound left turn movements from the access along Akers Drive. Therefore, it is believed that the proposed access along Akers Drive is appropriately located to provide necessary sight distances.

5.7 Bicycle and Pedestrian Access

Sidewalks are provided along both sides of the Marksheffel Road. A sidewalk is provided on the south side of Constitution Avenue east of Marksheffel Road. Adjacent to the site, there are no bicycle lanes along Marksheffel Road or Constitution Avenue. Sidewalks are proposed with the project adjacent to the property frontages along Constitution Avenue and Akers Drive.

Please also discuss the ROW that will be provided/required along Constitution. it should match what was done on the site to the west (Urban Collection PCD File No. SF2028).

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on Documents from the adjacent proposed development to the west were obtained and appropriate ROW dedication will be provided with the off-site improvement plans. Caliber at Constitution will be successful. Analysis of the existing street network and traffic volumes resulted in the following conclusions and recommendations.

2023 Recommendations:

- With construction of the Caliber at Constitution development, a south leg is proposed to be constructed at the existing Constitution Avenue and Akers Drive intersection. Based on configuration of the north leg of this intersection providing chevron striping for a future through lane, it is believed that this leg will provide a southbound through lane when the south leg is constructed. Based on El Paso County Engineering Criteria Manual (ECM), a northbound left turn lane will likely be warranted at the Constitution Avenue and Akers Drive intersection; however, a separate northbound right turn lane is not expected to be warranted with buildout future traffic projections. As such, it is recommended that the south leg of the Constitution Avenue and Akers Drive intersection provide a left turn lane and a shared through/right turn lane. It is also recommended that this intersection continue to operate with stop control and a R1-1 "STOP" sign be installed on the northbound approach. To meet El Paso County standards, an eastbound right turn lane should be provided at this intersection. To be consistent with the intersections in the surrounding area, it is recommended that the third eastbound through lane (outside through lane) at this intersection be dropped as a forced right turn lane.
- With completion of the Caliber at Constitution project, a full movement access is proposed along the new south leg of Akers Drive approximately 155 feet south of Constitution Avenue (measured edge line to center) and a right-out only access is proposed along Marksheffel Road approximately 400 feet south of Constitution Avenue (measured edge line to center). It is recommended that a R1-1 "STOP" sign be installed on the exiting approach of both accesses. To further identify the proposed access along Marksheffel Road as a right-out only driveway, it is recommended that a R3-2 "NO LEFT TURN" sign be placed underneath the STOP sign. Further, a R6-1(R) "ONE WAY" sign should also be installed within the raised center median of Marksheffel Road. To restrict right turn entrance as well, a R3-1 "NO RIGHT

access to the proposed development. A deviation will need to be provided to request for this proposed access to remain at the proposed location.

- A southbound left turn lane is warranted at Akers Drive Access based on projected 2023 total traffic volumes being 59 northbound left turns during the peak hour and the threshold being 25 vehicles per hour. However, there are no traffic volumes conflicting with the turning vehicles and there are not any vehicle delays at this access intersection. Therefore, it is recommended that the left turn lane requirement be waived. Of note, according to Colorado Department of Transportation (CDOT) standards, a left turn lane may be dropped if the opposing traffic is predicted to be below 100 directional hourly volumes. There are not expected to be any opposing traffic volumes at buildout and 49 opposing traffic volumes during the peak hour in the long-term future with the potential buildout of the surrounding parcels. A deviation will be requested to allow for this access to operate without a designated southbound left turn lane.

2045 Recommendations:

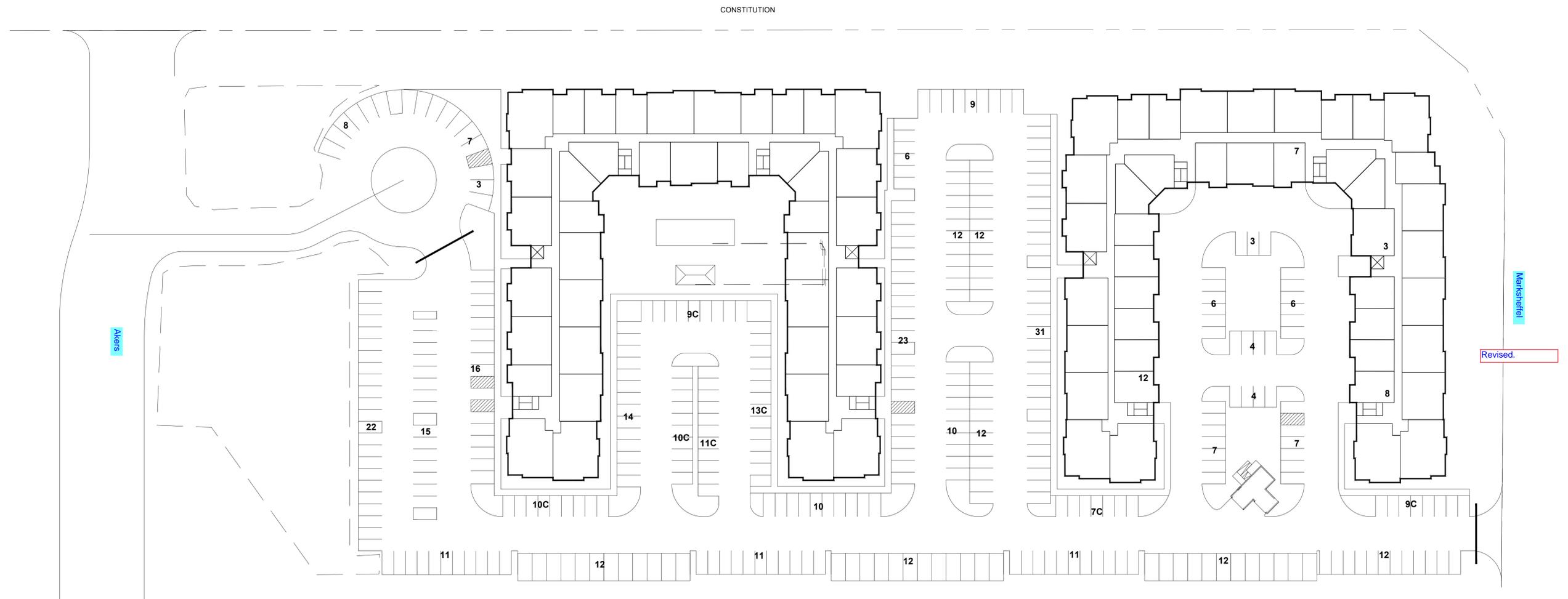
- A traffic signal is warranted with 2045 traffic volume projections at the intersection of Constitution Avenue and Akers Drive. It is recommended that El Paso County monitor traffic volumes at this intersection in the future to determine if signalization is the appropriate control. It should be noted the north leg of this intersection is the controlling approach that triggers the need for signal control and project traffic is only expected to utilize the south leg of this intersection.

General Recommendations

- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the El Paso County and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.

Please state whether the MTCP or other corridor study calls for the construction of improvements in the immediate area (ECM B.8).

As shown in the MTCP there are no planned improvements along Marksheffel Road, Constitution Avenue, or Akers Drive.



PARKING TABLE	
ATTACHED GARAGES	30
DETACHED GARAGES	36
REGULAR SURFACE SPACES	269
COMPACT SURFACE SPACES	77
ADA SURFACE STALLS	9
TOTAL	421

FULL STALL = 9'x18"
 COMPACT STALLS = 9'x16'

REQUIRED = 458
 NEEDED REDUCTION = 37 STALLS (9%)

Note: 2 of the ADA stalls will need to be van accessible per LDC Chapter 6.2.5.d.2.c

These changes have been made and referenced in the revised site development plans.

Per table 6-5 in LDC compact space dimensions need only be 8' x 15'



**EL PASO CONSTITUTION
 PARKING EXHIBIT
 09/17/2021**

Kimley»Horn

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Akers

Markshoffel

Revised.