Traffic Impact Study

Buc-ee’s IH 25, Exit 163

El Paso County, Colorado

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

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

June 15, 2026
Date

Developer's Statement

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

Mr. Scott Ratcliff
Ratcliff Engineering Services, LLC
P.O. Box 2272
Friendswood, Texas 77549

Date

Buc-ee's IH 25, Exit 163

El Paso County, Colorado

Prepared for
Ratcliff Engineering Services, LLC
P.O. Box 2272
Friendswood, Texas 77549

Prepared by
Kimley-Horn and Associates, Inc.
2 North Nevada Avenue
Suite 900
Colorado Springs, Colorado 80903
(719) 453-0180



June 2026

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.

TABLE OF CONTENTS

TABLE OF CONTENTS i
LIST OF TABLES ii
LIST OF FIGURES iii
1.0 EXECUTIVE SUMMARY 1
2.0 INTRODUCTION 5
3.0 EXISTING AND FUTURE CONDITIONS 7
3.1 Existing Study Area 7
3.2 Existing and Future Roadway Network 7
3.3 Existing Traffic Volumes 13
3.4 Unspecified Development Traffic Growth and Background Improvements 13
4.0 PROJECT TRAFFIC CHARACTERISTICS 18
4.1 Trip Generation 18
4.2 Trip Distribution 19
4.3 Traffic Assignment 20
4.4 Total (Background Plus Project) Traffic 20
5.0 TRAFFIC OPERATIONS ANALYSIS 26
5.1 Analysis Methodology 26
5.2 Key Intersection Operational Analysis 27
5.3 El Paso County Turn Lane Requirement Analysis 33
5.4 Vehicle Queuing Analysis 35
5.5 Access Spacing Requirements and Surrounding Roadway Volume Classifications 36
5.6 Sight Distance Evaluation 38
5.7 Road Impact Fees 39
5.8 Improvement Summary 39
6.0 CONCLUSIONS AND RECOMMENDATIONS 42

APPENDICES

Appendix A – Conceptual Site Plan
Appendix B – Intersection Count Sheets
Appendix C – Future Traffic Projections
Appendix D – Trip Generation Worksheets
Appendix E – Intersection Analysis Worksheets
Appendix F – Signal Warrant Analysis Worksheet
Appendix G – Queue Analysis Worksheets
Appendix H – Cap-X and ICAT Worksheets and MIMR Excerpts

LIST OF TABLES

Table 1 – Buc-ee's IH 25, Exit 163 Project Traffic Generation.....19
Table 2 – Level of Service Definitions.....26
Table 3 – County Line Road & Beacon Lite Road LOS Results.....28
Table 4 – County Line Road & I-25 Southbound Ramp LOS Results.....29
Table 5 – County Line Road & I-25 Northbound Ramp LOS Results.....30
Table 6 – County Line Road & Monument Hill Road LOS Results.....31
Table 7 – Project Access Level of Service Results.....32
Table 8 – Turn Lane Queuing Analysis Results.....35

LIST OF FIGURES

Figure 1 – Vicinity Map....6
Figure 2 – Existing Geometry and Control....12
Figure 3 – 2024 Existing Traffic Volumes....14
Figure 4 – 2028 Background Intersection Geometry and Configuration....15
Figure 5 – 2028 Background Traffic Volumes....16
Figure 6 – 2045 Background Traffic Volumes....17
Figure 7 – New Project Trip Distribution....21
Figure 8 – Diverted Project Trip Distribution....22
Figure 9 – Project Traffic Assignment....23
Figure 10 – 2028 Total Traffic Volumes....24
Figure 11 – 2045 Total Traffic Volumes....25
Figure 12 – Street Classification Map....37
Figure 13 – 2028 Recommended Geometry and Control....40
Figure 14 – 2045 Recommended Geometry and Control....41

Please feel free to reach out to set up a meeting to discuss the comments provided and path forward.

1.0 EXECUTIVE SUMMARY

The Buc-ee's Interstate Highway 25 (IH 25), Exit 163 project is proposed to be located on the southeast corner of the County Line Road (Palmer Divide Road) and Beacon Lite Road intersection in El Paso County, Colorado. The project proposed is an approximate 74,000 square foot convenience store with 120 fueling positions. It is expected that the project will be completed in the next several years. Therefore, analysis was conducted for the 2028 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

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 El Paso County and State of Colorado Department of Transportation (CDOT) standards and requirements:

- County Line Road and Beacon Lite Road (#1)
- I-25 Southbound Ramp and County Line Road (#2)
- I-25 Northbound Ramp and County Line Road (#3)
- County Line Road and Monument Hill Road (#4)

Need to add Beacon Lite Road/Bricker Road intersection.

In addition, the two (2) proposed full movement accesses along Beacon Lite Road and the right-out only access along County Line Road will be included in the evaluation.

Regional access to the site will be provided by Interstate 25 (I-25) and State Highway 105 (SH-105). Primary access will be provided by County Line Road. Direct access will be provided by two full movement accesses along Beacon Lite Road and a right-out only access along County Line Road.

The Buc-ee's project is anticipated to generate a total of approximately 22,150 daily weekday trips with 1,236 of these trips occurring during the morning peak and 1,679 trips occurring during the afternoon peak hour. Accounting for diverted link trips, expected net new trips (non-diverted link trips) to the surrounding street network results in approximately 3,322 new weekday daily trips, of which 185 and 252 new trips are anticipated during the weekday morning and afternoon peak hours, respectively.

Based on the analysis presented in this report, Kimley-Horn believes the Buc-ee's IH 25, Exit 163 project 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:

2028 Recommendations

- With construction of the project, the I-25 and County Line Road interchange ramp terminals are recommended to be converted from stop control to signal control. Traffic signals are the preferred intersection control recommended in this study. In order to utilize the existing bridge deck (approximately 72 feet), a traditional diamond interchange can provide two westbound through lanes, a westbound left turn lane, an eastbound left turn lane, and a single eastbound through lane between the two ramps at 12 feet per lane. Additionally, the northbound off-ramp is recommended to provide three approach lanes including a separate left turn lane, a shared left turn/through lane, and right turn lane while the southbound off-ramp is recommended to provide two approach lanes including a shared left turn/through lane and a separate right turn lane. The left turn lanes onto the I-25 on-ramps will each provide a spillback lane for additional vehicle storage.
- The County Line Road and Beacon Lite Road (#1) intersection is recommended to be realigned by converting the major through movements to the existing east (County Line Road) and south (Beacon Lite Road) legs of this intersection while the west leg of County Line Road will intersect into the new roadway alignment. This will convert a high volume of northbound right turn movements and westbound left turn movements into the major through movements. This realigned intersection will either need to be signalized or provide roundabout control. As a signal, the west leg minor approach is recommended to provide a separate left and right turn lane while the major approaches would provide two northbound and southbound through lanes, a separate northbound left turn lane, and a separate right turn lane. However, as a roundabout, the northbound/southbound realigned roadway is recommended to provide two approach lanes, and the eastbound approach is recommended to provide a single lane for shared movements.

Perform analysis and demonstrate how intersection operates without realignment.

- Two full movement project accesses are being proposed along Beacon Lite Road while one right-out only access is proposed along County Line Road. The following summarizes the recommendations of the three proposed project accesses:
  - A right-out only access along County Line Road (#5) is recommended to provide a R1-1 "STOP" sign on the northbound approach with a R3-1 No Left Turn sign below the R1-1 sign. The exiting approach to this access should also be oriented to only allow exiting right turn movements.
  - The north access (#6) along Beacon Lite Road should be signalized as a T-intersection. Southbound dual left turn lanes are recommended at the north access along Beacon Lite Road due to the high volume of entering left turn movements. The inside left turn lane is recommended to provide a length of 490 feet plus a 160-foot taper while the outside left turn lane will be continuous drop lane from the inside through lane. The westbound approach to this access is recommended to provide separate left and right turn lanes with the right turn movement operating under free-flowing conditions.
  - A full movement access (#7) is proposed at the south end of the site along Beacon Lite Road. The intersection is recommended to operate with stop control on the westbound approach. A southbound left turn lane is recommended at the south access along Beacon Lite Road with a length of 305 feet plus a 160-foot taper.

- The church on the southwest corner of the County Line Road and Beacon Lite Road intersection currently has one full movement access along Beacon Lite Road and no other points of access. This access to the church along Beacon Lite Road is proposed to be restricted to right-in/right-out movements due to the proximity to the future realigned intersection of County Line Road and Beacon Lite Road. Therefore, the project team will coordinate with the church and El Paso County regarding the possibility of incorporating a second point of access along County Line Road or Bull Pine Point for the church.

- Additionally, site generated traffic associated with the Monument Ridge East development located on the southeast corner of County Line Road and Monument Hill Road intersection were added directly to the study intersections. With the development of the Monument Ridge East site, Monument Hill Road will be realigned and provide separate eastbound left and right turn lanes, a separate westbound left turn lane, and a separate northbound right turn lane.

please address all existing access along beacon lite road being impacted as well as the north access to the conservation easement along County Line.

Full movement access is being removed from 5 existing access points along Beacon Lite Road. Coordination with all of these properties will be required.

2045 Recommendations

- As identified in other traffic studies, the County Line Road and Monument Hill Road intersection is expected to be signalized in the long-term horizon.

General Recommendations

- Any onsite or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the El Paso County, CDOT, and the Manual on Uniform Traffic Control Devices (MUTCD) – 11th Edition, 2023.

2.0 INTRODUCTION

If included site plan is conceptual in nature, follow-up memos will be required to ensure future site plan changes do not impact the findings of this report.

Kimley-Horn has prepared this report to document the results of a Traffic Impact Study for Buc-ee's proposed to be located on the southeast corner of the County Line Road (Palmer Divide Road) and Beacon Lite Road intersection in El Paso County, Colorado. A vicinity map illustrating the project development location is shown in **Figure 1**. The project proposed is an approximate 74,000 square foot convenience store with 120 fueling positions. A conceptual site plan is included in **Appendix A**. It is expected that the project will be completed in the next several years; therefore, analysis was conducted for the 2028 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

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 El Paso County and CDOT standards and requirements:

- County Line Road and Beacon Lite Road (#1)
- I-25 Southbound Ramp and County Line Road (#2)
- I-25 Northbound Ramp and County Line Road (#3)
- County Line Road and Monument Hill Road (#4)

In addition, the two (2) proposed full movement accesses along Beacon Lite Road and the right-out only access along County Line Road will be included in the evaluation.

Regional access to the site will be provided by Interstate 25 (I-25) and State Highway 105. Primary access will be provided by County Line Road. Direct access will be provided by two full movement accesses along Beacon Lite Road and a right-out only access along County Line Road.

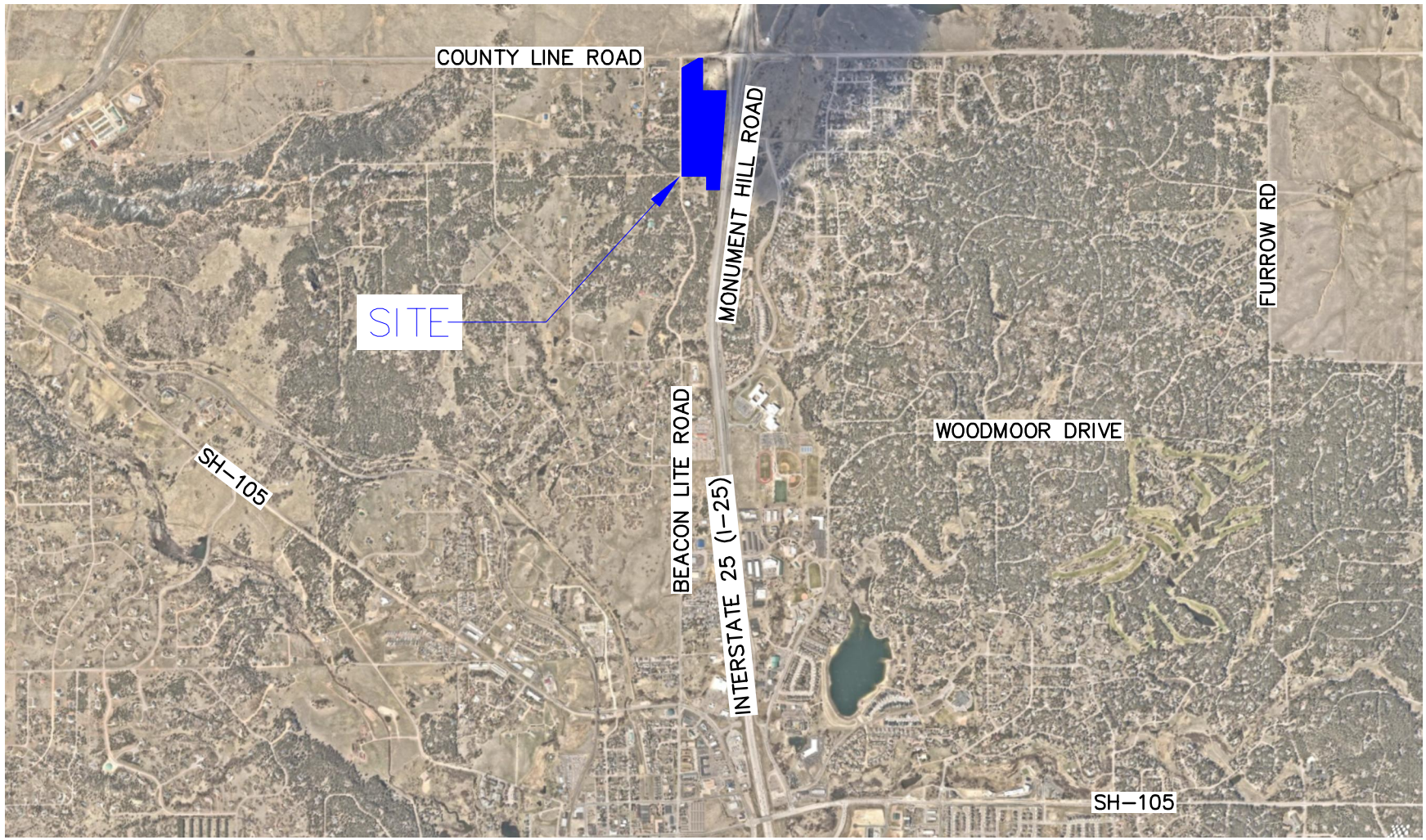


FIGURE 1
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
VICINITY MAP

3.1 Existing Study Area

The existing site is currently vacant. Directly to the east is Interstate 25 and to the west are single family ranch style homes and Tri-Lakes Church. North of the site is open space with minimal development for more than six (6) miles. The extended area to the east contains single family residences.

3.2 Existing and Future Roadway Network

County Line Road extends in the east/west direction as a two-lane roadway. The posted speed limit is 35 miles per hour near the study intersections and 45 miles per hour east of Monument Hill Road. Currently there are roadway construction plans for Beacon Lite Road which includes widening County Line Road to a three-section roadway between Beacon Lite Road and the I-25 Southbound Off-Ramp.

This work is not being completed.

Beacon Lite Road extends northbound and southbound with one through lane in each direction. The roadway is not paved and has a posted speed limit of 35 miles per hour. As mentioned previously, Beacon Lite Road currently has approved construction plans to pave the roadway to Wakonda Way.

to Wakonda Way from Bricker Road

Monument Hill Road is a north-south roadway and provides one through lane in each direction. The Monument Hill Road south of County Line Road serves as a frontage road to I-25. North of County Line Road the roadway name changes to Andrews Road. The posted speed limit along Monument Hill Road is 45 miles per hour and along Andrews Road is 30 miles per hour.

The T-intersection of County Line Road and Beacon Lite Road is unsignalized and operates with stop control on the northbound approach of Beacon Lite Road. All three approaches provide a single lane for shared turning movements. An aerial photo of the existing intersection configuration is below.



County Line Road & Beacon Lite Road

The unsignalized intersection of County Line Road and the I-25 Southbound Ramp operates with stop control on the southbound off-ramp. The eastbound approach of County Line Road provides a single lane for shared through and right turn movements while the westbound approach provides a left turn lane and a through lane. The southbound off-ramp provides a single lane approach. An aerial photo of the existing intersection configuration is below.



County Line Road & I-25 Southbound Ramp

The unsignalized intersection of County Line Road and the I-25 Northbound Ramp operates with stop control on the northbound off-ramp. The eastbound approach of County Line Road provides a left turn lane and one through lane while the westbound approach provides a storage lane for spill back queues at the westbound left southbound on-ramp and a shared through/right turn lane. The northbound off-ramp provides a single lane approach. An aerial photo of the existing intersection configuration is below.



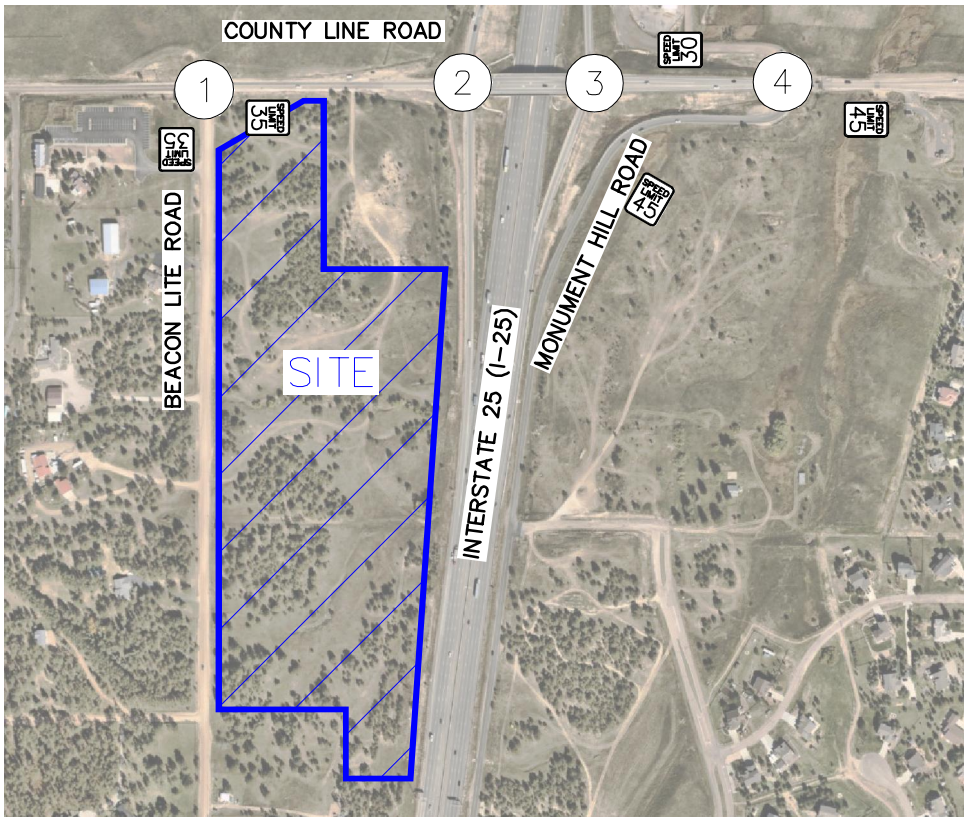
County Line Road & I-25 Northbound Ramp

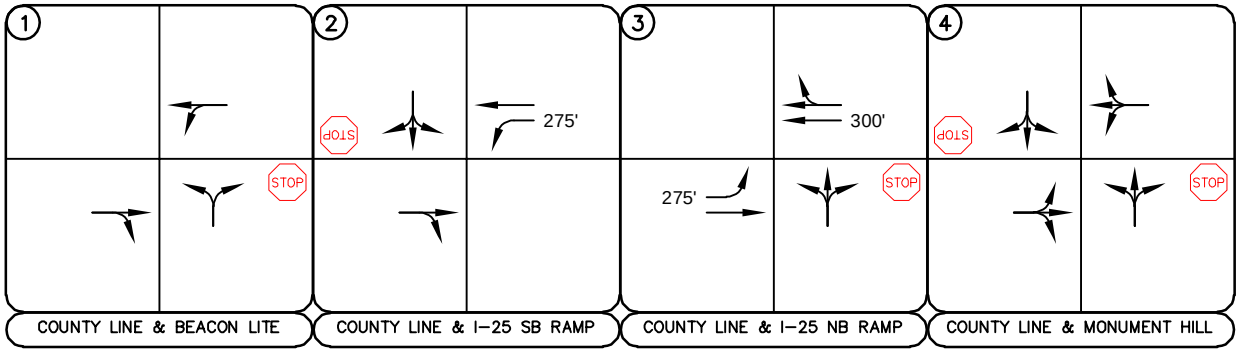
The unsignalized intersection of County Line Road and Monument Hill Road operates with stop control on the northbound Monument Hill Road approach and the southbound Andrews Road approach. All four approaches provide a single lane shared for all turning movements. An aerial photo of the existing intersection configuration is below.



County Line Road & Monument Hill Road

The intersection lane configuration and control for the study area intersections are shown in **Figure 2**.





LEGEND

X — Study Area Key Intersection

STOP — Stop Controlled Approach

SPEED LIMIT XX — Roadway Speed Limit

100' — Turn Lane Length (feet)

FIGURE 2

BUC-EE'S IH 25, EXIT 163

EL PASO COUNTY, COLORADO

EXISTING GEOMETRY AND CONTROL

Per ECM B.4.1 counts shall be no more than 1 year old from date of application submittal.

3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the study intersections on Wednesday, May 8, 2024 during the weekday 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 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on this count date. The existing intersection traffic volumes are shown in **Figure 3** with count sheets provided in **Appendix B**.

3.4 Unspecified Development Traffic Growth and Background Improvements

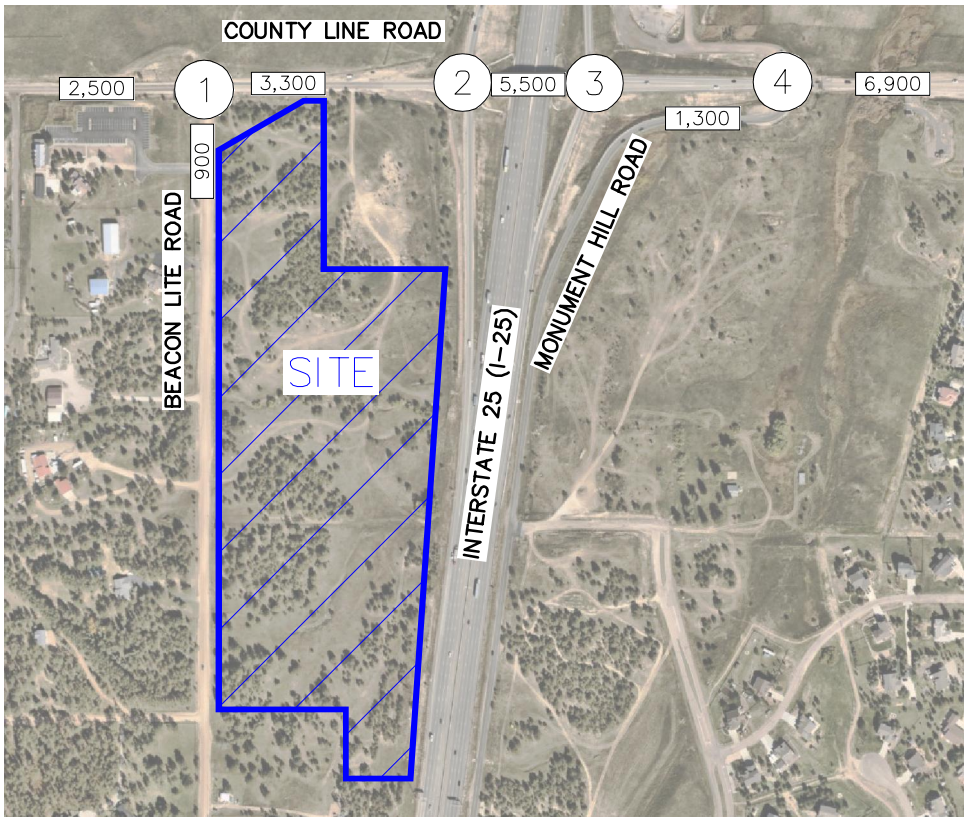
It should be noted that the recently adopted 2024 Major Transportation Corridor Plan (MTCP) only provides wide ranges of ADT projections (i.e. 0 – 10,000 vehicles per day) and does not provide more refined ADT projections (i.e. 10,200 vpd); therefore, traffic volume growth projections cannot be calculated with the 2024 MTCP. As a result, the previous 2016 MTCP was utilized to determine the appropriate traffic volumes projections in the area. According to traffic projections from the El Paso County 2016 Major Transportation Corridor Plan Update traffic model, the area surrounding the site is expected to have an average 25-year growth factor of 1.80. This growth factor equates to an annual growth rate of 2.37 percent. Future traffic volume projections and growth rate calculations are provided in **Appendix C**. This annual growth rate was used to calculate future traffic volumes at study area intersections. This annual growth rate was used to estimate short-term 2028 and long-term 2045 traffic volume projections at the key intersections.

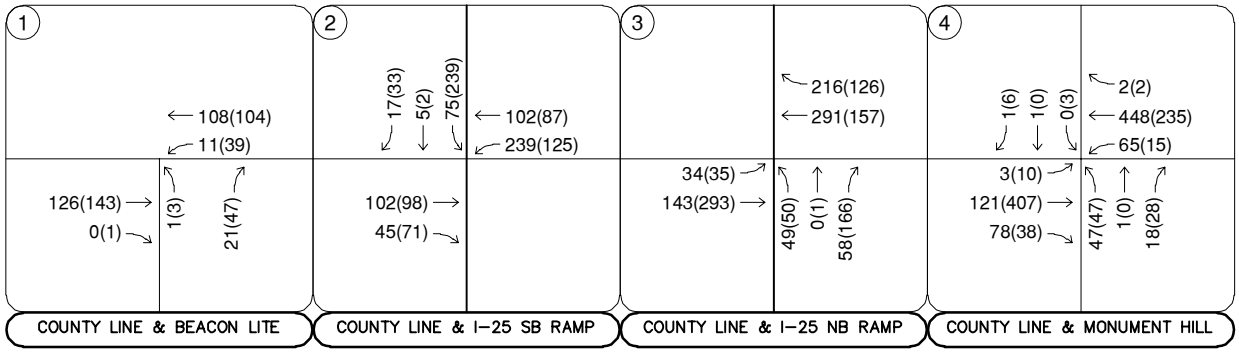
As mentioned previously, construction plans and improvements are planned prior to buildout of the proposed site for Beacon Lite Road. Additionally, site generated traffic associated with the Monument Ridge East development located on the southeast corner of County Line Road and Monument Hill Road intersection were added directly to the study intersections. With the development of the Monument Ridge East site, Monument Hill Road will be realigned and provide separate eastbound left and right turn lanes, a separate westbound left turn lane, and a separate northbound right turn lane. Therefore, the future roadway geometry and configuration used in the short-term background horizon is shown in **Figure 4.** The calculated background traffic volumes for 2028 and 2045 are shown in **Figure 5** and **Figure 6,** respectively.

please also include traffic from the currently submitted preliminary plan Ben Lomand Mountain Village (SP265) into your analysis

for consistency with adjacent development TIS/CD's it should be stated that this roadway intersection will be Misty Acres/County Line Road once Monument Hill is realigned south of County line road

Kimley»Horn
NORTH
NTS 196094002





Wed, May 8, 2024
7:15 to 8:15AM
(4:00 to 5:00PM)

Wed, May 8, 2024
7:15 to 8:15AM
(4:30 to 5:30PM)

Wed, May 8, 2024
7:15 to 8:15AM
(4:00 to 5:00PM)

Wed, May 8, 2024
7:00 to 8:00AM
(4:00 to 5:00PM)

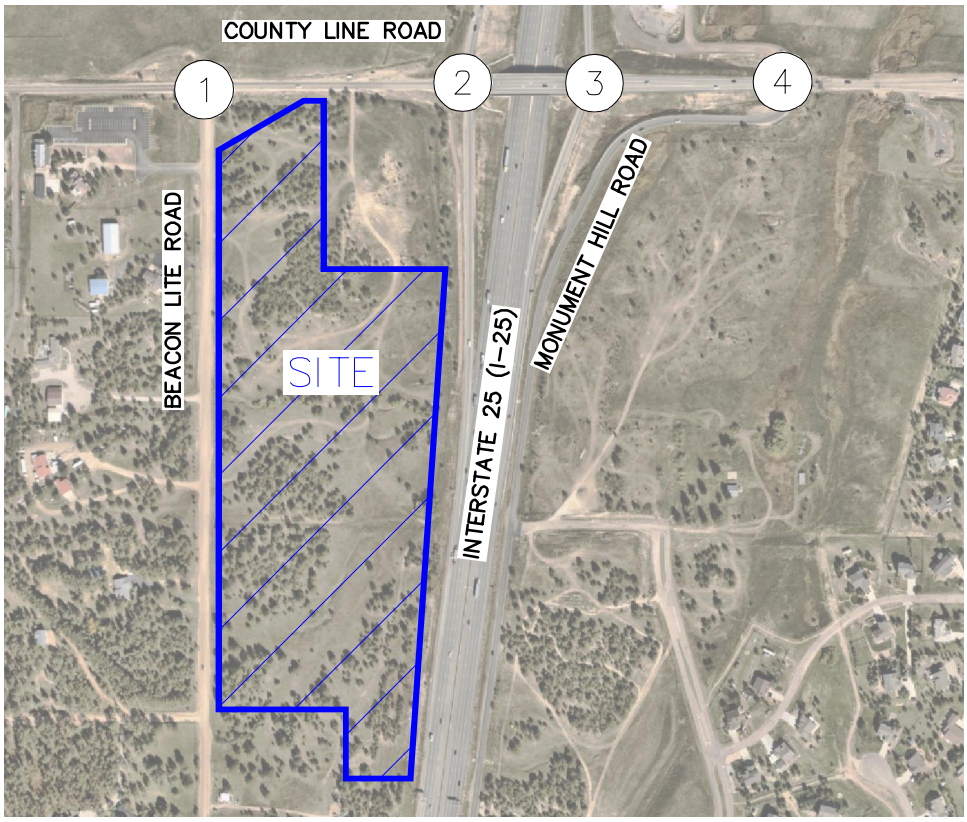
LEGEND

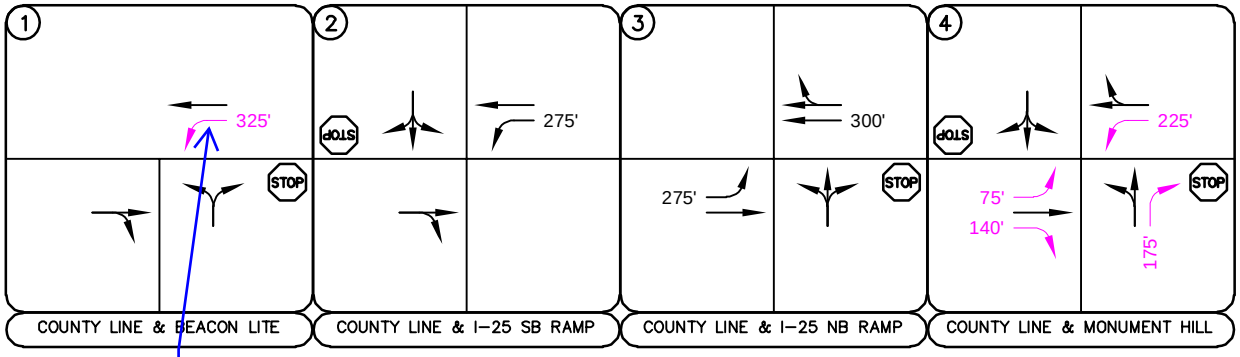
(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

FIGURE 3
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
2024 EXISTING TRAFFIC VOLUMES

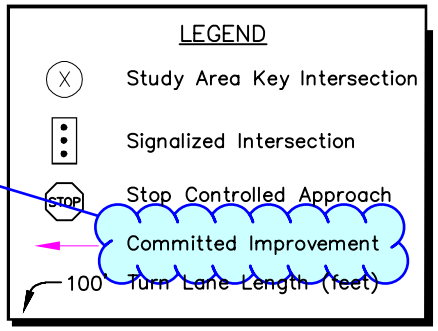
Kimley»Horn

Kimley»Horn
NORTH
NTS 196094002





this is not part of the current beacon lite improvements

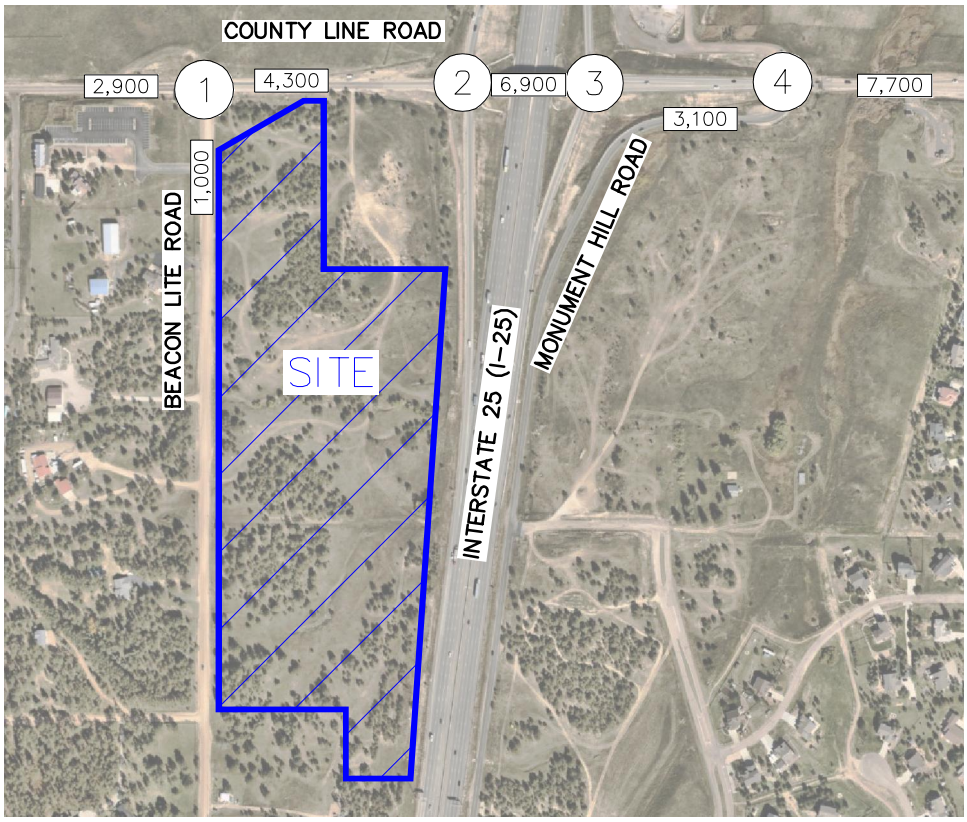


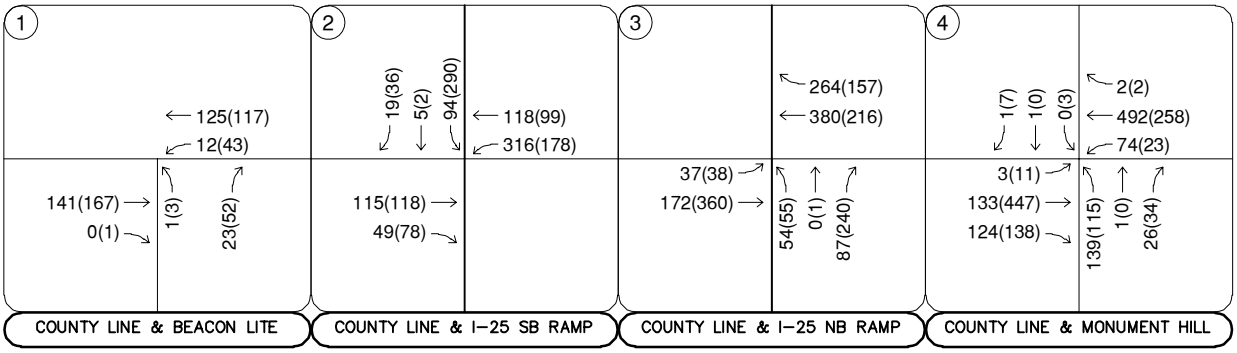
Indicate who is responsible for the shown improvement by others.

FIGURE 4
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
2028 BACKGROUND
GEOMETRY AND CONTROL

Kimley»Horn

Kimley»Horn
NORTH
NTS 196094002





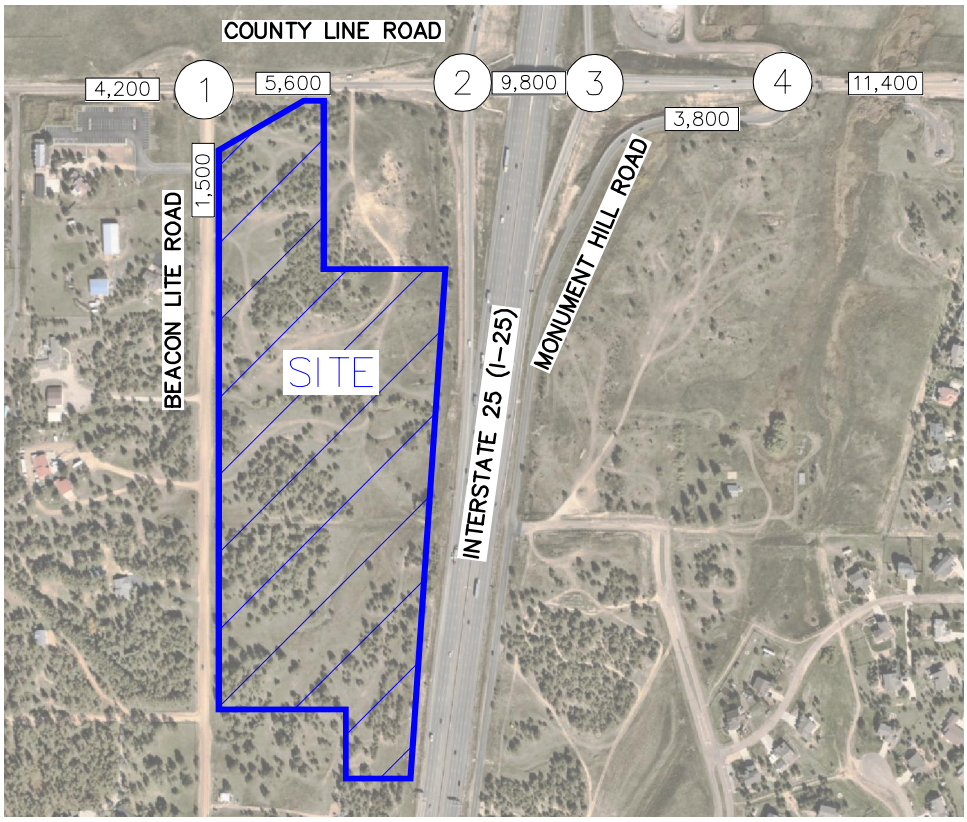
LEGEND

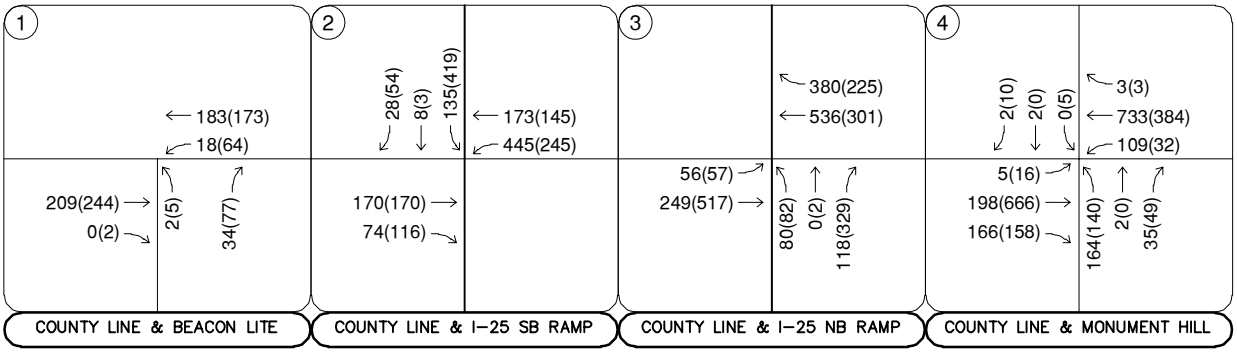
(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

FIGURE 5
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
2028 BACKGROUND TRAFFIC VOLUMES

Kimley»Horn

Kimley»Horn NORTH
NTS 196094002





LEGEND

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

FIGURE 6
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
2045 BACKGROUND TRAFFIC VOLUMES

Kimley»Horn

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for standardized trip generation rates is the *Trip Generation Manual*[1] published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. To more accurately quantify the trip rates for this particular location, trip generation estimates were developed using actual trip data information from other Buc-ee's sites. Data collected at 15 Buc-ee's sites with operational histories of at least two-years were used in developing average trips rates and to estimate trips for this site.

Agree with this approach. Nothing in ITE matches the proposed size of this development.

Since the project is a retail use and a Buc-ee's site adjacent to an interstate freeway, diverted link trips are expected with the proposed development. These diverted link trips are vehicles already on the roadway network that divert their route to stop at the proposed development while in route to another destination. Diverted trip rates were obtained from user specific data. A diverted link rate of 85 percent was applied for the morning peak hour and the afternoon peak hour for the proposed project.

Demonstrate how these rates were developed from user specific data.

The Buc-ee's project anticipated to generate a total of approximately 22,150 daily weekday trips with 1,236 of these trips occurring during the morning peak and 1,679 trips occurring during the afternoon peak hour. Accounting for diverted trips, expected net new trips (non diverted trips) to the surrounding street network results in approximately 3,322 new weekday daily trips, of which 185 and 252 new trips are anticipated during the weekday morning and afternoon peak hours, respectively. **Table 1** summarizes the estimated trip generation for the site. The trip generation worksheets are included in **Appendix D**.

[1] Institute of Transportation Engineers, *Trip Generation Manual*, Eleventh Edition, Washington DC, 2021.

Table 1 – Buc-ee's IH 25, Exit 163 Project Traffic Generation

Land Use and Size	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Buc-ee's IH 25, Exit 163 – 120 Fueling Positions & 74,000 Square Foot Building							
New Trips (Non-Diverted Link Trips)	3,322	96	89	185	126	126	252
Diverted Link Trips	18,828	547	504	1,051	714	713	1,427
Total Project Trips	**22,150**	**643**	**593**	**1,236**	**840**	**839**	**1,679**

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 new project trip distribution for the proposed development trips which accounts for 15 percent of the overall trips is illustrated in **Figure 7** while the diverted trip distribution which accounts for 85 percent of the overall trips is illustrated in **Figure 8.** User specific sales transactions indicate that more than 85 percent of customers are not located local to other Buc-ee's sites which indicates a high percentage of diverted link trips from the freeway interchanges. The following summarizes the trip distributions for the development separated by new trips NT, diverted link trips (DL), and the weighted average [WA] based on 85 percent being diverted link trips and 15 percent being new trips:

- North Interstate 25: 25% NT (50% DL) [46.25% WA]
- South Interstate 25: 30% NT (50% DL) [47% WA]
- West County Line Road: 20% NT (0% DL) [3% WA]
- East County Line Road: 5% NT (0% DL) [0.75% WA]
- South Beacon Lite: 10% NT (0% DL) [1.5% WA]
- South Monument Hill Road: 10% NT (0% DL) [1.5% WA]

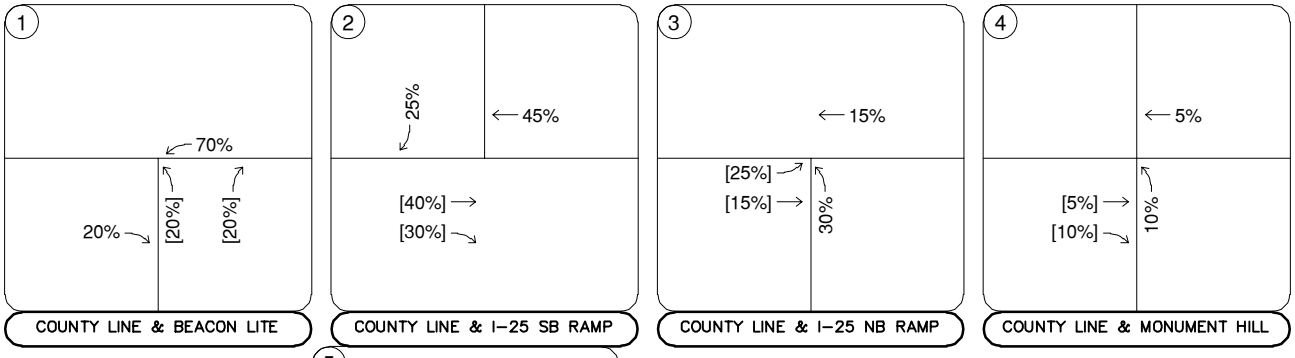
4.3 Traffic Assignment

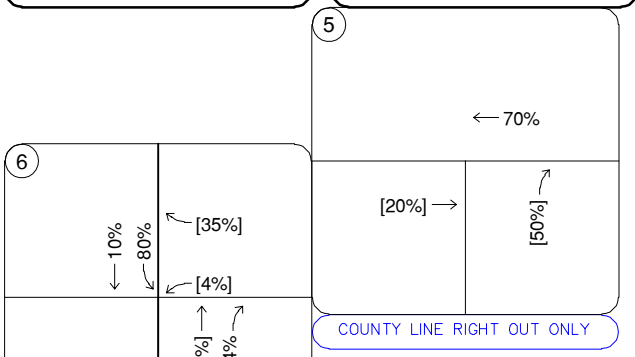
Traffic assignment was obtained by applying the distributions from **Figure 7** and **Figure 8** to the estimated traffic generation of the project shown in **Table 1**. The total traffic assignment is shown in **Figure 9.** Of note, the County Line Road and Beacon Lite Road intersection is proposed to be realigned as part of project development with the east leg of County Line Road and the south leg of Beacon Lite Road aligning as the major through movements while the west leg of County Line Road will intersect into the new roadway alignment. This will convert a high volume of northbound right turn movements and westbound left turn movements into the major through movements. Therefore, the realignment volumes are provided in Figure 9 for reference.

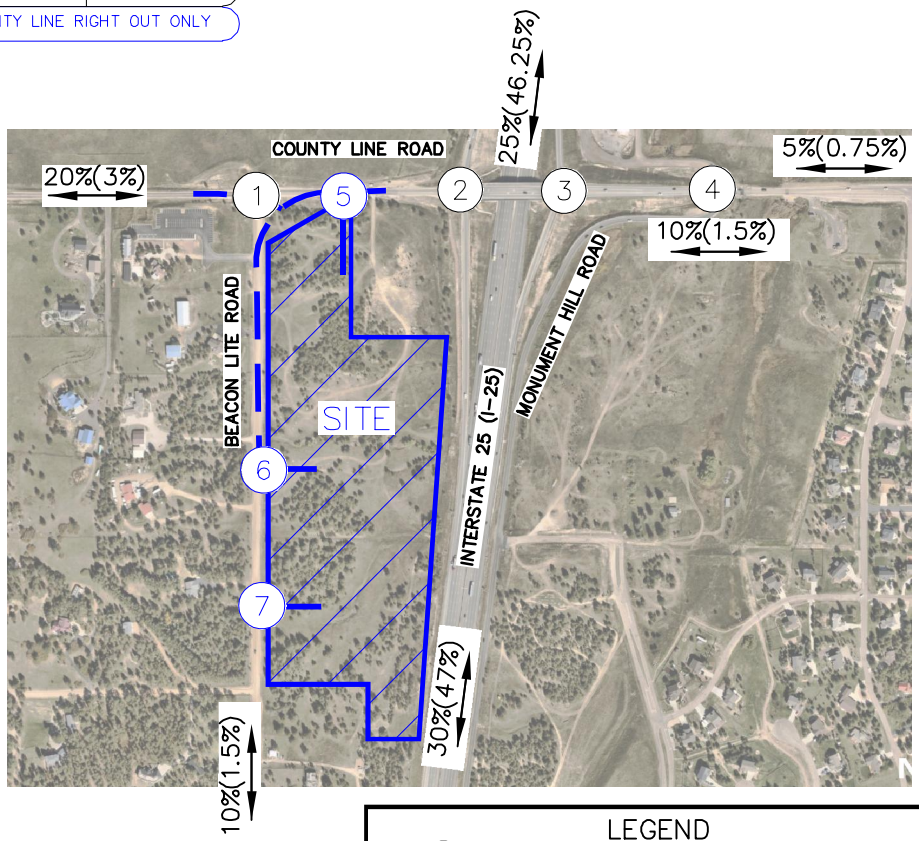
Show operation without realignment.

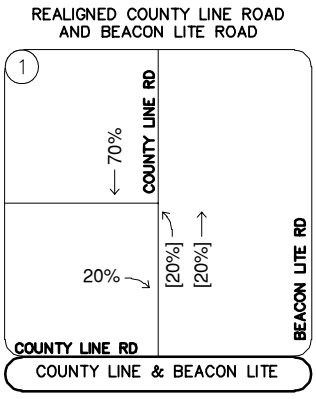
4.4 Total (Background Plus Project) Traffic

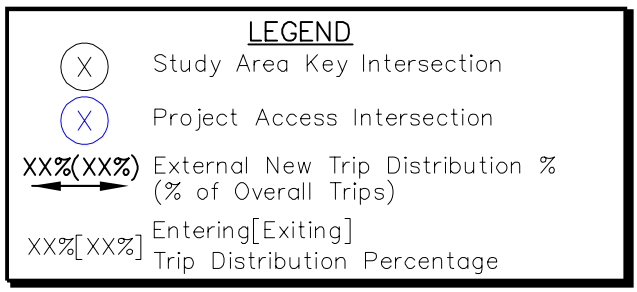
Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2028 buildout horizon and long-term 2045 twenty-year planning horizon. These total traffic volumes for the study area are illustrated for the 2028 and 2045 horizon years in **Figures 10** and **11**, respectively.











Kimley»Horn
NORTH
NTS 196094002

FIGURE 7
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
NEW PROJECT TRIP DISTRIBUTION
(15% OF OVERALL TRIPS)

Kimley»Horn

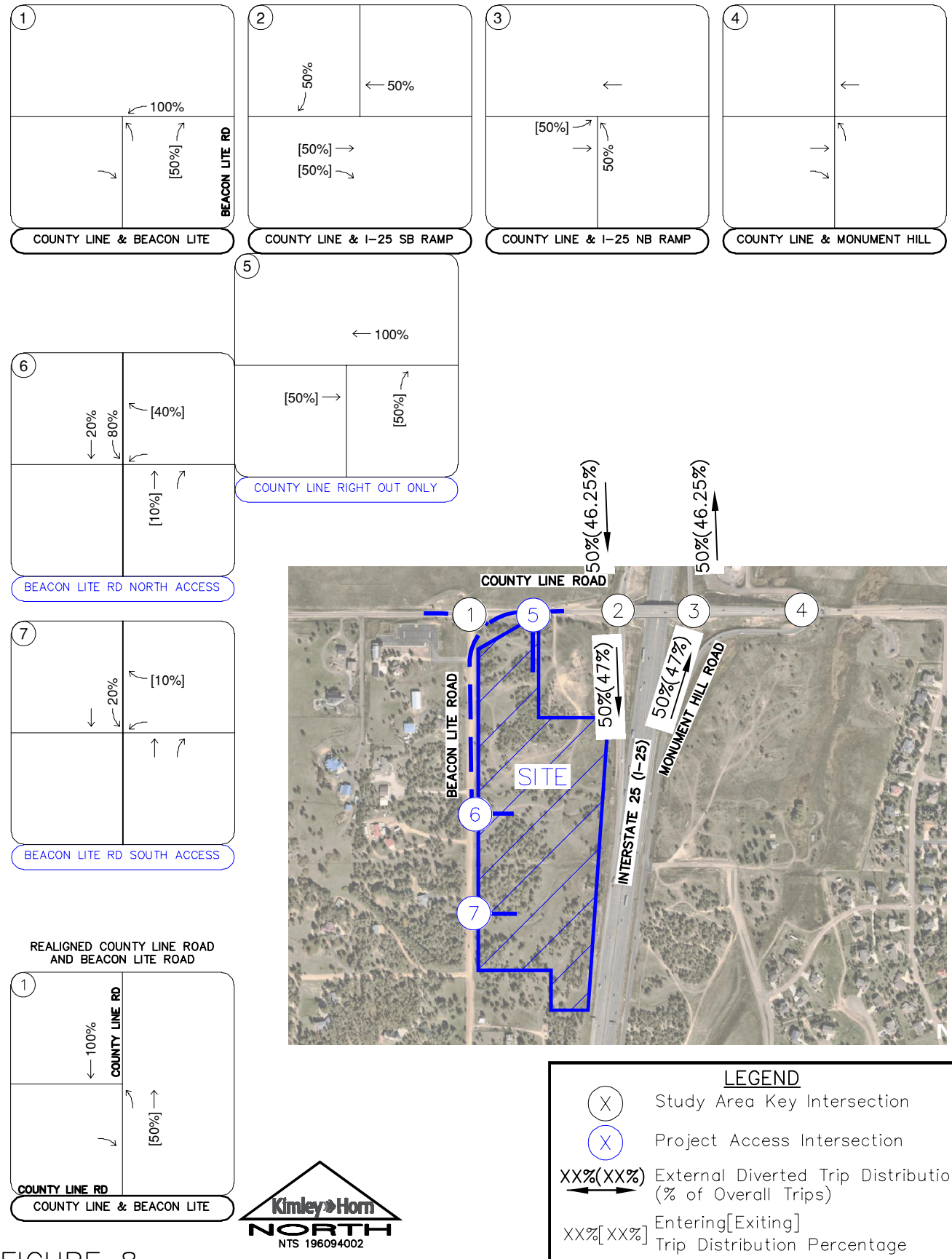


FIGURE 8
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
DIVERTED LINK PROJECT TRIP DISTRIBUTION
(85% OF OVERALL TRIPS)

Kimley»Horn

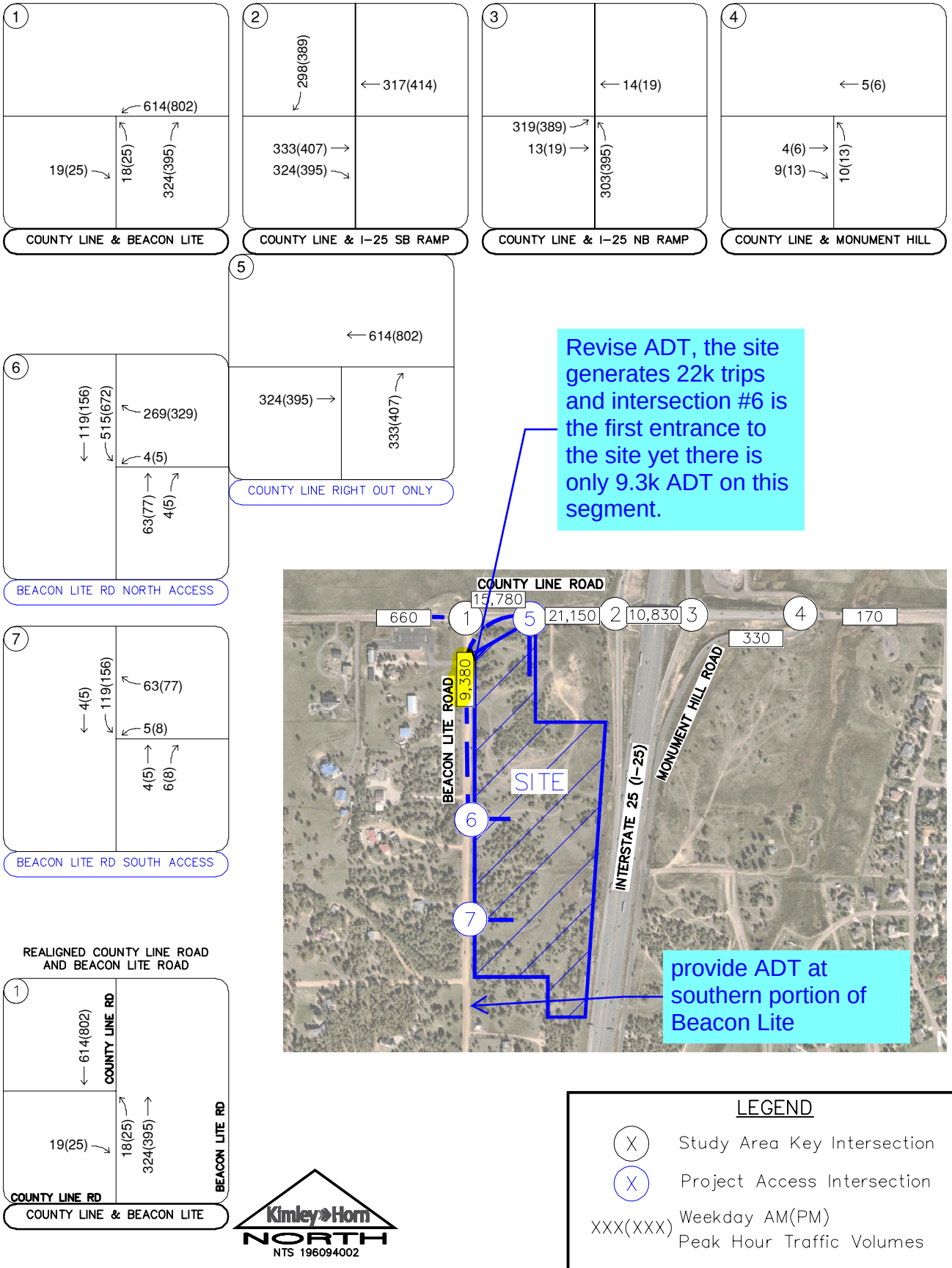


FIGURE 9
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
PROJECT TRAFFIC ASSIGNMENT

Kimley»Horn

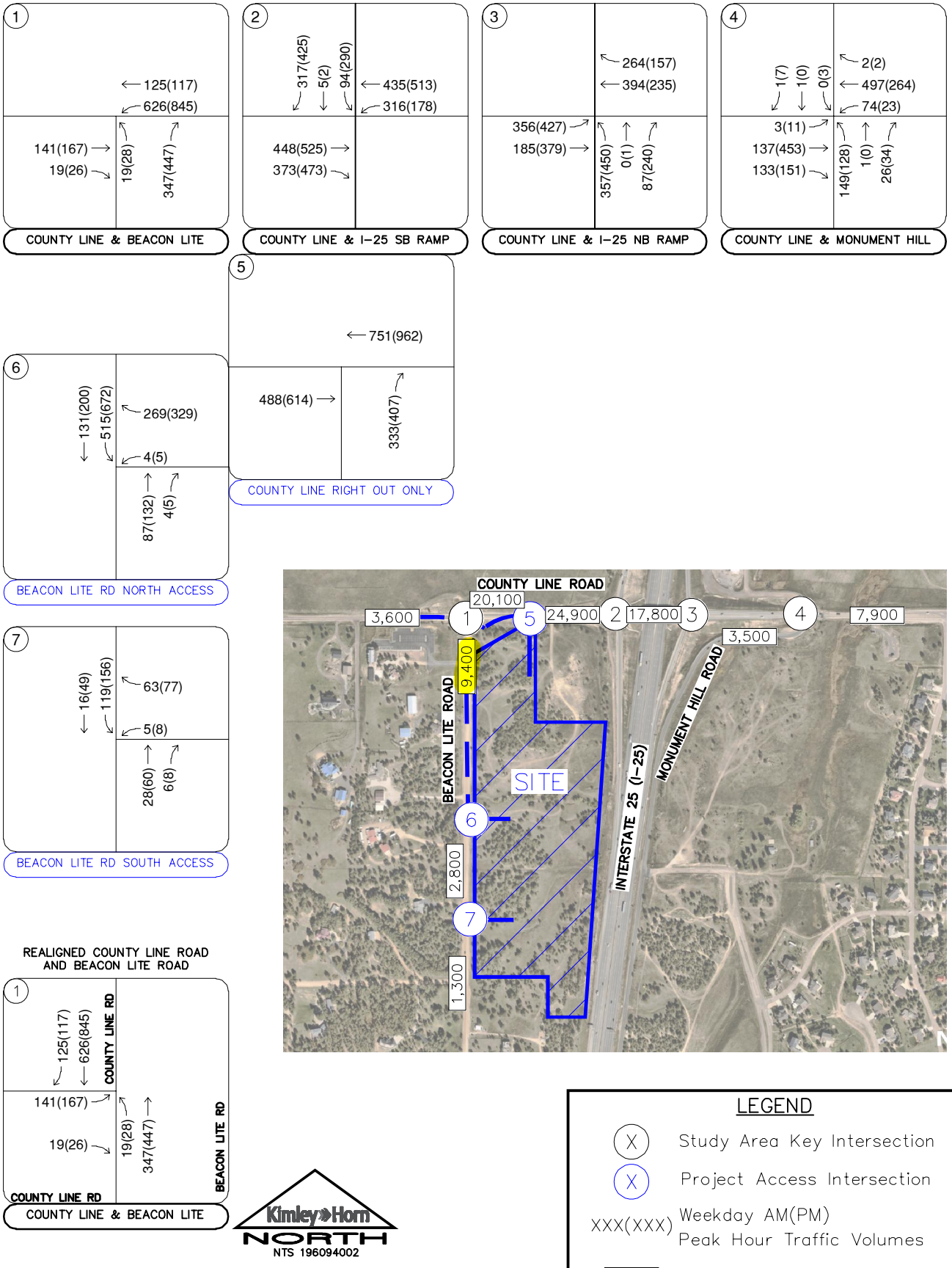


FIGURE 10

BUC-EE'S IH 25, EXIT 163

EL PASO COUNTY, COLORADO

2028 TOTAL TRAFFIC VOLUMES

Kimley»Horn

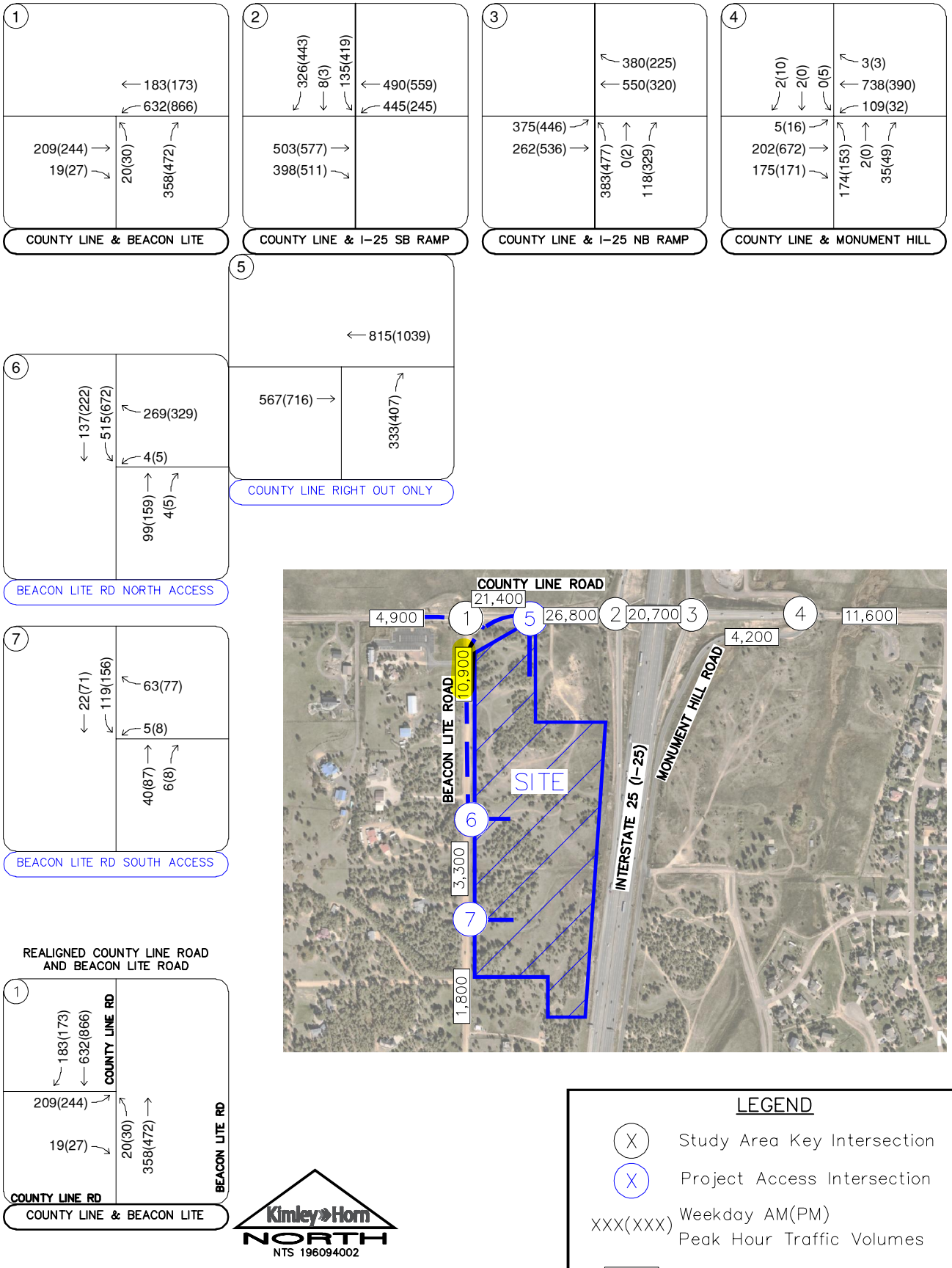


FIGURE 11
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
2045 TOTAL TRAFFIC VOLUMES

Kimley»Horn

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2028 and 2045 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the *Highway Capacity Manual (HCM)*[2].

5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). Based on El Paso County standards, the threshold for acceptable LOS is not less than LOS D during the peak hours. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Sixth Edition, Transportation Research Board, 2016.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for signalized, roundabout, and all-way stop controlled intersections are defined for each approach and for the overall intersection.

[2] Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.

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 E**. 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 2028 horizon analysis years while the El Paso County standard of 0.95 was used for the long-term 2045 horizon analysis. The existing heavy vehicle percentages obtained from the turning movement counts were also used in each horizon year. Synchro traffic analysis software was used to analyze the signalized and unsignalized key intersections for HCM level of service.

Prior to the intersection operational analysis for the I-25 interchange at County Line Road, the Federal Highway Administration (FHWA) Capacity Analysis for Planning of Junctions (CAP-X) 2018 tool was used to determine the optimal (based on volume over capacity only) operational interchange configuration. The CAP-X outputs identified partial cloverleafs, diverging diamond, diamond, and single point interchanges as potential configurations for this interchange. Additionally, a Colorado Intersection Control Assessment Tool (ICAT) analysis was completed for the southbound and northbound ramp intersections. The CAP-X analysis does not consider existing constraints at the interchange as part of its evaluation. The partial cloverleaf and diverging diamond interchange configurations considered by the CAP-X analysis would require acquisition of significant area of Right of Way and require construction of large retaining walls and/or significant roadway embankment. The highest-ranking interchange configuration, from the CAP-X analysis, that is feasible to construct is the diamond interchange. Additionally, a Minor Interchange Modification Request Memorandum (MIMR) was prepared for CDOT on May 28, 2025 to provide a more comprehensive analysis of the standard diamond interchange, roundabout interchange, and diverging diamond interchange using PTV Vissim microsimulation software. From review of the MIMR, the standard diamond interchange with improvements was accepted by CDOT on July 1, 2025. The Cap-X and excerpts from the MIMR are included in **Appendix H** for reference.

This improvement is not being made.

County Line Road and Beacon Lite Road

The T-intersection of County Line Road and Beacon Lite Road is unsignalized and operates with stop control on the northbound approach of Beacon Lite Road. The intersection movements operate acceptably at LOS A during both peak hours under existing conditions. However, as mentioned previously, a westbound left turn lane is part of the improvement plans for Beacon Lite Road. Therefore, the background conditions and the short-term 2028 total conditions was

County will require 1601 approval from CDOT before site plan can be approved.

Indicate how a single lane roundabout will work.

Site development plan shows 10 parking spots for buses and RVs. Ensure these vehicles and fuel truck are accommodated through all intersections.

analyzed with the planned improvement. With project traffic, the intersection configuration is not expected to operate acceptably as a T-intersection under stop control. Therefore, the project is recommending realigning the roadway for the east leg of County Line Road and the south leg of Beacon Lite Road to be the major roadway and the west leg of County Line Road to be the minor roadway. The realigned intersection is recommended to operate under either signal control or roundabout control in order for acceptable intersection operations. With traffic projections, this intersection meets the MUTCD Four Hour Warrant for signalization. The signal warrant analysis worksheet is included in **Appendix F**. Therefore, with signalization, two through lanes are recommended in each direction for the realigned major roadway while separate left and right turn lanes are recommended on the County Line Road minor eastbound approach. Further, a northbound to westbound left turn lane and southbound to westbound right turn lane are recommended at this intersection. With this configuration, the intersection is anticipated to operate at LOS A during both peak hours with signalization. However, a two-lane entry roundabout configuration can also operate acceptably with the project traffic and realignment of the intersection. **Table 3** provides the results of the LOS analysis conducted at this intersection.

Before th roundabo of the fol

a. Revisi Beacon leg is the roundabo leg funct control?

b. Analys

Table 3 – County Line Road & Beacon Lite Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2024 Existing				
Northbound Approach	9.1	A	9.4	A
Westbound Left	7.5	A	7.6	A
2028 Background #				
Northbound Approach	9.3	A	9.6	A
Westbound Left	7.6	A	7.7	A
2028 Background Plus Project #				
Northbound Approach	52.9	F	>300	F
Westbound Left	10.3	B	12.7	B
2028 Background Plus Project *Signalized (Realigned)*	6.5	A	6.3	A
2028 Background Plus Project *Roundabout (Realigned)*	5.6	A	7.0	A
2045 Background #				
Northbound Approach	9.9	A	10.5	B
Westbound Left	7.8	A	7.9	A
2028 Background Plus Project *Signalized (Realigned)*	9.0	A	8.0	A
2028 Background Plus Project *Roundabout (Realigned)*	6.3	A	8.2	A

= Includes WB Left Turn Lane Part of Beacon Lite Road Improvement Plans
Realigned: Signalized with Two NB/SB Through Lanes, Separate EB Left and Right Turn Lanes
Realigned Two by One Roundabout

Show how signal and roundabout work without realignment.

My understanding is that this will require a 1601 process that EPC will need to see completed and approved before authorizing construction.

County Line Road and I-25 Southbound Ramp

The unsignalized intersection of County Line Road and the I-25 Southbound Ramp operates with stop control on the southbound off-ramp. The intersection movements operate acceptably at LOS C or better during both peak hours under existing conditions. With project traffic, this intersection under stop control is reported to operate with long vehicle delays. Based on the Minor Interchange Modification Request (MIMR), a standard diamond interchange configuration with improvements has been accepted by CDOT as the appropriate interchange mitigation.

The standard diamond intersection assumed an eastbound right turn lane, one eastbound through lane, and a lane for spill back storage for the downstream eastbound left turn lane, a westbound left turn lane, and two westbound through lanes. The southbound approach was studied as a shared left/through and a separate right turn lane. The MUTCD Four Hour Signal Warrant Analysis was completed and identified all four hours meet the volumes to warrant a signal. The signal warrant analysis is provided in **Appendix F.** With signal control and the recommended lane configuration, the intersection is expected to operate acceptably with LOS B during the morning peak hour and LOS C during the afternoon peak hour throughout the long-term 2045 horizon. **Table 4** provides the results of the LOS analysis conducted at this intersection.

Table 4 – County Line Road & I-25 Southbound Ramp LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2024 Existing				
Westbound Left	8.1	A	7.8	A
Southbound Approach	21.6	C	19.8	C
2028 Background				
Westbound Left	8.3	A	8.0	A
Southbound Approach	40.8	E	43.4	E
2028 Background Plus Project				
Westbound Left	14.0	B	12.4	B
Southbound Approach	>300	F	>300	F
2028 Background Plus Project *Signalized*	18.4	B	20.7	C
2045 Background				
Northbound Left	9.5	A	8.6	A
Westbound Approach	>300	F	>300	F
2045 Background Plus Project *Signalized*	19.3	B	21.9	C

Signalized with Two EB and WB Through Lanes, Separate EB Right and WB Left Turn Lane, Shared SB Left/Through Lane, and Separate SB Right Turn Lane

County Line Road and I-25 Northbound Ramp

The unsignalized intersection of County Line Road and the I-25 Northbound Ramp operates with stop control on the northbound off-ramp. The intersection movements operate acceptably at LOS B or better during both peak hours under existing conditions. With project traffic, the northbound approach is anticipated to operate with long vehicle delays. Therefore, similar to the southbound interchange, this intersection is recommended to provide signal control by the buildout horizon based on the results of the MIMR.

The diamond intersection configuration includes an eastbound left turn lane, one eastbound through lane, a spill back westbound through lane, one westbound through, a shared westbound through/right turn lane, a separate northbound left, a shared northbound left/through, and a separate northbound right turn lane. The MUTCD Four Hour Signal Warrant Analysis was completed and identified all four hours meet the volumes to warrant a signal. The signal warrant analysis is provided in **Appendix F.** The signalized intersection is anticipated to operate with LOS C during both peak hours throughout the 2045 horizon. **Table 5** provides the results of the LOS analysis conducted at this intersection.

Table 5 – County Line Road & I-25 Northbound Ramp LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2024 Existing				
Northbound Approach	11.3	B	13.2	B
Eastbound Left	8.8	A	7.9	A
2028 Background				
Northbound Approach	12.2	B	17.1	C
Eastbound Left	9.4	A	8.2	A
2028 Background Plus Project				
Northbound Approach	>300	F	>300	F
Eastbound Left	13.2	B	10.2	A
2028 Background Plus Project *Signalized*	24.3	C	22.0	C
2045 Background				
Northbound Approach	17.8	C	59.5	F
Eastbound Left	11.1	B	8.8	A
2045 Background Plus Project *Signalized*	29.3	C	26.3	C

Signalized with One EB and Two WB Through Lanes, a Separate EB Left, and a Separate NB Left, Shared NB Left/Through, and Separate NB Right

the Monument Ridge East TIS indicated that CDOT is requiring escrow for the future signal. Identify whether CDOT will also require escrow from this development.

County Line Road and Monument Hill Road

The intersection of County Line Road and Monument Hill Road operates with stop control on the northbound and southbound approaches of this intersection. The intersection movements operate acceptably at LOS C or better during both peak hours under existing conditions. However, with the proposed development on the southeast corner of County Line Road and Monument Hill Road, Monument Ridge East, a separate eastbound left and right turn lane, a separate westbound left turn lane, and a separate northbound right turn lane is planned to be constructed. With project traffic and the background lane geometry, all movements are anticipated to continue operating at an acceptable level of service through the short-term horizon. However, if 2045 volumes are realized, the shared northbound left/through may operate with unacceptable delays. Therefore, as identified in the Monument Ridge East Traffic Study, the intersection has been recommended to signal control. With signalization, the intersection is anticipated to operate at LOS A during both peak hours in 2045. Therefore, the project traffic does not necessitate additional changes to the intersection recommendations identified in the Monument Ridge East traffic study. **Table 6** provides the results of the LOS analysis conducted at this intersection.

Table 6 – County Line Road & Monument Hill Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2024 Existing				
Northbound Approach	21.3	C	17.3	C
Eastbound Left	8.6	A	7.8	A
Westbound Left	7.9	A	8.4	A
Southbound Approach	15.9	C	12.4	B
2028 Background #				
Northbound Left/Through	30.3	D	18.5	C
Northbound Right	9.2	A	11.6	B
Eastbound Left	8.7	A	7.8	A
Westbound Left	8.1	A	8.9	A
Southbound Approach	14.8	B	11.7	B
2028 Background Plus Project #				
Northbound Left/Through	33.0	D	19.5	C
Northbound Right	9.2	A	11.7	B
Eastbound Left	8.8	A	7.9	A
Westbound Left	8.1	A	9.0	A
Southbound Approach	14.9	B	11.8	B
2045 Background #				
Northbound Left/Through	168.1	F	35.7	E
Northbound Right	9.8	A	14.7	B
Eastbound Left	9.8	A	8.2	A
Westbound Left	8.6	A	10.0	A
Southbound Approach	20.6	C	15.2	C
2045 Background Plus Project #$	8.9	A	8.5	A

= Includes background study improvements: Separate EBL, EBR, WBL, and NBR; $=Signalized

County will want to see approval from CDOT for right-out access onto County Line Road.

Provide alternatives that will work without installing a signal that does not meet warrants. El Paso County will not approve installation of a traffic signal that does not meet warrants.

Project Accesses

With completion of the Buc-ee's project, an outbound only access along County Line Road and two full movement access along Beacon Lite Road will be constructed. The County Line Road right-out only access is recommended to provide a R1-1 "STOP" sign and a R3-1 No Left Turn sign on the exiting approach while the exiting approach should also be oriented to only allow right-turn movements. Southbound dual left turn lanes are recommended at the north access along Beacon Lite Road due to the high volume of entering left turn movements. The westbound right movement of this north access along Beacon Lite Road will operate with free flow movements by providing a westbound to northbound acceleration lane. Therefore, to accommodate dual southbound left turn lanes, the intersection will need to be signalized. Of note, the traffic volumes are not anticipated to warrant signalization, but signal control could be provided if supported by El Paso County due to the high volume of southbound left turn movements and dual left turn lanes should not be implemented with stop control. The southern access is recommended to operate with stop control on the westbound approach, exiting the site. The westbound approach of this southern access operates acceptably with a shared left/right turn lane and should operate under stop control with a R1-1 "STOP" sign installed on the exiting approach. A southbound left turn lane is recommended to be provided for entering the site at the south access. **Table 7** provides the results of the level of service for the project access intersections. 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 2028 and the 2045 long-term horizons.

dedicated right turn lane thresholds met. please address.

Signal control will only be supported if signal warrant is met. Update the site plan and the TIS accordingly.

Another configuration that should be analyzed before signal control is moving the Roundabout to the Beacon Lite and access and reconfiguring the Beacon Lite and County Line to be a continuous/primary road with the western leg be a secondary road.

– Project Access Level of Servic

Intersection	2028 Total				2045 Total			
	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
County Line Rd RO Access								
Northbound Approach	14.6	A	20.7	C	15.9	C	24.5	C
Beacon Lite North Access	1.4	A	1.5	A	1.4	A	1.6	A
Beacon Lite South Access								
Westbound Approach	8.9	A	9.4	A	9.0	A	9.6	B
Southbound Left	7.5	A	7.7	A	7.5	A	7.7	A

Demonstrate how this operates and length of queue with single SB left-turn lane and side-street stop control since signal warrants are not met.

El Paso County does not have signalized driveways anywhere, so questions will need to be answered, if signal is approved, about who operates and maintains the traffic signal and who pays for electricity going forward since it only serves the private development.

revise to: currently classified

rural minor arterial

rural minor collector

5.3 El Paso County Turn Lane Requirement Analysis

The El Paso County Engineering Criteria Manual (ECM) was used to determine if left and right turn lanes are warranted along Beacon Lite Road at the project accesses. County Line Road is classified as a minor arterial roadway while Beacon Lite Road is a collector roadway. According to ECM guidelines for minor arterial and lower classification 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, 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 Beacon Lite Road providing a posted speed limit of 35 miles per hour, the turn lane requirements for a design speed of 40 miles per hour are as follows:

Assume that El Paso County will not approve a traffic signal that does not meet warrants and demonstrate other alternatives that provide acceptable operations.

Beacon Lite Road North Access (#6)

- A southbound left turn lane **is** warranted based on projected 2028 background plus project traffic volumes being 672 southbound left turns during the peak hour and the threshold being 25 vph. With 672 southbound left turn movements projected, southbound dual left turn lanes are recommended at the north access along Beacon Lite Road. Based on the 40 mile per hour design speed, the left turn lane length requirements are 490 feet of lane length per lane (335 feet of storage per lane plus 155 feet of deceleration per lane) plus a 160-foot taper. It is recommended that the inside left turn lane provide 490 feet of length plus a 160-foot taper while the outside left turn be a continuous lane extending lane from the proposed roundabout at the County Line Road and Beacon Lite Road intersection which would drop as a forced left turn lane. Therefore, the 980 feet of left turn lane length would be accommodated by 490 feet from the inside lane and approximately 1,040 feet from the continuous left turn lane extending from the proposed roundabout to the north. Of note, the 95th percentile vehicle queues are calculated with 175 feet per lane and the vehicles will not be traveling 40 miles per hour when exiting the proposed roundabout to the north; therefore, the required turn lane length requirements which are being accommodated should be conservative.
- A northbound right turn lane **is not** warranted based on projected 2028 background plus project traffic volumes being five (5) northbound right turns during the peak hour and the threshold being 50 vph.

Beacon Lite Road South Access (#7)

- A southbound left turn lane **is** warranted based on projected 2028 background plus project traffic volumes being 156 southbound left turns during the peak hour and the threshold being 25 vph. Based on the 40 mile per hour design speed, the length requirements are 150 feet of storage plus 155 feet of deceleration plus a 160-foot taper. Therefore, the southbound left turn lane is recommended to provide at least 305 feet of length plus a 160-foot taper.
- A northbound right turn lane **is not** warranted based on projected 2028 background plus project traffic volumes being eight (8) northbound right turns during the peak hour and the threshold being 50 vph.

5.4 Vehicle Queuing Analysis

A vehicle queuing analysis was conducted for the study area intersections. The queuing analysis was performed using Synchro presenting the results of the 95th percentile queue lengths. Results are shown in the following **Table 8** with calculations provided within the level of service operational sheets of **Appendix E** for unsignalized intersections and **Appendix G** for signalized intersections. Of note, the minimum reported queue length is reported as 25 feet.

Table 8 – Turn Lane Queuing Analysis Results

Intersection Turn Lane	Existing Turn Lane Length	2028 Calculated Queue	2028 Recommended Length	2045 Calculated Queue	2045 Recommended Length
County Line & Beacon Lite (#1)					
Signalized					
Eastbound Left	DNE	155’	**C**	207’	**C**
Eastbound Right	DNE	25’	**155’+160’T**	25’	**155’+160’T**
Northbound Left	DNE	25’	**155’+160’T**	25’	**155’+160’T**
Southbound Right	DNE	25’	**155’+160’T**	25’	**155’+160’T**
County Line & I-25 SB (#2)					
Signalized					
Eastbound Right	DNE	37’	**C**	25’	**C**
Westbound Left	275’	173’	275’+**300’**	294’*	275’+**300’**
Southbound Right	DNE	69’	**400’**	71’	**400’**
County Line & I-25 NB (#3)					
Signalized					
Eastbound Left	275’	232’	275’+**C**	308’*	**275’+C**
Northbound Left	DNE	175’	**C**	186’	**C**
Northbound Right	DNE	49’	**300’**	56’	**300’**
County Line & Monument Hill (#4)					
Eastbound Left	DNE	25’	**75’**	25’	**75’**
Eastbound Right	DNE	25’	**140’**	25’	**140’**
Westbound Left	DNE	25’	**225’**	42’	**225’**
Northbound Right	DNE	25’	**175’**	25’	**175’**
Beacon Lite North Access (#6)					
Westbound Left	DNE	25’	**C**	25’	**C**
Westbound Right	DNE	25’	**C**	25’	**C**
Southbound Left	DNE	161’ DL	**490’ / C+160’T**	157’ DL	**490’ / C+160’T**
Beacon Lite South Access (#7)					
Southbound Left	DNE	25’	**305’+160’T**	25’	**305’+160’T**

DNE = Does Not Exist; C = Continuous; DL = Dual Left Turn Lanes; T = Taper; **Blue** Text = Recommendation; * = contained by external spillback lane

The vehicle queues are all anticipated to remain within the existing or recommended turn lane lengths throughout the 2045 horizon. Of note, the eastbound left turn lane at the I-25 Northbound Ramp intersection provides an additional eastbound through lane for spillback queue. Likewise, the westbound left turn lane at the I-25 Southbound Ramp intersection will provide an additional 300 feet of length for spillback queue.

5.5 Access Spacing Requirements and Surrounding Roadway Volume Classifications

According to El Paso County 2024 Major Transportation Corridors Plan Update, County Line Road is classified as a minor arterial roadway and Beacon Lite Road is classified as a collector roadway. The following identifies the intersection spacing requirements for the access intersections associated with the project.

However, Beacon Lite Road will function as a minor arterial, at least through the northern access point. Therefore, access spacing along Beacon Lite should meet minor arterial critiera.

County Line Road Right-Out Only Access

The proposed right-out is located approximately 590 feet west of the I-25 South intersection (measured centerline to centerline). Coordination with CDOT and El Pa underway to allow a right-out only driveway access to County Line Road.

Beacon Lite North Access (Full)

The proposed full movement North Access is located approximately 1,130 feet sou Line Road and Beacon Lite Road intersection (measured centerline to centerline). the El Paso County Engineering Criteria Manual Table 2-35 and a posted limit of 35 for a four-lane roadway should be located a minimum of 420 feet south of Count Therefore, the proposed access location meets spacing requirements.

Refer to table 2-36 for the required design vehicle. For a commercial/retail land use, multi-unit trucks shall be utilized unless there are less than 2 multi-unit truck trips per day (average) and a single unit truck may be utilized for the design vehicle. revise the spacing requirements accordingly.

Beacon Lite South Access (Full)

The proposed full movement South Access is located approximately 570 feet south access intersection (measured centerline to centerline) and 350 feet north of E According to the El Paso County Engineering Criteria Manual and posted speed limit of 35 mph, access spacing off a two-lane roadway should provide a minimum of 350 feet south of the north access. Therefore, the proposed access location meets El Paso County's spacing requirements.

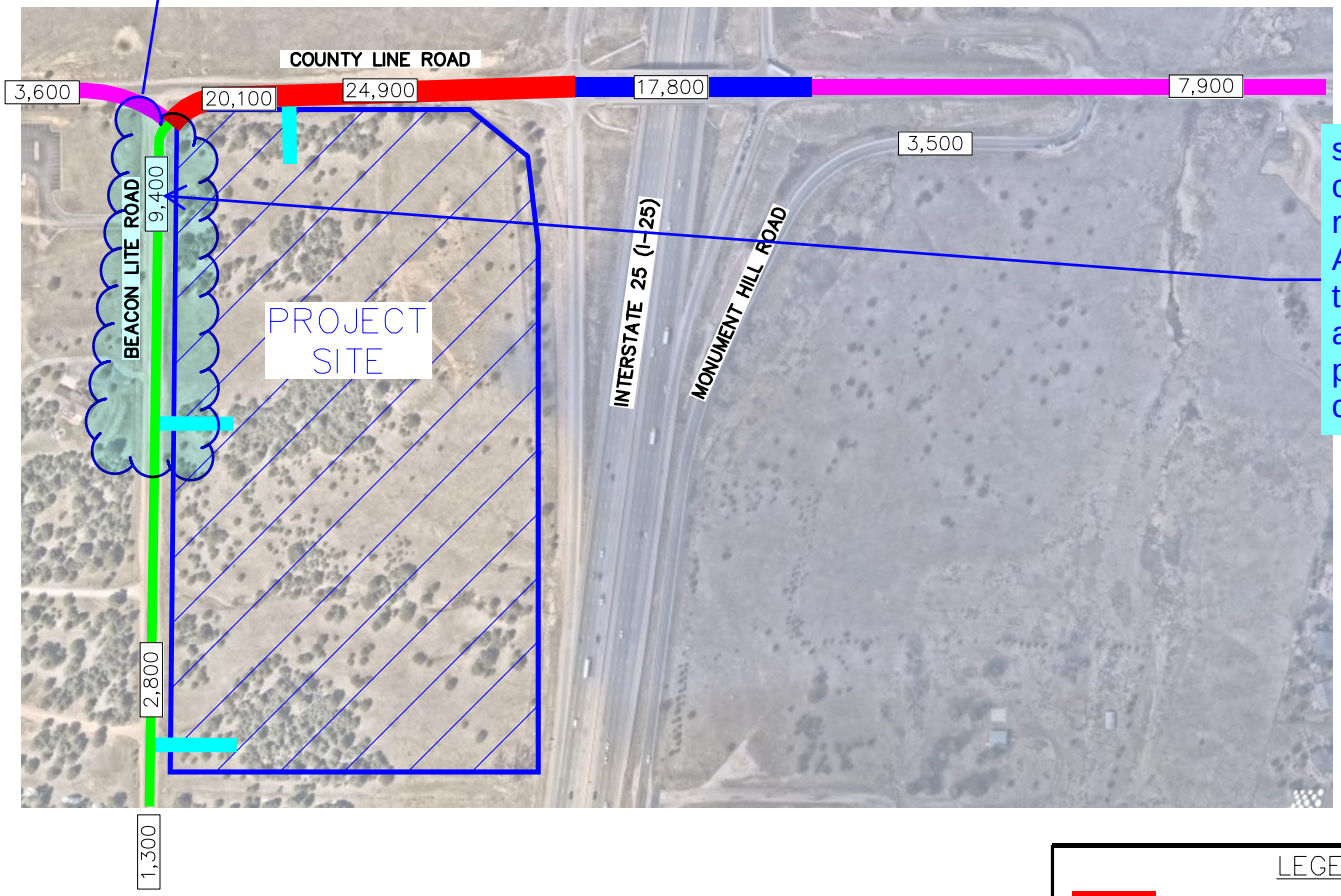
Traffic Volume Thresholds

County Line Road meets the daily volume threshold of a four-lane urban principal arterial roadway (40,000 vehicles per day threshold) between Beacon Lite Road and the I-25 Southbound Ramp with an average daily traffic volume projection of 24,900 vehicles per day in 2028. County Line Road meets the roadway characteristics of rural 2-lane minor arterial to the west of Beacon Lite Road and east of the I-25 Northbound Ramp while meeting the characteristics of a urban 4-lane minor arterial between the northbound and southbound ramps of I-25. Beacon Lite Road meets the daily volume threshold of a non-residential urban collector (20,000 vph threshold) an average daily traffic volume projection of 9,400 vehicles per day in 2028. **Figure 12** illustrates the circulation plan and street classification map for roadways surrounding the Buc-ee's project.

However, lanes and function are that of at least a minor arterial between County Line Road and north access.

Kimley»Horn
NORTH
NTS 196094002

This segment of Beacon Lite Road will function like an arterial, regardless of volumes.



see previous comment on ADT and revise accordingly. ADT and function of the road must be accounted for in the proposed road classification.

LEGEND

- URBAN PRINCIPAL ARTERIAL (4-LANE)
- URBAN MINOR ARTERIAL (4-LANE)
- RURAL MINOR ARTERIAL (2-LANE)
- URBAN NON-RESIDENTIAL COLLECTOR
- PRIVATE ACCESS
- XX,X00 ESTIMATED 2028 DAILY TRAFFIC VOLUME

FIGURE 12
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
STREET CLASSIFICATION MAP

Kimley»Horn

5.6 Sight Distance Evaluation

and slopes

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. El Paso County Engineering Criteria Manual (ECM) design intersection sight distances for left turn and right turning from stop were evaluated at the unsignalized project accesses along County Line Road and Beacon Lite Road. The following identifies sight distance requirements for the access intersections associated with the project:

ECM sight distance (Fig. 2-23 and Table 2-21) only apply to two-lane roads with stop control. All other situations are per AASHTO.

County Line Road Right-Out Only Access

Based on ECM Table 2-35: Entering Sight Distance with a speed of 35 mph, the sight distance for a vehicle turning right from stop is 525 feet for a single unit truck design vehicle. Therefore, all obstructions for right turning vehicles from stop should be clear to the left within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way and a line-of-sight distance of 525 feet located in the middle of the eastbound through lane along County Line Road. Based on these criteria, it is believed that the proposed ac[illegible] Road is appropriately located to provide necessary sight distances.

Identify the fuel delivery semi-trailer design vehicle and their ingress/egress route. Can the semi-trailer use any of the three proposed access or restricted to a specific access? Additionally, provide an autoturn exhibit and include the entering sight distance for the access used by the fuel delivery semi-trailers.

Beacon Lite Road South Access

With El Paso County standards and a roadway speed of 35 miles per [illegible] Road (consistent with ECM Table 2-35, speed limit of 35 mph), the ente[illegible] vehicle turning left and right from stop is 525 feet for a single unit truck design vehicle. Therefore, all obstructions for left turning vehicles from stop should be clear to the right within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way and a line-of-sight distance of 525 feet located in the middle of the southbound through lane along Beacon Lite Road. Likewise, all obstructions for right turning vehicles from stop should be clear to the left within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way and a line-of-sight distance of 525 feet located in the middle of the northbound through lane along Beacon Lite Road. It is believed that the proposed south access along Beacon Lite Road is appropriately located to provide necessary sight distances.

please also address sight distance along the roadway per ECM 2.4.1.C.1

per ECM 2-36 a commercial/retail land use shall utilize multi-unit trucks. Please address why single unit trucks are utilized.

5.7 Road Impact Fees

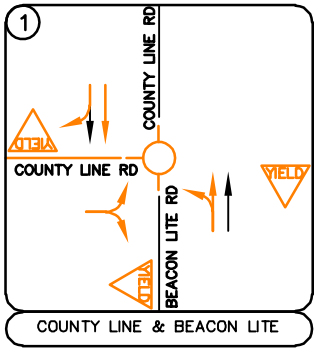
Road impact fees will be calculated based on the El Paso County Road Impact Fee Schedule. The fee will be calculated after the administrative determination of the site use and coinciding with the site development plan application.

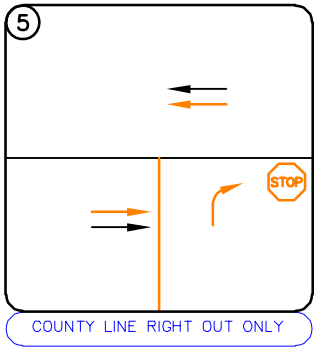
Update the Road Impact Fee section to include the calculations.

5.8 Improvement Summary

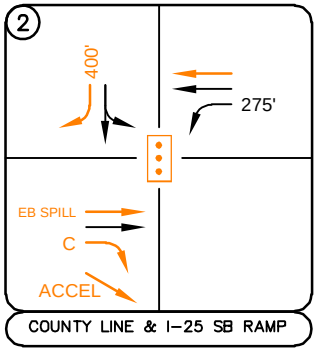
Based on the results of the intersection operational and vehicle queuing analysis, the key intersections recommended improvements and control for the 2028 horizon are shown in **Figure 13** while the key intersections recommended improvements and control for the 2045 horizon are shown in **Figure 14**.

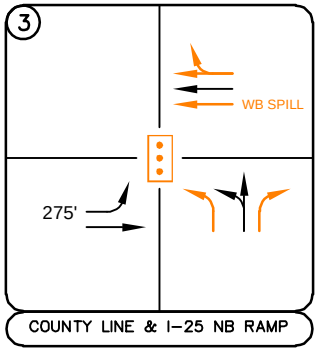
ROUNDABOUT

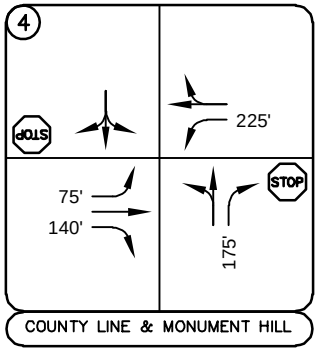


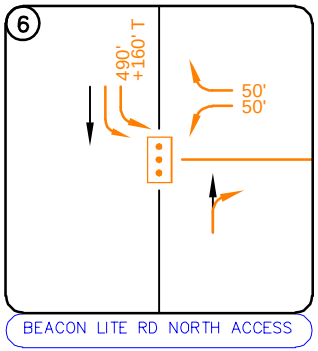


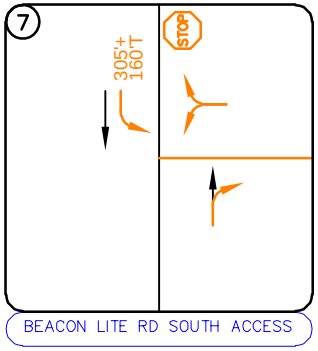
TRADITIONAL INTERCHANGE

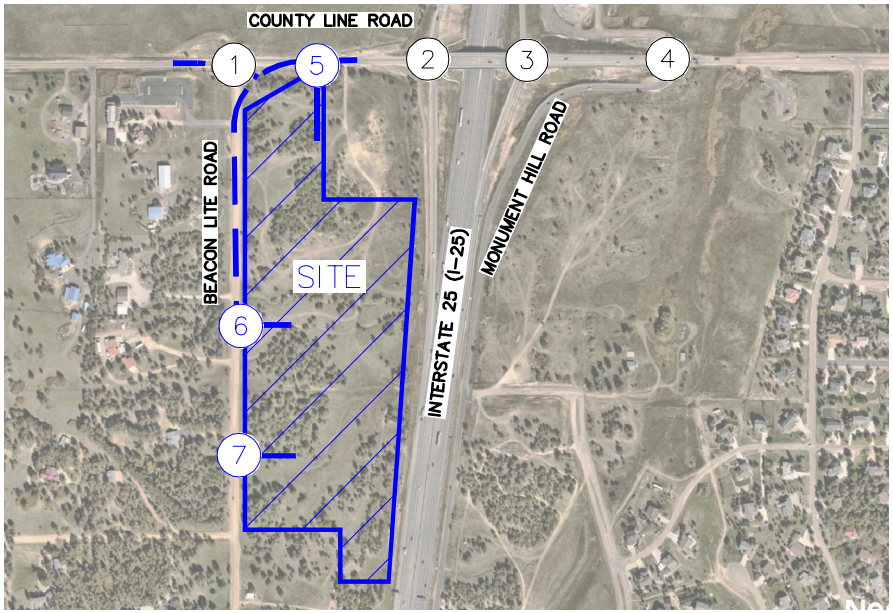




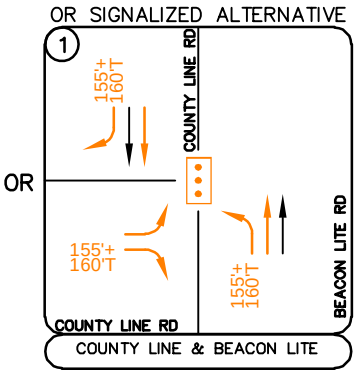








OR SIGNALIZED ALTERNATIVE



LEGEND

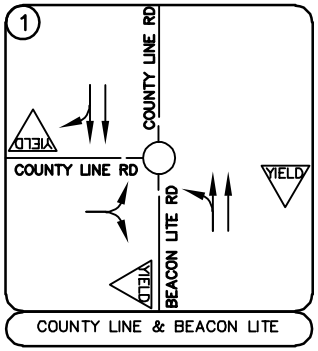
- Study Area Key Intersection
- Project Access Intersection
- Roundabout
- Yield Controlled Approach
- Signalized Intersection
- Stop Controlled Approach
- Improvement
- 100' Turn Lane Length (feet)

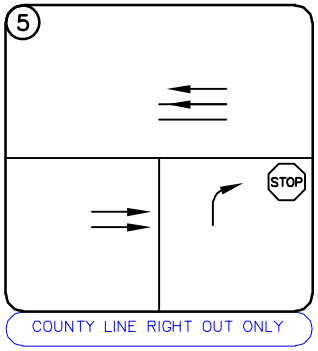
FIGURE 13
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
2028 RECOMMENDED GEOMETRY AND CONTROL

Kimley»Horn NORTH
NTS 196094002

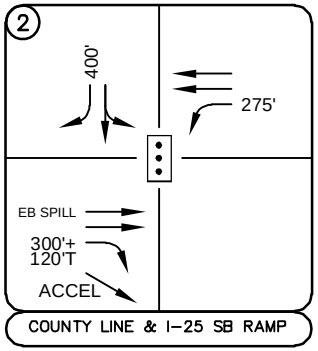
Kimley»Horn

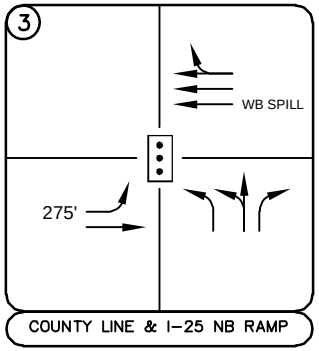
ROUNDABOUT

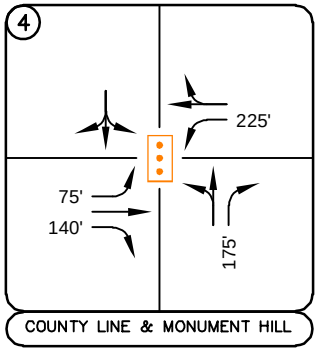


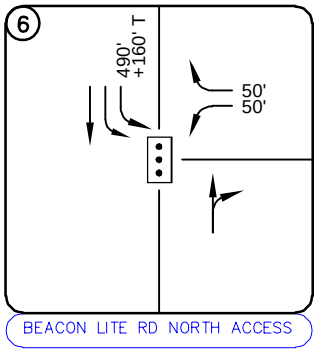


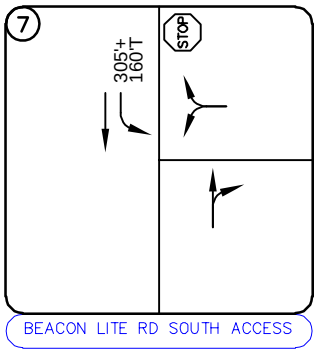
TRADITIONAL INTERCHANGE

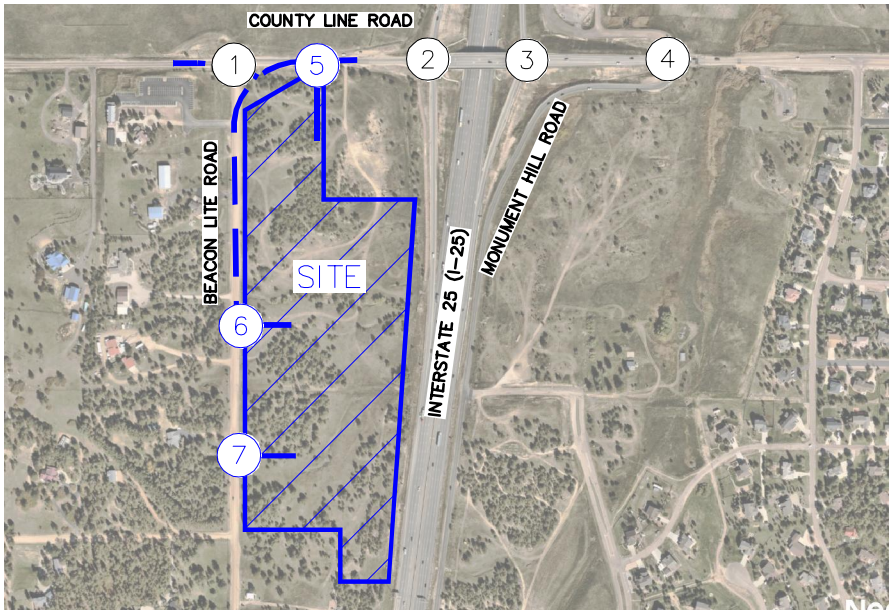




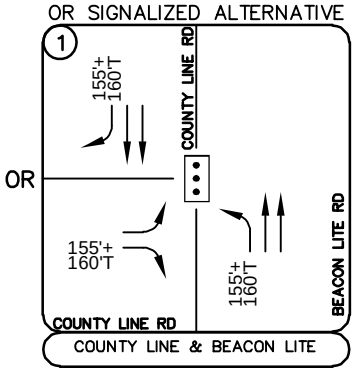








OR SIGNALIZED ALTERNATIVE



LEGEND

- Study Area Key Intersection
- Project Access Intersection
- Roundabout
- Yield Controlled Approach
- Signalized Intersection
- Stop Controlled Approach
- Improvement
- 100' Turn Lane Length (feet)

FIGURE 14
BUC-EE'S IH 25, EXIT 163
EL PASO COUNTY, COLORADO
2045 RECOMMENDED GEOMETRY AND CONTROL

Kimley»Horn
NORTH
NTS 196094002

Kimley»Horn

Based on the analysis presented in this report, Kimley-Horn believes the Buc-ee's IH 25, Exit 163 project 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:

2028 Recommendations

- With construction of the project, the I-25 and County Line Road interchange ramp terminals are recommended to be converted from stop control to signal control. Traffic signals are the preferred intersection control recommended in this study. In order to utilize the existing bridge deck (approximately 72 feet), a traditional diamond interchange can provide two westbound through lanes, a westbound left turn lane, an eastbound left turn lane, and a single eastbound through lane between the two ramps at 12 feet per lane. Additionally, the northbound off-ramp is recommended to provide three approach lanes including a separate left turn lane, a shared left turn/through lane, and right turn lane while the southbound off-ramp is recommended to provide two approach lanes including a shared left turn/through lane and a separate right turn lane. The left turn lanes onto the I-25 on-ramps will each provide a spillback lane for additional vehicle storage.

Demonstrate how this intersection operates without realignment.

- The County Line Road and Beacon Lite Road (#1) intersection is recommended to be realigned by converting the major through movements to the existing east (County Line Road) and south (Beacon Lite Road) legs of this intersection while the west leg of County Line Road will intersect into the new roadway alignment. This will convert a high volume of northbound right turn movements and westbound left turn movements into the major through movements. This realigned intersection will either need to be signalized or provide roundabout control. As a signal, the west leg minor approach is recommended to provide a separate left and right turn lane while the major approaches would provide two northbound and southbound through lanes, a separate northbound left turn lane, and a separate right turn lane. However, as a roundabout, the northbound/southbound realigned roadway is recommended to provide two approach lanes, and the eastbound approach is recommended to provide a single lane for shared movements.

Would like to see intersection layouts for both signalized intersection and roundabout.

- Two full movement project accesses are being proposed along Beacon Lite R… right-out only access is proposed along County Line Road. The following s… recommendations of the three proposed project accesses:
  - A right-out only access along County Line Road (#5) is recommended to … "STOP" sign on the northbound approach with a R3-1 No Left Turn sign below the R1-1 sign. The exiting approach to this access should also be oriented to only allow exiting right turn movements.
  - The north access (#6) along Beacon Lite Road should be signalized as a T-intersection. Southbound dual left turn lanes are recommended at the north access along Beacon Lite Road due to the high volume of entering left turn movements. The inside left turn lane is recommended to provide a length of 490 feet plus a 160-foot taper while the outside left turn lane will be continuous drop lane from the inside through lane. The westbound approach to this access is recommended to provide separate left and right turn lanes with the right turn movement operating under free-flowing conditions.
  - A full movement access (#7) is proposed at the south end of the site along Beacon Lite Road. The intersection is recommended to operate with stop control on the westbound approach. A southbound left turn lane is recommended at the south access along Beacon Lite Road with a length of 305 feet plus a 160-foot taper.

- The church on the southwest corner of the County Line Road and Beacon Lite Road intersection currently has one full movement access along Beacon Lite Road and no other points of access. This access to the church along Beacon Lite Road is proposed to be restricted to right-in/right-out movements due to the proximity to the future realigned intersection of County Line Road and Beacon Lite Road. Therefore, the project team will coordinate with the church and El Paso County regarding the possibility of incorporating a second point of access along County Line Road or Bull Pine Point for the church.

- Additionally, site generated traffic associated with the Monument Ridge East development located on the southeast corner of County Line Road and Monument Hill Road intersection were added directly to the study intersections. With the development of the Monument Ridge East site, Monument Hill Road will be realigned and provide separate eastbound left and right turn lanes, a separate westbound left turn lane, and a separate northbound right turn lane.

Demonstrate CDOT is aware of and approves of this access. Would be good to organize access meetings with applicant, El Paso County, and CDOT.

Revise the recommendation for access #6. A signalized T-intersection is not supported since it's not warranted.

This portion of Beacon Lite Road will function like at least a minor arterial. Demonstrate that this classification meets spacing requirements for two access points

Full movement access is being removed from multiple properties along the west side of Beacon Lite Road. All will require coordination.

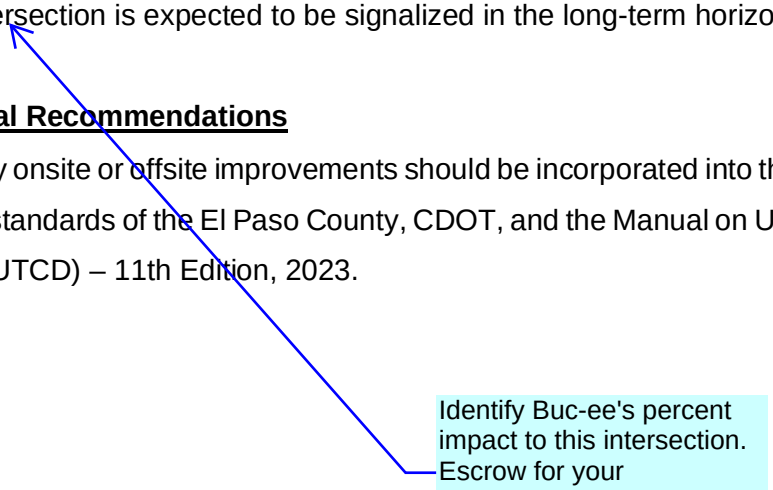
Additionally, the development must have all required offsite easements (temporary and permanent) as a condition of approval.

2045 Recommendations

- As identified in other traffic studies, the County Line Road and Monument Hill Road intersection is expected to be signalized in the long-term horizon.

General Recommendations

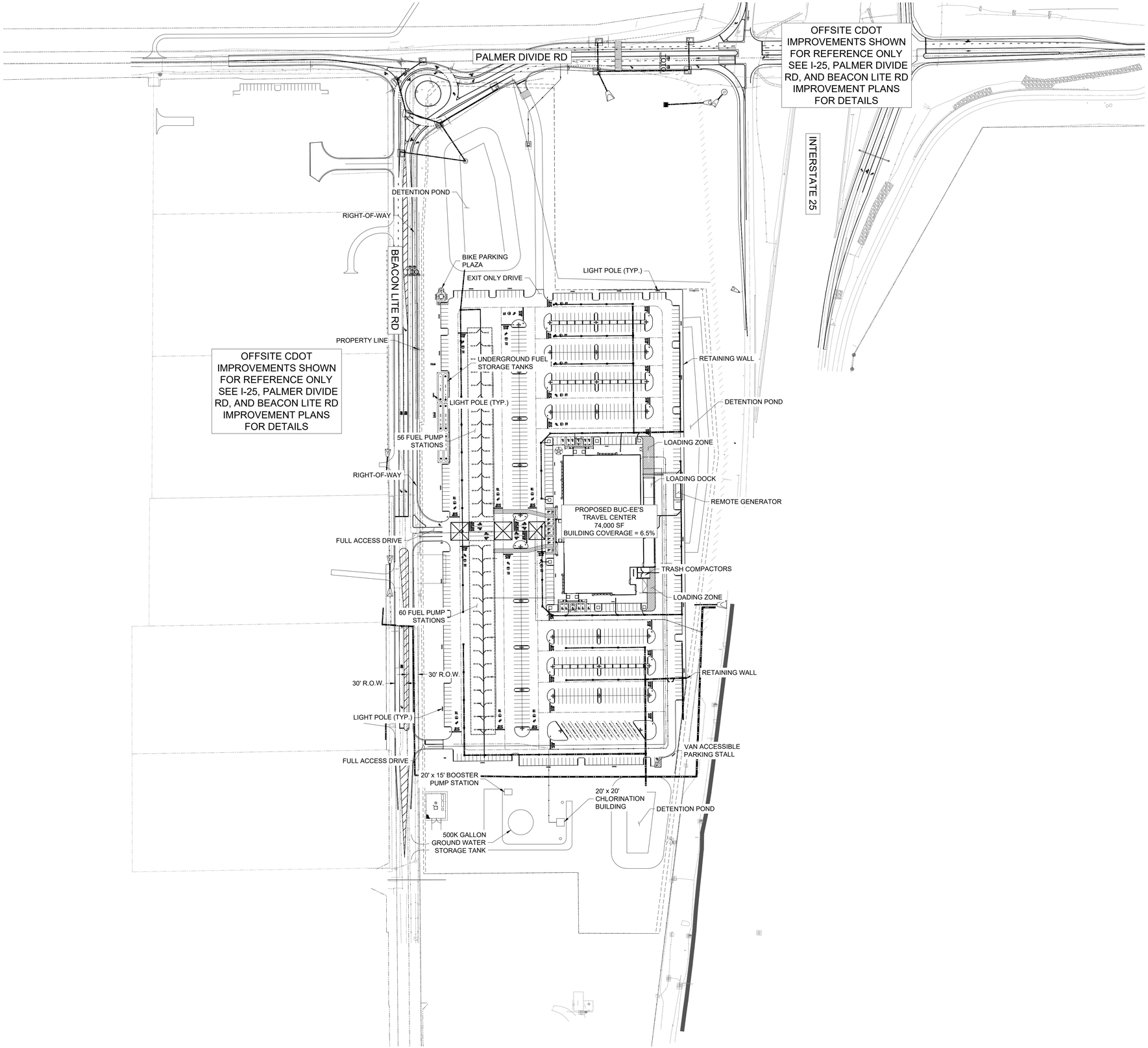
- Any onsite or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the El Paso County, CDOT, and the Manual on Uniform Traffic Control Devices (MUTCD) – 11th Edition, 2023.



APPENDICES

APPENDIX A

Conceptual Site Plan



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- BUILDING SETBACK
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- LANDSCAPE SETBACK
- FIRE LINE STRIPING
- DRIVE AISLE CENTERLINE
- WILDLIFE FENCE
- CONCRETE SIDEWALK
- SITE VEGETATION
- FUTURE EV CHARGING
- ACCESSIBLE PARKING SYMBOL
- GRATE INLET
- FIRE HYDRANT

GRAPHIC SCALE IN FEET
0 60 120 240

NORTH

Know what's below. Call before you dig.

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2026 KIMLEY-HORN AND ASSOCIATES, INC.
6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, COLORADO 80111
PHONE: (303) 228-2300

KHA PROJECT 196094001
DATE 3/2/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

OVERALL SITE DEVELOPMENT PLAN

EL PASO COUNTY TRAVEL CENTER

PREPARED FOR
BUC-EE'S, LTD.

COUNTY OF EL PASO COLORADO

SHEET NUMBER
2

C:\ACC\ACCDOCS\KIMLEY-HORN\BUC-EE'S PALMER LAKE\PROJECT FILES\CADD\PLANSHEETS\EL PASO - SDP
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.

APPENDIX B

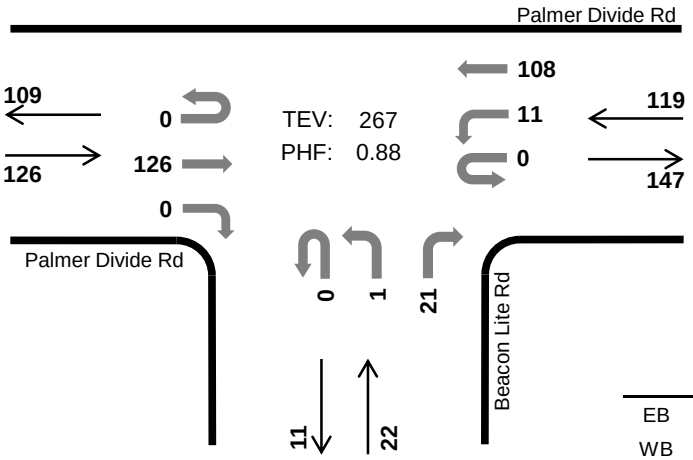
Intersection Count Sheets

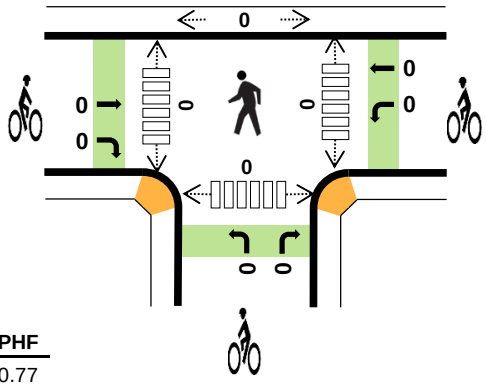
Beacon Lite Rd
Palmer Divide Rd

N

Peak Hour

Date: 05/08/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	0.0%	0.77
WB	4.2%	0.68
NB	0.0%	0.50
SB	-	-
TOTAL	1.9%	0.88

Two-Hour Count Summaries

Interval Start		Palmer Divide Rd Eastbound				Palmer Divide Rd Westbound				Beacon Lite Rd Northbound				n/a Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	22	0	0	1	16	0	0	0	0	6	0	0	0	0	45	0
7:15 AM		**0**	**0**	**41**	**0**	**0**	**1**	**20**	**0**	**0**	**1**	**0**	**10**	**0**	**0**	**0**	**0**	**73**	0
7:30 AM		**0**	**0**	**41**	**0**	**0**	**3**	**26**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**76**	0
7:45 AM		**0**	**0**	**23**	**0**	**0**	**4**	**40**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**71**	265
8:00 AM		**0**	**0**	**21**	**0**	**0**	**3**	**22**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**47**	**267**
8:15 AM		0	0	22	1	0	4	25	0	0	0	0	9	0	0	0	0	61	255
8:30 AM		0	0	17	3	0	3	26	0	0	0	0	3	0	0	0	0	52	231
8:45 AM		0	0	29	1	0	5	17	0	0	0	0	12	0	0	0	0	64	224
Count Total		0	0	216	5	0	24	192	0	0	1	0	51	0	0	0	0	489	0
Peak Hour	**All**	**0**	**0**	**126**	**0**	**0**	**11**	**108**	**0**	**0**	**1**	**0**	**21**	**0**	**0**	**0**	**0**	**267**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**
	HV%	**-**	**-**	**0%**	**-**	**-**	**0%**	**5%**	**-**	**-**	**0%**	**-**	**0%**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	3	0	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	1	1	1	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	3	0	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	7	6	1	0	*14*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**0**	**5**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Palmer Divide Rd				Palmer Divide Rd				Beacon Lite Rd				n/a				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	4
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**
8:15 AM	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	7
8:30 AM	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	3	10
8:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	10
Count Total	0	0	6	1	0	0	6	0	0	0	0	1	0	0	0	0	14	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Palmer Divide Rd			Palmer Divide Rd			Beacon Lite Rd			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

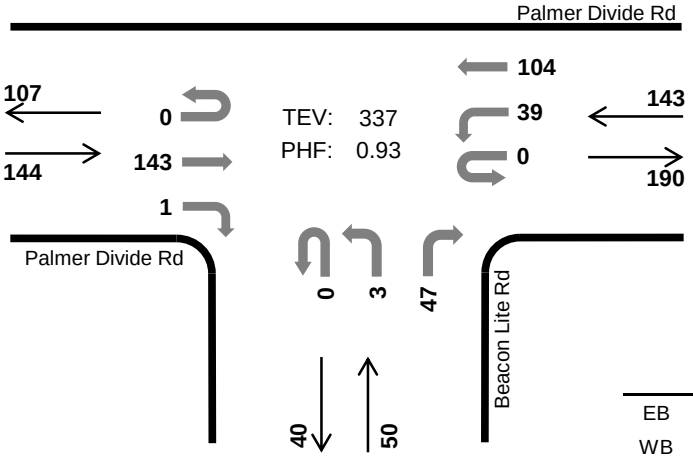
TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

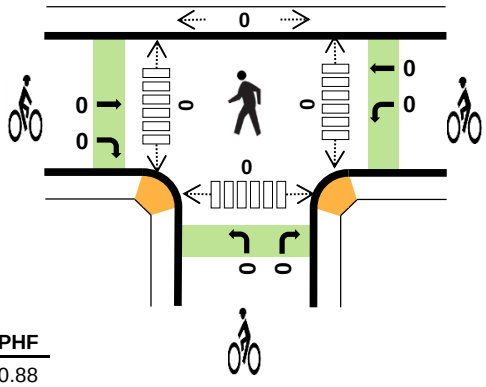
Beacon Lite Rd
Palmer Divide Rd

N

Peak Hour

Date: 05/08/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	4.2%	0.88
WB	1.4%	0.89
NB	4.0%	0.78
SB	-	-
TOTAL	3.0%	0.93

Two-Hour Count Summaries

Interval Start		Palmer Divide Rd Eastbound				Palmer Divide Rd Westbound				Beacon Lite Rd Northbound				n/a Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		**0**	**0**	**36**	**0**	**0**	**10**	**28**	**0**	**0**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**87**	0
4:15 PM		**0**	**0**	**35**	**1**	**0**	**13**	**27**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**85**	0
4:30 PM		**0**	**0**	**41**	**0**	**0**	**5**	**29**	**0**	**0**	**1**	**0**	**15**	**0**	**0**	**0**	**0**	**91**	0
4:45 PM		**0**	**0**	**31**	**0**	**0**	**11**	**20**	**0**	**0**	**2**	**0**	**10**	**0**	**0**	**0**	**0**	**74**	**337**
5:00 PM		0	0	32	4	0	4	23	0	0	0	0	8	0	0	0	0	71	321
5:15 PM		0	0	31	0	0	9	25	0	0	0	0	3	0	0	0	0	68	304
5:30 PM		0	0	26	0	0	10	18	0	0	1	0	6	0	0	0	0	61	274
5:45 PM		0	0	32	3	0	12	27	0	0	0	0	13	0	0	0	0	87	287
Count Total		0	0	264	8	0	74	197	0	0	4	0	77	0	0	0	0	624	0
Peak Hour	**All**	**0**	**0**	**143**	**1**	**0**	**39**	**104**	**0**	**0**	**3**	**0**	**47**	**0**	**0**	**0**	**0**	**337**	**0**
	HV	**0**	**0**	**5**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**10**	**0**
	HV%	**-**	**-**	**3%**	**100%**	**-**	**3%**	**1%**	**-**	**-**	**0%**	**-**	**4%**	**-**	**-**	**-**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:15 PM	**1**	**0**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**4**	**1**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	3	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	7	9	2	0	*18*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**6**	**2**	**2**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Palmer Divide Rd				Palmer Divide Rd				Beacon Lite Rd				n/a				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
4:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	0
4:30 PM	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**10**
5:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	10
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	9
5:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	6
5:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	8
Count Total	0	0	6	1	0	2	7	0	0	0	0	2	0	0	0	0	18	0
Peak Hour	**0**	**0**	**5**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**10**	**0**

Two-Hour Count Summaries - Bikes

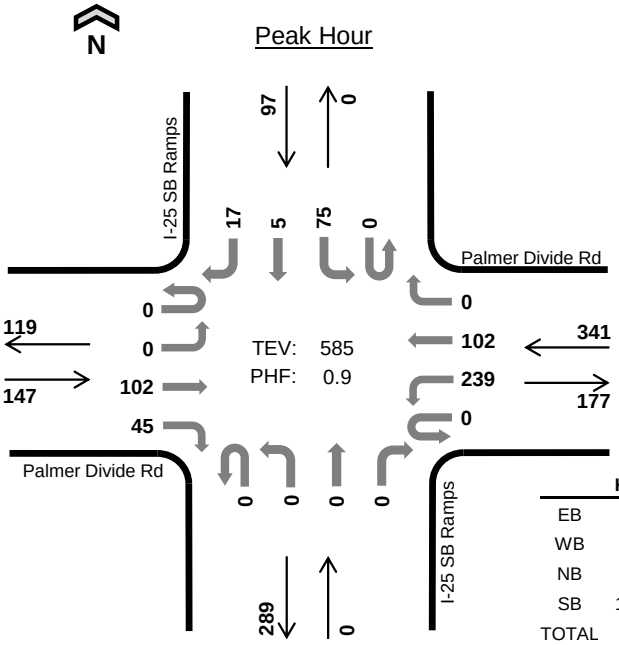
Interval Start	Palmer Divide Rd			Palmer Divide Rd			Beacon Lite Rd			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

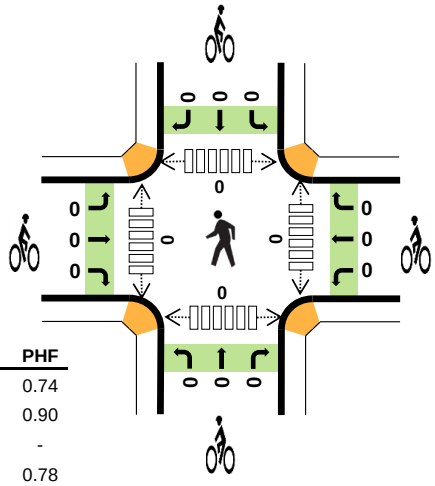
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

I-25 SB Ramps
Palmer Divide Rd

Date: 05/08/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	0.0%	0.74
WB	0.6%	0.90
NB	-	-
SB	13.4%	0.78
TOTAL	2.6%	0.90

Two-Hour Count Summaries

Interval Start	Palmer Divide Rd Eastbound				Palmer Divide Rd Westbound				I-25 SB Ramps Northbound				I-25 SB Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	20	9	0	46	16	0	0	0	0	0	0	20	1	1	113	0
7:15 AM	**0**	**0**	**43**	**7**	**0**	**54**	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**2**	**1**	**151**	0
7:30 AM	**0**	**0**	**29**	**19**	**0**	**61**	**28**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	**1**	**3**	**162**	0
7:45 AM	**0**	**0**	**18**	**9**	**0**	**64**	**31**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**1**	**11**	**153**	579
8:00 AM	**0**	**0**	**12**	**10**	**0**	**60**	**23**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**1**	**2**	**119**	**585**
8:15 AM	0	0	16	14	0	52	21	0	0	0	0	0	0	16	0	8	127	561
8:30 AM	0	0	11	10	0	48	27	0	0	0	0	0	0	11	1	1	109	508
8:45 AM	0	0	28	13	0	27	18	0	0	0	0	0	0	20	2	4	112	467
Count Total	0	0	177	91	0	412	184	0	0	0	0	0	0	142	9	31	1,046	0
Peak Hour All	**0**	**0**	**102**	**45**	**0**	**239**	**102**	**0**	**0**	**0**	**0**	**0**	**0**	**75**	**5**	**17**	**585**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**2**	**4**	**15**	**0**
Peak Hour HV%	**-**	**-**	**0%**	**0%**	**-**	**0%**	**1%**	**-**	**-**	**-**	**-**	**-**	**-**	**9%**	**40%**	**24%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**0**	**1**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**0**	**0**	**0**	**3**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**1**	**0**	**7**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	2	1	0	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	2	2	0	3	*7*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	3	1	0	2	*6*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	7	6	0	20	*33*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**0**	**2**	**0**	**13**	***15***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Palmer Divide Rd				Palmer Divide Rd				I-25 SB Ramps				I-25 SB Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**3**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**3**	**8**	14
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**2**	**15**
8:15 AM	0	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	4	17
8:30 AM	0	0	2	0	0	1	1	0	0	0	0	0	0	2	1	0	7	21
8:45 AM	0	0	3	0	0	1	0	0	0	0	0	0	0	2	0	0	6	19
Count Total	0	0	6	1	0	4	2	0	0	0	0	0	0	12	4	4	33	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**2**	**4**	**15**	**0**

Two-Hour Count Summaries - Bikes

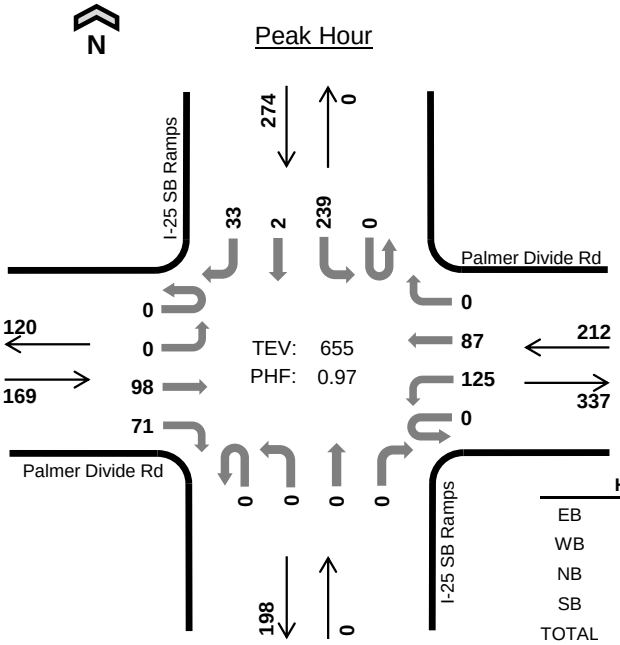
Interval Start	Palmer Divide Rd			Palmer Divide Rd			I-25 SB Ramps			I-25 SB Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

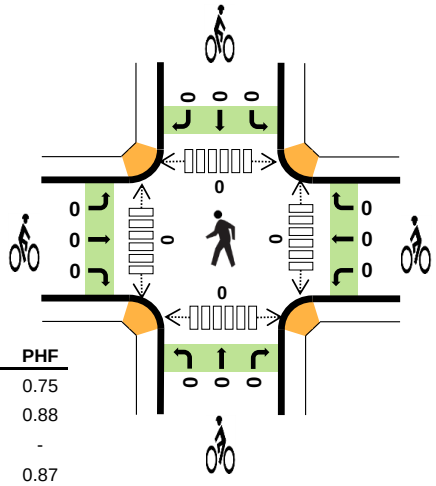
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

I-25 SB Ramps
Palmer Divide Rd

Date: 05/08/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	3.0%	0.75
WB	3.3%	0.88
NB	-	-
SB	2.2%	0.87
TOTAL	2.7%	0.97

Two-Hour Count Summaries

Interval Start	Palmer Divide Rd Eastbound				Palmer Divide Rd Westbound				I-25 SB Ramps Northbound				I-25 SB Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	32	18	0	23	27	0	0	0	0	0	0	61	2	10	173	0
4:15 PM	0	0	29	17	0	26	36	0	0	0	0	0	0	40	1	8	157	0
4:30 PM	**0**	**0**	**35**	**21**	**0**	**33**	**23**	**0**	**0**	**0**	**0**	**0**	**0**	**45**	**1**	**8**	**166**	0
4:45 PM	**0**	**0**	**20**	**20**	**0**	**26**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**63**	**0**	**16**	**158**	654
5:00 PM	**0**	**0**	**28**	**12**	**0**	**39**	**21**	**0**	**0**	**0**	**0**	**0**	**0**	**62**	**0**	**6**	**168**	649
5:15 PM	**0**	**0**	**15**	**18**	**0**	**27**	**30**	**0**	**0**	**0**	**0**	**0**	**0**	**69**	**1**	**3**	**163**	**655**
5:30 PM	0	0	15	17	0	34	22	0	0	0	0	0	0	54	3	8	153	642
5:45 PM	0	0	29	16	0	23	31	0	0	0	0	0	0	48	1	10	158	642
Count Total	0	0	203	139	0	231	203	0	0	0	0	0	0	442	9	69	1,296	0
Peak Hour All	**0**	**0**	**98**	**71**	**0**	**125**	**87**	**0**	**0**	**0**	**0**	**0**	**0**	**239**	**2**	**33**	**655**	**0**
Peak Hour HV	**0**	**0**	**5**	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**2**	**18**	**0**
Peak Hour HV%	**-**	**-**	**5%**	**0%**	**-**	**5%**	**1%**	**-**	**-**	**-**	**-**	**-**	**-**	**2%**	**0%**	**6%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	0	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	1	2	0	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**4**	**0**	**0**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**3**	**0**	**3**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**2**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	1	5	0	1	*7*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	3	0	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	8	17	0	11	*36*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**5**	**7**	**0**	**6**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Palmer Divide Rd				Palmer Divide Rd				I-25 SB Ramps				I-25 SB Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0
4:15 PM	0	0	0	1	0	2	0	0	0	0	0	0	0	1	0	0	4	0
4:30 PM	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**6**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	15
5:00 PM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**6**	19
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**18**
5:30 PM	0	0	1	0	0	4	1	0	0	0	0	0	0	0	1	0	7	19
5:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	1	5	21
Count Total	0	0	6	2	0	12	5	0	0	0	0	0	0	5	2	4	36	0
Peak Hour	**0**	**0**	**5**	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**2**	**18**	**0**

Two-Hour Count Summaries - Bikes

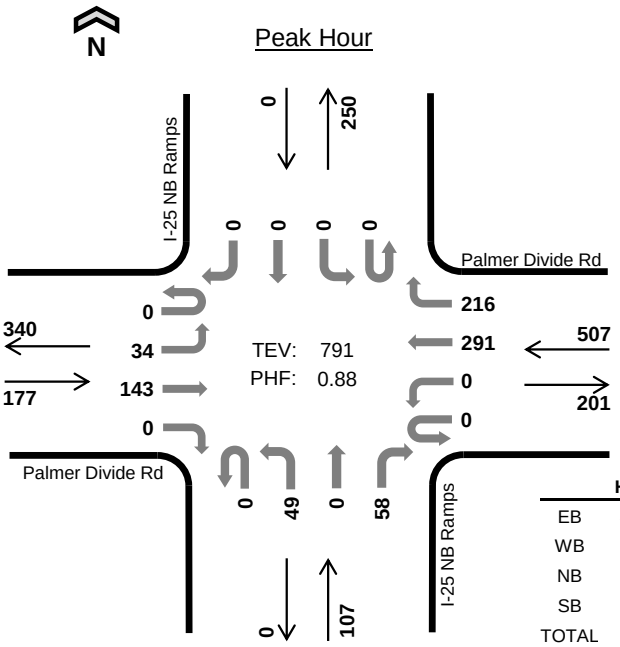
Interval Start	Palmer Divide Rd			Palmer Divide Rd			I-25 SB Ramps			I-25 SB Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

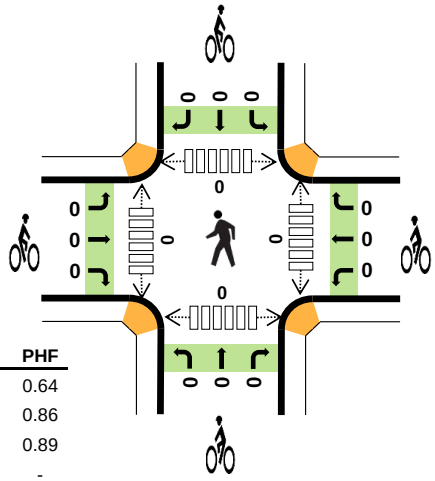
TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

I-25 NB Ramps
Palmer Divide Rd

Date: 05/08/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	4.5%	0.64
WB	1.2%	0.86
NB	3.7%	0.89
SB	-	-
TOTAL	2.3%	0.88



Two-Hour Count Summaries

Interval Start	Palmer Divide Rd Eastbound				Palmer Divide Rd Westbound				I-25 NB Ramps Northbound				I-25 NB Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	11	30	0	0	0	59	52	0	3	2	8	0	0	0	0	165	0
7:15 AM	**0**	**11**	**58**	**0**	**0**	**0**	**66**	**57**	**0**	**10**	**0**	**13**	**0**	**0**	**0**	**0**	**215**	0
7:30 AM	**0**	**8**	**42**	**0**	**0**	**0**	**75**	**72**	**0**	**11**	**0**	**17**	**0**	**0**	**0**	**0**	**225**	0
7:45 AM	**0**	**9**	**25**	**0**	**0**	**0**	**78**	**37**	**0**	**15**	**0**	**11**	**0**	**0**	**0**	**0**	**175**	780
8:00 AM	**0**	**6**	**18**	**0**	**0**	**0**	**72**	**50**	**0**	**13**	**0**	**17**	**0**	**0**	**0**	**0**	**176**	**791**
8:15 AM	0	10	22	0	0	0	62	47	0	11	1	13	0	0	0	0	166	742
8:30 AM	0	5	17	0	0	0	58	47	0	16	0	22	0	0	0	0	165	682
8:45 AM	0	14	34	0	0	0	36	32	0	10	2	22	0	0	0	0	150	657
Count Total	0	74	246	0	0	0	506	394	0	89	5	123	0	0	0	0	1,437	0
Peak Hour All	**0**	**34**	**143**	**0**	**0**	**0**	**291**	**216**	**0**	**49**	**0**	**58**	**0**	**0**	**0**	**0**	**791**	**0**
Peak Hour HV	**0**	**0**	**8**	**0**	**0**	**0**	**2**	**4**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**18**	**0**
Peak Hour HV%	**-**	**0%**	**6%**	**-**	**-**	**-**	**1%**	**2%**	**-**	**0%**	**-**	**7%**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	0	2	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**4**	**4**	**2**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**2**	**2**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**2**	**0**	**1**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	2	3	2	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	4	4	3	0	*11*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	3	1	0	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	18	14	11	0	*43*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**8**	**6**	**4**	**0**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Palmer Divide Rd				Palmer Divide Rd				I-25 NB Ramps				I-25 NB Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
7:30 AM	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**10**	0
7:45 AM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	18
8:00 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**18**
8:15 AM	0	1	1	0	0	0	0	3	0	0	1	1	0	0	0	0	7	24
8:30 AM	0	1	3	0	0	0	1	3	0	2	0	1	0	0	0	0	11	25
8:45 AM	0	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	4	25
Count Total	0	4	14	0	0	0	4	10	0	2	1	8	0	0	0	0	43	0
Peak Hour	**0**	**0**	**8**	**0**	**0**	**0**	**2**	**4**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**18**	**0**

Two-Hour Count Summaries - Bikes

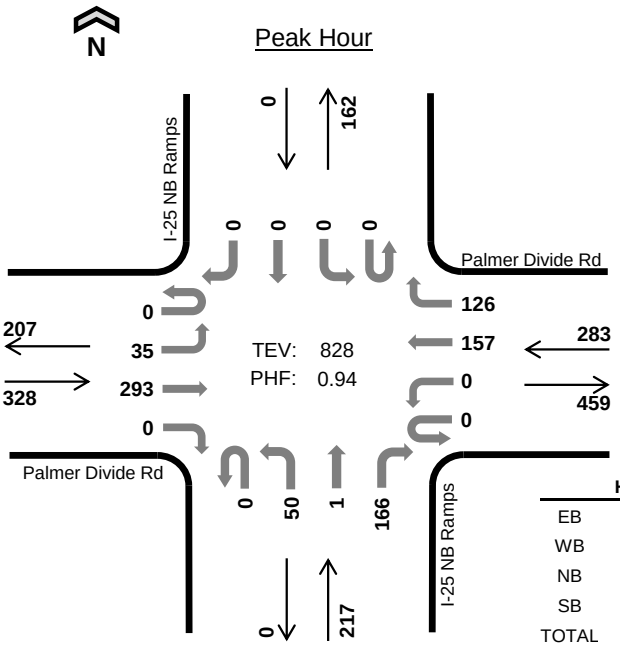
Interval Start	Palmer Divide Rd			Palmer Divide Rd			I-25 NB Ramps			I-25 NB Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

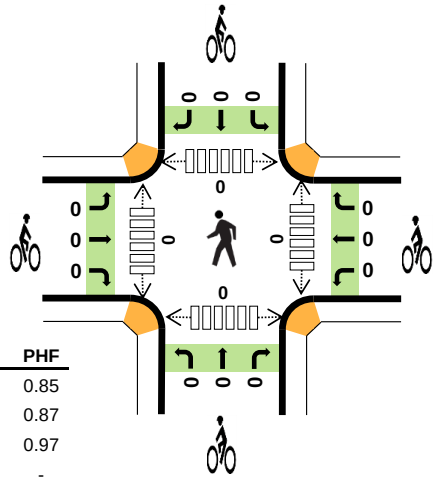
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

I-25 NB Ramps
Palmer Divide Rd

Date: 05/08/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	2.4%	0.85
WB	1.8%	0.87
NB	0.5%	0.97
SB	-	-
TOTAL	1.7%	0.94

Two-Hour Count Summaries

Interval Start	Palmer Divide Rd Eastbound				Palmer Divide Rd Westbound				I-25 NB Ramps Northbound				I-25 NB Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**8**	**89**	**0**	**0**	**0**	**40**	**30**	**0**	**12**	**1**	**41**	**0**	**0**	**0**	**0**	**221**	0
4:15 PM	**0**	**9**	**61**	**0**	**0**	**0**	**45**	**36**	**0**	**16**	**0**	**40**	**0**	**0**	**0**	**0**	**207**	0
4:30 PM	**0**	**7**	**70**	**0**	**0**	**0**	**40**	**35**	**0**	**15**	**0**	**37**	**0**	**0**	**0**	**0**	**204**	0
4:45 PM	**0**	**11**	**73**	**0**	**0**	**0**	**32**	**25**	**0**	**7**	**0**	**48**	**0**	**0**	**0**	**0**	**196**	**828**
5:00 PM	0	11	79	0	0	0	52	27	0	10	1	34	0	0	0	0	214	821
5:15 PM	0	5	80	0	0	0	46	20	0	8	1	40	0	0	0	0	200	814
5:30 PM	0	3	63	0	0	0	43	27	0	13	1	32	0	0	0	0	182	792
5:45 PM	0	7	70	0	0	0	40	22	0	15	0	41	0	0	0	0	195	791
Count Total	0	61	585	0	0	0	338	222	0	96	4	313	0	0	0	0	1,619	0
Peak Hour All	**0**	**35**	**293**	**0**	**0**	**0**	**157**	**126**	**0**	**50**	**1**	**166**	**0**	**0**	**0**	**0**	**828**	**0**
Peak Hour HV	**0**	**4**	**4**	**0**	**0**	**0**	**3**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**
Peak Hour HV%	**-**	**11%**	**1%**	**-**	**-**	**-**	**2%**	**2%**	**-**	**2%**	**0%**	**0%**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:15 PM	**2**	**3**	**1**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**4**	**0**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**2**	**2**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	1	6	1	0	*8*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	1	2	1	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	1	1	5	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	2	1	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	11	16	9	0	*36*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**8**	**5**	**1**	**0**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Palmer Divide Rd				Palmer Divide Rd				I-25 NB Ramps				I-25 NB Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	0
4:30 PM	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	0
4:45 PM	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**14**
5:00 PM	0	0	1	0	0	0	3	3	0	0	1	0	0	0	0	0	8	22
5:15 PM	0	0	1	0	0	0	2	0	0	0	1	0	0	0	0	0	4	20
5:30 PM	0	0	1	0	0	0	1	0	0	4	1	0	0	0	0	0	7	23
5:45 PM	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	3	22
Count Total	0	4	7	0	0	0	11	5	0	6	3	0	0	0	0	0	36	0
Peak Hour	**0**	**4**	**4**	**0**	**0**	**0**	**3**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**

Two-Hour Count Summaries - Bikes

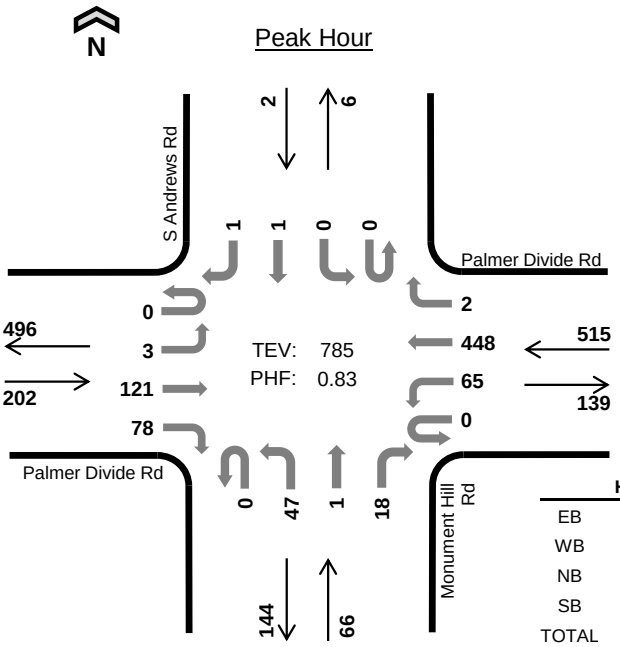
Interval Start	Palmer Divide Rd			Palmer Divide Rd			I-25 NB Ramps			I-25 NB Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

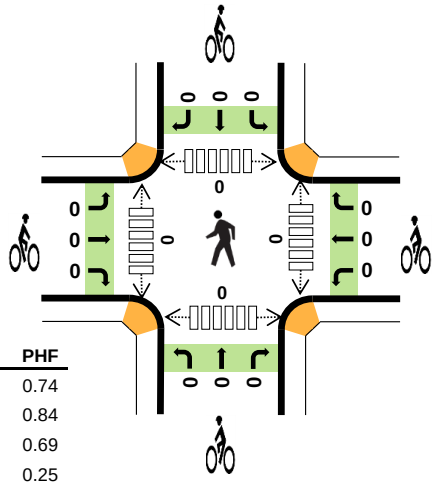
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Monument Hill Rd
Palmer Divide Rd

Date: 05/08/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM





	HV %:	PHF
EB	5.4%	0.74
WB	1.2%	0.84
NB	0.0%	0.69
SB	0.0%	0.25
TOTAL	2.2%	0.83

Two-Hour Count Summaries

Interval Start	Palmer Divide Rd Eastbound				Palmer Divide Rd Westbound				Monument Hill Rd Northbound				S Andrews Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**19**	**18**	**0**	**14**	**99**	**0**	**0**	**16**	**0**	**1**	**0**	**0**	**0**	**0**	**167**	0
7:15 AM	**0**	**0**	**36**	**32**	**0**	**25**	**111**	**0**	**0**	**10**	**1**	**7**	**0**	**0**	**0**	**0**	**222**	0
7:30 AM	**0**	**1**	**36**	**21**	**0**	**22**	**131**	**1**	**0**	**16**	**0**	**8**	**0**	**0**	**0**	**0**	**236**	0
7:45 AM	**0**	**2**	**30**	**7**	**0**	**4**	**107**	**1**	**0**	**5**	**0**	**2**	**0**	**0**	**1**	**1**	**160**	**785**
8:00 AM	0	0	29	4	0	3	112	0	0	9	0	1	0	1	0	2	161	779
8:15 AM	0	1	28	6	0	2	104	0	0	5	0	2	0	0	0	0	148	705
8:30 AM	0	1	36	4	0	4	94	0	0	8	0	2	0	0	0	1	150	619
8:45 AM	0	1	48	8	0	5	61	0	0	6	0	3	0	0	0	2	134	593
Count Total	0	6	262	100	0	79	819	2	0	75	1	26	0	1	1	6	1,378	0
Peak Hour All	**0**	**3**	**121**	**78**	**0**	**65**	**448**	**2**	**0**	**47**	**1**	**18**	**0**	**0**	**1**	**1**	**785**	**0**
Peak Hour HV	**0**	**0**	**11**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**
Peak Hour HV%	**-**	**0%**	**9%**	**0%**	**-**	**0%**	**1%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**-**	**0%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**6**	**4**	**0**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**3**	**2**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	3	0	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	2	3	0	0	*5*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	4	2	2	0	*8*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	2	1	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	22	12	2	0	*36*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**11**	**6**	**0**	**0**	***17***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Palmer Divide Rd				Palmer Divide Rd				Monument Hill Rd				S Andrews Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:30 AM	**0**	**0**	**6**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	0
7:45 AM	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**17**
8:00 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	19
8:15 AM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5	23
8:30 AM	0	0	4	0	0	0	2	0	0	2	0	0	0	0	0	0	8	21
8:45 AM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	3	19
Count Total	0	0	21	1	0	0	12	0	0	2	0	0	0	0	0	0	36	0
Peak Hour	**0**	**0**	**11**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**

Two-Hour Count Summaries - Bikes

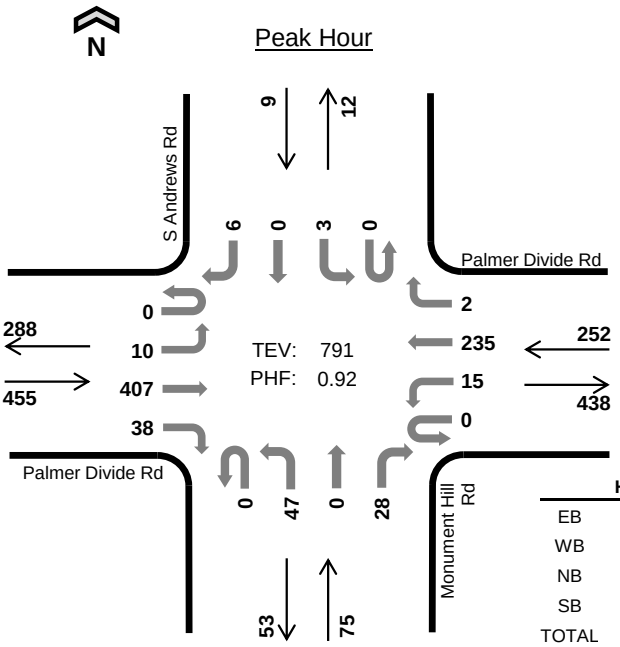
Interval Start	Palmer Divide Rd			Palmer Divide Rd			Monument Hill Rd			S Andrews Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

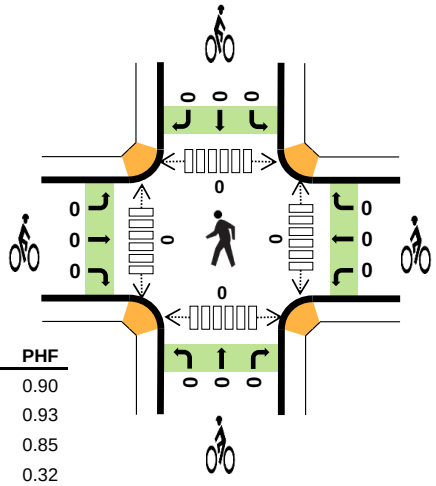
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Monument Hill Rd
Palmer Divide Rd

Date: 05/08/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	0.9%	0.90
WB	2.0%	0.93
NB	1.3%	0.85
SB	0.0%	0.32
TOTAL	1.3%	0.92

Two-Hour Count Summaries

Interval Start	Palmer Divide Rd Eastbound				Palmer Divide Rd Westbound				Monument Hill Rd Northbound				S Andrews Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**1**	**113**	**12**	**0**	**3**	**62**	**0**	**0**	**11**	**0**	**10**	**0**	**0**	**0**	**2**	**214**	0
4:15 PM	**0**	**4**	**88**	**9**	**0**	**8**	**60**	**0**	**0**	**17**	**0**	**5**	**0**	**0**	**0**	**0**	**191**	0
4:30 PM	**0**	**1**	**98**	**8**	**0**	**0**	**61**	**2**	**0**	**11**	**0**	**6**	**0**	**0**	**0**	**0**	**187**	0
4:45 PM	**0**	**4**	**108**	**9**	**0**	**4**	**52**	**0**	**0**	**8**	**0**	**7**	**0**	**3**	**0**	**4**	**199**	**791**
5:00 PM	0	2	104	9	0	2	68	0	0	4	0	4	0	1	0	4	198	775
5:15 PM	0	0	109	10	0	3	56	0	0	9	0	4	0	0	0	0	191	775
5:30 PM	0	1	90	7	0	1	59	0	0	8	0	7	0	1	0	1	175	763
5:45 PM	0	1	98	12	0	5	55	0	0	6	0	2	0	0	1	1	181	745
Count Total	0	14	808	76	0	26	473	2	0	74	0	45	0	5	1	12	1,536	0
Peak Hour All	**0**	**10**	**407**	**38**	**0**	**15**	**235**	**2**	**0**	**47**	**0**	**28**	**0**	**3**	**0**	**6**	**791**	**0**
Peak Hour HV	**0**	**0**	**2**	**2**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**10**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**5%**	**-**	**0%**	**2%**	**0%**	**-**	**0%**	**-**	**4%**	**-**	**0%**	**-**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:15 PM	**1**	**3**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	1	5	1	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	1	3	0	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	2	1	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	7	16	3	0	*26*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**4**	**5**	**1**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Palmer Divide Rd				Palmer Divide Rd				Monument Hill Rd				S Andrews Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
4:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	0
4:30 PM	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
4:45 PM	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**10**
5:00 PM	0	0	1	0	0	0	5	0	0	0	0	1	0	0	0	0	7	16
5:15 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	16
5:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	16
5:45 PM	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	3	16
Count Total	0	0	5	2	0	0	16	0	0	0	0	3	0	0	0	0	26	0
Peak Hour	**0**	**0**	**2**	**2**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**10**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Palmer Divide Rd			Palmer Divide Rd			Monument Hill Rd			S Andrews Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

TJ Wethington
720-646-1008
tj.wethington@idaxdata.com

APPENDIX C

Future Traffic Projections

MTCP Traffic Projections: Buc-ee's IH 25, Exit 163

Location	2015	2040	Growth Factor	Annual Growth
Beacon Lite Road	4,900	8,800	1.80	2.37%
Total	4,900	8,800	1.80	2.37%

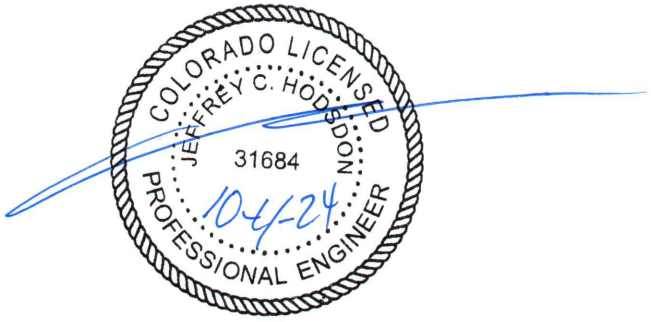
LSC TRANSPORTATION CONSULTANTS, INC.
2504 East Pikes Peak Avenue, Suite 304
Colorado Springs, CO 80909
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: http://www.lsctrans.com

Monument Ridge East
Traffic Impact Study

EPC PCD File Nos. SP 241, P245, P246
(LSC #S234450)
October 4, 2024

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.

_____ _____
Date

Monument Ridge East

Traffic Impact Study

Prepared for:
Monument Ridge East, LLC
5050 List Drive
Colorado Springs, CO 80919
<via email>

OCTOBER 4, 2024

LSC Transportation Consultants, Inc.
Prepared by: Jeffrey C. Hodsdon, P.E.

LSC #S234450

PCD File No.: P245

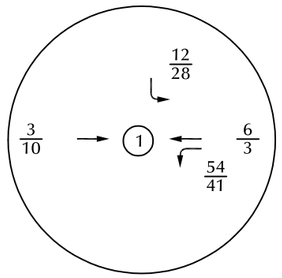


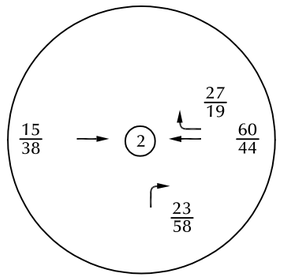
Figure 1

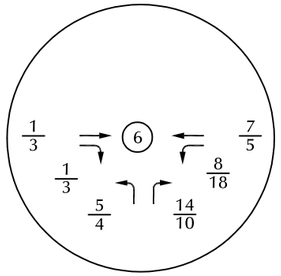
Vicinity

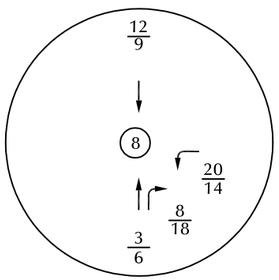
Monument Ridge East (LSC# S234450)

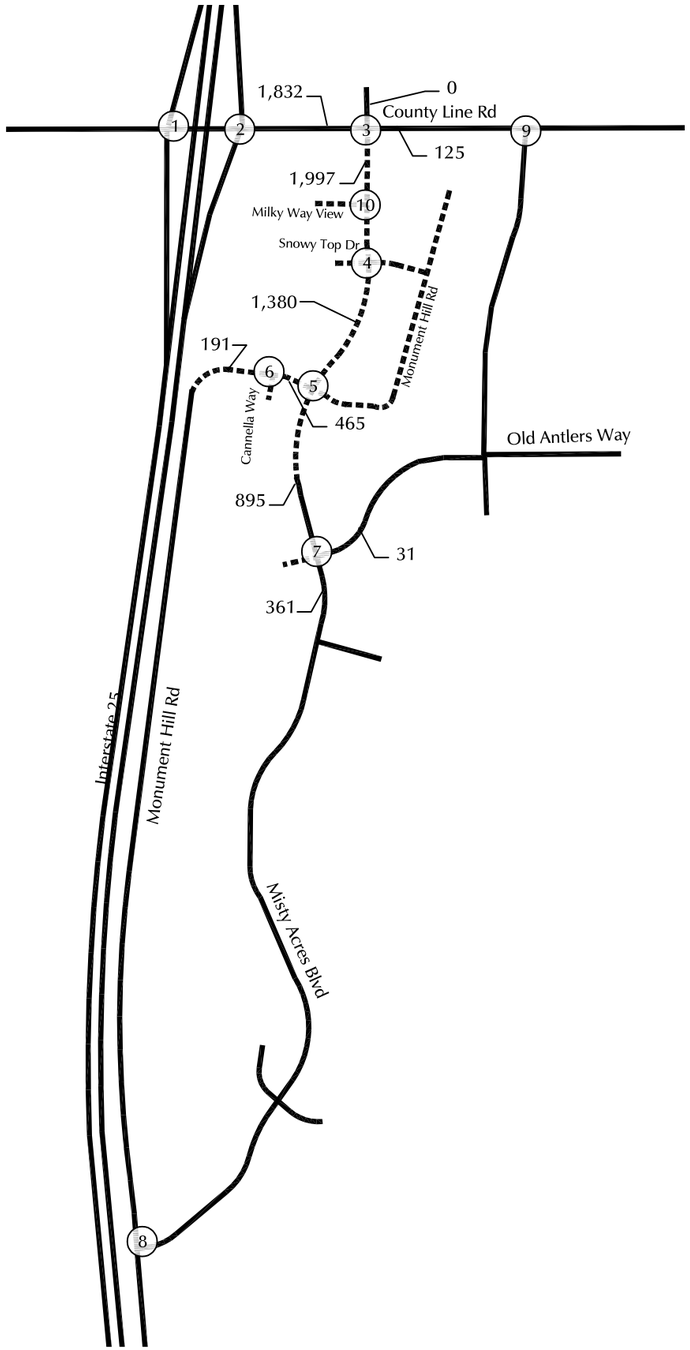
LSC TRANSPORTATION CONSULTANTS, INC.

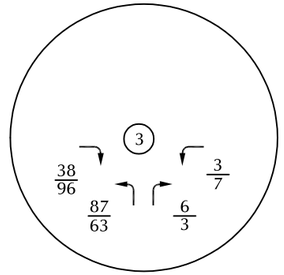


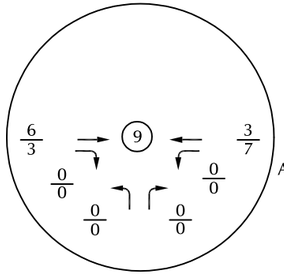


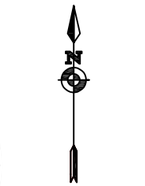


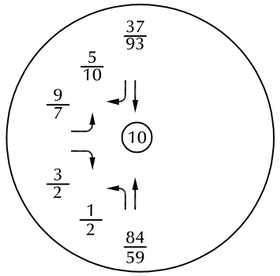


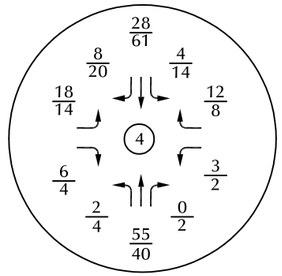


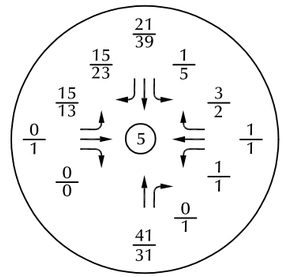


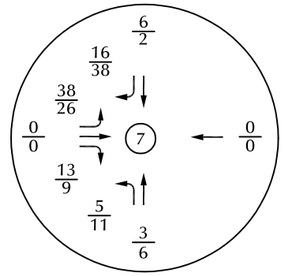












LEGEND:

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

X,XXX = Average Daily Traffic (vehicles per day)

Roadways (as shown on Figure 3)

Existing Roadway segments (to remain)

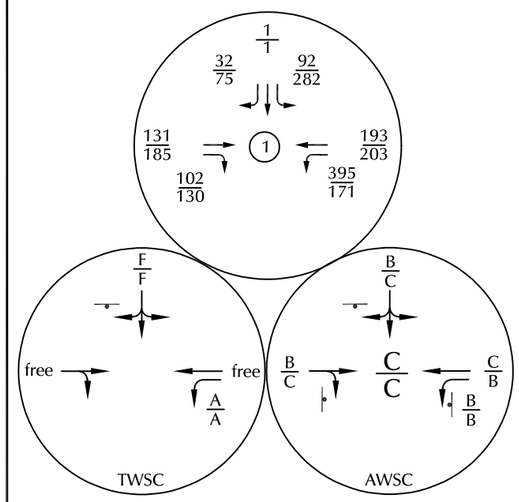
Proposed New Roadway Segments

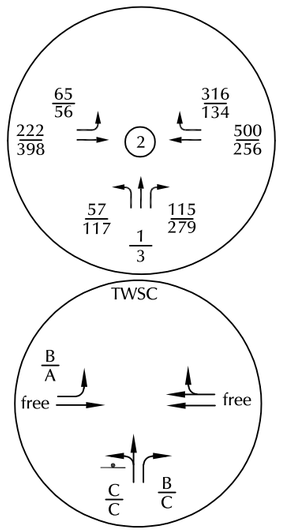
TRANSPORTATION CONSULTANTS, INC.

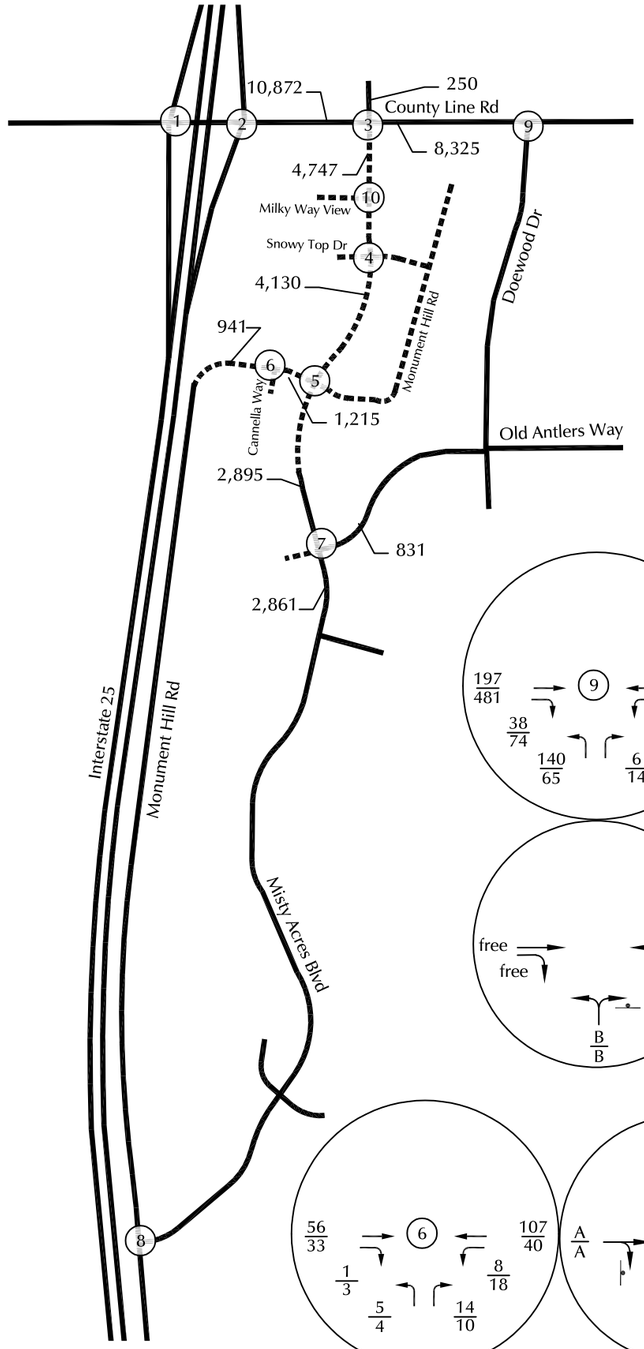
Figure 7

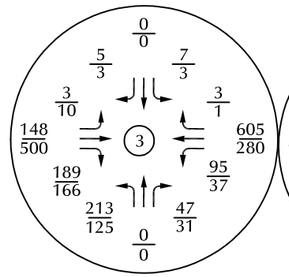
Site-Generated Traffic

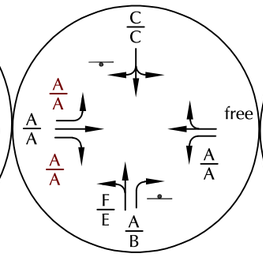
Monument Ridge East (LSC# S234450)

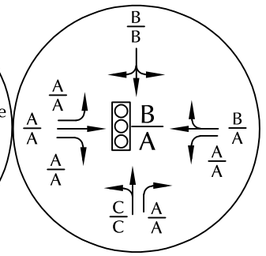


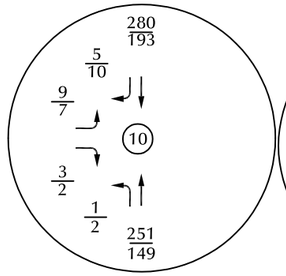


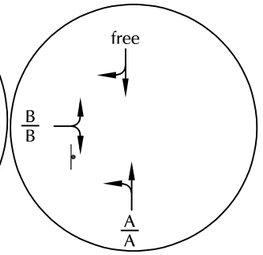


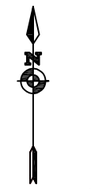




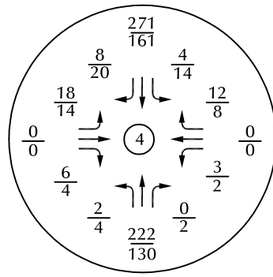


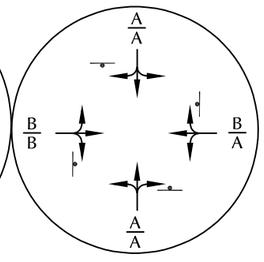


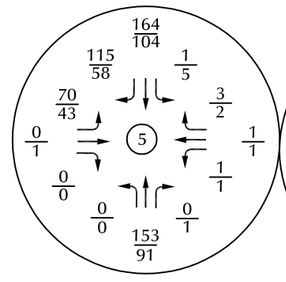


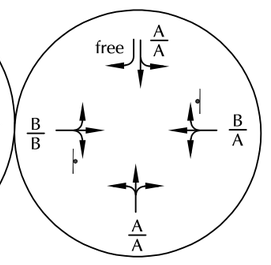


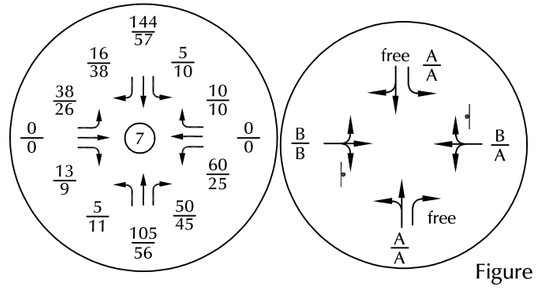
Approximate Scale
Scale: 1"= 3,000'

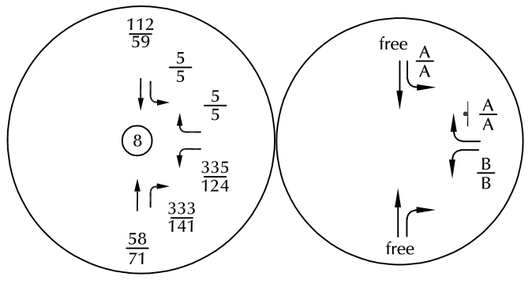












X,XXX = Average Daily Traffic (vehicles per day)

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

$\frac{X}{X}$ = $\frac{\text{AM Individual Movement Peak-Hour LOS}}{\text{PM Individual Movement Peak-Hour LOS}}$

$\frac{X}{X}$ = $\frac{\text{AM Entire Intersection Peak-Hour LOS}}{\text{PM Entire Intersection Peak-Hour LOS}}$

= Traffic Signal = Stop Sign

Roadways (as shown on Figure 3)

Existing Roadway segments (to remain)

Proposed New Roadway Segments

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 10

2044 Background + Site-Generated Traffic

Monument Ridge East (LSC# S234450)



Note: All turn lane lengths have been adjusted for roadway grade per ECM Table 2-25

1" = 100' scale

Figure 12

Proposed Laneage on County Line Rd

Monument Ridge East (LSC# S234450)





1" = 100'
scale

Figure 13

Proposed Laneage on Misty Acres Boulevard

Monument Ridge East (LSC# S234450)

APPENDIX D

Trip Generation Worksheets

							Weekday		Weekend	Weekday						
Site	Freeway AADT	Fuel Pumps	Latitude	Longitude	Open Date	Data Collected (Start) Date	Daily	% of AADT	Daily	Daily Rate	AM Rate	PM Rate	AM Enter %	AM Exit %	PM Enter %	PM Exit %
Calhoun, GA	66,000	120	34.440722	84.916833		7/16/2022	16,734	25%	24,520	139.45	7.21	9.79	53%	47%	50%	50%
Daytona Beach, FL	78,500	104	29.22379	81.10059		7/16/2023	22,945	29%	26,494	220.62	13.11	15.12	52%	48%	49%	51%
Leeds, AL	70,771	120	33.54452	86.58635		7/29/2022	17,444	25%	20,706	145.37	8.31	10.65	53%	47%	48%	52%
Loxley, AL	48,031	120	30.63444	87.67668		7/29/2022	17,550	37%	24,846	146.25	9.90	10.40	53%	47%	48%	52%
St Augustine, FL	101,500	104	29.98399	81.46386		7/16/2022	15,849	16%	19,351	152.39	9.67	10.65	52%	48%	49%	51%
Warner Robins, GA	75,300	116	32.58446	83.74033		7/16/2022	19,023	25%	25,637	163.99	9.29	11.45	53%	47%	48%	52%
Waller, TX	58,205	80	30.07198	95.93149		12/2/2015	24,314	42%	28,063	303.92	17.15	23.51	49%	51%	49%	51%
Texas City, TX	89,723	56	29.42856	95.06316		12/2/2015	20,364	23%	29,815	363.64	14.33	35.60	50%	50%	50%	50%
Baytown, TX	86,271	96	29.80095	94.99811		12/2/2015	19,095	22%	20,887	198.91	10.57	14.51	50%	50%	50%	50%
Terrell, TX	70,069	84	32.71731	96.31956		12/2/2015	14,789	21%	18,780	176.06	9.13	14.52	52%	48%	51%	49%
Luling, TX	36,657	64	29.65126	97.59244		12/2/2015	11,484	31%	16,625	179.44	11.65	12.79	53%	47%	51%	49%
New Braunfels, TX	99,816	120	29.72654	98.07826		12/2/2015	16,805	17%	26,775	56.87	3.08	4.46	61%	39%	61%	39%
Madisonville, TX	41,055	64	30.96617	95.88165		12/2/2015	16,786	41%	24,889	262.28	14.67	18.60	52%	48%	52%	48%
Fort Worth, TX	68,914	96	33.02445	97.27791		12/2/2015	13,251	19%	16,772	138.03	8.92	9.05	51%	49%	49%	51%
Katy, TX	109,000	124	29.78112	95.8421		12/2/2015	15,068	14%	13,482	121.52	7.47	8.82	49%	51%	47%	53%
All Sites Average	73,321	98					17,433	26%	22509	184.58	10.30	13.99	52%	48%	50%	50%
TX Sites Average	73,301	87					16,884	26%	21788	200.07	10.77	15.76	52%	48%	51%	49%
SE Sites Average	73,350	114					18,258	26%	23592	161.35	9.58	11.34	53%	47%	49%	51%
AL/GA Sites Average	65,026	119					17,688	28%	23,927	148.77	8.68	10.57	53%	47%	49%	52%

Oak Grove Trips	AADT*	Fuel Pumps		Daily	AM Total	PM Total	AM IN	AM OUT	PM IN	PM OUT
All Sites Average	75,000	120	19,500	22,150	1,236	1,679	643	593	840	840
TX Sites Average	75,000	120	19,500	24,008	1,292	1,891				
SE Sites Average	75,000	120	19,500	19,362	1,150	1,361				
AL/GA Sites Rates	40,200	120	11,256	17,852	1,042	1,268				

APPENDIX E

Intersection Analysis Worksheets

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	126	0	11	108	1	21
Future Vol, veh/h	126	0	11	108	1	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	143	0	13	123	1	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	143	0	292	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1427	-	699	905
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	879	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1427	-	692	905
Mov Cap-2 Maneuver	-	-	-	-	692	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	870	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	893	-	-	1427	-
HCM Lane V/C Ratio	0.028	-	-	0.009	-
HCM Control Delay (s)	9.1	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	143	1	39	104	3	47
Future Vol, veh/h	143	1	39	104	3	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	4	4	2	2	4	4
Mvmt Flow	154	1	42	112	3	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	155	0	351	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	4.12	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.218	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1425	-	642	886
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	832	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1425	-	622	886
Mov Cap-2 Maneuver	-	-	-	-	622	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	806	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	864	-	-	1425	-
HCM Lane V/C Ratio	0.062	-	-	0.029	-
HCM Control Delay (s)	9.4	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	141	0	12	125	1	23
Future Vol, veh/h	141	0	12	125	1	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	160	0	14	142	1	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	160	0	330	160
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	170	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1407	-	665	885
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	860	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1407	-	658	885
Mov Cap-2 Maneuver	-	-	-	-	658	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	851	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	872	-	-	1407	-
HCM Lane V/C Ratio	0.031	-	-	0.01	-
HCM Control Delay (s)	9.3	-	-	7.6	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	167	1	43	117	3	52
Future Vol, veh/h	167	1	43	117	3	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	4	4	2	2	4	4
Mvmt Flow	180	1	46	126	3	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	181	0	399	181
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	-	-	4.12	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.218	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1394	-	603	857
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	814	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1394	-	583	857
Mov Cap-2 Maneuver	-	-	-	-	583	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	787	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	836	-	-	1394	-
HCM Lane V/C Ratio	0.071	-	-	0.033	-
HCM Control Delay (s)	9.6	-	-	7.7	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	20.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	141	19	626	125	19	347
Future Vol, veh/h	141	19	626	125	19	347
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	160	22	711	142	22	394

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	182	0	1735	171
Stage 1	-	-	-	-	171	-
Stage 2	-	-	-	-	1564	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1381	-	96	873
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	190	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	47	873
Mov Cap-2 Maneuver	-	-	-	-	47	-
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	92	-

Approach	EB	WB	NB
HCM Control Delay, s	0	8.6	52.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	457	-	-	1381	-
HCM Lane V/C Ratio	0.91	-	-	0.515	-
HCM Control Delay (s)	52.9	-	-	10.3	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	10.2	-	-	3.1	-

Intersection	
Int Delay, s/veh	183.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	167	26	845	117	28	447
Future Vol, veh/h	167	26	845	117	28	447
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	4	4	2	2	4	4
Mvmt Flow	180	28	909	126	30	481

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	208	0	2138	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	1944	-
Critical Hdwy	-	-	4.12	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.218	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1363	-	53	842
Stage 1	-	-	-	-	834	-
Stage 2	-	-	-	-	121	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1363	-	~ 18	842
Mov Cap-2 Maneuver	-	-	-	-	~ 18	-
Stage 1	-	-	-	-	834	-
Stage 2	-	-	-	-	40	-

Approach	EB	WB	NB
HCM Control Delay, s	0	11.2	$ 606.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	228	-	-	1363	-
HCM Lane V/C Ratio	2.24	-	-	0.667	-
HCM Control Delay (s)	$ 606.1	-	-	12.7	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	40.1	-	-	5.5	-

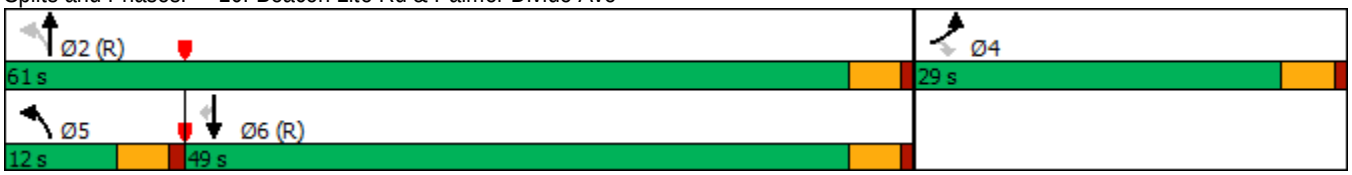
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

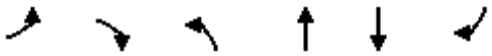
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	141	19	19	347	626	125
Future Volume (vph)	141	19	19	347	626	125
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	29.0	29.0	12.0	61.0	49.0	49.0
Total Split (%)	32.2%	32.2%	13.3%	67.8%	54.4%	54.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 10: Beacon Lite Rd & Palmer Divide Ave





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	141	19	19	347	626	125
Future Volume (veh/h)	141	19	19	347	626	125
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1841	1841
Adj Flow Rate, veh/h	160	22	22	394	711	142
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	4	4
Cap, veh/h	202	179	583	2796	2495	1113
Arrive On Green	0.11	0.11	0.02	0.79	1.00	1.00
Sat Flow, veh/h	1781	1585	1781	3647	3589	1560
Grp Volume(v), veh/h	160	22	22	394	711	142
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1749	1560
Q Serve(g_s), s	7.9	1.1	0.3	2.4	0.0	0.0
Cycle Q Clear(g_c), s	7.9	1.1	0.3	2.4	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	202	179	583	2796	2495	1113
V/C Ratio(X)	0.79	0.12	0.04	0.14	0.28	0.13
Avail Cap(c_a), veh/h	485	431	690	2796	2495	1113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.99	0.99	1.00	1.00
Uniform Delay (d), s/veh	38.9	35.9	2.7	2.3	0.0	0.0
Incr Delay (d2), s/veh	6.9	0.3	0.0	0.1	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	1.1	0.1	0.5	0.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.8	36.2	2.7	2.4	0.3	0.2
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	182			416	853	
Approach Delay, s/veh	44.6			2.4	0.3	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		75.3		14.7	6.6	68.7
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		56.5		24.5	7.5	44.5
Max Q Clear Time (g_c+I1), s		4.4		9.9	2.3	2.0
Green Ext Time (p_c), s		2.8		0.4	0.0	6.4

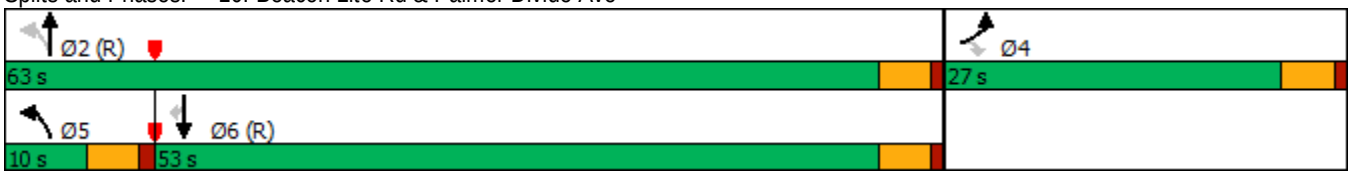
Intersection Summary	
HCM 6th Ctrl Delay	6.5
HCM 6th LOS	A

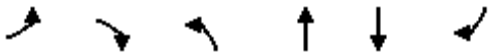
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	167	26	28	447	845	117
Future Volume (vph)	167	26	28	447	845	117
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	27.0	27.0	10.0	63.0	53.0	53.0
Total Split (%)	30.0%	30.0%	11.1%	70.0%	58.9%	58.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 10: Beacon Lite Rd & Palmer Divide Ave





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	167	26	28	447	845	117
Future Volume (veh/h)	167	26	28	447	845	117
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1841	1841
Adj Flow Rate, veh/h	190	30	32	508	960	133
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	4	4
Cap, veh/h	233	207	490	2734	2409	1074
Arrive On Green	0.13	0.13	0.03	0.77	1.00	1.00
Sat Flow, veh/h	1781	1585	1781	3647	3589	1560
Grp Volume(v), veh/h	190	30	32	508	960	133
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1749	1560
Q Serve(g_s), s	9.3	1.5	0.4	3.5	0.0	0.0
Cycle Q Clear(g_c), s	9.3	1.5	0.4	3.5	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	233	207	490	2734	2409	1074
V/C Ratio(X)	0.82	0.14	0.07	0.19	0.40	0.12
Avail Cap(c_a), veh/h	445	396	544	2734	2409	1074
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.99	0.99	1.00	1.00
Uniform Delay (d), s/veh	38.1	34.7	3.1	2.8	0.0	0.0
Incr Delay (d2), s/veh	6.9	0.3	0.1	0.1	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.4	0.1	0.8	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.9	35.0	3.1	2.9	0.5	0.2
LnGrp LOS	D	C	A	A	A	A
Approach Vol, veh/h	220			540	1093	
Approach Delay, s/veh	43.6			3.0	0.5	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		73.7		16.3	7.3	66.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		58.5		22.5	5.5	48.5
Max Q Clear Time (g_c+I1), s		5.5		11.3	2.4	2.0
Green Ext Time (p_c), s		3.7		0.5	0.0	9.5

Intersection Summary	
HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	5.6
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	1	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	182	416	853
Demand Flow Rate, veh/h	185	424	887
Vehicles Circulating, veh/h	739	163	22
Vehicles Exiting, veh/h	170	761	565
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.6	4.6	5.7
Approach LOS	A	A	A

Lane	Left	Left	Right	Left	Right
Designated Moves	LR	LT	TR	LT	TR
Assumed Moves	LR	LT	TR	LT	TR
RT Channelized					
Lane Util	1.000	0.469	0.531	0.470	0.530
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	185	199	225	417	470
Cap Entry Lane, veh/h	758	1162	1236	1323	1394
Entry HV Adj Factor	0.984	0.983	0.980	0.961	0.961
Flow Entry, veh/h	182	196	221	401	452
Cap Entry, veh/h	745	1142	1212	1271	1340
V/C Ratio	0.244	0.171	0.182	0.315	0.337
Control Delay, s/veh	7.6	4.7	4.5	5.7	5.7
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	2

Intersection	
Intersection Delay, s/veh	7.0
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	1	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	220	540	1093
Demand Flow Rate, veh/h	225	551	1136
Vehicles Circulating, veh/h	998	194	33
Vehicles Exiting, veh/h	171	1029	712
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	11.4	5.3	6.9
Approach LOS	B	A	A

Lane	Left	Left	Right	Left	Right
Designated Moves	LR	LT	TR	LT	TR
Assumed Moves	LR	LT	TR	LT	TR
RT Channelized					
Lane Util	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	225	259	292	534	602
Cap Entry Lane, veh/h	608	1129	1204	1309	1381
Entry HV Adj Factor	0.978	0.980	0.980	0.962	0.962
Flow Entry, veh/h	220	254	286	514	579
Cap Entry, veh/h	594	1106	1180	1259	1328
V/C Ratio	0.370	0.229	0.242	0.408	0.436
Control Delay, s/veh	11.4	5.4	5.2	6.9	7.0
LOS	B	A	A	A	A
95th %tile Queue, veh	2	1	1	2	2

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	209	0	18	183	2	34
Future Vol, veh/h	209	0	18	183	2	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	238	0	20	208	2	39

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	238	0	486	238
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	248	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1317	-	540	801
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	793	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1317	-	532	801
Mov Cap-2 Maneuver	-	-	-	-	532	-
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	781	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	779	-	-	1317	-
HCM Lane V/C Ratio	0.053	-	-	0.016	-
HCM Control Delay (s)	9.9	-	-	7.8	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	244	2	64	173	5	77
Future Vol, veh/h	244	2	64	173	5	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	4	4	2	2	4	4
Mvmt Flow	262	2	69	186	5	83

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	264	0	587	263
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	324	-
Critical Hdwy	-	-	4.12	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.218	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1300	-	469	771
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	729	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1300	-	444	771
Mov Cap-2 Maneuver	-	-	-	-	444	-
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	690	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	10.5
HCM LOS			B

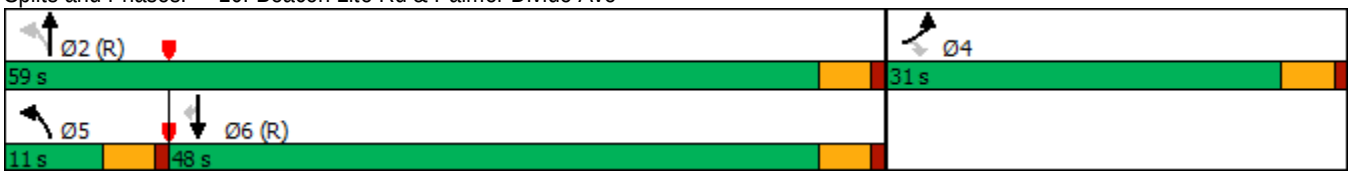
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	738	-	-	1300	-
HCM Lane V/C Ratio	0.119	-	-	0.053	-
HCM Control Delay (s)	10.5	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-

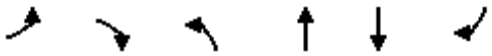
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	209	19	20	358	632	183
Future Volume (vph)	209	19	20	358	632	183
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	31.0	31.0	11.0	59.0	48.0	48.0
Total Split (%)	34.4%	34.4%	12.2%	65.6%	53.3%	53.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 10: Beacon Lite Rd & Palmer Divide Ave





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	209	19	20	358	632	183
Future Volume (veh/h)	209	19	20	358	632	183
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1841	1841
Adj Flow Rate, veh/h	238	22	23	407	718	208
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	4	4
Cap, veh/h	282	251	526	2635	2333	1041
Arrive On Green	0.16	0.16	0.02	0.50	1.00	1.00
Sat Flow, veh/h	1781	1585	1781	3647	3589	1560
Grp Volume(v), veh/h	238	22	23	407	718	208
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1749	1560
Q Serve(g_s), s	11.7	1.1	0.3	5.6	0.0	0.0
Cycle Q Clear(g_c), s	11.7	1.1	0.3	5.6	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	282	251	526	2635	2333	1041
V/C Ratio(X)	0.84	0.09	0.04	0.15	0.31	0.20
Avail Cap(c_a), veh/h	524	467	612	2635	2333	1041
HCM Platoon Ratio	1.00	1.00	0.67	0.67	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.99	0.99	1.00	1.00
Uniform Delay (d), s/veh	36.8	32.3	3.8	7.3	0.0	0.0
Incr Delay (d2), s/veh	6.7	0.1	0.0	0.1	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	1.0	0.1	1.8	0.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.5	32.5	3.8	7.4	0.3	0.4
LnGrp LOS	D	C	A	A	A	A
Approach Vol, veh/h	260			430	926	
Approach Delay, s/veh	42.6			7.2	0.4	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		71.2		18.8	6.7	64.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		54.5		26.5	6.5	43.5
Max Q Clear Time (g_c+I1), s		7.6		13.7	2.3	2.0
Green Ext Time (p_c), s		2.9		0.6	0.0	6.8

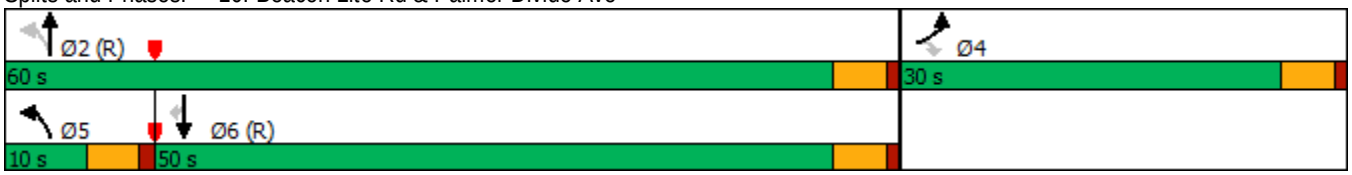
Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

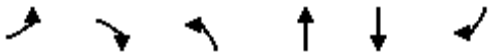
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	244	27	30	472	866	173
Future Volume (vph)	244	27	30	472	866	173
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	30.0	30.0	10.0	60.0	50.0	50.0
Total Split (%)	33.3%	33.3%	11.1%	66.7%	55.6%	55.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 10: Beacon Lite Rd & Palmer Divide Ave





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	244	27	30	472	866	173
Future Volume (veh/h)	244	27	30	472	866	173
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1841	1841
Adj Flow Rate, veh/h	277	31	34	536	984	197
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	4	4
Cap, veh/h	321	286	439	2557	2230	995
Arrive On Green	0.18	0.18	0.03	0.72	1.00	1.00
Sat Flow, veh/h	1781	1585	1781	3647	3589	1560
Grp Volume(v), veh/h	277	31	34	536	984	197
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1749	1560
Q Serve(g_s), s	13.6	1.5	0.5	4.5	0.0	0.0
Cycle Q Clear(g_c), s	13.6	1.5	0.5	4.5	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	321	286	439	2557	2230	995
V/C Ratio(X)	0.86	0.11	0.08	0.21	0.44	0.20
Avail Cap(c_a), veh/h	505	449	492	2557	2230	995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.99	0.99	1.00	1.00
Uniform Delay (d), s/veh	35.8	30.8	4.4	4.2	0.0	0.0
Incr Delay (d2), s/veh	8.9	0.2	0.1	0.2	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	1.4	0.2	1.3	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.7	31.0	4.5	4.4	0.6	0.4
LnGrp LOS	D	C	A	A	A	A
Approach Vol, veh/h	308			570	1181	
Approach Delay, s/veh	43.3			4.4	0.6	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		69.3		20.7	7.4	61.9
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		55.5		25.5	5.5	45.5
Max Q Clear Time (g_c+I1), s		6.5		15.6	2.5	2.0
Green Ext Time (p_c), s		3.9		0.7	0.0	10.1

Intersection Summary	
HCM 6th Ctrl Delay	8.0
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	6.3
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	1	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	260	430	926
Demand Flow Rate, veh/h	265	438	963
Vehicles Circulating, veh/h	747	243	23
Vehicles Exiting, veh/h	239	769	658
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	9.3	5.1	6.0
Approach LOS	A	A	A

Lane	Left	Left	Right	Left	Right
Designated Moves	LR	LT	TR	LT	TR
Assumed Moves	LR	LT	TR	LT	TR
RT Channelized					
Lane Util	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	265	206	232	453	510
Cap Entry Lane, veh/h	753	1079	1155	1322	1393
Entry HV Adj Factor	0.981	0.981	0.982	0.961	0.963
Flow Entry, veh/h	260	202	228	435	491
Cap Entry, veh/h	738	1059	1134	1270	1341
V/C Ratio	0.352	0.191	0.201	0.343	0.366
Control Delay, s/veh	9.3	5.2	5.0	6.0	6.1
LOS	A	A	A	A	A
95th %tile Queue, veh	2	1	1	2	2

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	1	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	308	570	1181
Demand Flow Rate, veh/h	315	582	1228
Vehicles Circulating, veh/h	1023	283	35
Vehicles Exiting, veh/h	240	1055	830
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	15.6	6.0	7.4
Approach LOS	C	A	A

Lane	Left	Left	Right	Left	Right
Designated Moves	LR	LT	TR	LT	TR
Assumed Moves	LR	LT	TR	LT	TR
RT Channelized					
Lane Util	1.000	0.471	0.529	0.470	0.530
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	315	274	308	577	651
Cap Entry Lane, veh/h	595	1040	1116	1307	1378
Entry HV Adj Factor	0.978	0.978	0.981	0.962	0.961
Flow Entry, veh/h	308	268	302	555	626
Cap Entry, veh/h	582	1018	1096	1257	1325
V/C Ratio	0.529	0.263	0.276	0.441	0.472
Control Delay, s/veh	15.6	6.1	5.9	7.3	7.5
LOS	C	A	A	A	A
95th %tile Queue, veh	3	1	1	2	3

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	102	45	239	102	0	0	0	0	75	5	17
Future Vol, veh/h	0	102	45	239	102	0	0	0	0	75	5	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	13	13	13
Mvmt Flow	0	113	50	266	113	0	0	0	0	83	6	19

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	163	0	0	783	808	113
Stage 1	-	-	-	-	-	-	645	645	-
Stage 2	-	-	-	-	-	-	138	163	-
Critical Hdwy	-	-	-	4.12	-	-	6.53	6.63	6.33
Critical Hdwy Stg 1	-	-	-	-	-	-	5.53	5.63	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.53	5.63	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.617	4.117	3.417
Pot Cap-1 Maneuver	0	-	-	1416	-	0	347	303	911
Stage 1	0	-	-	-	-	0	502	451	-
Stage 2	0	-	-	-	-	0	862	743	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1416	-	-	282	0	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	282	0	-
Stage 1	-	-	-	-	-	-	502	0	-
Stage 2	-	-	-	-	-	-	700	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.7	21.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1416	-	323
HCM Lane V/C Ratio	-	-	0.188	-	0.334
HCM Control Delay (s)	-	-	8.1	-	21.6
HCM Lane LOS	-	-	A	-	C
HCM 95th %tile Q(veh)	-	-	0.7	-	1.4

Intersection	
Int Delay, s/veh	9.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	98	71	125	87	0	0	0	0	239	2	33
Future Vol, veh/h	0	98	71	125	87	0	0	0	0	239	2	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	0	101	73	129	90	0	0	0	0	246	2	34

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	174	0	0	486	522	90
Stage 1	-	-	-	-	-	-	348	348	-
Stage 2	-	-	-	-	-	-	138	174	-
Critical Hdwy	-	-	-	4.13	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.227	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1397	-	0	540	459	968
Stage 1	0	-	-	-	-	0	715	634	-
Stage 2	0	-	-	-	-	0	889	755	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1397	-	-	490	0	968
Mov Cap-2 Maneuver	-	-	-	-	-	-	490	0	-
Stage 1	-	-	-	-	-	-	715	0	-
Stage 2	-	-	-	-	-	-	807	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.6	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1397	-	521
HCM Lane V/C Ratio	-	-	0.092	-	0.542
HCM Control Delay (s)	-	-	7.8	-	19.8
HCM Lane LOS	-	-	A	-	C
HCM 95th %tile Q(veh)	-	-	0.3	-	3.2

Intersection	
Int Delay, s/veh	10.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	115	49	316	118	0	0	0	0	94	5	19
Future Vol, veh/h	0	115	49	316	118	0	0	0	0	94	5	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	13	13	13
Mvmt Flow	0	128	54	351	131	0	0	0	0	104	6	21

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	182	0	0	988	1015	131
Stage 1	-	-	-	-	-	-	833	833	-
Stage 2	-	-	-	-	-	-	155	182	-
Critical Hdwy	-	-	-	4.12	-	-	6.53	6.63	6.33
Critical Hdwy Stg 1	-	-	-	-	-	-	5.53	5.63	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.53	5.63	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.617	4.117	3.417
Pot Cap-1 Maneuver	0	-	-	1393	-	0	262	228	890
Stage 1	0	-	-	-	-	0	409	369	-
Stage 2	0	-	-	-	-	0	847	729	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1393	-	-	196	0	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	196	0	-
Stage 1	-	-	-	-	-	-	409	0	-
Stage 2	-	-	-	-	-	-	634	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.2	40.8
HCM LOS			E

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1393	-	226
HCM Lane V/C Ratio	-	-	0.252	-	0.58
HCM Control Delay (s)	-	-	8.5	-	40.8
HCM Lane LOS	-	-	A	-	E
HCM 95th %tile Q(veh)	-	-	1	-	3.3

Intersection	
Int Delay, s/veh	19.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	118	78	178	99	0	0	0	0	290	2	36
Future Vol, veh/h	0	118	78	178	99	0	0	0	0	290	2	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	0	122	80	184	102	0	0	0	0	299	2	37

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	202	0	0	632	672	102
Stage 1	-	-	-	-	-	-	470	470	-
Stage 2	-	-	-	-	-	-	162	202	-
Critical Hdwy	-	-	-	4.13	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.227	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1364	-	0	444	377	953
Stage 1	0	-	-	-	-	0	629	560	-
Stage 2	0	-	-	-	-	0	867	734	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1364	-	-	384	0	953
Mov Cap-2 Maneuver	-	-	-	-	-	-	384	0	-
Stage 1	-	-	-	-	-	-	629	0	-
Stage 2	-	-	-	-	-	-	750	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.2	43.4
HCM LOS			E

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1364	-	411
HCM Lane V/C Ratio	-	-	0.135	-	0.823
HCM Control Delay (s)	-	-	8	-	43.4
HCM Lane LOS	-	-	A	-	E
HCM 95th %tile Q(veh)	-	-	0.5	-	7.6

Intersection	
Int Delay, s/veh	244.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	448	373	316	435	0	0	0	0	94	5	317
Future Vol, veh/h	0	448	373	316	435	0	0	0	0	94	5	317
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	13	13	13
Mvmt Flow	0	498	414	351	483	0	0	0	0	104	6	352

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	912	0	0	1890	2097	483
Stage 1	-	-	-	-	-	-	1185	1185	-
Stage 2	-	-	-	-	-	-	705	912	-
Critical Hdwy	-	-	-	4.12	-	-	6.53	6.63	6.33
Critical Hdwy Stg 1	-	-	-	-	-	-	5.53	5.63	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.53	5.63	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.617	4.117	3.417
Pot Cap-1 Maneuver	0	-	-	747	-	0	~ 72	49	562
Stage 1	0	-	-	-	-	0	276	250	-
Stage 2	0	-	-	-	-	0	470	338	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	747	-	-	~ 38	0	562
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 38	0	-
Stage 1	-	-	-	-	-	-	276	0	-
Stage 2	-	-	-	-	-	-	249	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.9	$ 1158.9
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	747	-	135
HCM Lane V/C Ratio	-	-	0.47	-	3.424
HCM Control Delay (s)	-	-	14	-	$ 1158.9
HCM Lane LOS	-	-	B	-	F
HCM 95th %tile Q(veh)	-	-	2.5	-	44.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	519.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	525	473	178	513	0	0	0	0	290	2	425
Future Vol, veh/h	0	525	473	178	513	0	0	0	0	290	2	425
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	0	541	488	184	529	0	0	0	0	299	2	438

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1029	0	0	1682	1926	529
Stage 1	-	-	-	-	-	-	897	897	-
Stage 2	-	-	-	-	-	-	785	1029	-
Critical Hdwy	-	-	-	4.13	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.227	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	671	-	0	~ 104	67	550
Stage 1	0	-	-	-	-	0	398	358	-
Stage 2	0	-	-	-	-	0	449	311	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	671	-	-	~ 76	0	550
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 76	0	-
Stage 1	-	-	-	-	-	-	398	0	-
Stage 2	-	-	-	-	-	-	326	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.2	$ 1739.1
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	671	-	156
HCM Lane V/C Ratio	-	-	0.273	-	4.738
HCM Control Delay (s)	-	-	12.4	-	$ 1739.1
HCM Lane LOS	-	-	B	-	F
HCM 95th %tile Q(veh)	-	-	1.1	-	76.5

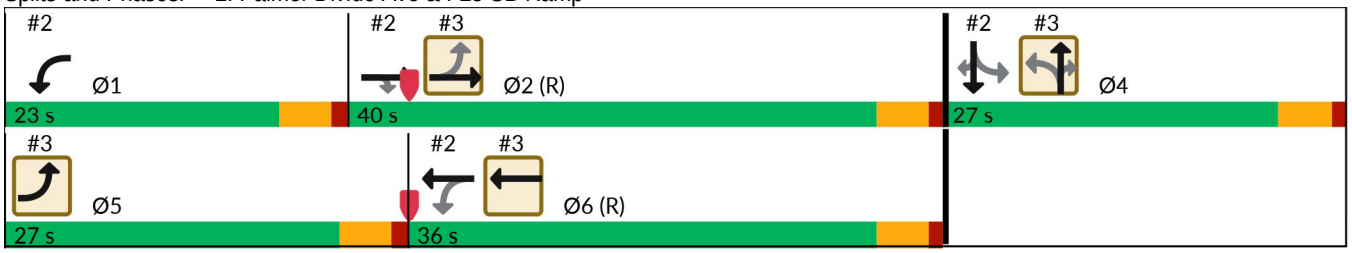
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

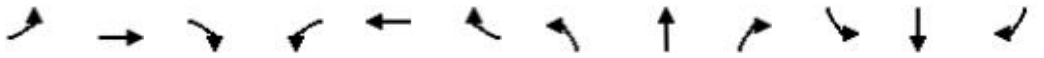
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR	Ø5
Lane Configurations							
Traffic Volume (vph)	448	373	316	435	5	317	
Future Volume (vph)	448	373	316	435	5	317	
Turn Type	NA	Perm	pm+pt	NA	NA	Perm	
Protected Phases	2		1	6	4		5
Permitted Phases		2	6			4	
Detector Phase	2	2	1	6	4	4	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	9.5
Total Split (s)	40.0	40.0	23.0	36.0	27.0	27.0	27.0
Total Split (%)	44.4%	44.4%	25.6%	40.0%	30.0%	30.0%	30%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lag	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 2: Palmer Divide Ave & I-25 SB Ramp





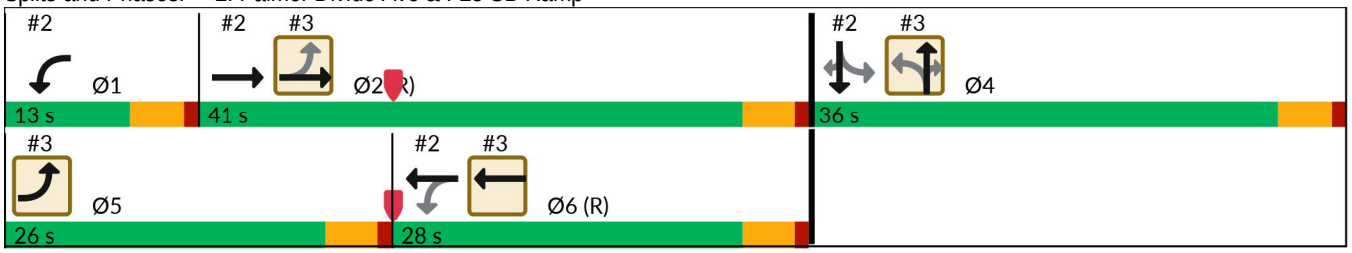
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	448	373	316	435	0	0	0	0	94	5	317
Future Volume (vph)	0	448	373	316	435	0	0	0	0	94	5	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5						4.5	4.5
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539						1606	1429
Flt Permitted		1.00	1.00	0.45	1.00						0.95	1.00
Satd. Flow (perm)		3539	1583	847	3539						1606	1429
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	498	414	351	483	0	0	0	0	104	6	352
RTOR Reduction (vph)	0	0	227	0	0	0	0	0	0	0	0	264
Lane Group Flow (vph)	0	498	187	351	483	0	0	0	0	0	110	88
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	13%	13%	13%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		40.6	40.6	51.3	37.9						22.5	22.5
Effective Green, g (s)		40.6	40.6	51.3	37.9						22.5	22.5
Actuated g/C Ratio		0.45	0.45	0.57	0.42						0.25	0.25
Clearance Time (s)		4.5	4.5	4.5	4.5						4.5	4.5
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1596	714	620	1490						401	357
v/s Ratio Prot		c0.14		c0.08	0.14							
v/s Ratio Perm			0.12	c0.24							0.07	0.06
v/c Ratio		0.31	0.26	0.57	0.32						0.27	0.25
Uniform Delay, d1		15.8	15.4	10.4	17.5						27.2	27.0
Progression Factor		0.86	0.61	1.46	1.20						1.00	1.00
Incremental Delay, d2		0.5	0.9	1.1	0.5						1.7	1.6
Delay (s)		14.1	10.3	16.3	21.5						28.9	28.6
Level of Service		B	B	B	C						C	C
Approach Delay (s/veh)		12.4			19.3			0.0			28.7	
Approach LOS		B			B			A			C	

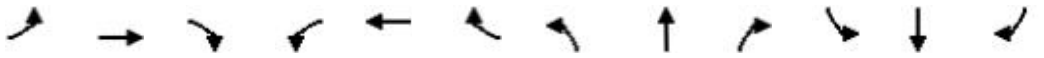
Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR	Ø5
Lane Configurations							
Traffic Volume (vph)	525	473	178	513	2	425	
Future Volume (vph)	525	473	178	513	2	425	
Turn Type	NA	Free	pm+pt	NA	NA	Perm	
Protected Phases	2		1	6	4		5
Permitted Phases		Free	6			4	
Detector Phase	2		1	6	4	4	
Switch Phase							
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		9.5	22.5	22.5	22.5	9.5
Total Split (s)	41.0		13.0	28.0	36.0	36.0	26.0
Total Split (%)	45.6%		14.4%	31.1%	40.0%	40.0%	29%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5	
Lead/Lag	Lag		Lead	Lag			Lead
Lead-Lag Optimize?	Yes		Yes	Yes			Yes
Recall Mode	C-Max		None	C-Max	Max	Max	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 2: Palmer Divide Ave & I-25 SB Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	525	473	178	513	0	0	0	0	290	2	425
Future Volume (vph)	0	525	473	178	513	0	0	0	0	290	2	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5						4.5	4.5
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3505	1568	1752	3505						1775	1583
Flt Permitted		1.00	1.00	0.45	1.00						0.95	1.00
Satd. Flow (perm)		3505	1568	831	3505						1775	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	541	488	184	529	0	0	0	0	299	2	438
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	285
Lane Group Flow (vph)	0	541	488	184	529	0	0	0	0	0	301	153
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		36.8	90.0	34.8	26.6						31.5	31.5
Effective Green, g (s)		36.8	90.0	34.8	26.6						31.5	31.5
Actuated g/C Ratio		0.41	1.00	0.39	0.30						0.35	0.35
Clearance Time (s)		4.5		4.5	4.5						4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1433	1568	405	1035						621	554
v/s Ratio Prot		0.15		0.04	c0.15							
v/s Ratio Perm			c0.31	0.13							0.17	0.10
v/c Ratio		0.38	0.31	0.45	0.51						0.48	0.28
Uniform Delay, d1		18.6	0.0	18.9	26.3						22.9	21.1
Progression Factor		0.81	1.00	1.50	1.35						1.00	1.00
Incremental Delay, d2		0.8	0.5	0.8	1.7						2.7	1.2
Delay (s)		15.9	0.5	29.2	37.3						25.6	22.3
Level of Service		B	A	C	D						C	C
Approach Delay (s/veh)		8.6			35.2			0.0			23.6	
Approach LOS		A			D			A			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	81.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	170	74	445	173	0	0	0	0	135	8	28
Future Vol, veh/h	0	170	74	445	173	0	0	0	0	135	8	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	13	13	13
Mvmt Flow	0	189	82	494	192	0	0	0	0	150	9	31

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	271	0	0	1410	1451	192
Stage 1	-	-	-	-	-	-	1180	1180	-
Stage 2	-	-	-	-	-	-	230	271	-
Critical Hdwy	-	-	-	4.12	-	-	6.53	6.63	6.33
Critical Hdwy Stg 1	-	-	-	-	-	-	5.53	5.63	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.53	5.63	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.617	4.117	3.417
Pot Cap-1 Maneuver	0	-	-	1292	-	0	~ 144	124	822
Stage 1	0	-	-	-	-	0	277	252	-
Stage 2	0	-	-	-	-	0	783	666	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1292	-	-	~ 89	0	822
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 89	0	-
Stage 1	-	-	-	-	-	-	277	0	-
Stage 2	-	-	-	-	-	-	484	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.8	$ 468.6
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1292	-	105
HCM Lane V/C Ratio	-	-	0.383	-	1.81
HCM Control Delay (s)	-	-	9.5	-	$ 468.6
HCM Lane LOS	-	-	A	-	F
HCM 95th %tile Q(veh)	-	-	1.8	-	15.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	170.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	170	116	245	145	0	0	0	0	419	3	54
Future Vol, veh/h	0	170	116	245	145	0	0	0	0	419	3	54
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	0	175	120	253	149	0	0	0	0	432	3	56

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	295	0	0	890	950	149
Stage 1	-	-	-	-	-	-	655	655	-
Stage 2	-	-	-	-	-	-	235	295	-
Critical Hdwy	-	-	-	4.13	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.227	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1261	-	0	~ 313	260	898
Stage 1	0	-	-	-	-	0	517	463	-
Stage 2	0	-	-	-	-	0	804	669	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1261	-	-	~ 250	0	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 250	0	-
Stage 1	-	-	-	-	-	-	517	0	-
Stage 2	-	-	-	-	-	-	642	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.4	$ 407.7
HCM LOS			F

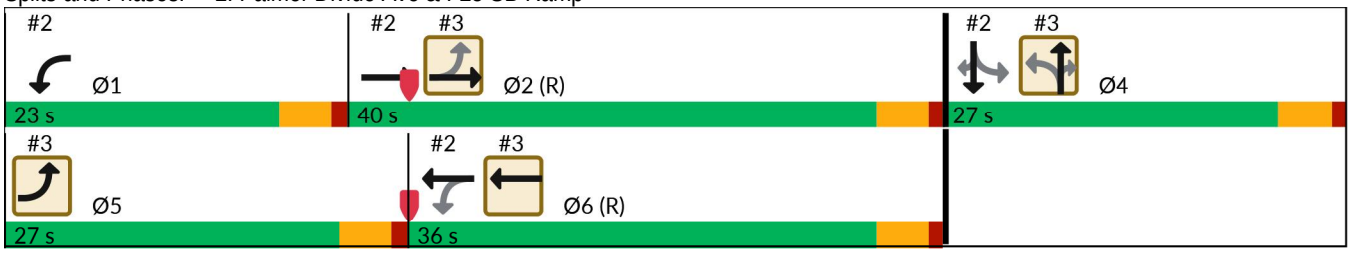
Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1261	-	272
HCM Lane V/C Ratio	-	-	0.2	-	1.804
HCM Control Delay (s)	-	-	8.6	-	$ 407.7
HCM Lane LOS	-	-	A	-	F
HCM 95th %tile Q(veh)	-	-	0.7	-	32.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR	Ø5
Lane Configurations							
Traffic Volume (vph)	503	398	445	490	8	326	
Future Volume (vph)	503	398	445	490	8	326	
Turn Type	NA	Free	pm+pt	NA	NA	Perm	
Protected Phases	2		1	6	4		5
Permitted Phases		Free	6			4	
Detector Phase	2		1	6	4	4	
Switch Phase							
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		9.5	22.5	22.5	22.5	9.5
Total Split (s)	40.0		23.0	36.0	27.0	27.0	27.0
Total Split (%)	44.4%		25.6%	40.0%	30.0%	30.0%	30%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5	
Lead/Lag	Lag		Lead	Lag			Lead
Lead-Lag Optimize?	Yes		Yes	Yes			Yes
Recall Mode	C-Max		None	C-Max	Max	Max	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 2: Palmer Divide Ave & I-25 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	503	398	445	490	0	0	0	0	135	8	326
Future Volume (vph)	0	503	398	445	490	0	0	0	0	135	8	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5						4.5	4.5
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539						1606	1429
Flt Permitted		1.00	1.00	0.41	1.00						0.95	1.00
Satd. Flow (perm)		3539	1583	756	3539						1606	1429
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	559	442	494	544	0	0	0	0	150	9	362
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	272
Lane Group Flow (vph)	0	559	442	494	544	0	0	0	0	0	159	91
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	13%	13%	13%
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		37.1	90.0	51.0	34.1						22.5	22.5
Effective Green, g (s)		37.1	90.0	51.0	34.1						22.5	22.5
Actuated g/C Ratio		0.41	1.00	0.57	0.38						0.25	0.25
Clearance Time (s)		4.5		4.5	4.5						4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1458	1583	618	1340						401	357
v/s Ratio Prot		0.16		c0.15	0.15							
v/s Ratio Perm			c0.28	c0.30							0.10	0.06
v/c Ratio		0.38	0.28	0.80	0.41						0.40	0.25
Uniform Delay, d1		18.5	0.0	11.8	20.5						28.1	27.0
Progression Factor		0.84	1.00	1.74	1.01						1.00	1.00
Incremental Delay, d2		0.8	0.4	6.2	0.8						2.9	1.7
Delay (s)		16.3	0.4	26.7	21.4						31.0	28.7
Level of Service		B	A	C	C						C	C
Approach Delay (s/veh)		9.3			23.9			0.0			29.4	
Approach LOS		A			C			A			C	

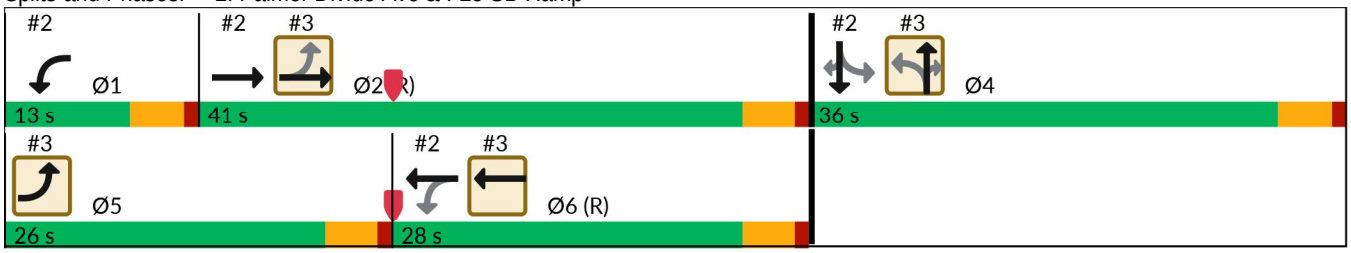
Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

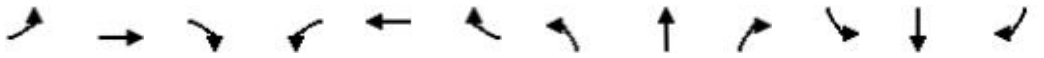
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR	Ø5
Lane Configurations							
Traffic Volume (vph)	577	511	245	559	3	443	
Future Volume (vph)	577	511	245	559	3	443	
Turn Type	NA	Free	pm+pt	NA	NA	Perm	
Protected Phases	2		1	6	4		5
Permitted Phases		Free	6			4	
Detector Phase	2		1	6	4	4	
Switch Phase							
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		9.5	22.5	22.5	22.5	9.5
Total Split (s)	41.0		13.0	28.0	36.0	36.0	26.0
Total Split (%)	45.6%		14.4%	31.1%	40.0%	40.0%	29%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5	
Lead/Lag	Lag		Lead	Lag			Lead
Lead-Lag Optimize?	Yes		Yes	Yes			Yes
Recall Mode	C-Max		None	C-Max	Max	Max	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 2: Palmer Divide Ave & I-25 SB Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	577	511	245	559	0	0	0	0	419	3	443
Future Volume (vph)	0	577	511	245	559	0	0	0	0	419	3	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5						4.5	4.5
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3505	1568	1752	3505						1775	1583
Flt Permitted		1.00	1.00	0.43	1.00						0.95	1.00
Satd. Flow (perm)		3505	1568	788	3505						1775	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	595	527	253	576	0	0	0	0	432	3	457
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	297
Lane Group Flow (vph)	0	595	527	253	576	0	0	0	0	0	435	160
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		36.5	90.0	34.1	25.6						31.5	31.5
Effective Green, g (s)		36.5	90.0	34.1	25.6						31.5	31.5
Actuated g/C Ratio		0.41	1.00	0.38	0.28						0.35	0.35
Clearance Time (s)		4.5		4.5	4.5						4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1421	1568	389	996						621	554
v/s Ratio Prot		0.17		c0.06	0.16							
v/s Ratio Perm			c0.34	c0.18							0.25	0.10
v/c Ratio		0.42	0.34	0.65	0.58						0.70	0.29
Uniform Delay, d1		19.2	0.0	20.3	27.6						25.2	21.1
Progression Factor		0.77	1.00	1.36	1.23						1.00	1.00
Incremental Delay, d2		0.9	0.6	3.6	2.3						6.5	1.3
Delay (s)		15.6	0.6	31.2	36.1						31.7	22.5
Level of Service		B	A	C	D						C	C
Approach Delay (s/veh)		8.5			34.6			0.0			26.9	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	143	0	0	291	216	49	0	58	0	0	0
Future Vol, veh/h	34	143	0	0	291	216	49	0	58	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	5	5	5	2	2	2	4	4	4	2	2	2
Mvmt Flow	39	163	0	0	331	245	56	0	66	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	576	0	-	-	-	0	407	817	163
Stage 1	-	-	-	-	-	-	241	241	-
Stage 2	-	-	-	-	-	-	166	576	-
Critical Hdwy	4.175	-	-	-	-	-	6.66	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	5.46	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	5.56	-
Follow-up Hdwy	2.2475	-	-	-	-	-	3.538	4.038	3.338
Pot Cap-1 Maneuver	978	-	0	0	-	-	581	307	875
Stage 1	-	-	0	0	-	-	793	701	-
Stage 2	-	-	0	0	-	-	842	497	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	978	-	-	-	-	-	558	0	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	558	0	-
Stage 1	-	-	-	-	-	-	761	0	-
Stage 2	-	-	-	-	-	-	842	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.7	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	694	978	-	-	-
HCM Lane V/C Ratio	0.175	0.04	-	-	-
HCM Control Delay (s)	11.3	8.8	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	0.6	0.1	-	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	293	0	0	157	126	50	1	166	0	0	0
Future Vol, veh/h	35	293	0	0	157	126	50	1	166	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	312	0	0	167	134	53	1	177	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	301	0	-	-	-	0	470	687	312
Stage 1	-	-	-	-	-	-	386	386	-
Stage 2	-	-	-	-	-	-	84	301	-
Critical Hdwy	4.13	-	-	-	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	-	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1258	-	0	0	-	-	537	369	727
Stage 1	-	-	0	0	-	-	686	609	-
Stage 2	-	-	0	0	-	-	930	664	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1258	-	-	-	-	-	521	0	727
Mov Cap-2 Maneuver	-	-	-	-	-	-	521	0	-
Stage 1	-	-	-	-	-	-	666	0	-
Stage 2	-	-	-	-	-	-	930	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.8	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	666	1258	-	-	-
HCM Lane V/C Ratio	0.347	0.03	-	-	-
HCM Control Delay (s)	13.2	7.9	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	1.5	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	172	0	0	380	264	54	0	87	0	0	0
Future Vol, veh/h	37	172	0	0	380	264	54	0	87	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	5	5	5	2	2	2	4	4	4	2	2	2
Mvmt Flow	42	195	0	0	432	300	61	0	99	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	732	0	-	-	-	0	495	1011	195
Stage 1	-	-	-	-	-	-	279	279	-
Stage 2	-	-	-	-	-	-	216	732	-
Critical Hdwy	4.175	-	-	-	-	-	6.66	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	5.46	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	5.56	-
Follow-up Hdwy	2.2475	-	-	-	-	-	3.538	4.038	3.338
Pot Cap-1 Maneuver	854	-	0	0	-	-	514	236	840
Stage 1	-	-	0	0	-	-	762	675	-
Stage 2	-	-	0	0	-	-	795	422	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	854	-	-	-	-	-	489	0	840
Mov Cap-2 Maneuver	-	-	-	-	-	-	489	0	-
Stage 1	-	-	-	-	-	-	725	0	-
Stage 2	-	-	-	-	-	-	795	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.7	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	659	854	-	-	-
HCM Lane V/C Ratio	0.243	0.049	-	-	-
HCM Control Delay (s)	12.2	9.4	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	0.9	0.2	-	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	360	0	0	216	157	55	1	240	0	0	0
Future Vol, veh/h	38	360	0	0	216	157	55	1	240	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	383	0	0	230	167	59	1	255	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	397	0	-	-	-	0	578	860	383
Stage 1	-	-	-	-	-	-	463	463	-
Stage 2	-	-	-	-	-	-	115	397	-
Critical Hdwy	4.13	-	-	-	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	-	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1160	-	0	0	-	-	462	293	664
Stage 1	-	-	0	0	-	-	633	563	-
Stage 2	-	-	0	0	-	-	898	603	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1160	-	-	-	-	-	446	0	664
Mov Cap-2 Maneuver	-	-	-	-	-	-	446	0	-
Stage 1	-	-	-	-	-	-	611	0	-
Stage 2	-	-	-	-	-	-	898	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.8	0	17.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	609	1160	-	-	-
HCM Lane V/C Ratio	0.517	0.035	-	-	-
HCM Control Delay (s)	17.1	8.2	-	-	-
HCM Lane LOS	C	A	-	-	-
HCM 95th %tile Q(veh)	3	0.1	-	-	-

Intersection	
Int Delay, s/veh	455.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	356	185	0	0	394	264	357	0	87	0	0	0
Future Vol, veh/h	356	185	0	0	394	264	357	0	87	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	5	5	5	2	2	2	4	4	4	2	2	2
Mvmt Flow	405	210	0	0	448	300	406	0	99	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	748	0	-	-	-	0	1244	1768	210
Stage 1	-	-	-	-	-	-	1020	1020	-
Stage 2	-	-	-	-	-	-	224	748	-
Critical Hdwy	4.175	-	-	-	-	-	6.66	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	5.46	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	5.56	-
Follow-up Hdwy	2.2475	-	-	-	-	-	3.538	4.038	3.338
Pot Cap-1 Maneuver	842	-	0	0	-	-	~ 177	82	824
Stage 1	-	-	0	0	-	-	~ 343	310	-
Stage 2	-	-	0	0	-	-	787	415	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	842	-	-	-	-	-	~ 92	0	824
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 92	0	-
Stage 1	-	-	-	-	-	-	~ 178	0	-
Stage 2	-	-	-	-	-	-	787	0	-

Approach	EB	WB	NB
HCM Control Delay, s	8.7	0	$ 1673.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	111	842	-	-	-
HCM Lane V/C Ratio	4.545	0.48	-	-	-
HCM Control Delay (s)	$ 1673.4	13.2	-	-	-
HCM Lane LOS	F	B	-	-	-
HCM 95th %tile Q(veh)	52.8	2.6	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	907.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	427	379	0	0	235	157	450	1	240	0	0	0
Future Vol, veh/h	427	379	0	0	235	157	450	1	240	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	454	403	0	0	250	167	479	1	255	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	417	0	-	-	-	0	1436	1728	403
Stage 1	-	-	-	-	-	-	1311	1311	-
Stage 2	-	-	-	-	-	-	125	417	-
Critical Hdwy	4.13	-	-	-	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	-	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1140	-	0	0	-	-	~ 135	88	647
Stage 1	-	-	0	0	-	-	~ 251	228	-
Stage 2	-	-	0	0	-	-	888	590	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1140	-	-	-	-	-	~ 81	0	647
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 81	0	-
Stage 1	-	-	-	-	-	-	~ 151	0	-
Stage 2	-	-	-	-	-	-	888	0	-

Approach	EB	WB	NB
HCM Control Delay, s	5.4	0	$ 2474
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	116	1140	-	-	-
HCM Lane V/C Ratio	6.337	0.398	-	-	-
HCM Control Delay (s)	$ 2474	10.2	-	-	-
HCM Lane LOS	F	B	-	-	-
HCM 95th %tile Q(veh)	80.8	1.9	-	-	-

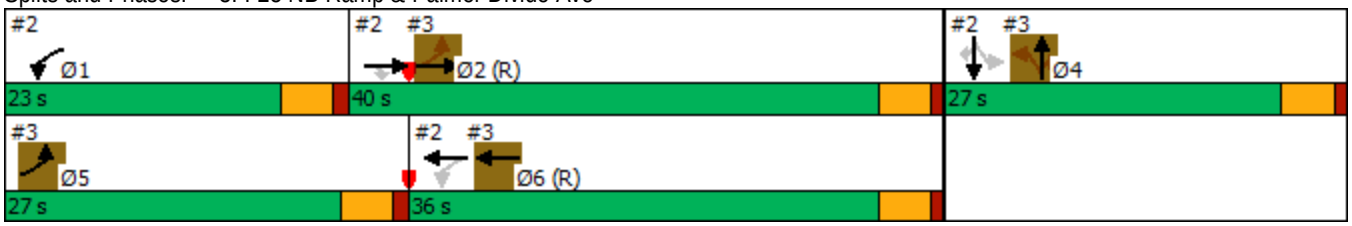
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

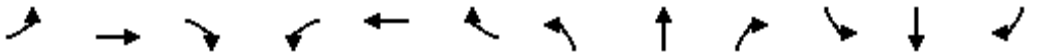
Lane Group	EBL	EBT	WBT	NBL	NBT	NBR	Ø1
Lane Configurations							
Traffic Volume (vph)	356	185	394	357	0	87	
Future Volume (vph)	356	185	394	357	0	87	
Turn Type	pm+pt	NA	NA	Perm	NA	Perm	
Protected Phases	5	2	6		4		1
Permitted Phases	2			4		4	
Detector Phase	5	2	6	4	4	4	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5	9.5
Total Split (s)	27.0	40.0	36.0	27.0	27.0	27.0	23.0
Total Split (%)	30.0%	44.4%	40.0%	30.0%	30.0%	30.0%	26%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag	Lag				Lead
Lead-Lag Optimize?	Yes	Yes	Yes				Yes
Recall Mode	None	C-Max	C-Max	Max	Max	Max	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: I-25 NB Ramp & Palmer Divide Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	185	0	0	394	264	357	0	87	0	0	0
Future Volume (vph)	356	185	0	0	394	264	357	0	87	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor	1.00	1.00			0.91		0.95	0.95	1.00			
Frt	1.00	1.00			0.94		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1719	1810			4779		1649	1649	1553			
Flt Permitted	0.29	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	524	1810			4779		1649	1649	1553			
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	405	210	0	0	448	300	406	0	99	0	0	0
RTOR Reduction (vph)	0	0	0	0	120	0	0	0	74	0	0	0
Lane Group Flow (vph)	405	210	0	0	628	0	203	203	25	0	0	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)	56.7	40.6			37.9		22.5	22.5	22.5			
Effective Green, g (s)	56.7	40.6			37.9		22.5	22.5	22.5			
Actuated g/C Ratio	0.63	0.45			0.42		0.25	0.25	0.25			
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	543	816			2012		412	412	388			
v/s Ratio Prot	c0.13	0.12			0.13							
v/s Ratio Perm	c0.34						c0.12	0.12	0.02			
v/c Ratio	0.75	0.26			0.31		0.49	0.49	0.06			
Uniform Delay, d1	8.9	15.3			17.4		28.9	28.9	25.7			
Progression Factor	3.39	0.48			1.00		1.00	1.00	1.00			
Incremental Delay, d2	5.3	0.7			0.4		4.2	4.2	0.3			
Delay (s)	35.5	8.0			17.8		33.0	33.0	26.0			
Level of Service	D	A			B		C	C	C			
Approach Delay (s)		26.1			17.8			31.7			0.0	
Approach LOS		C			B			C			A	

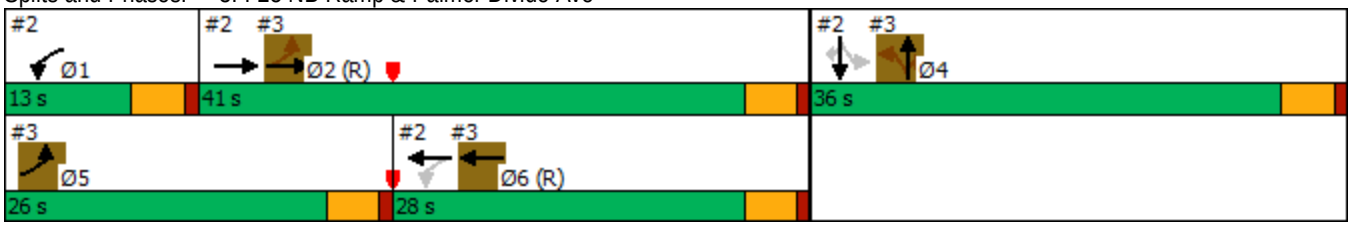
Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

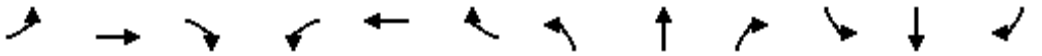
Lane Group	EBL	EBT	WBT	NBL	NBT	NBR	Ø1
Lane Configurations							
Traffic Volume (vph)	427	379	235	450	1	240	
Future Volume (vph)	427	379	235	450	1	240	
Turn Type	pm+pt	NA	NA	Perm	NA	Perm	
Protected Phases	5	2	6		4		1
Permitted Phases	2			4		4	
Detector Phase	5	2	6	4	4	4	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5	9.5
Total Split (s)	26.0	41.0	28.0	36.0	36.0	36.0	13.0
Total Split (%)	28.9%	45.6%	31.1%	40.0%	40.0%	40.0%	14%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag	Lag				Lead
Lead-Lag Optimize?	Yes	Yes	Yes				Yes
Recall Mode	None	C-Max	C-Max	Max	Max	Max	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: I-25 NB Ramp & Palmer Divide Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	427	379	0	0	235	157	450	1	240	0	0	0
Future Volume (vph)	427	379	0	0	235	157	450	1	240	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor	1.00	1.00			0.91		0.95	0.95	1.00			
Frt	1.00	1.00			0.94		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1770	1863			4780		1681	1686	1583			
Flt Permitted	0.40	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	754	1863			4780		1681	1686	1583			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	454	403	0	0	250	167	479	1	255	0	0	0
RTOR Reduction (vph)	0	0	0	0	118	0	0	0	166	0	0	0
Lane Group Flow (vph)	454	403	0	0	299	0	239	241	89	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)	49.5	36.8			26.6		31.5	31.5	31.5			
Effective Green, g (s)	49.5	36.8			26.6		31.5	31.5	31.5			
Actuated g/C Ratio	0.55	0.41			0.30		0.35	0.35	0.35			
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	622	761			1412		588	590	554			
v/s Ratio Prot	c0.15	0.22			0.06							
v/s Ratio Perm	c0.25						0.14	0.14	0.06			
v/c Ratio	0.73	0.53			0.21		0.41	0.41	0.16			
Uniform Delay, d1	12.6	20.1			23.8		22.2	22.2	20.1			
Progression Factor	1.47	0.75			1.00		1.00	1.00	1.00			
Incremental Delay, d2	3.9	2.4			0.3		2.1	2.1	0.6			
Delay (s)	22.5	17.4			24.2		24.2	24.3	20.8			
Level of Service	C	B			C		C	C	C			
Approach Delay (s)		20.1			24.2			23.0			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	249	0	0	536	380	80	0	118	0	0	0
Future Vol, veh/h	56	249	0	0	536	380	80	0	118	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	5	5	5	2	2	2	4	4	4	2	2	2
Mvmt Flow	64	283	0	0	609	432	91	0	134	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1041	0	-	-	-	0	716	1452	283
Stage 1	-	-	-	-	-	-	411	411	-
Stage 2	-	-	-	-	-	-	305	1041	-
Critical Hdwy	4.175	-	-	-	-	-	6.66	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	5.46	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	5.56	-
Follow-up Hdwy	2.2475	-	-	-	-	-	3.538	4.038	3.338
Pot Cap-1 Maneuver	651	-	0	0	-	-	377	128	750
Stage 1	-	-	0	0	-	-	663	590	-
Stage 2	-	-	0	0	-	-	717	303	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	651	-	-	-	-	-	340	0	750
Mov Cap-2 Maneuver	-	-	-	-	-	-	340	0	-
Stage 1	-	-	-	-	-	-	598	0	-
Stage 2	-	-	-	-	-	-	717	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	504	651	-	-	-
HCM Lane V/C Ratio	0.446	0.098	-	-	-
HCM Control Delay (s)	17.8	11.1	-	-	-
HCM Lane LOS	C	B	-	-	-
HCM 95th %tile Q(veh)	2.3	0.3	-	-	-

Intersection	
Int Delay, s/veh	16.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	517	0	0	301	225	82	2	329	0	0	0
Future Vol, veh/h	57	517	0	0	301	225	82	2	329	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	61	550	0	0	320	239	87	2	350	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	559	0	-	-	-	0	832	1231	550
Stage 1	-	-	-	-	-	-	672	672	-
Stage 2	-	-	-	-	-	-	160	559	-
Critical Hdwy	4.13	-	-	-	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	-	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1010	-	0	0	-	-	323	177	534
Stage 1	-	-	0	0	-	-	506	454	-
Stage 2	-	-	0	0	-	-	853	510	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1010	-	-	-	-	-	304	0	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	304	0	-
Stage 1	-	-	-	-	-	-	476	0	-
Stage 2	-	-	-	-	-	-	853	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.9	0	59.5
HCM LOS			F

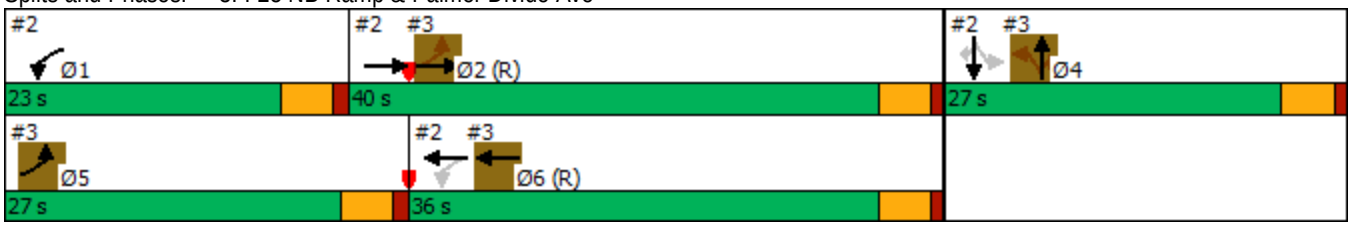
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	464	1010	-	-	-
HCM Lane V/C Ratio	0.947	0.06	-	-	-
HCM Control Delay (s)	59.5	8.8	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	11.4	0.2	-	-	-

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR	Ø1
Lane Configurations							
Traffic Volume (vph)	375	262	550	383	0	118	
Future Volume (vph)	375	262	550	383	0	118	
Turn Type	pm+pt	NA	NA	Perm	NA	Perm	
Protected Phases	5	2	6		4		1
Permitted Phases	2			4		4	
Detector Phase	5	2	6	4	4	4	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5	9.5
Total Split (s)	27.0	40.0	36.0	27.0	27.0	27.0	23.0
Total Split (%)	30.0%	44.4%	40.0%	30.0%	30.0%	30.0%	26%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag	Lag				Lead
Lead-Lag Optimize?	Yes	Yes	Yes				Yes
Recall Mode	None	C-Max	C-Max	Max	Max	Max	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 3: I-25 NB Ramp & Palmer Divide Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	375	262	0	0	550	380	383	0	118	0	0	0
Future Volume (vph)	375	262	0	0	550	380	383	0	118	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor	1.00	1.00			0.91		0.95	0.95	1.00			
Frt	1.00	1.00			0.94		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1719	1810			4774		1649	1649	1553			
Flt Permitted	0.16	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	294	1810			4774		1649	1649	1553			
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	426	298	0	0	625	432	435	0	134	0	0	0
RTOR Reduction (vph)	0	0	0	0	132	0	0	0	101	0	0	0
Lane Group Flow (vph)	426	298	0	0	925	0	217	218	34	0	0	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)	57.0	37.1			34.1		22.5	22.5	22.5			
Effective Green, g (s)	57.0	37.1			34.1		22.5	22.5	22.5			
Actuated g/C Ratio	0.63	0.41			0.38		0.25	0.25	0.25			
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	501	746			1808		412	412	388			
v/s Ratio Prot	c0.19	0.16			0.19							
v/s Ratio Perm	c0.35						0.13	0.13	0.02			
v/c Ratio	0.85	0.40			0.51		0.53	0.53	0.09			
Uniform Delay, d1	18.2	18.6			21.5		29.2	29.2	25.9			
Progression Factor	2.36	0.50			1.00		1.00	1.00	1.00			
Incremental Delay, d2	12.0	1.5			1.0		4.8	4.8	0.4			
Delay (s)	55.1	10.8			22.6		33.9	34.0	26.3			
Level of Service	E	B			C		C	C	C			
Approach Delay (s)		36.8			22.6			32.1			0.0	
Approach LOS		D			C			C			A	

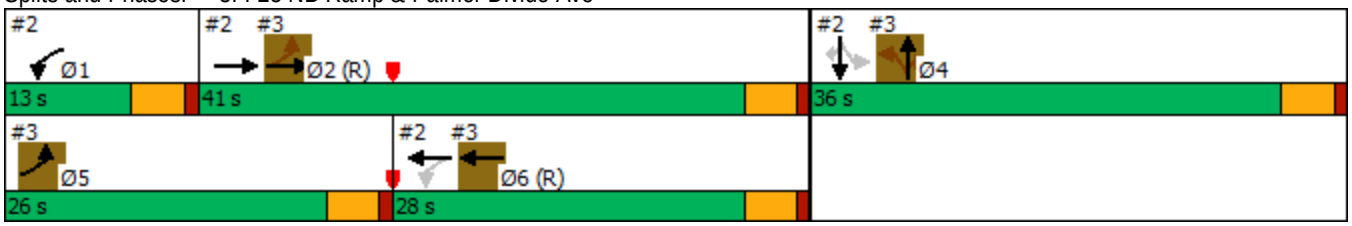
Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

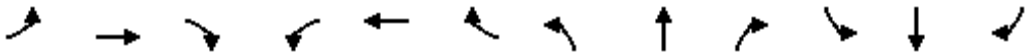
Lane Group	EBL	EBT	WBT	NBL	NBT	NBR	Ø1
Lane Configurations							
Traffic Volume (vph)	446	536	320	477	2	329	
Future Volume (vph)	446	536	320	477	2	329	
Turn Type	pm+pt	NA	NA	Perm	NA	Perm	
Protected Phases	5	2	6		4		1
Permitted Phases	2			4		4	
Detector Phase	5	2	6	4	4	4	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5	9.5
Total Split (s)	26.0	41.0	28.0	36.0	36.0	36.0	13.0
Total Split (%)	28.9%	45.6%	31.1%	40.0%	40.0%	40.0%	14%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag	Lag				Lead
Lead-Lag Optimize?	Yes	Yes	Yes				Yes
Recall Mode	None	C-Max	C-Max	Max	Max	Max	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 3: I-25 NB Ramp & Palmer Divide Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	446	536	0	0	320	225	477	2	329	0	0	0
Future Volume (vph)	446	536	0	0	320	225	477	2	329	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor	1.00	1.00			0.91		0.95	0.95	1.00			
Frt	1.00	1.00			0.94		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1770	1863			4770		1681	1686	1583			
Flt Permitted	0.30	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	563	1863			4770		1681	1686	1583			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	474	570	0	0	340	239	507	2	350	0	0	0
RTOR Reduction (vph)	0	0	0	0	136	0	0	0	228	0	0	0
Lane Group Flow (vph)	474	570	0	0	443	0	253	256	123	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)	49.5	36.5			25.6		31.5	31.5	31.5			
Effective Green, g (s)	49.5	36.5			25.6		31.5	31.5	31.5			
Actuated g/C Ratio	0.55	0.41			0.28		0.35	0.35	0.35			
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	569	755			1356		588	590	554			
v/s Ratio Prot	c0.18	0.31			0.09							
v/s Ratio Perm	c0.28						0.15	0.15	0.08			
v/c Ratio	0.83	0.75			0.33		0.43	0.43	0.22			
Uniform Delay, d1	13.5	22.9			25.4		22.4	22.4	20.6			
Progression Factor	1.77	0.88			1.00		1.00	1.00	1.00			
Incremental Delay, d2	8.5	5.7			0.6		2.3	2.3	0.9			
Delay (s)	32.3	25.8			26.0		24.7	24.7	21.5			
Level of Service	C	C			C		C	C	C			
Approach Delay (s)		28.8			26.0			23.4			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	121	78	65	448	2	47	1	18	0	1	1
Future Vol, veh/h	3	121	78	65	448	2	47	1	18	0	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	5	5	5	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	146	94	78	540	2	57	1	22	0	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	542	0	0	240	0	0	899	899	193	910	945	541
Stage 1	-	-	-	-	-	-	201	201	-	697	697	-
Stage 2	-	-	-	-	-	-	698	698	-	213	248	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1012	-	-	1327	-	-	260	279	849	255	262	541
Stage 1	-	-	-	-	-	-	801	735	-	431	443	-
Stage 2	-	-	-	-	-	-	431	442	-	789	701	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1012	-	-	1327	-	-	241	254	849	231	239	541
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	254	-	231	239	-
Stage 1	-	-	-	-	-	-	797	731	-	429	406	-
Stage 2	-	-	-	-	-	-	393	405	-	764	697	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1	21.3	15.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	300	1012	-	-	1327	-	-	332
HCM Lane V/C Ratio	0.265	0.004	-	-	0.059	-	-	0.007
HCM Control Delay (s)	21.3	8.6	0	-	7.9	0	-	15.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0	-	-	0.2	-	-	0

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	407	38	15	235	2	47	0	28	3	0	6
Future Vol, veh/h	10	407	38	15	235	2	47	0	28	3	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	442	41	16	255	2	51	0	30	3	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	257	0	0	483	0	0	777	774	463	788	793	256
Stage 1	-	-	-	-	-	-	485	485	-	288	288	-
Stage 2	-	-	-	-	-	-	292	289	-	500	505	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1308	-	-	1080	-	-	314	329	599	309	321	783
Stage 1	-	-	-	-	-	-	563	552	-	720	674	-
Stage 2	-	-	-	-	-	-	716	673	-	553	540	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1308	-	-	1080	-	-	305	319	599	287	312	783
Mov Cap-2 Maneuver	-	-	-	-	-	-	305	319	-	287	312	-
Stage 1	-	-	-	-	-	-	556	545	-	711	663	-
Stage 2	-	-	-	-	-	-	698	662	-	519	534	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.5	17.3	12.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	373	1308	-	-	1080	-	-	497
HCM Lane V/C Ratio	0.219	0.008	-	-	0.015	-	-	0.02
HCM Control Delay (s)	17.3	7.8	0	-	8.4	0	-	12.4
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	133	124	74	492	2	139	1	26	0	1	1
Future Vol, veh/h	3	133	124	74	492	2	139	1	26	0	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	5	5	5	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	160	149	89	593	2	167	1	31	0	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	595	0	0	309	0	0	941	941	160	1031	1089	594
Stage 1	-	-	-	-	-	-	168	168	-	772	772	-
Stage 2	-	-	-	-	-	-	773	773	-	259	317	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	967	-	-	1252	-	-	243	263	885	211	215	505
Stage 1	-	-	-	-	-	-	834	759	-	392	409	-
Stage 2	-	-	-	-	-	-	392	409	-	746	654	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	967	-	-	1252	-	-	228	243	885	191	199	505
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	318	-	299	292	-
Stage 1	-	-	-	-	-	-	831	756	-	390	380	-
Stage 2	-	-	-	-	-	-	362	380	-	715	651	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	27	14.8
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	306	885	967	-	-	1252	-	-	370
HCM Lane V/C Ratio	0.551	0.035	0.004	-	-	0.071	-	-	0.007
HCM Control Delay (s)	30.3	9.2	8.7	-	-	8.1	-	-	14.8
HCM Lane LOS	D	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	3.1	0.1	0	-	-	0.2	-	-	0

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	447	138	23	258	2	115	0	34	3	0	7
Future Vol, veh/h	11	447	138	23	258	2	115	0	34	3	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	486	150	25	280	2	125	0	37	3	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	282	0	0	636	0	0	845	842	486	935	991	281
Stage 1	-	-	-	-	-	-	510	510	-	331	331	-
Stage 2	-	-	-	-	-	-	335	332	-	604	660	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1280	-	-	947	-	-	283	301	581	246	246	758
Stage 1	-	-	-	-	-	-	546	538	-	682	645	-
Stage 2	-	-	-	-	-	-	679	644	-	485	460	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1280	-	-	947	-	-	273	290	581	224	237	758
Mov Cap-2 Maneuver	-	-	-	-	-	-	391	392	-	331	335	-
Stage 1	-	-	-	-	-	-	541	533	-	676	628	-
Stage 2	-	-	-	-	-	-	654	627	-	450	456	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	16.9	11.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	391	581	1280	-	-	947	-	-	546
HCM Lane V/C Ratio	0.32	0.064	0.009	-	-	0.026	-	-	0.02
HCM Control Delay (s)	18.5	11.6	7.8	-	-	8.9	-	-	11.7
HCM Lane LOS	C	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.4	0.2	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	137	133	74	497	2	149	1	26	0	1	1
Future Vol, veh/h	3	137	133	74	497	2	149	1	26	0	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	0	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	5	5	5	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	165	160	89	599	2	180	1	31	0	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	601	0	0	325	0	0	952	952	165	1047	1111	600
Stage 1	-	-	-	-	-	-	173	173	-	778	778	-
Stage 2	-	-	-	-	-	-	779	779	-	269	333	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	962	-	-	1235	-	-	239	259	879	206	209	501
Stage 1	-	-	-	-	-	-	829	756	-	389	407	-
Stage 2	-	-	-	-	-	-	389	406	-	737	644	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	962	-	-	1235	-	-	224	239	879	187	193	501
Mov Cap-2 Maneuver	-	-	-	-	-	-	303	315	-	295	288	-
Stage 1	-	-	-	-	-	-	826	753	-	387	378	-
Stage 2	-	-	-	-	-	-	359	377	-	707	641	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	29.5	14.9
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	303	879	962	-	-	1235	-	-	366
HCM Lane V/C Ratio	0.596	0.036	0.004	-	-	0.072	-	-	0.007
HCM Control Delay (s)	33	9.2	8.8	-	-	8.1	-	-	14.9
HCM Lane LOS	D	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	3.6	0.1	0	-	-	0.2	-	-	0

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	453	151	23	264	2	128	0	34	3	0	7
Future Vol, veh/h	11	453	151	23	264	2	128	0	34	3	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	0	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	492	164	25	287	2	139	0	37	3	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	656	0	0	858	855	492	955	1018	288
Stage 1	-	-	-	-	-	-	516	516	-	338	338	-
Stage 2	-	-	-	-	-	-	342	339	-	617	680	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1273	-	-	931	-	-	277	296	577	238	237	751
Stage 1	-	-	-	-	-	-	542	534	-	676	641	-
Stage 2	-	-	-	-	-	-	673	640	-	477	451	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1273	-	-	931	-	-	267	285	577	217	228	751
Mov Cap-2 Maneuver	-	-	-	-	-	-	386	388	-	325	327	-
Stage 1	-	-	-	-	-	-	537	529	-	670	624	-
Stage 2	-	-	-	-	-	-	648	623	-	442	447	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	17.9	11.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	386	577	1273	-	-	931	-	-	539
HCM Lane V/C Ratio	0.36	0.064	0.009	-	-	0.027	-	-	0.02
HCM Control Delay (s)	19.5	11.7	7.9	-	-	9	-	-	11.8
HCM Lane LOS	C	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.6	0.2	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	20.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	198	166	109	733	3	164	2	35	0	2	2
Future Vol, veh/h	5	198	166	109	733	3	164	2	35	0	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	5	5	5	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	239	200	131	883	4	198	2	42	0	2	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	887	0	0	439	0	0	1400	1400	239	1520	1598	885
Stage 1	-	-	-	-	-	-	251	251	-	1147	1147	-
Stage 2	-	-	-	-	-	-	1149	1149	-	373	451	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	751	-	-	1121	-	-	~ 118	140	800	97	106	344
Stage 1	-	-	-	-	-	-	753	699	-	242	274	-
Stage 2	-	-	-	-	-	-	242	273	-	648	571	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	751	-	-	1121	-	-	~ 105	123	800	82	93	344
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 174	198	-	178	180	-
Stage 1	-	-	-	-	-	-	747	693	-	240	242	-
Stage 2	-	-	-	-	-	-	210	241	-	607	566	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	140.5	20.6
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	174	800	751	-	-	1121	-	-	236
HCM Lane V/C Ratio	1.149	0.053	0.008	-	-	0.117	-	-	0.02
HCM Control Delay (s)	168.1	9.8	9.8	-	-	8.6	-	-	20.6
HCM Lane LOS	F	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	10.4	0.2	0	-	-	0.4	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	666	158	32	384	3	140	0	49	5	0	10
Future Vol, veh/h	16	666	158	32	384	3	140	0	49	5	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	724	172	35	417	3	152	0	53	5	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	420	0	0	896	0	0	1252	1248	724	1360	1419	419
Stage 1	-	-	-	-	-	-	758	758	-	489	489	-
Stage 2	-	-	-	-	-	-	494	490	-	871	930	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1139	-	-	757	-	-	~ 149	173	426	126	137	634
Stage 1	-	-	-	-	-	-	399	415	-	561	549	-
Stage 2	-	-	-	-	-	-	557	549	-	346	346	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1139	-	-	757	-	-	~ 140	163	426	105	129	634
Mov Cap-2 Maneuver	-	-	-	-	-	-	264	280	-	202	229	-
Stage 1	-	-	-	-	-	-	393	409	-	553	524	-
Stage 2	-	-	-	-	-	-	522	524	-	298	341	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.8	30.3	15.2
HCM LOS			D	C

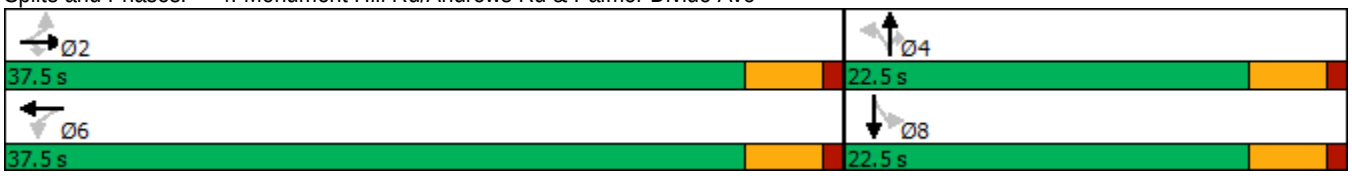
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	264	426	1139	-	-	757	-	-	370
HCM Lane V/C Ratio	0.576	0.125	0.015	-	-	0.046	-	-	0.044
HCM Control Delay (s)	35.7	14.7	8.2	-	-	10	-	-	15.2
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	3.3	0.4	0	-	-	0.1	-	-	0.1

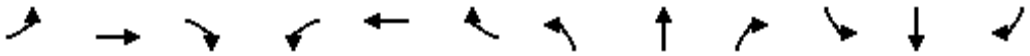
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations									
Traffic Volume (vph)	5	202	175	109	738	174	2	35	2
Future Volume (vph)	5	202	175	109	738	174	2	35	2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2			6		4		8
Permitted Phases	2		2	6		4		4	
Detector Phase	2	2	2	6	6	4	4	4	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	37.5	37.5	37.5	37.5	37.5	22.5	22.5	22.5	22.5
Total Split (%)	62.5%	62.5%	62.5%	62.5%	62.5%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Max	Max	Max	Max	Max	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 58.5
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Monument Hill Rd/Andrews Rd & Palmer Divide Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	202	175	109	738	3	174	2	35	0	2	2
Future Volume (veh/h)	5	202	175	109	738	3	174	2	35	0	2	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	220	190	118	802	3	189	2	38	0	2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1180	1000	724	1203	5	386	3	281	0	152	152
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.18	0.18	0.18	0.00	0.18	0.18
Sat Flow, veh/h	660	1826	1547	976	1862	7	1386	15	1585	0	858	858
Grp Volume(v), veh/h	5	220	190	118	0	805	191	0	38	0	0	4
Grp Sat Flow(s),veh/h/ln	660	1826	1547	976	0	1869	1401	0	1585	0	0	1716
Q Serve(g_s), s	0.2	2.5	2.5	2.8	0.0	13.7	6.6	0.0	1.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	13.9	2.5	2.5	5.3	0.0	13.7	6.7	0.0	1.0	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	0.99		1.00	0.00		0.50
Lane Grp Cap(c), veh/h	391	1180	1000	724	0	1208	389	0	281	0	0	305
V/C Ratio(X)	0.01	0.19	0.19	0.16	0.00	0.67	0.49	0.00	0.14	0.00	0.00	0.01
Avail Cap(c_a), veh/h	391	1180	1000	724	0	1208	637	0	559	0	0	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	9.9	3.6	3.6	4.7	0.0	5.6	20.1	0.0	17.7	0.0	0.0	17.3
Incr Delay (d2), s/veh	0.1	0.3	0.4	0.5	0.0	2.9	1.0	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.6	0.4	0.0	3.0	2.0	0.0	0.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.0	4.0	4.1	5.2	0.0	8.5	21.0	0.0	17.9	0.0	0.0	17.3
LnGrp LOS	A	A	A	A	A	A	C	A	B	A	A	B
Approach Vol, veh/h		415			923			229			4	
Approach Delay, s/veh		4.1			8.1			20.5			17.3	
Approach LOS		A			A			C			B	

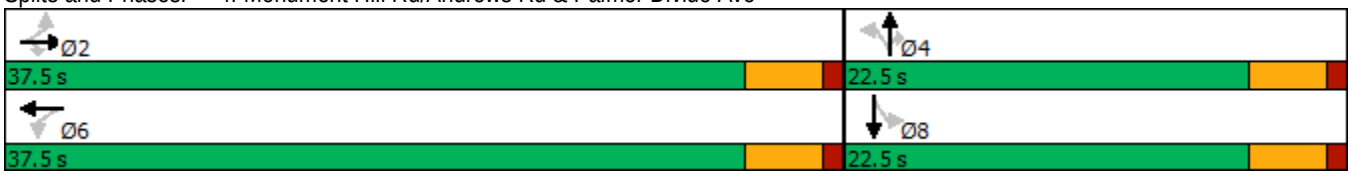
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.5		13.6		37.5		13.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		33.0		18.0		33.0		18.0				
Max Q Clear Time (g_c+I1), s		15.9		8.7		15.7		2.1				
Green Ext Time (p_c), s		1.8		0.7		5.6		0.0				

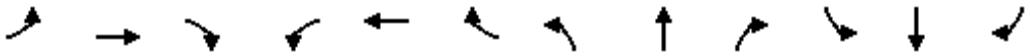
Intersection Summary												
HCM 6th Ctrl Delay			8.9									
HCM 6th LOS			A									

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	672	171	32	390	153	0	49	5	0
Future Volume (vph)	16	672	171	32	390	153	0	49	5	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		2			6		4			8
Permitted Phases	2		2	6		4		4	8	
Detector Phase	2	2	2	6	6	4	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	37.5	37.5	37.5	37.5	37.5	22.5	22.5	22.5	22.5	22.5
Total Split (%)	62.5%	62.5%	62.5%	62.5%	62.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Max	Max	Max	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 55.5
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Monument Hill Rd/Andrews Rd & Palmer Divide Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	672	171	32	390	3	153	0	49	5	0	10
Future Volume (veh/h)	16	672	171	32	390	3	153	0	49	5	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	730	186	35	424	3	166	0	53	5	0	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	645	1187	1006	384	1178	8	356	0	304	111	37	126
Arrive On Green	0.63	0.63	0.63	0.63	0.63	0.63	0.19	0.00	0.19	0.19	0.00	0.19
Sat Flow, veh/h	961	1870	1585	610	1855	13	1134	0	1585	104	194	657
Grp Volume(v), veh/h	17	730	186	35	0	427	166	0	53	16	0	0
Grp Sat Flow(s),veh/h/ln	961	1870	1585	610	0	1868	1134	0	1585	955	0	0
Q Serve(g_s), s	0.4	12.1	2.5	1.9	0.0	5.6	0.1	0.0	1.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.0	12.1	2.5	14.0	0.0	5.6	7.8	0.0	1.5	7.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.31		0.69
Lane Grp Cap(c), veh/h	645	1187	1006	384	0	1186	356	0	304	274	0	0
V/C Ratio(X)	0.03	0.61	0.18	0.09	0.00	0.36	0.47	0.00	0.17	0.06	0.00	0.00
Avail Cap(c_a), veh/h	645	1187	1006	384	0	1186	573	0	549	506	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.9	5.7	3.9	9.8	0.0	4.5	20.1	0.0	17.6	17.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.4	0.4	0.1	0.0	0.2	0.9	0.0	0.3	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.6	0.6	0.2	0.0	1.0	1.8	0.0	0.5	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	8.1	4.3	9.9	0.0	4.7	21.1	0.0	17.8	17.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	B	B	A	A
Approach Vol, veh/h		933			462			219			16	
Approach Delay, s/veh		7.3			5.1			20.3			17.4	
Approach LOS		A			A			C			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.5		14.5		37.5		14.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		33.0		18.0		33.0		18.0				
Max Q Clear Time (g_c+I1), s		14.1		9.8		16.0		9.8				
Green Ext Time (p_c), s		5.9		0.6		2.5		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			8.5									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↱
Traffic Vol, veh/h	488	0	0	751	0	333
Future Vol, veh/h	488	0	0	751	0	333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	530	0	0	816	0	362

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	265
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	0	0	-	0	733
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	733
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	733	-	-
HCM Lane V/C Ratio	0.494	-	-
HCM Control Delay (s)	14.6	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	2.8	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↱
Traffic Vol, veh/h	614	0	0	962	0	407
Future Vol, veh/h	614	0	0	962	0	407
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	667	0	0	1046	0	442

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	334
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	0	0	-	0	662
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	662
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	662	-	-
HCM Lane V/C Ratio	0.668	-	-
HCM Control Delay (s)	20.7	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	5.1	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↱
Traffic Vol, veh/h	567	0	0	815	0	333
Future Vol, veh/h	567	0	0	815	0	333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	616	0	0	886	0	362

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	308
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	0	0	-	0	688
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	688
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	688	-	-
HCM Lane V/C Ratio	0.526	-	-
HCM Control Delay (s)	15.9	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	3.1	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↱
Traffic Vol, veh/h	716	0	0	1039	0	407
Future Vol, veh/h	716	0	0	1039	0	407
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	778	0	0	1129	0	442

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	389
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	0	0	-	0	610
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	610
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	24.9
HCM LOS			C

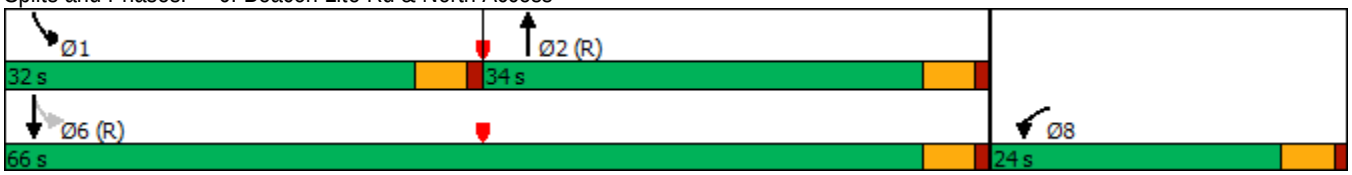
Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	610	-	-
HCM Lane V/C Ratio	0.725	-	-
HCM Control Delay (s)	24.9	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	6.1	-	-

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	4	269	87	515	131
Future Volume (vph)	4	269	87	515	131
Turn Type	Prot	Free	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		Free		6	
Detector Phase	8		2	1	6
Switch Phase					
Minimum Initial (s)	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	9.5	22.5
Total Split (s)	24.0		34.0	32.0	66.0
Total Split (%)	26.7%		37.8%	35.6%	73.3%
Yellow Time (s)	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None		C-Max	None	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 6: Beacon Lite Rd & North Access





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	269	87	4	515	131
Future Volume (veh/h)	4	269	87	4	515	131
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	0	95	4	560	142
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	9		1375	58	2320	1673
Arrive On Green	0.01	0.00	0.77	0.77	0.12	1.00
Sat Flow, veh/h	1781	1585	1782	75	3456	1870
Grp Volume(v), veh/h	4	0	0	99	560	142
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1857	1728	1870
Q Serve(g_s), s	0.2	0.0	0.0	1.2	2.5	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	1.2	2.5	0.0
Prop In Lane	1.00	1.00		0.04	1.00	
Lane Grp Cap(c), veh/h	9		0	1433	2320	1673
V/C Ratio(X)	0.42		0.00	0.07	0.24	0.08
Avail Cap(c_a), veh/h	386		0	1433	3125	1673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.97	0.97
Uniform Delay (d), s/veh	44.6	0.0	0.0	2.5	1.0	0.0
Incr Delay (d2), s/veh	27.6	0.0	0.0	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.3	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	72.2	0.0	0.0	2.6	1.0	0.1
LnGrp LOS	E		A	A	A	A
Approach Vol, veh/h	4		99			702
Approach Delay, s/veh	72.2		2.6			0.8
Approach LOS	E		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.1	74.0			85.0	5.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	27.5	29.5			61.5	19.5
Max Q Clear Time (g_c+I1), s	4.5	3.2			2.0	2.2
Green Ext Time (p_c), s	2.0	0.5			0.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	1.4
HCM 6th LOS	A

Notes

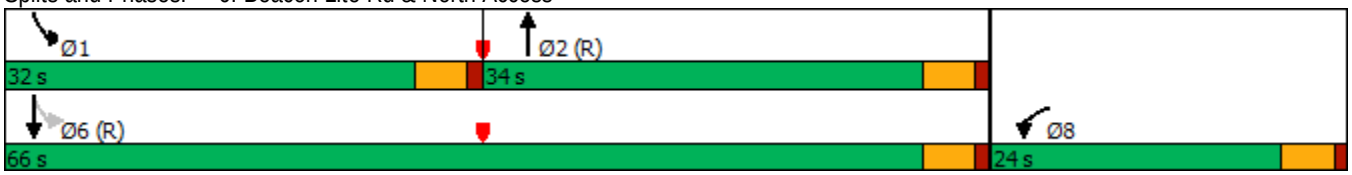
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	5	329	132	672	200
Future Volume (vph)	5	329	132	672	200
Turn Type	Prot	Free	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		Free		6	
Detector Phase	8		2	1	6
Switch Phase					
Minimum Initial (s)	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	9.5	22.5
Total Split (s)	24.0		34.0	32.0	66.0
Total Split (%)	26.7%		37.8%	35.6%	73.3%
Yellow Time (s)	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None		C-Max	None	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Beacon Lite Rd & North Access





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	329	132	5	672	200
Future Volume (veh/h)	5	329	132	5	672	200
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	143	5	730	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	12		1347	47	2235	1671
Arrive On Green	0.01	0.00	0.75	0.75	0.16	1.00
Sat Flow, veh/h	1781	1585	1796	63	3456	1870
Grp Volume(v), veh/h	5	0	0	148	730	217
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1859	1728	1870
Q Serve(g_s), s	0.3	0.0	0.0	1.9	3.7	0.0
Cycle Q Clear(g_c), s	0.3	0.0	0.0	1.9	3.7	0.0
Prop In Lane	1.00	1.00		0.03	1.00	
Lane Grp Cap(c), veh/h	12		0	1394	2235	1671
V/C Ratio(X)	0.43		0.00	0.11	0.33	0.13
Avail Cap(c_a), veh/h	386		0	1394	2967	1671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.92	0.92
Uniform Delay (d), s/veh	44.5	0.0	0.0	3.1	1.1	0.0
Incr Delay (d2), s/veh	23.1	0.0	0.0	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.6	0.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	67.7	0.0	0.0	3.2	1.2	0.1
LnGrp LOS	E		A	A	A	A
Approach Vol, veh/h	5		148			947
Approach Delay, s/veh	67.7		3.2			0.9
Approach LOS	E		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.9	72.0			84.9	5.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	27.5	29.5			61.5	19.5
Max Q Clear Time (g_c+I1), s	5.7	3.9			2.0	2.3
Green Ext Time (p_c), s	2.7	0.7			1.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	1.5
HCM 6th LOS	A

Notes

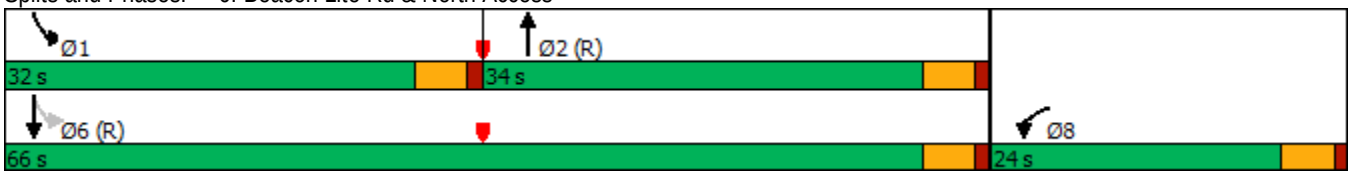
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	4	269	99	515	137
Future Volume (vph)	4	269	99	515	137
Turn Type	Prot	Free	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		Free		6	
Detector Phase	8		2	1	6
Switch Phase					
Minimum Initial (s)	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	9.5	22.5
Total Split (s)	24.0		34.0	32.0	66.0
Total Split (%)	26.7%		37.8%	35.6%	73.3%
Yellow Time (s)	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None		C-Max	None	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 6: Beacon Lite Rd & North Access





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	269	99	4	515	137
Future Volume (veh/h)	4	269	99	4	515	137
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	0	108	4	560	149
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	9		1383	51	2293	1673
Arrive On Green	0.01	0.00	0.77	0.77	0.12	1.00
Sat Flow, veh/h	1781	1585	1792	66	3456	1870
Grp Volume(v), veh/h	4	0	0	112	560	149
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1858	1728	1870
Q Serve(g_s), s	0.2	0.0	0.0	1.3	2.5	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	1.3	2.5	0.0
Prop In Lane	1.00	1.00		0.04	1.00	
Lane Grp Cap(c), veh/h	9		0	1435	2293	1673
V/C Ratio(X)	0.42		0.00	0.08	0.24	0.09
Avail Cap(c_a), veh/h	386		0	1435	3098	1673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.96	0.96
Uniform Delay (d), s/veh	44.6	0.0	0.0	2.5	1.0	0.0
Incr Delay (d2), s/veh	27.6	0.0	0.0	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.4	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	72.2	0.0	0.0	2.6	1.0	0.1
LnGrp LOS	E		A	A	A	A
Approach Vol, veh/h	4		112			709
Approach Delay, s/veh	72.2		2.6			0.8
Approach LOS	E		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.1	74.0			85.0	5.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	27.5	29.5			61.5	19.5
Max Q Clear Time (g_c+I1), s	4.5	3.3			2.0	2.2
Green Ext Time (p_c), s	2.0	0.5			0.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	1.4
HCM 6th LOS	A

Notes

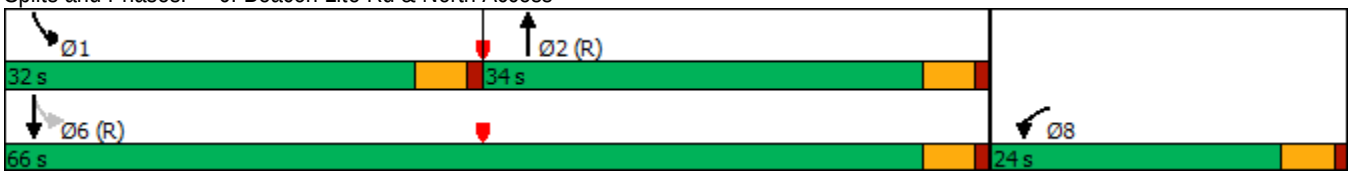
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	5	329	159	672	222
Future Volume (vph)	5	329	159	672	222
Turn Type	Prot	Free	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		Free		6	
Detector Phase	8		2	1	6
Switch Phase					
Minimum Initial (s)	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	9.5	22.5
Total Split (s)	24.0		34.0	32.0	66.0
Total Split (%)	26.7%		37.8%	35.6%	73.3%
Yellow Time (s)	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None		C-Max	None	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Beacon Lite Rd & North Access





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	329	159	5	672	222
Future Volume (veh/h)	5	329	159	5	672	222
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	173	5	730	241
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	12		1356	39	2176	1671
Arrive On Green	0.01	0.00	0.75	0.75	0.16	1.00
Sat Flow, veh/h	1781	1585	1809	52	3456	1870
Grp Volume(v), veh/h	5	0	0	178	730	241
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1861	1728	1870
Q Serve(g_s), s	0.3	0.0	0.0	2.4	3.7	0.0
Cycle Q Clear(g_c), s	0.3	0.0	0.0	2.4	3.7	0.0
Prop In Lane	1.00	1.00		0.03	1.00	
Lane Grp Cap(c), veh/h	12		0	1396	2176	1671
V/C Ratio(X)	0.43		0.00	0.13	0.34	0.14
Avail Cap(c_a), veh/h	386		0	1396	2909	1671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.89	0.89
Uniform Delay (d), s/veh	44.5	0.0	0.0	3.1	1.1	0.0
Incr Delay (d2), s/veh	23.1	0.0	0.0	0.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.7	0.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	67.7	0.0	0.0	3.3	1.2	0.2
LnGrp LOS	E		A	A	A	A
Approach Vol, veh/h	5		178			971
Approach Delay, s/veh	67.7		3.3			0.9
Approach LOS	E		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.9	72.0			84.9	5.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	27.5	29.5			61.5	19.5
Max Q Clear Time (g_c+I1), s	5.7	4.4			2.0	2.3
Green Ext Time (p_c), s	2.7	0.9			1.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	1.6
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	6.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	63	28	6	119	16
Future Vol, veh/h	5	63	28	6	119	16
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	-	-	-	275	-
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	5	68	30	7	129	17

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	309	34	0	0	37	0
Stage 1	34	-	-	-	-	-
Stage 2	275	-	-	-	-	-
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	683	1039	-	-	1574	-
Stage 1	988	-	-	-	-	-
Stage 2	771	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	627	1039	-	-	1574	-
Mov Cap-2 Maneuver	627	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	708	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	6.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	991	1574	-
HCM Lane V/C Ratio	-	-	0.075	0.082	-
HCM Control Delay (s)	-	-	8.9	7.5	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	-

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	77	60	8	156	49
Future Vol, veh/h	8	77	60	8	156	49
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	-	-	-	275	-
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	9	84	65	9	170	53

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	463	70	0	0	74	0
Stage 1	70	-	-	-	-	-
Stage 2	393	-	-	-	-	-
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	557	993	-	-	1526	-
Stage 1	953	-	-	-	-	-
Stage 2	682	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	495	993	-	-	1526	-
Mov Cap-2 Maneuver	495	-	-	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	606	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	5.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	907	1526	-
HCM Lane V/C Ratio	-	-	0.102	0.111	-
HCM Control Delay (s)	-	-	9.4	7.7	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

Intersection	
Int Delay, s/veh	5.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	63	40	6	119	22
Future Vol, veh/h	5	63	40	6	119	22
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	-	-	-	275	-
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	5	68	43	7	129	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	329	47	0	0	50	0
Stage 1	47	-	-	-	-	-
Stage 2	282	-	-	-	-	-
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	665	1022	-	-	1557	-
Stage 1	975	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	610	1022	-	-	1557	-
Mov Cap-2 Maneuver	610	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	6.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	974	1557	-
HCM Lane V/C Ratio	-	-	0.076	0.083	-
HCM Control Delay (s)	-	-	9	7.5	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	-

Intersection	
Int Delay, s/veh	5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	77	87	8	156	71
Future Vol, veh/h	8	77	87	8	156	71
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	-	-	-	275	-
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	9	84	95	9	170	77

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	517	100	0	0	104	0
Stage 1	100	-	-	-	-	-
Stage 2	417	-	-	-	-	-
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	518	956	-	-	1488	-
Stage 1	924	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	459	956	-	-	1488	-
Mov Cap-2 Maneuver	459	-	-	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	589	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	5.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	868	1488	-
HCM Lane V/C Ratio	-	-	0.106	0.114	-
HCM Control Delay (s)	-	-	9.6	7.7	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	-

APPENDIX F

Signal Warrant Analysis Worksheets

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **Beacon Lite/County Line** # OF APPROACH LANES: **2**

MINOR STREET: **County Line** # OF APPROACH LANES: **1**

CITY, STATE: **El Paso County, CO**

COMMENTS: 2028 Total

*It should be noted that a reduction of 100% was applied for right turns on the minor street approach(s)

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES			**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	1,117	141	Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	
08:00 AM TO 09:00 AM	1,005	127	Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**		
09:00 AM TO 10:00 AM	0	0														
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM																
04:00 PM TO 05:00 PM	1,164	135	Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	
05:00 PM TO 06:00 PM	1,293	150	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	
06:00 PM TO 07:00 PM																
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	4,579	553	4	1	**1**	4	4	**4**	4	4	**4**	4	4	**4**	**3**	**0**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

11/19/24

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **Palmer Divide** # OF APPROACH LANES: **2**

MINOR STREET: **I-25 SB** # OF APPROACH LANES: **1**

CITY, STATE: **El Paso County, CO**

COMMENTS: 2028 Total

*It should be noted that a reduction of 100% was applied for right turns on the minor street approach(s)

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES			**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	1,572	99	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
08:00 AM TO 09:00 AM	1,415	90	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
09:00 AM TO 10:00 AM	0	0														
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM																
04:00 PM TO 05:00 PM	1,369	237	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM TO 06:00 PM	1,521	263	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
06:00 PM TO 07:00 PM																
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	5,877	689	4	2	**2**	4	4	**4**	4	2	**2**	4	4	**4**	**4**	**2**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**SATISFIED**	**SATISFIED**

11/19/24

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **Palmer Divide** # OF APPROACH LANES: **2**

MINOR STREET: **I-25 NB** # OF APPROACH LANES: **1**

CITY, STATE: **El Paso County, CO**

COMMENTS: 2028 Total

*It should be noted that a reduction of 100% was applied for right turns on the minor street approach(s)

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES			**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**			
06:00 AM TO 07:00 AM	0	0														
07:00 AM TO 08:00 AM	1,199	357	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
08:00 AM TO 09:00 AM	1,080	321	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
09:00 AM TO 10:00 AM	0	0														
10:00 AM TO 11:00 AM	0	0														
11:00 AM TO 12:00 PM	0	0														
12:00 PM TO 01:00 PM	0	0														
01:00 PM TO 02:00 PM	0	0														
02:00 PM TO 03:00 PM	0	0														
03:00 PM TO 04:00 PM																
04:00 PM TO 05:00 PM	970	365	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
05:00 PM TO 06:00 PM	1,078	406	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
06:00 PM TO 07:00 PM																
07:00 PM TO 08:00 PM	0	0														
08:00 PM TO 09:00 PM	0	0														
09:00 PM TO 10:00 PM	0	0														
	4,327	1,449	4	4	**4**	4	4	**4**	4	4	**4**	4	4	**4**	**4**	**4**
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**SATISFIED**	**SATISFIED**

11/19/24

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **Beacon Lite** # OF APPROACH LANES: **2**

MINOR STREET: **North Access** # OF APPROACH LANES: **1**

CITY, STATE: **El Paso County, CO**

COMMENTS: 2028 Total

*It should be noted that a reduction of 100% was applied for right turns on the minor street approach(s)

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

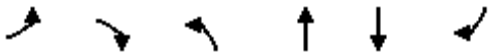
			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES					**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	737	4	Y						Y			Y				
08:00 AM	TO	09:00 AM	664	4	Y						Y							
09:00 AM	TO	10:00 AM	0	0														
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM																
04:00 PM	TO	05:00 PM	1,009	5	Y			Y			Y			Y				
05:00 PM	TO	06:00 PM	909	5	Y			Y			Y			Y				
06:00 PM	TO	07:00 PM																
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			3,319	18	4	0	**0**	2	0	**0**	4	0	**0**	3	0	**0**	**0**	**0**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

11/19/24

Kimley-Horn and Associates

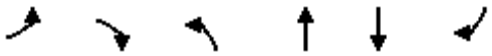
APPENDIX G

Queue Analysis Worksheets



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	160	22	22	394	711	142
v/c Ratio	0.61	0.09	0.04	0.15	0.29	0.13
Control Delay	45.0	13.4	3.6	3.5	5.5	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	13.4	3.6	3.5	5.5	1.8
Queue Length 50th (ft)	86	0	3	28	43	1
Queue Length 95th (ft)	137	19	7	36	107	19
Internal Link Dist (ft)	288			381	322	
Turn Bay Length (ft)			150			150
Base Capacity (vph)	481	446	565	2657	2441	1134
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.05	0.04	0.15	0.29	0.13

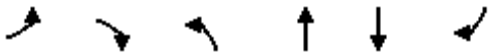
Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	190	30	32	508	960	133
v/c Ratio	0.65	0.10	0.08	0.20	0.42	0.12
Control Delay	45.1	11.4	4.5	4.5	6.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	11.4	4.5	4.5	6.3	1.3
Queue Length 50th (ft)	102	0	5	44	76	0
Queue Length 95th (ft)	155	21	12	75	127	m11
Internal Link Dist (ft)	288			381	322	
Turn Bay Length (ft)			150			150
Base Capacity (vph)	442	418	414	2599	2300	1073
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.07	0.08	0.20	0.42	0.12

Intersection Summary

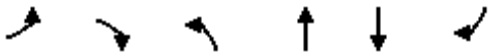
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	238	22	23	407	718	208
v/c Ratio	0.70	0.07	0.05	0.16	0.31	0.19
Control Delay	44.4	11.5	5.0	4.9	7.8	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	11.5	5.0	4.9	7.8	2.0
Queue Length 50th (ft)	127	0	4	35	66	2
Queue Length 95th (ft)	184	17	11	65	122	m23
Internal Link Dist (ft)	288			381	322	
Turn Bay Length (ft)			150			150
Base Capacity (vph)	521	481	511	2503	2287	1094
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.05	0.05	0.16	0.31	0.19

Intersection Summary

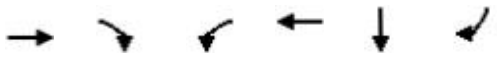
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	277	31	34	536	984	197
v/c Ratio	0.73	0.09	0.09	0.22	0.46	0.19
Control Delay	44.4	9.6	6.0	6.0	6.9	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	9.6	6.0	6.0	6.9	0.9
Queue Length 50th (ft)	148	0	6	56	80	0
Queue Length 95th (ft)	207	20	17	94	132	m5
Internal Link Dist (ft)	288			381	322	
Turn Bay Length (ft)			150			150
Base Capacity (vph)	501	470	367	2431	2141	1033
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.07	0.09	0.22	0.46	0.19

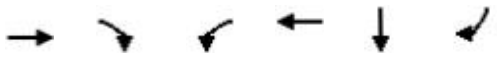
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



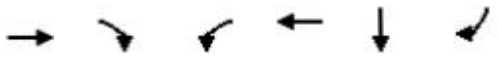
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	498	414	351	483	110	352
v/c Ratio	0.31	0.44	0.57	0.32	0.27	0.57
Control Delay (s/veh)	14.8	2.7	14.7	22.9	29.4	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.8	2.7	14.7	22.9	29.5	7.2
Queue Length 50th (ft)	91	9	125	94	51	0
Queue Length 95th (ft)	128	37	173	124	96	69
Internal Link Dist (ft)	534			272	268	
Turn Bay Length (ft)						
Base Capacity (vph)	1594	940	712	1491	401	621
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	4	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.44	0.49	0.32	0.28	0.57

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	541	488	184	529	301	438
v/c Ratio	0.38	0.31	0.45	0.51	0.48	0.52
Control Delay (s/veh)	16.1	0.6	22.1	38.8	26.2	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.1	0.6	22.1	38.8	26.2	4.7
Queue Length 50th (ft)	88	0	83	136	132	0
Queue Length 95th (ft)	121	2	133	173	210	61
Internal Link Dist (ft)	534			272	268	
Turn Bay Length (ft)						
Base Capacity (vph)	1431	1568	410	1035	621	838
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	24	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.31	0.45	0.51	0.48	0.52

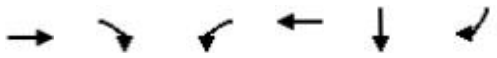
Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	559	442	494	544	159	362
v/c Ratio	0.38	0.28	0.80	0.41	0.40	0.58
Control Delay (s/veh)	16.8	0.5	26.2	22.3	31.7	7.3
Queue Delay	0.0	0.0	0.0	0.2	0.5	0.0
Total Delay (s/veh)	16.8	0.5	26.2	22.6	32.1	7.3
Queue Length 50th (ft)	114	0	175	95	75	0
Queue Length 95th (ft)	148	0	#294	121	133	71
Internal Link Dist (ft)	534			272	268	
Turn Bay Length (ft)						
Base Capacity (vph)	1460	1583	649	1342	401	628
Starvation Cap Reductn	0	0	0	257	0	0
Spillback Cap Reductn	21	0	0	0	57	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.28	0.76	0.50	0.46	0.58

Intersection Summary

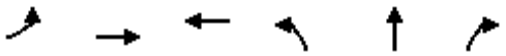
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	595	527	253	576	435	457
v/c Ratio	0.42	0.34	0.65	0.58	0.70	0.54
Control Delay (s/veh)	15.8	0.6	27.5	37.3	32.4	4.8
Queue Delay	0.1	0.0	0.0	0.2	0.4	0.0
Total Delay (s/veh)	15.9	0.6	27.5	37.5	32.8	4.8
Queue Length 50th (ft)	101	0	108	137	210	0
Queue Length 95th (ft)	130	3	#163	173	320	62
Internal Link Dist (ft)	534			272	268	
Turn Bay Length (ft)						
Base Capacity (vph)	1421	1568	389	995	621	851
Starvation Cap Reductn	0	0	0	66	0	0
Spillback Cap Reductn	137	0	0	0	26	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.34	0.65	0.62	0.73	0.54

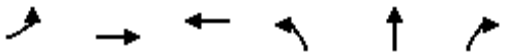
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



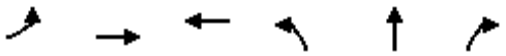
Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	405	210	748	203	203	99
v/c Ratio	0.75	0.26	0.35	0.49	0.49	0.21
Control Delay	35.9	8.6	13.7	33.7	33.7	7.2
Queue Delay	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	8.6	13.7	33.7	33.7	7.2
Queue Length 50th (ft)	131	29	69	104	104	0
Queue Length 95th (ft)	232	46	112	170	170	36
Internal Link Dist (ft)		272	582		210	
Turn Bay Length (ft)						
Base Capacity (vph)	639	815	2133	412	412	462
Starvation Cap Reductn	24	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.26	0.35	0.49	0.49	0.21

Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	454	403	417	239	241	255
v/c Ratio	0.73	0.53	0.27	0.41	0.41	0.35
Control Delay	25.3	17.9	15.4	24.8	24.8	4.3
Queue Delay	0.1	0.5	0.0	0.0	0.0	0.0
Total Delay	25.4	18.5	15.4	24.8	24.8	4.3
Queue Length 50th (ft)	133	101	39	106	108	0
Queue Length 95th (ft)	227	154	67	175	177	49
Internal Link Dist (ft)		272	582		210	
Turn Bay Length (ft)						
Base Capacity (vph)	657	760	1529	588	590	719
Starvation Cap Reductn	9	110	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.62	0.27	0.41	0.41	0.35

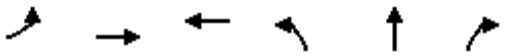
Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	426	298	1057	217	218	134
v/c Ratio	0.85	0.40	0.54	0.53	0.53	0.27
Control Delay	54.2	11.2	18.8	34.6	34.7	6.7
Queue Delay	1.2	0.2	0.0	0.2	0.2	0.0
Total Delay	55.4	11.5	18.8	34.8	34.9	6.7
Queue Length 50th (ft)	207	49	140	112	112	0
Queue Length 95th (ft)	#308	70	178	183	183	41
Internal Link Dist (ft)		272	582		210	
Turn Bay Length (ft)						
Base Capacity (vph)	545	746	1943	412	412	488
Starvation Cap Reductn	29	103	0	0	0	0
Spillback Cap Reductn	0	0	6	15	15	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.46	0.55	0.55	0.55	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	474	570	579	253	256	350
v/c Ratio	0.83	0.75	0.39	0.43	0.43	0.45
Control Delay	35.0	26.6	18.4	25.2	25.3	4.4
Queue Delay	0.6	0.9	0.0	0.0	0.0	0.0
Total Delay	35.5	27.5	18.4	25.2	25.3	4.4
Queue Length 50th (ft)	182	165	64	114	115	0
Queue Length 95th (ft)	m#274	m424	97	186	188	56
Internal Link Dist (ft)		272	582		210	
Turn Bay Length (ft)						
Base Capacity (vph)	597	755	1490	588	590	781
Starvation Cap Reductn	16	47	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.81	0.39	0.43	0.43	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	5	220	190	118	805	191	38	4
v/c Ratio	0.02	0.19	0.18	0.16	0.69	0.64	0.10	0.01
Control Delay	6.0	6.2	1.7	6.5	13.0	29.7	6.8	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	6.2	1.7	6.5	13.0	29.7	6.8	12.8
Queue Length 50th (ft)	1	28	0	14	156	56	0	1
Queue Length 95th (ft)	5	67	22	42	#373	109	18	6
Internal Link Dist (ft)		582			1847	276		26
Turn Bay Length (ft)	150		150					
Base Capacity (vph)	259	1129	1030	721	1160	417	515	537
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.19	0.18	0.16	0.69	0.46	0.07	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	17	730	186	35	427	166	53	16
v/c Ratio	0.03	0.57	0.16	0.09	0.33	0.56	0.14	0.05
Control Delay	5.5	9.4	1.6	6.3	6.5	26.8	6.5	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	9.4	1.6	6.3	6.5	26.8	6.5	5.3
Queue Length 50th (ft)	2	121	0	4	56	47	0	0
Queue Length 95th (ft)	10	286	22	17	132	95	21	8
Internal Link Dist (ft)		582			1847	276		26
Turn Bay Length (ft)	150		150					
Base Capacity (vph)	630	1278	1144	379	1277	451	550	512
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.57	0.16	0.09	0.33	0.37	0.10	0.03

Intersection Summary



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	4	292	99	560	142
v/c Ratio	0.04	0.18	0.07	0.25	0.08
Control Delay	40.0	0.3	3.0	2.3	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	0.3	3.0	2.3	1.5
Queue Length 50th (ft)	2	0	7	0	0
Queue Length 95th (ft)	13	0	34	108	61
Internal Link Dist (ft)	95		640		381
Turn Bay Length (ft)				200	
Base Capacity (vph)	383	1583	1475	2505	1799
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.18	0.07	0.22	0.08

Intersection Summary



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	5	358	148	730	217
v/c Ratio	0.04	0.23	0.10	0.33	0.12
Control Delay	40.0	0.3	3.4	2.9	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	0.3	3.4	2.9	1.6
Queue Length 50th (ft)	3	0	11	1	0
Queue Length 95th (ft)	14	0	52	161	87
Internal Link Dist (ft)	95		640		381
Turn Bay Length (ft)				200	
Base Capacity (vph)	383	1583	1459	2440	1798
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.23	0.10	0.30	0.12

Intersection Summary



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	4	292	112	560	149
v/c Ratio	0.04	0.18	0.08	0.25	0.08
Control Delay	40.0	0.3	3.0	2.1	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	0.3	3.0	2.1	1.4
Queue Length 50th (ft)	2	0	8	0	0
Queue Length 95th (ft)	13	0	38	105	58
Internal Link Dist (ft)	95		640		381
Turn Bay Length (ft)				200	
Base Capacity (vph)	383	1583	1475	2488	1799
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.18	0.08	0.23	0.08

Intersection Summary



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	5	358	178	730	241
v/c Ratio	0.04	0.23	0.12	0.34	0.13
Control Delay	40.0	0.3	3.4	2.7	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	0.3	3.4	2.7	1.6
Queue Length 50th (ft)	3	0	13	1	0
Queue Length 95th (ft)	14	0	61	157	94
Internal Link Dist (ft)	95		640		381
Turn Bay Length (ft)				200	
Base Capacity (vph)	383	1583	1460	2403	1798
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.23	0.12	0.30	0.13

Intersection Summary

APPENDIX H

Cap-X & ICAT Tool Worksheets

MIMR Excerpts

Capacity Analysis for Planning of Junctions

Dynamic Results Summary

TYPE OF INTERSECTION	Overall V/C Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Cloverleaf B N-S	0.31	1	Good	Excellent
Partial Cloverleaf A N-S	0.35	2	Good	Excellent
Partial Cloverleaf A E-W	0.38	3	Good	Excellent
Diverging Diamond Interchange N-S	0.39	4	Good	Excellent
Partial Cloverleaf B E-W	0.42	5	Good	Excellent
Diverging Diamond Interchange E-W	0.44	6	Good	Excellent
Displaced Left Turn (Interchange) E-W	0.45	7	Good	Excellent
Diamond N-S	0.55	8	Good	Fair
Single Point N-S	0.57	9	Good	Excellent
Singe Point Diamond w/ RAB N-S	0.61	10	Good	Excellent

Use the "yes/no" drop-down menus in Step 2 (Base and Alt Selection) to exclude intersection types from summary rankings, if they are not applicable.

ICAT STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

Developed and Maintained in Cooperation with Georgia DOT

CDOT ICAT Version 1.2 | Release Date: 4/26/2021

CDOT Project Number: 0000000
Project Location: Palmer Divi @ NB Off-Ramp /
Existing Intersection Control: Conventional Minor Stop
County/Region: El Paso / CDOT Region 2
Area Type: Urban
Prepared by: 0
Date: 1/0/1900
Type of Project: Operational Improvement Project

Existing / Design Year No-Build Traffic Operations

Traffic Analysis Measure of Effectiveness	Intersection Delay	
Traffic Analysis Software Used	--select one--	
Analysis Time Period	AM Peak Hr	PM Peak Hr
2024 Existing No-Build Peak Hr Intersection Delay	0.0 sec	0.0 sec
2024 Existing No-Build Peak Hr Intersection V/C ratio	0.00	0.00
2028 Design Yr No-Build Peak Hr Intersection Delay	0.0 sec	0.0 sec
2028 Design Yr No-Build Peak Hr Intersection V/C ratio	0.00	0.00

Alternatives Analysis	**Alternative 1**	**Alternative 2**	**Alternative 3**
Proposed Control Type Improvement:	Displaced Left-Turn / CFI	Signalized Intersection	Multilane Roundabout
	Add addt'l description here	*Add addt'l description here*	*Add addt'l description here*
Project Cost ***(From Cost Worksheet)***			
Construction Cost	$863,438	$416,251	$1,024,054
ROW Cost	$32,829	$2,296	$400,918
Environmental Cost	$0	$0	$0
Reimbursable Utility Cost	$25,903	$12,488	$30,722
Design & Contingency Cost	$259,031	$124,875	$307,216
Cost Adjustment (justification req'd)	0%	0%	0%
Total Cost	$1,181,202	$555,910	$1,762,910

Traffic Operations						
Traffic Analysis Software Used	--select one--		--select one--		--select one--	
Analysis Period	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr
2028 Design Yr Build Intersection Delay	0.0 sec	0.0 sec	0.0 sec	0.0 sec	0.0 sec	0.0 sec
2028 Design Yr Build Intersection V/C	0.00	0.00	0.00	0.00	0.00	0.00

Safety Analysis			
Predefined CRF: PDO	0%	39%	32%
Predefined CRF: Fatal/Inj	0%	40%	71%
Predefined CRF Source:	-	FHWA Clearinghouse IDs: 7982 / 7984	FHWA Clearinghouse IDs: 236 / 237
User Defined CRF: PDO			
User Defined CRF: Fatal/Inj			
User Defined CRF Source (write in if applicable):			

Environmental Impacts			
Historic District/Property:	None	None	None
Archaeology Resources:	None	None	None
Graveyard:	None	None	None
Stream:	None	None	None
UST/Hazmat:	None	None	None
Park Land:	None	None	None
EJ Community:	None	None	None
Floodplain:	None	None	None
Wetland:	None	None	None
T&E Species Habitat:	None	None	None

Note: Be sure to go back to **Costs** worksheet to enter mitigation costs for each noted impact

Stakeholder Support:			
Local Community Support	Unknown	Unknown	Unknown
CDOT Region Support	Unknown	Unknown	Unknown

Final ICAT Stage 2 Score:	**2.8**	**3.5**	**2.2**
Rank of Control Type Alternatives:	**2**	**1**	**3**

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):

ICAT STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

Developed and Maintained in Cooperation with Georgia DOT

CDOT ICAT Version 1.2 | Release Date: 4/26/2021

CDOT Project Number: 0000000
Project Location: Palmer Divi @ Road 2 / SB Off-Ramp
Existing Intersection Control: Conventional Minor Stop
County/Region: El Paso / CDOT Region 2
Area Type: Urban
Prepared by: 0
Date: 1/0/1900
Type of Project: Operational Improvement Project

Existing / Design Year No-Build Traffic Operations

Traffic Analysis Measure of Effectiveness	Intersection Delay	
Traffic Analysis Software Used	--select one--	
Analysis Time Period	AM Peak Hr	PM Peak Hr
2024 Existing No-Build Peak Hr Intersection Delay	0.0 sec	0.0 sec
2024 Existing No-Build Peak Hr Intersection V/C ratio	0.00	0.00
2028 Design Yr No-Build Peak Hr Intersection Delay	0.0 sec	0.0 sec
2028 Design Yr No-Build Peak Hr Intersection V/C ratio	0.00	0.00

Alternatives Analysis	**Alternative 1**	**Alternative 2**	**Alternative 3**
Proposed Control Type Improvement:	Displaced Left-Turn / CFI	Signalized Intersection	Multilane Roundabout
Project Cost ***(From Cost Worksheet)***	*Add addt'l description here*	*Add addt'l description here*	*Add addt'l description here*
Construction Cost	$863,438	$416,251	$804,054
ROW Cost	$32,829	$2,296	$200,918
Environmental Cost	$0	$0	$0
Reimbursable Utility Cost	$25,903	$12,488	$24,122
Design & Contingency Cost	$259,031	$124,875	$241,216
Cost Adjustment (justification req'd)	0%	0%	0%
Total Cost	$1,181,202	$555,910	$1,270,310

Traffic Operations						
Traffic Analysis Software Used	--select one--		--select one--		--select one--	
Analysis Period	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr
2028 Design Yr Build Intersection Delay	0.0 sec	0.0 sec	0.0 sec	0.0 sec	0.0 sec	0.0 sec
2028 Design Yr Build Intersection V/C	0.00	0.00	0.00	0.00	0.00	0.00

Safety Analysis			
Predefined CRF: PDO	0%	39%	32%
Predefined CRF: Fatal/Inj	0%	40%	71%
Predefined CRF Source:	-	FHWA Clearinghouse IDs: 7982 / 7984	FHWA Clearinghouse IDs: 236 / 237
User Defined CRF: PDO			
User Defined CRF: Fatal/Inj			
User Defined CRF Source (write in if applicable):			

Environmental Impacts			
Historic District/Property:	None	None	None
Archaeology Resources:	None	None	None
Graveyard:	None	None	None
Stream:	None	None	None
UST/Hazmat:	None	None	None
Park Land:	None	None	None
EJ Community:	None	None	None
Floodplain:	None	None	None
Wetland:	None	None	None
T&E Species Habitat:	None	None	None

Note: Be sure to go back to **Costs** worksheet to enter mitigation costs for each noted impact

Stakeholder Support:			
Local Community Support	Unknown	Unknown	Unknown
CDOT Region Support	Unknown	Unknown	Unknown

Final ICAT Stage 2 Score:	**2.6**	**3.4**	**2.5**
Rank of Control Type Alternatives:	**2**	**1**	**3**

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):

Kimley»Horn

May 28, 2025

Mr. John Cater
Division Administrator
Federal Highway Administration Colorado Division
12300 West Dakota Avenue, Suite 180
Lakewood, Colorado 80228

Re: Buc-ee's Palmer Lake
Minor Interchange Modification Request Memorandum
Palmer Lake, Colorado

Dear Mr. Cater:

This memorandum documents the results of traffic analysis prepared for the County Line Road & I-25 interchange in Palmer Lake, Colorado. The purpose of this traffic analysis was to compare various interchange alternatives as part of a Minor Interchange Modification Request (MIMR).

With anticipated development in the immediate area, the existing stop-controlled off-ramps at the County Line Road and I-25 Ramps intersections are expected to need improvement. The primary development anticipated to affect the interchange is a 120-fueling position Buc-ee's gas station with a 74,000 square foot convenience store is proposed on the southwest corner of the County Line Road and I-25 Southbound Ramps intersection.

Prior to preparing this memorandum, Kimley-Horn performed an analysis of the interchange utilizing the Capacity Analysis for Planning of Junction (Cap-X) Tool developed by the Federal Highway Administration. The results of the Cap-X analysis were reviewed by CDOT. Three alternatives identified in the Cap-X analysis were determined to be feasible options for this interchange due to a combination of available right of way for the improvement, constructability, and operational performance. These alternatives include:

- Alternative 1: Standard Diamond Interchange
- Alternative 2: Diverging Diamond Interchange (DDI)
- Alternative 3: Roundabout Interchange

After completion of the Cap-X analysis it was determined that additional analysis should be performed to identify a preferred solution for the interchange. This memorandum expands upon analysis prepared by the Buc-ee's development in the Buc-ee's Traffic Impact Study, using PTV Vissim microsimulation software to compare these interchange alternatives.

Following discussion with CDOT staff, a fourth alternative—Alternative 1b—was analyzed, which is a standard diamond interchange but includes additional improvements such as a separate northbound right turn lane on the I-25 northbound off-ramp as well as additional storage length available on the westbound County Line Road approach to the I-25 Northbound Ramps intersection. The additional storage length on westbound County Line Road would be constructed in conjunction with Buc-ee's Palmer Lake development. Based on discussion with CDOT, the separate right turn lane on the I-25 northbound off-ramp is

expected to be constructed by future developments to the east of I-25, such as Monument Ridge East.

The following existing intersections were included for analysis in this study:

- County Line Road & Beacon Lite Road (Intersection #1)
- County Line Road & I-25 Southbound Ramps (#2)
- County Line Road & I-25 Northbound Ramps (#3)
- County Line Road & Monument Hill Road (#4)

The proposed right-out only access to be located on County Line Road between Beacon Lite Road and the I-25 Southbound Ramps was also included in the simulation models.

TRAFFIC IMPACT STUDY SUMMARY

A traffic impact study—Buc-ee's Palmer Lake—was prepared by Kimley-Horn in November 2024 that included analysis of the aforementioned intersections, in addition to two proposed full movement accesses along the east side of Beacon Lite Road to the south of County Line Road. The study analyzed two horizons, including a 2028 short-term buildout analysis and a 2045 long-term planning horizon analysis. Applicable documents from the traffic study are attached. For purposes of this memorandum, the study will be referred to as the Buc-ee's Palmer Lake traffic study.

PROJECTED TRAFFIC VOLUMES AND MODEL PARAMETERS

Traffic volumes at the study area intersections in this memorandum were based on the Buc-ee's Palmer Lake traffic study and are intended to represent typical expected weekday peak hour traffic volume projections. The Vissim analysis conducted in association with this memorandum analyzed only the 2045 background plus project traffic conditions. A screenshot of the 2045 background plus project traffic volumes from the Buc-ee's Palmer Lake traffic study is provided in **Figure 1**. Of note, this figure shows traffic volumes for two additional intersections (#6 and #7) along Beacon Lite Road which would serve as access locations to the Buc-ee's; however, these intersections were not included in the analysis presented in this memorandum, as the primary area of focus is the County Line Road & I-25 interchange along with its adjacent intersections.

These projected volumes were balanced as needed prior to developing origin-destination routing throughout the study network. The Highway Capacity Manual (HCM) urban standard peak hour factor (PHF) of 0.92 was used as a basis to form peak hour traffic variation in the Vissim models, while a heavy vehicle percentage of two (2) percent was also assumed, both of which are consistent with the Buc-ee's Palmer Lake traffic study. Vehicle inputs were applied at 15-minute intervals using the 0.92 PHF as a basis to provide for traffic volume fluctuations throughout the morning and peak hours. Origin-destination routing was conducted using PTV Visum to generate end-to-end routing throughout the entire network. Each model included a 900-second (15-minute) seed period at the beginning of each simulation, while the models were run for 30 simulation runs.

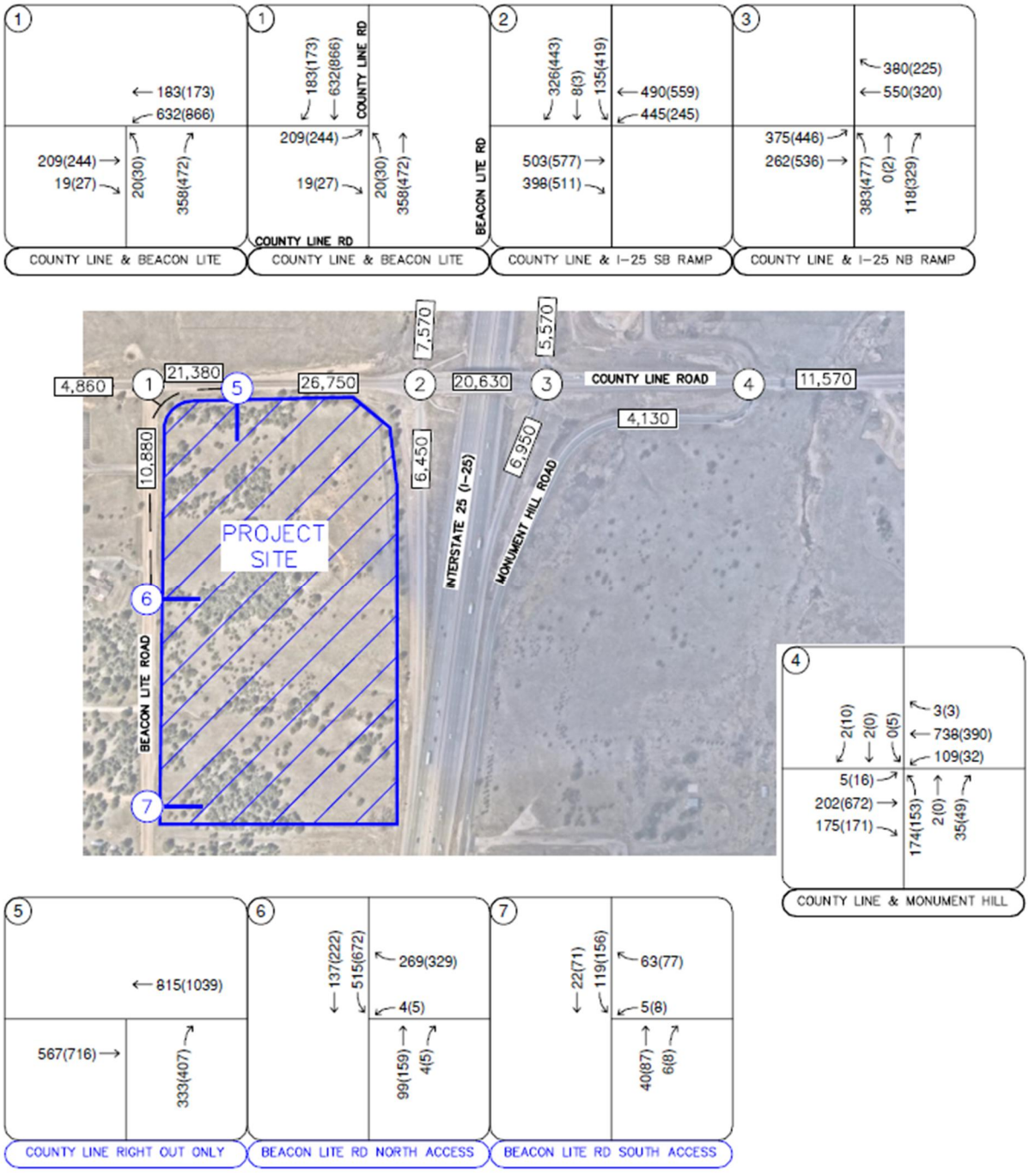


Figure 1 – 2045 Total Traffic Volumes

Signal timings used in the analysis were based on the Synchro analysis results from the Buc-ee's Palmer Lake traffic study, with minor modifications made to optimize traffic operations as was deemed appropriate based upon the results of the Vissim analysis conducted in this study. A 90-second cycle was assumed at the County Line Road & I-25 Ramps (#2 and #3) intersections in the standard diamond interchange alternative, with the eastbound and westbound left turning movements operating with protected-permissive left turn phasing. A 70-second cycle was assumed at the I-25 Ramps intersections in the DDI alternative. A 60-second cycle was used at the County Line Road & Monument Hill Road (#4) intersection in all alternatives, with all four approaches to this intersection operating with permissive only left turn phasing.

TRAFFIC OPERATIONAL ANALYSIS

Traffic operations were analyzed for all build alternatives during the morning and afternoon peak hours in the 2045 horizon. All build alternatives assumed that the County Line Road & Beacon Lite Road (#1) intersection would be configured as a roundabout, with two entry and exit lanes on the south and west legs of the intersection and one entry/exit lane on the west leg of the intersection. This is consistent with the roundabout configuration assumed in the Buc-ee's traffic study. A screenshot of this intersection from the Vissim analysis is provided in **Figure 2**.

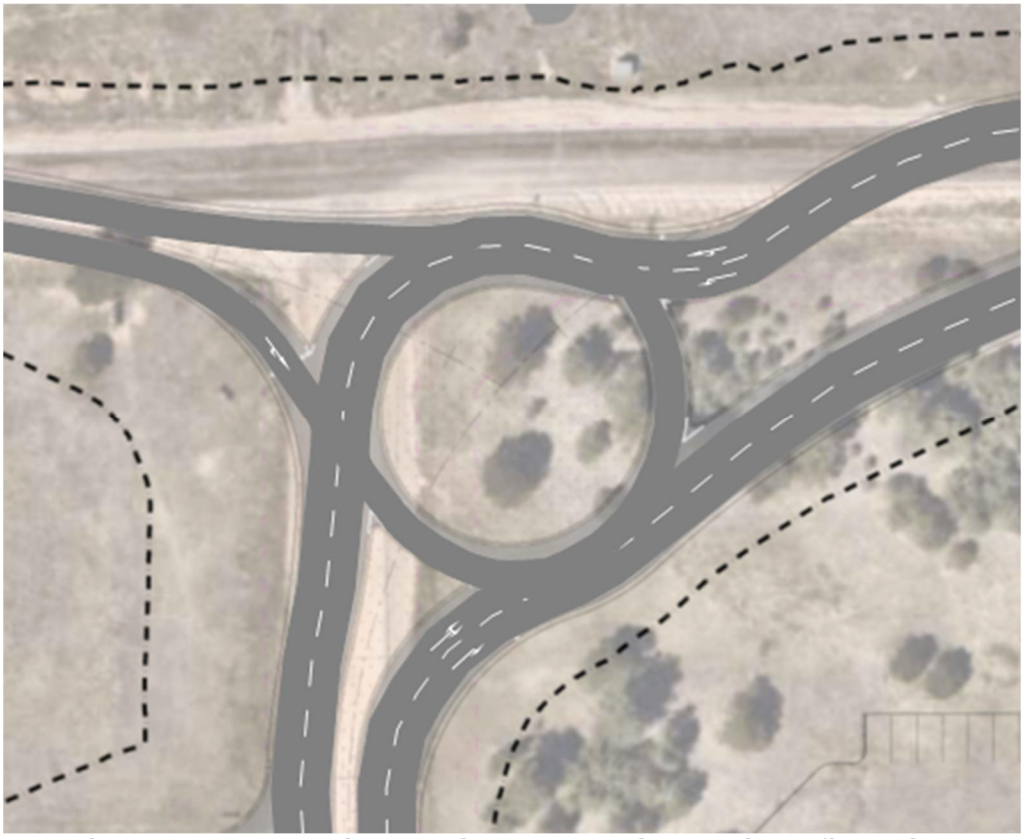


Figure 2 – County Line Road & Beacon Lite Road Configuration

The County Line Road & Monument Hill Road (#4) intersection was also assumed to generally be of the same intersection configuration in all alternatives. The eastbound approach was assumed to provide a left turn lane, one through lane, and a right turn lane, while the westbound approach assumed a left turn lane and a shared through/right turn lane. The northbound Monument Hill Road approach was assumed to operate with a shared left/through lane and a separate right turn lane, while the southbound approach was assumed to provide one lane for shared left/through/right turning movements. A screenshot of this intersection from the Vissim analysis is provided in **Figure 3**.

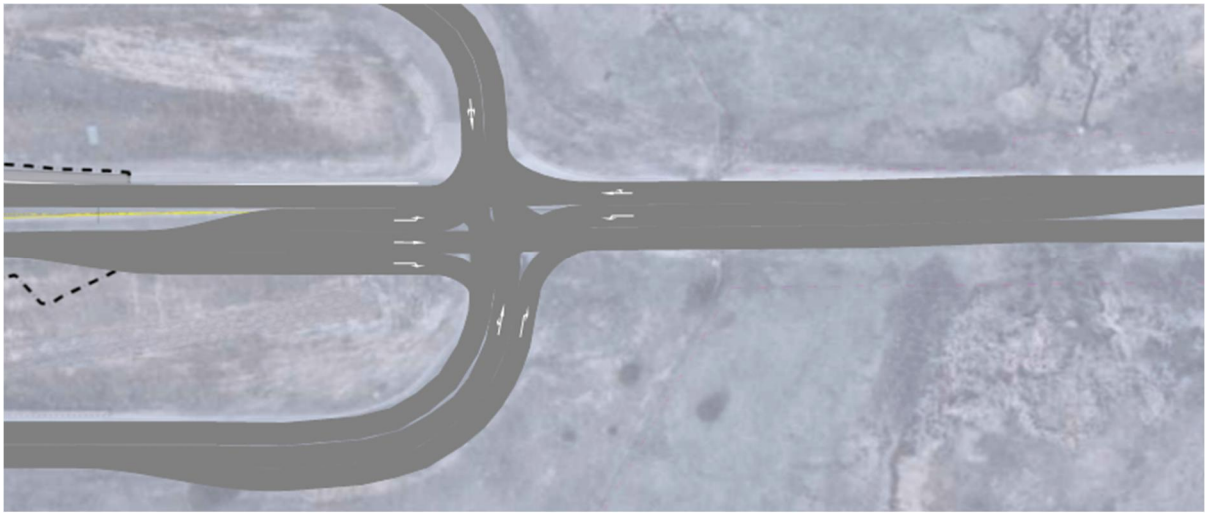


Figure 3 – County Line Road & Monument Hill Road Configuration

The following describes the results of each of these alternatives. Full exhibits along County Line Road spanning from west of Beacon Lite Road to just west of Monument Hill Road are attached. It should be noted that Vissim results are different from Synchro analysis results as the two software analyze traffic patterns differently. As such, the results presented in this analysis should not be compared directly to the Synchro results presented in the Buc-ee's Palmer Lake traffic study. The intersection delay, level of service, and average maximum reported queues during the 30 simulation runs will be presented in this section for each alternative.

Alternative 1: Standard Diamond Interchange

A standard signalized diamond interchange was analyzed at the County Line Road & I-25 interchange. This interchange configuration is likely the most cost effective of the alternatives considered, as there should be no impacts to the adjacent frontage road or right of way.

The County Line Road & I-25 Southbound Ramps (#2) intersection assumed the eastbound approach would provide two through lanes and a channelized free right turn lane, with the upper through lane becoming a forced eastbound left turn lane at the I-25 Northbound Ramps (#3) intersection. The westbound approach assumed a left turn lane and two through lanes. The I-25 southbound off-ramp assumed a shared left/through lane and a separate channelized yield-controlled right turn lane.

The County Line Road & I-25 Northbound Ramps (#3) intersection assumed a left turn lane and one through lane on the eastbound approach, with the westbound approach providing a turn bay prior to the intersection for eventual westbound left turning movements onto the I-25 southbound on-ramp, one through lane, and a shared through/right turn lane. The I-25 northbound off-ramp assumed a left turn lane and a shared left/through/right turn lane. A screenshot of the Alternative 1 County Line Road & I-25 standard diamond interchange is shown in **Figure 4**.

The level of service and maximum queue results for this alternative are shown in **Table 1**. As shown in the table, both ramp terminal intersections are anticipated to operate at LOS B during the morning peak hour and LOS C or better during the afternoon peak hour through the 2045 horizon with a standard diamond interchange configuration. The average maximum vehicle queues along the I-25 southbound and northbound off-ramps did not exceed 418 and 380 feet, respectively, during the morning or afternoon peak hours in this analysis. As such, it is not believed that this interchange configuration would cause vehicles queues to spill onto the mainline or other notable impacts to the mainline of I-25 traffic in either direction.

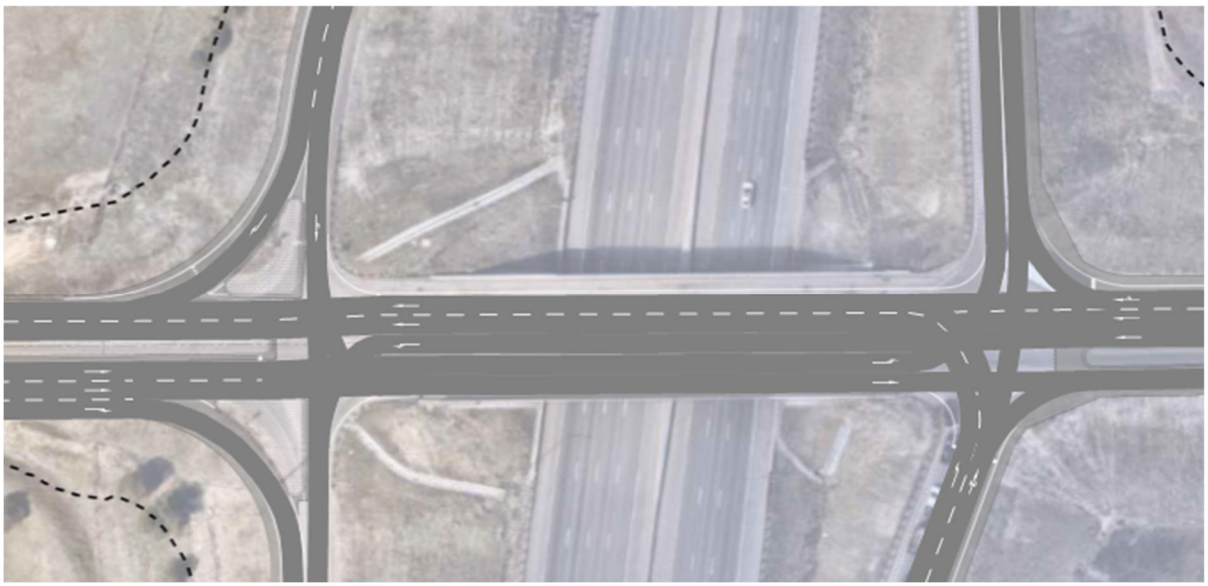


Figure 4 – Alternative 1: County Line Road & I-25 Diamond Interchange Configuration

Table 1 – Alternative 1 LOS, Delay, and Queues

Intersection	Mvmt./ App./ Int.	2045 AM		2045 PM	
		LOS (Delay, sec/veh)	Maximum Queue (ft)	LOS (Delay, sec/veh)	Maximum Queue (ft)
County Line Rd & I-25 SB Ramp	SB	B (12.3)	165	B (18.5)	418
	SBL	C (33.7)	165	C (34.1)	418
	SBT	C (34.7)	165	D (43.4)	418
	SBR	A (2.8)	111	A (3.9)	379
	EB	A (8.7)	266	B (11.9)	334
	EBT	B (12.8)	266	B (18.0)	334
	EBR	A (0.6)	170	A (0.9)	238
	WB	B (14.7)	369	C (26.0)	339
	WBL	C (20.3)	369	D (47.0)	339
	WBT	A (9.6)	209	B (17.1)	238
	Int.	B (11.9)	-	B (18.1)	-
County Line Rd & I-25 NB Ramp	NB	C (32.1)	270	C (27.2)	380
	NBL	D (35.1)	220	C (28.7)	330
	NBT	D (41.2)	220	C (33.4)	330
	NBR	C (22.6)	270	C (24.9)	380
	EB	B (12.6)	285	B (18.3)	368
	EBL	B (16.1)	285	C (20.0)	319
	EBT	A (7.6)	190	B (16.8)	368
	WB	A (9.0)	385	B (16.4)	289
	WBT	B (11.7)	385	C (23.5)	289
	WBR	A (5.0)	179	A (6.3)	150
	Int.	B (16.0)	-	C (21.4)	-

Alternative 1b: Standard Diamond Interchange with Additional Improvements
It is understood that there are future developments to the east of the County Line Road and I-25 Northbound Ramps (#3) intersection that are planning to install a separate northbound right turn lane on the I-25 northbound off-ramp. As requested by CDOT, additional analysis was conducted to assess overall network operations with the northbound off-ramp providing a designated left turn lane, a shared left/through lane, and a separate right turn lane. In addition to this improvement, Alternative 1b also widened the westbound County Line Road approach to the I-25 Northbound Ramps (#3) intersection from one lane to three lanes further to the east than the Alternative 1 analysis. Compared to Alternative 1, Alternative 1b includes an additional approximately 275 feet of storage length for both the innermost westbound through lane—which serves as a spillback lane for the eventual westbound left turning movement at the I-25 Southbound Ramps (#2) intersection—and in the shared westbound through/right turn lane.

While it is likely these improvements could require some additional widening and grading to accommodate these lanes, it is believed that these improvements could be constructed feasibly. The additional storage length on westbound County Line Road would be

constructed in conjunction with Buc-ee's Palmer Lake development. Based on discussion with CDOT, the separate right turn lane on the I-25 northbound off-ramp is expected to be constructed by future developments to the east of I-25, such as Monument Ridge East. A detailed exhibit displaying these additional improvements is attached. A screenshot of the Alternative 1b standard diamond interchange configuration is provided in **Figure 5**.

The level of service and maximum queue results for this alternative are shown in **Table 2**. As shown in the table, both ramp terminal intersections are anticipated to operate at LOS B during both the morning and afternoon peak hours through the 2045 horizon with a standard diamond interchange configuration and additional improvements compared to Alternative 1. The average maximum vehicle queues along the I-25 southbound and northbound off-ramps did not exceed 402 feet and 256 feet, respectively, during the morning or afternoon peak hours in this analysis. As such, it is not believed that this interchange configuration would cause vehicles queues to spill onto the mainline or other notable impacts to the mainline of I-25 traffic in either direction. Compared to Alternative 1, Alternative 1b with the additional improvements would generally be expected to improve both overall intersection operations and lessen vehicle queues. Of note, the absolute maximum queue on the I-25 northbound off-ramp during all 30 simulation runs did not exceed 327 feet during either peak hour.



Figure 5 – Alternative 1b: County Line Road & I-25 Diamond Interchange Configuration

Table 2 – Alternative 1b LOS, Delay, and Queues

Intersection	Mvmt./ App./ Int.	2045 AM		2045 PM	
		LOS (Delay, sec/veh)	Maximum Queue (ft)	LOS (Delay, sec/veh)	Maximum Queue (ft)
County Line Rd & I-25 SB Ramp	SB	B (12.5)	168	B (19.0)	402
	SBL	C (34.7)	168	D (35.2)	402
	SBT	C (34.7)	168	D (42.7)	402
	SBR	A (2.7)	110	A (3.8)	362
	EB	A (8.1)	260	B (11.3)	334
	EBT	B (12.0)	260	B (17.2)	334
	EBR	A (0.6)	164	A (1.0)	238
	WB	B (13.9)	350	C (25.2)	343
	WBL	B (18.8)	350	D (42.7)	343
	WBT	A (9.5)	210	B (17.8)	249
	Int.	B (11.3)	-	B (17.8)	-
County Line Rd & I-25 NB Ramp	NB	C (28.7)	233	C (21.2)	256
	NBL	D (35.6)	182	C (26.8)	204
	NBT	D (45.5)	182	C (31.4)	204
	NBR	A (6.7)	233	B (12.7)	256
	EB	B (11.0)	270	B (16.9)	363
	EBL	B (13.8)	270	B (17.8)	324
	EBT	A (7.1)	189	B (16.2)	363
	WB	A (7.4)	278	B (13.6)	227
	WBT	A (9.6)	278	B (20.0)	227
	WBR	A (4.3)	182	A (4.6)	149
	Int.	B (13.7)	-	B (17.6)	-

Alternative 2: Diverging Diamond Interchange (DDI)

A diverging diamond interchange (DDI) was analyzed at the County Line Road & I-25 interchange. This interchange is likely able to be constructed without bridge reconstruction. However, this configuration will require extensive widening to the east and west of the bridge structure, likely also resulting in impacts to the existing frontage road. There are several constraints impacting the feasibility of construction of this alternative, such as the existing conservation easement on the northwest corner of the interchange as well as the drainage structures on the southeast corner of the interchange.

As is typical with DDIs, the eastbound and westbound left turning movements onto the on-ramps would each operate with free movement. The northbound and southbound left turning movements on their respective off-ramps were conservatively assumed to operate with signal control with left turn on red allowed after stop. It is recognized that many DDIs with only one left turn off-ramp lane today instead operate with yield control and a posted R1-2 "YIELD" sign, however, it is believed the method used in this study for off-ramp left turns provides a conservative analysis of interchange operations as opposed to yield control. The northbound and southbound right turning movements on their respective off-ramps were

assumed to operate with signal control and a no right turn on red restriction. This restriction of no right turn on red is consistent with other existing DDIs throughout Colorado, such as at Fillmore Street and I-25 in Colorado Springs and at US-36 and McCaslin Boulevard in Louisville.

The eastbound approach to the County Line Road & I-25 Southbound Ramps (#2) intersection would provide two through lanes and a channelized free right turn lane, while the westbound approach would provide a left turn lane and one through lane. The I-25 southbound off-ramp would provide separate left and right turn lanes and as mentioned, the left turn would operate with signal control and left turns allowed on red after stop, while the right turn would be signalized with a no right turn on red restriction. Although the southbound right turning movement was assumed to operate with this restriction to provide a conservative analysis, this movement could be considered for right turns allowed on red after stop or even yield control because this turning movement would add a westbound travel lane on approach to Beacon Lite Road. A screenshot of the Alternative 2 DDI configuration is provided in **Figure 6**.

The County Line Road & I-25 Northbound Ramps (#3) intersection would provide a left turn lane and one through lane on the eastbound approach to the intersection. The westbound approach would provide one through lane and a channelized right turn lane operating with free right turning movement. The I-25 northbound off-ramp would provide separate left and right turn lanes and as mentioned, the left turn would operate with signal control and left turns allowed on red after stop, while the right turn would be signalized with a no right turn on red restriction. As with the I-25 southbound off-ramp right turning movement, although the northbound right turning movement was assumed to operate with this restriction to provide a conservative analysis, this movement could be considered for right turns allowed on red after stop or even yield control because this turning movement would add an eastbound travel lane on approach to Monument Hill Road. A screenshot of the County Line Road & I-25 DDI configuration is shown in **Table 3**. As shown in the table, both ramp terminal intersections are anticipated to operate at LOS B or better during both the morning and afternoon peak hours through the 2045 horizon with a DDI configuration. The average maximum vehicle queue reported during the 30 simulation runs in this analysis was 348 feet on the I-25 off-ramps. As such, it is not believed that this interchange configuration would cause vehicles queues to spill onto the mainline or result in other notable impacts to the mainline of I-25 traffic in either direction.

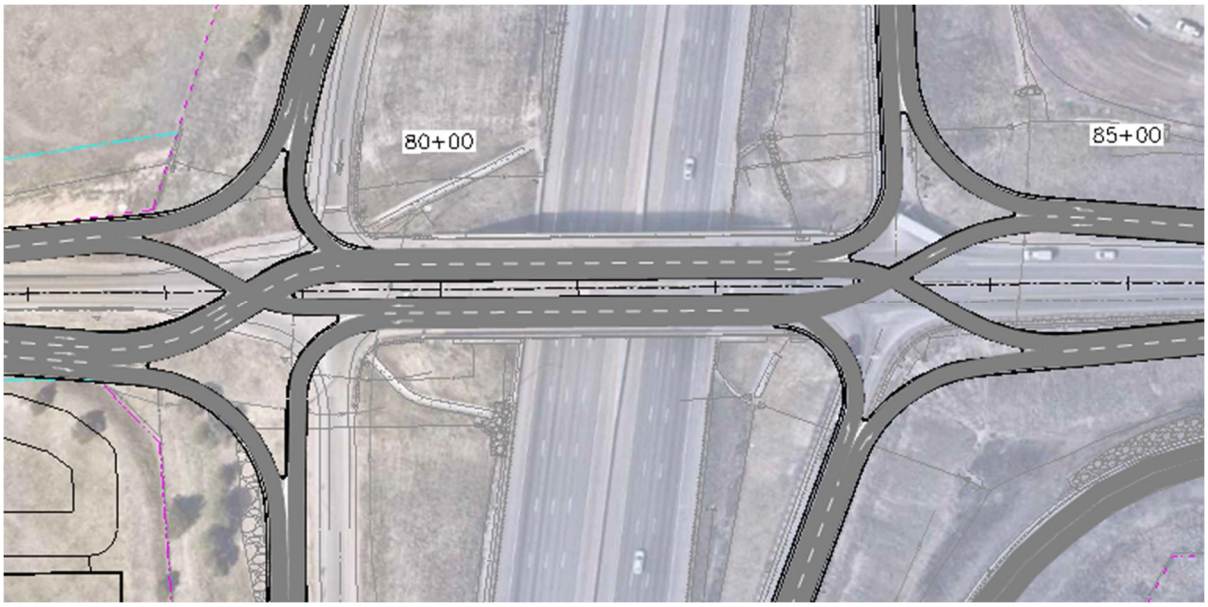


Figure 6 – County Line Road & I-25 Diverging Diamond Interchange Configuration

Table 3 – Alternative 2 LOS, Delay, and Queues

Intersection	Mvmt./ App./ Int.	2045 AM		2045 PM	
		LOS (Delay, sec/veh)	Maximum Queue (ft)	LOS (Delay, sec/veh)	Maximum Queue (ft)
County Line Rd & I-25 SB Ramp	SB	B (14.7)	233	B (18.4)	348
	SBL	A (9.2)	89	B (14.6)	281
	SBR	B (17.0)	233	C (21.8)	348
	EB	A (8.9)	227	B (10.2)	265
	EBT	B (15.4)	227	B (18.4)	265
	EBR	A (0.6)	94	A (0.9)	132
	WB	A (6.5)	238	A (7.9)	260
	WBL	A (1.6)	127	A (1.0)	149
	WBT	B (11.0)	238	B (10.7)	260
	Int.	A (9.1)	-	B (12.0)	-

Intersection	Mvmt./ App./ Int.	2045 AM		2045 PM	
		LOS (Delay, sec/veh)	Maximum Queue (ft)	LOS (Delay, sec/veh)	Maximum Queue (ft)
County Line Rd & I-25 NB Ramp	NB	B (14.3)	246	B (14.7)	272
	NBL	B (14.2)	246	B (12.1)	272
	NBR	B (14.6)	110	B (18.7)	241
	EB	A (6.7)	199	A (7.2)	286
	EBL	A (1.9)	115	A (2.5)	194
	EBT	B (13.6)	199	B (11.1)	286
	WB	B (13.2)	473	B (10.6)	246
	WBT	C (21.3)	473	B (17.6)	246
	WBR	A (1.3)	345	A (0.8)	117
	Int.	B (11.4)	-	B (10.6)	-

Alternative 3: Roundabout Interchange
The roundabout interchange was considered for the County Line Road & I-25 interchange. This interchange is likely able to be constructed without bridge reconstruction, however the configuration will require extensive widening to the east and west of the bridge structure, likely also resulting in impacts to the adjacent right of way and existing frontage road.

The County Line Road & I-25 Southbound Ramps (#2) intersection would provide two eastbound/westbound approach and exit lanes along County Line Road. The eastbound approach would operate with a through lane and a shared through/right turn lane within the roundabout while a bypass channelized free right turn lane onto the I-25 southbound on-ramp would also be provided. The westbound approach would provide a shared left/through lane and a second through lane. The I-25 southbound off-ramp would provide a shared left/through/right turn lane within the roundabout while a bypass channelized yield-controlled right turn lane would also be provided.

The County Line Road & I-25 Northbound Ramps (#3) intersection would provide two eastbound entry lanes, one eastbound exit lane, two westbound approach and exit lanes, three northbound approach lanes, and one northbound exit lane. As such, the eastbound approach would provide a left turn only lane and a through movement only lane. The westbound approach would provide a through lane and a shared through/right turn lane. The northbound approach as mentioned would require three approach lanes to provide an acceptable level of service and avoid queue spillback onto the I-25 northbound mainline; one lane would be a left turn only lane, while the center lane would be designated for left/through movements, and the right lane would serve northbound right turning movements only. A screenshot of the County Line Road & I-25 roundabout interchange is shown in **Figure 7**.

The level of service and average maximum queue results for this alternative are shown in **Table 4**. As shown in the table, the ramp terminal intersections are anticipated to operate at LOS C or better during both the morning and afternoon peak hours through the 2045

horizon with the roundabout interchange configuration. However, several movements at both ramp terminal intersections would be expected to operate at LOS E conditions, nearing LOS F operations. Additionally, during the morning peak hour the westbound approach to the County Line Road & I-25 Northbound Ramps (#3) intersection would experience long vehicle queues, at times extending beyond the County Line Road & Monument Hill Road (#4) intersection. Both the I-25 southbound off-ramp and I-25 northbound off-ramp vehicle queues could also be over 572 feet in length at times during the afternoon peak hour. These queues were evident even with a proposed configuration of three northbound off-ramp approach lanes. As such, it is believed that this proposed interchange configuration could cause negative impacts to the I-25 mainline with extensive vehicle queues along both off-ramp approaches to these roundabouts and less length available for off-ramp vehicles to decelerate from freeway speed.

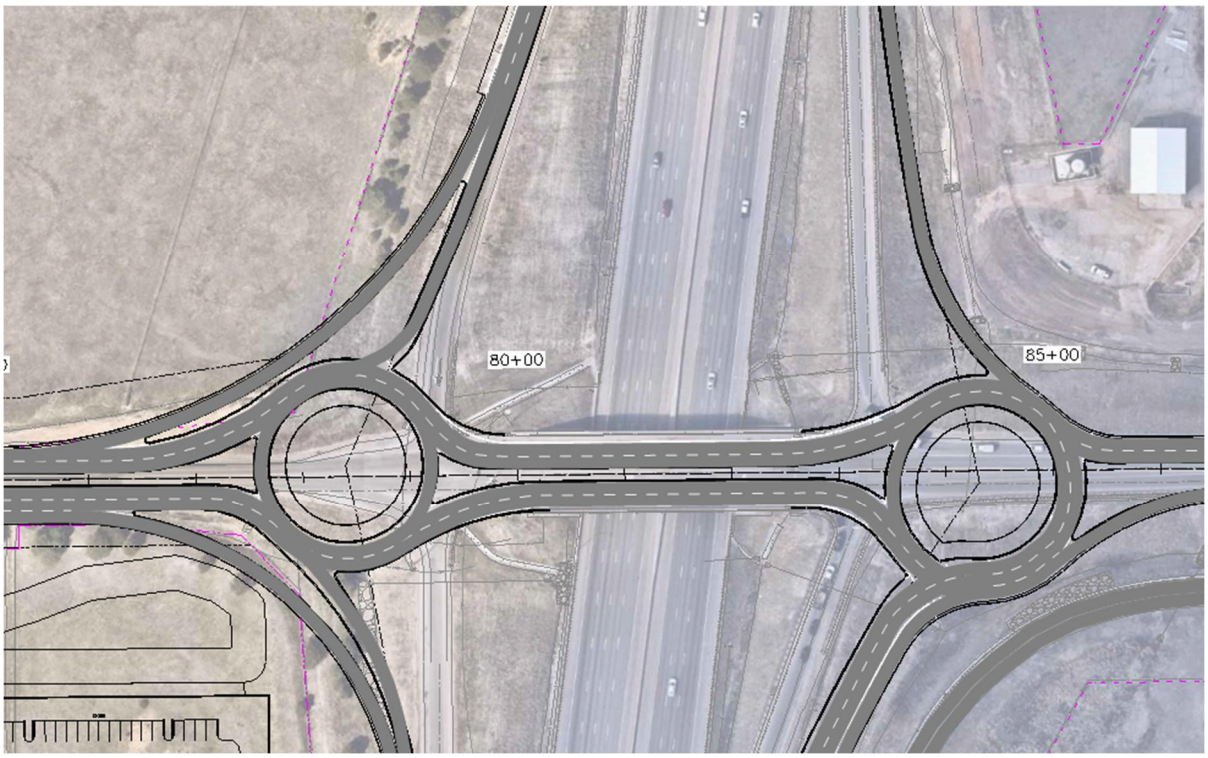


Figure 7 – County Line Road & I-25 Roundabout Interchange Configuration

Table 4 – Alternative 3 LOS, Delay, and Queues

Intersection	Mvmt./ App./ Int.	2045 AM		2045 PM	
		LOS (Delay, sec/veh)	Maximum Queue (ft)	LOS (Delay, sec/veh)	Maximum Queue (ft)
County Line Rd & I-25 SB Ramp	SB	B (11.2)	192	C (21.2)	634
	SBL	D (28.2)	192	E (37.5)	634
	SBT	D (28.6)	192	E (46.7)	634
	SBR	D (26.4)	192	E (36.4)	634
	EB	C (23.9)	423	C (27.2)	474
	EBT	E (37.4)	423	E (43.6)	474
	EBR	D (30.8)	423	D (34.9)	474
	WB	A (0.4)	0	A (0.5)	0
	WBL	A (0.5)	0	A (0.4)	0
	WBT	A (0.3)	0	A (0.5)	0
	Int.	B (11.8)	-	C (17.6)	-
County Line Rd & I-25 NB Ramp	NB	A (8.0)	123	E (46.2)	572
	NBL	A (8.8)	123	E (45.8)	403
	NBT	A (8.2)	123	E (47.5)	403
	NBR	A (5.6)	74	E (46.7)	572
	EB	A (0.6)	2	A (0.7)	5
	EBL	A (0.8)	2	A (1.0)	5
	EBT	A (0.2)	2	A (0.5)	5
	WB	C (31.5)	541	B (18.9)	272
	WBT	D (34.5)	541	C (19.7)	272
	WBR	D (27.2)	541	C (17.7)	272
	Int.	C (16.2)	-	C (20.6)	-

ALTERNATIVES COMPARISON

The following build alternatives were analyzed during the 2045 morning and peak hour traffic conditions to determine variation in both intersection and overall network operations:

- Alternative 1: Standard Diamond Interchange
    - Alternative 1b: Standard Diamond Interchange with additional improvements
- Alternative 2: Diverging Diamond Interchange (DDI)
- Alternative 3: Roundabout Interchange

The following intersections were included in each of the build alternatives:

- County Line Road & Beacon Lite Road (#1)
- County Line Road & I-25 Southbound Ramps (#2)
- County Line Road & I-25 Northbound Ramps (#3)
- County Line Road & Monument Hill Road (#4)

The proposed right-out only access from the Buc-ee's site located between Beacon Lite Road and the I-25 Southbound Ramps was also included in the model.

Level of Service Comparison

The overall intersection level of service and intersection delay—measured in seconds/vehicle (sec/veh)—between the build alternatives is similar at each intersection. The County Line Road & I-25 Southbound Ramps (#2) intersection was found to operate at LOS B in all build alternatives during both the morning and afternoon peak hours with the exception of the morning peak hour in Alternative 2, operating at LOS A, and the afternoon peak hour in Alternative 3, which would be expected to operate at overall LOS C.

The County Line Road & I-25 Northbound Ramps (#3) intersection operated at LOS B during the morning peak hour in Alternatives 1, 1b, and 2, while Alternative 3 operated at LOS C. During the afternoon peak hour, this intersection operated at LOS C in Alternatives 1 and 3, while at LOS B in Alternatives 1b and 2.

Table 5 provides a comparison of the overall intersection level of service and delay for each of the alternatives. As shown in the table, generally the best-performing alternative from an intersection level of service and delay perspective is Alternative 2—the DDI. Alternative 3—the Roundabout Interchange—yields relatively similar overall intersection level of service and delay conditions, however, as shown previously in **Table 4**, this alternative resulted in several approaches to intersections with extensive vehicle queues or poor level of service conditions. Alternative 1b was reported to operate better than Alternative 1, as the additional improvements improve overall intersection operations at both ramp interchange intersections.

Table 5 – Intersection LOS and Delay Comparison

Intersection	Peak Period	Scenario			
		Alt. 1 LOS (Delay, sec/veh)	Alt. 1b LOS (Delay, sec/veh)	Alt. 2 LOS (Delay, sec/veh)	Alt. 3 LOS (Delay, sec/veh)
County Line Rd & I-25 SB Ramp	2045 AM	B (11.9)	B (11.3)	A (9.1)	B (11.8)*
	2045 PM	B (18.1)	B (17.8)	B (12.0)	C (17.6)*
County Line Rd & I-25 NB Ramp	2045 AM	B (15.7)	B (13.7)	B (11.4)	C (16.2)
	2045 PM	C (20.9)	B (17.6)	B (10.6)	C (20.6)*

*At least one approach operating at LOS E or vehicle queues exceeding 570 feet

Network Comparison

To provide a more representative comparison of the impact of the various interchange alternatives on the overall street network surrounding the County Line Road & I-25 interchange, overall network results were also collected from the Vissim simulation runs. **Table 6** provides overall average network delay for each of the alternatives during the morning and afternoon peak hours. Network delay as a measure of effectiveness refers to

the additional travel time that vehicles experience due to various factors within the simulated traffic network, such as congestion, traffic signals, and roadway configurations. It represents the difference between the actual travel time reported in the simulation and the travel time that would have occurred under free-flow conditions.

As shown in the table, the lowest average network delay experienced by the analyzed alternatives was Alternative 2 in the DDI configuration, while Alternative 3 in the Roundabout Interchange configuration would experience the highest level of delay by a notable margin. Alternative 1—the Standard Diamond Interchange—would experience a similar amount of network delay compared to the DDI alternative during the morning peak hour, and approximately 12 seconds of additional network delay during the afternoon peak hour. Alternative 1b resulted in improved operations compared to Alternative 1, with a decrease of 1.6 seconds and 2.5 seconds during the morning and afternoon peak hours, respectively.

Table 6 – Overall Average Network Delay Comparison

Peak Period	Scenario			
	Alt. 1 (sec/veh)	Alt. 1b (sec/veh)	Alt. 2 (sec/veh)	Alt. 3 (sec/veh)
2045 AM	27.2	25.6	22.4	33.9
2045 PM	36.1	33.6	24.1	37.4

Other Considerations

In addition to the operational results presented in this study, it is important to assess other considerations when comparing the different build alternatives, including but not limited to, feasibility, driver expectations, and maintenance requirements.

The area surrounding the County Line Road & I-25 interchange—both to the north and south of County Line Road—has a steep grade adjacent to the roadway. With extensive widening and reconfiguration that would be required, particularly with the DDI and Roundabout Interchange alternatives, the steep grades on either side of County Line Road near the I-25 interchange could cause impacts to the adjacent frontage road, storm water ditches and right of way. Both of these alternatives, because of the reconstruction that would be required, would likely require a longer construction duration, resulting in regional impacts in travel patterns and delay until construction is complete. With the Standard Diamond Interchange alternatives (1 and 1b), several proposed improvements would still be required such as roadway widening, channelized right turn lanes, signalization, and pavement restriping, but these improvements would likely occur in a shorter duration construction timeline. In addition to construction feasibility considerations, it is likely that the Standard Diamond Interchange configuration (1 or 1b) would be the most cost-effective improvement.

According to FHWA, a standard diamond interchange is the most common type of interchange throughout the United States and as such, drivers are most familiar with this interchange type. A diamond interchange meets driver expectations for both drivers entering/exiting the interchange and for those passing through the interchange. While drivers are becoming more familiar with other interchange types as they are implemented

throughout the state and country, the potential for driver confusion can be increased for DDIs and multilane roundabout interchanges. In the case of an incident along the I-25 mainline in this area where vehicles need to exit the mainline, a standard diamond interchange would allow for vehicles to safely exit while maintaining the ability to enter onto the mainline again via the on-ramp at this same interchange. As such, a standard diamond interchange allows for greater flexibility in the case of traffic incidents on the mainline. Meanwhile, vehicles cannot perform this maneuver in a DDI because of the raised channelized median islands.

A primary area of concern for jurisdictions and citizens alike is with respect to emergency vehicles and other emergency situations. While emergency vehicles are typically able to maneuver successfully through interchanges of any configuration with proper considerations in place, because of the raised medians and unique configurations in the DDI and Roundabout Interchange alternatives, this could be more difficult than a Standard Diamond Interchange. In the Standard Diamond Interchange alternatives, the bridge structure in particular would likely remain as is today with no raised median and all lane and directionality distinctions made via pavement marking alone. This would allow both for drivers to pull over to the side while emergency vehicles could more easily maneuver the interchange with fewer potential complications. In emergency or evacuation situations, a standard diamond interchange could provide the greatest flexibility for vehicles to travel to and from I-25 as needed, with fewer restrictions such as raised medians and complicated maneuvers.

The DDI and Roundabout Interchange alternatives would consist of installation of additional length of curb and storm drain inlets, when compared to the Standard Diamond Interchange. These improvements would require ongoing maintenance operations to preserve appropriate functionality. For winter conditions and snowplow clearing of the interchange, a standard diamond interchange is simpler and more intuitive for snowplows to clear the area.

The weaving distance available for eastbound drivers on County Line Road desiring to turn eastbound right onto the I-25 southbound on-ramp versus vehicles turning northbound right out of the right-out only access is greatest in the Standard Diamond Interchange, while it would be reduced in the DDI alternative, and further reduced in the Roundabout Interchange alternative, due to the realignment required in these alternatives. A smaller weaving distance available for these vehicles could lead to additional delay and difficulty for drivers to successfully perform these maneuvers.

It should be noted that as currently proposed, the facilities for both pedestrians and bicyclists at this location are limited. While it is unlikely that many pedestrians or bicyclists would attempt to travel through this interchange due to the scale and type of development being generally of a rural form in this area, none of these interchange alternatives have specific considerations for pedestrians and bicyclists.

For all interchange alternatives, the proposed on-ramps provide sufficient length from the intersection control to the merge point to allow a driver to accelerate to match the speed of the vehicles traveling on the mainline. Per Table 10-3 of the CDOT Roadway Design Guide, this length is a minimum of 1790 feet for the 75 mph design speed on I-25.

CONCLUSIONS

The following alternatives were prepared for interchange improvements at the County Line Road & I-25 interchange in Palmer Lake, Colorado:

- Alternative 1: Standard Diamond Interchange
    - Alternative 1b: Standard Diamond Interchange with additional improvements
- Alternative 2: Diverging Diamond Interchange (DDI)
- Alternative 3: Roundabout Interchange

Based on the analysis presented in this memorandum, the following outlines the conclusions of this analysis:

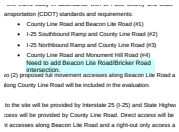
- The Standard Diamond Interchange alternatives (1 and 1b) are the most cost-effective interchange configuration, as the interchange is currently constructed in this way, and improvements would not require additional right of way.
- Although the Standard Diamond Interchange would be expected to experience slightly increased intersection delay compared to the DDI, it is believed that the Standard Diamond Interchange would provide acceptable level of service results, with each of the study intersections operating at LOS C or better during both peak hours through the 2045 horizon.
- The Standard Diamond Interchange would satisfy driver expectations as it is the most common form of freeway interchange, while it would also be expected to minimize construction delays and costs, provides the greatest flexibility for emergency vehicles, and would be expected to have the least amount of ongoing maintenance required.
- The DDI would provide the best level of service and lowest overall network delay, but there are concerns with construction feasibility with the steep grades that are present on either side of County Line Road nearby the I-25 interchange. Although DDIs have become more prevalent across Colorado and the country, this type of interchange can still lead to driver confusion.
- The Roundabout Interchange experienced the greatest intersection and overall network delay of the analyzed alternatives. This alternative also has the highest potential to affect the operations of the mainline I-25. Because of the complexity of the roundabouts required to produce near-acceptable level of service and queue conditions, it is believed this alternative should not be recommended for implementation.
- Mainline operations are not anticipated to be impacted with either the Standard Diamond Interchange or the Diverging Diamond Interchange configuration.

Overall, Alternative 1b is recommended to be advanced to the final design phase. Alternative 1b was reported to operate better both in accommodating vehicle queues and minimizing intersection delay compared to Alternative 1. This alternative would be expected to allow for safe diverging and braking from I-25 without causing any negative impacts to the I-25 mainline. Alternative 1b should consist of the following improvements:

- The Standard Diamond Interchange alternative is the most cost effective interchange configuration, as the interchange is currently constructed in this way, and improvements would not require additional right of way.
- At the I-25 Southbound Ramps (#2) intersection, the eastbound approach would provide two through lanes and a channelized free right turn lane, the westbound approach would provide a left turn lane and two through lanes, while the southbound off-ramp would operate with a shared left/through lane and a separate channelized yield-controlled right turn lane.
- The I-25 Northbound Ramps (#3) intersection would provide a left turn lane and one through lane in the eastbound direction, while the westbound approach would provide a turn bay prior to the intersection for westbound left turning movements onto the I-25 southbound on-ramp, one through lane, and a shared through/right turn lane. The I-25 northbound off-ramp would provide a left turn lane, a shared left/through lane, and a separate right turn lane.
    - The additional storage length provided on westbound County Line Road in Alternative 1b versus Alternative 1 would be constructed in conjunction with Buc-ee's Palmer Lake development. Based on discussion with CDOT, the separate right turn lane on the I-25 northbound off-ramp is expected to be constructed by future developments to the east of I-25, such as Monument Ridge East.

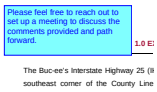
V1_Traffic Impact Study.pdf Markup Summary

2 (2)



Subject: Engineer
Page Label: 2
Status:
Color:
Layer:
Space:

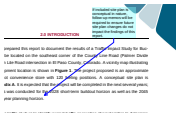
Need to add Beacon Lite Road/Bricker Road intersection.



Subject: Text Box
Page Label: 2
Status:
Color:
Layer:
Space:

Please feel free to reach out to set up a meeting to discuss the comments provided and path forward.

3 (1)



Subject: Engineer
Page Label: 3
Status:
Color:
Layer:
Space:

If included site plan is conceptual in nature, follow-up memos will be required to ensure future site plan changes do not impact the findings of this report.

5 (1)



Subject: Engineer
Page Label: 5
Status:
Color:
Layer:
Space:

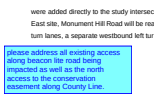
Perform analysis and demonstrate how intersection operates without realignment.

6 (2)



Subject: Engineer
Page Label: 6
Status:
Color:
Layer:
Space:

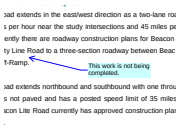
Full movement access is being removed from 5 existing access points along Beacon Lite Road. Coordination with all of these properties will be required.



Subject: Text Box
Page Label: 6
Status:
Color:
Layer:
Space:

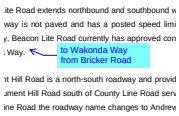
please address all existing access along beacon lite road being impacted as well as the north access to the conservation easement along County Line.

9 (2)



Subject: Engineer
Page Label: 9
Status:
Color:
Layer:
Space:

This work is not being completed.



Subject: Callout
Page Label: 9
Status:
Color:
Layer:
Space:

to Wakonda Way from Bricker Road

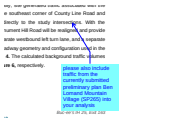
---

15 (3)



Subject: Callout
Page Label: 15
Status:
Color:
Layer:
Space:

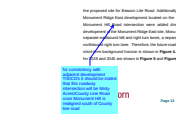
Per ECM B.4.1 counts shall be no more than 1 year old from date of application submittal.



Subject: Callout
Page Label: 15
Status:
Color:
Layer:
Space:

please also include traffic from the currently submitted preliminary plan Ben Lomand Mountain Village (SP265) into your analysis

---

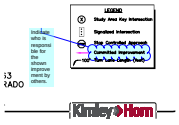


Subject: Callout
Page Label: 15
Status:
Color:
Layer:
Space:

for consistency with adjacent development TIS/CD's it should be stated that this roadway intersection will be Misty Acres/County Line Road once Monument Hill is realigned south of County line road

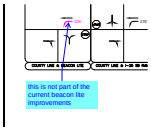
---

17 (2)



Subject: Engineer
Page Label: 17
Status:
Color:
Layer:
Space:

Indicate who is responsible for the shown improvement by others.



Subject: Callout
Page Label: 17
Status:
Color:
Layer:
Space:

this is not part of the current beacon lite improvements

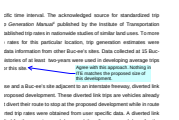
---

20 (3)



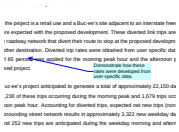
Subject: Highlight
Page Label: 20
Status:
Color:
Layer:
Space:

Data collected at 15 Buc-ee's sites with operational histories of at least two-years were used in developing average trips rates and to estimate trips for this site.



Subject: Engineer
Page Label: 20
Status:
Color:
Layer:
Space:

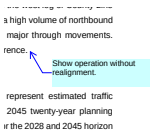
Agree with this approach. Nothing in ITE matches the proposed size of this development.



Subject: Engineer
Page Label: 20
Status:
Color:
Layer:
Space:

Demonstrate how these rates were developed from user specific data.

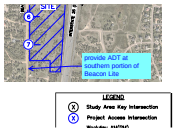
22 (1)



Subject: Engineer
Page Label: 22
Status:
Color:
Layer:
Space:

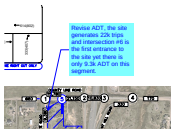
Show operation without realignment.

25 (4)



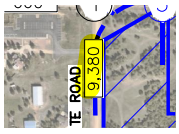
Subject: Callout
Page Label: 25
Status:
Color:
Layer:
Space:

provide ADT at southern portion of Beacon Lite



Subject: Callout
Page Label: 25
Status:
Color:
Layer:
Space:

Revise ADT, the site generates 22k trips and intersection #6 is the first entrance to the site yet there is only 9.3k ADT on this segment.

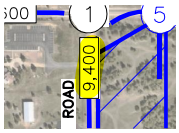


Subject: Highlight
Page Label: 25
Status:
Color:
Layer:
Space:



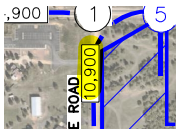
Subject: Highlight
Page Label: 25
Status:
Color:
Layer:
Space:

26 (1)



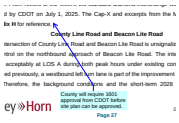
Subject: Highlight
Page Label: 26
Status:
Color:
Layer:
Space:

27 (1)



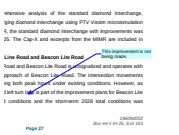
Subject: Highlight
Page Label: 27
Status:
Color:
Layer:
Space:

29 (2)



Subject: Engineer
Page Label: 29
Status:
Color:
Layer:
Space:

County will require 1601 approval from CDOT before site plan can be approved.



Subject: Engineer
Page Label: 29
Status:
Color:
Layer:
Space:

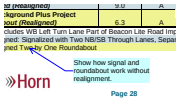
This improvement is not being made.

30 (5)



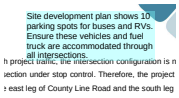
Subject: Engineer
Page Label: 30
Status:
Color:
Layer:
Space:

Indicate how a single lane roundabout will work.



Subject: Engineer
Page Label: 30
Status:
Color:
Layer:
Space:

Show how signal and roundabout work without realignment.



Subject: Engineer
Page Label: 30
Status:
Color:
Layer:
Space:

Site development plan shows 10 parking spots for buses and RVs. Ensure these vehicles and fuel truck are accommodated through all intersections.

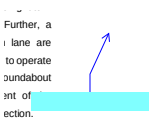


Subject: Callout
Page Label: 30
Status:
Color:
Layer:
Space:

Before the County would consider a two-lane roundabout, the TIS must first provide analysis of the following:

a. Revising the intersection of County Line and Beacon Lite Rd so the eastern leg and southern leg is the primary movement without a roundabout. Can this function with the western leg functioning as the secondary on stop control?

b. Analysis of a single lane round-about.



Subject: Callout
Page Label: 30
Status:
Color:
Layer:
Space:

---

31 (1)



Subject: Engineer
Page Label: 31
Status:
Color:
Layer:
Space:

My understanding is that this will require a 1601 process that EPC will need to see completed and approved before authorizing construction.

---

33 (1)

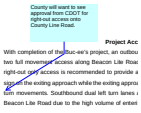


Subject: Callout
Page Label: 33
Status:
Color:
Layer:
Space:

the Monument Ridge East TIS indicated that CDOT is requiring escrow for the future signal. Identify whether CDOT will also require escrow from this development.

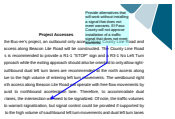
---

34 (8)



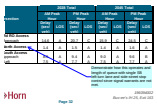
Subject: Engineer
Page Label: 34
Status:
Color:
Layer:
Space:

County will want to see approval from CDOT for right-out access onto County Line Road.



Subject: Engineer
Page Label: 34
Status:
Color:
Layer:
Space:

Provide alternatives that will work without installing a signal that does not meet warrants. El Paso County will not approve installation of a traffic signal that does not meet warrants.



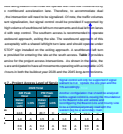
Subject: Engineer
Page Label: 34
Status:
Color:
Layer:
Space:

Demonstrate how this operates and length of queue with single SB left-turn lane and side-street stop control since signal warrants are not met.



Subject: Engineer
Page Label: 34
Status:
Color:
Layer:
Space:

El Paso County does not have signalized driveways anywhere, so questions will need to be answered, if signal is approved, about who operates and maintains the traffic signal and who pays for electricity going forward since it only serves the private development.



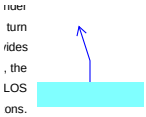
Subject: Callout
Page Label: 34
Status:
Color:
Layer:
Space:

Signal control will only be supported if signal warrant is met. Update the site plan and the TIS accordingly.

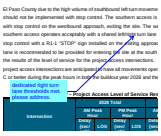
Another configuration that should be analyzed before signal control is moving the Roundabout to the Beacon Lite and access and reconfiguring the Beacon Lite and County Line to be a continuous/primary road with the western leg be a secondary road.



Subject: Callout
Page Label: 34
Status:
Color:
Layer:
Space:



Subject: Callout
Page Label: 34
Status:
Color:
Layer:
Space:

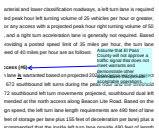


Subject: Callout
Page Label: 34
Status:
Color:
Layer:
Space:

dedicated right turn lane thresholds met. please address.

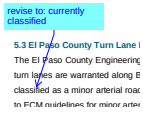
---

35 (4)



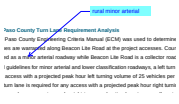
Subject: Engineer
Page Label: 35
Status:
Color:
Layer:
Space:

Assume that El Paso County will not approve a traffic signal that does not meet warrants and demonstrate other alternatives that provide acceptable operations.



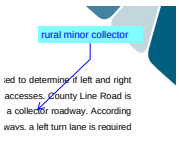
Subject: Callout
Page Label: 35
Status:
Color:
Layer:
Space:

revise to: currently classified



Subject: Callout
Page Label: 35
Status:
Color:
Layer:
Space:

rural minor arterial



Subject: Callout
Page Label: 35
Status:
Color:
Layer:
Space:

rural minor collector

37 (1)

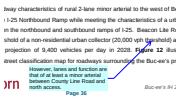
Subject: Highlight
Page Label: 37
Status:
Color:
Layer:
Space:

38 (3)



Subject: Engineer
Page Label: 38
Status:
Color:
Layer:
Space:

However, Beacon Lite Road will function as a minor arterial, at least through the northern access point. Therefore, access spacing along Beacon Lite should meet minor arterial critiera.



Subject: Engineer
Page Label: 38
Status:
Color:
Layer:
Space:

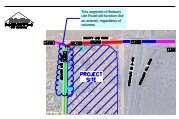
However, lanes and function are that of at least a minor arterial between County Line Road and north access.



Subject: Callout
Page Label: 38
Status:
Color:
Layer:
Space:

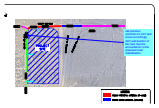
Refer to table 2-36 for the required design vehicle. For a commercial/retail land use, multi-unit trucks shall be utilized unless there are less than 2 multi-unit truck trips per day (average) and a single unit truck may be utilized for the design vehicle. revise the spacing requirements accordingly.

39 (2)



Subject: Engineer
Page Label: 39
Status:
Color:
Layer:
Space:

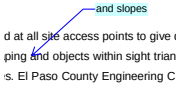
This segment of Beacon Lite Road will function like an arterial, regardless of volumes.



Subject: Callout
Page Label: 39
Status:
Color:
Layer:
Space:

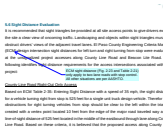
see previous comment on ADT and revise accordingly. ADT and function of the road must be accounted for in the proposed road classification.

40 (5)



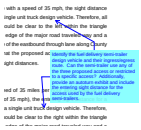
Subject: Engineer
Page Label: 40
Status:
Color:
Layer:
Space:

and slopes



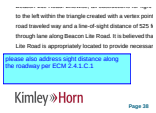
Subject: Engineer
Page Label: 40
Status:
Color:
Layer:
Space:

ECM sight distance (Fig. 2-23 and Table 2-21) only apply to two-lane roads with stop control. All other situations are per AASHTO.



Subject: Callout
Page Label: 40
Status:
Color:
Layer:
Space:

Identify the fuel delivery semi-trailer design vehicle and their ingress/egress route. Can the semi-trailer use any of the three proposed access or restricted to a specific access? Additionally, provide an autoturn exhibit and include the entering sight distance for the access used by the fuel delivery semi-trailers.



Subject: Text Box
Page Label: 40
Status:
Color:
Layer:
Space:

please also address sight distance along the roadway per ECM 2.4.1.C.1

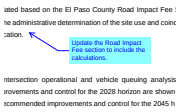


Subject: Callout
Page Label: 40
Status:
Color:
Layer:
Space:

per ECM 2-36 a commercial/retail land use shall utilize multi-unit trucks. Please address why single unit trucks are utilized.

---

41 (1)

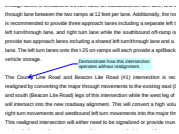


Subject: Callout
Page Label: 41
Status:
Color:
Layer:
Space:

Update the Road Impact Fee section to include the calculations.

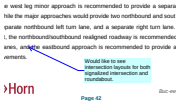
---

44 (3)



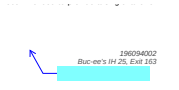
Subject: Engineer
Page Label: 44
Status:
Color:
Layer:
Space:

Demonstrate how this intersection operates without realignment.



Subject: Engineer
Page Label: 44
Status:
Color:
Layer:
Space:

Would like to see intersection layouts for both signalized intersection and roundabout.



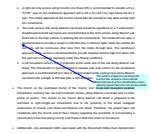
Subject: Callout
Page Label: 44
Status:
Color:
Layer:
Space:

45 (5)



Subject: Engineer
Page Label: 45
Status:
Color:
Layer:
Space:

Demonstrate CDOT is aware of and approves of this access. Would be good to organize access meetings with applicant, El Paso County, and CDOT.



Subject: Engineer
Page Label: 45
Status:
Color:
Layer:
Space:

This portion of Beacon Lite Road will function like at least a minor arterial. Demonstrate that this classification meets spacing requirements for two access points or comment on needed variance.



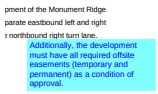
Subject: Engineer
Page Label: 45
Status:
Color:
Layer:
Space:

Full movement access is being removed from multiple properties along the west side of Beacon Lite Road. All will require coordination.



Subject: Callout
Page Label: 45
Status:
Color:
Layer:
Space:

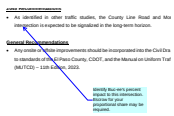
Revise the recommendation for access #6. A signalized T-intersection is not supported since it's not warranted.



Subject: Text Box
Page Label: 45
Status:
Color:
Layer:
Space:

Additionally, the development must have all required offsite easements (temporary and permanent) as a condition of approval.

46 (1)



Subject: Engineer
Page Label: 46
Status:
Color:
Layer:
Space:

Identify Buc-ee's percent impact to this intersection. Escrow for your proportional share may be required.