

TRAFFIC IMPACT STUDY

Enclaves at Mountain Vista East

Colorado Springs, Colorado

Prepared for:

The Challenger Group

Kimley»Horn

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

Enclaves at Mountain Vista East

Colorado Springs, Colorado

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1.0 EXECUTIVE SUMMARY

Enclaves at Mountain Vista East is proposed to be located to the southeast of the Barnes Road and Marksheffel Road intersection in Colorado Springs, Colorado. At this time, it is understood that up to 590 single-family homes could be constructed, that could consist of a mix of single-family detached and single-family attached homes, in addition to a small retail parcel on the northwest corner of the site. For purposes of this traffic study, it is assumed that up to 600 single-family detached homes could be constructed, and the retail parcel was assumed to be up to 50,000 square feet of general retail uses. Per discussion with the client for this project, it is expected that full buildout of the project will be completed by 2035; therefore, analysis was conducted for the 2035 short-term buildout horizon as well as the 2050 long-term twenty-year planning horizon. Of note, a traffic study for this site was completed by Kimley-Horn in April 2022, but the land uses, access plans, and general roadway network configuration have since changed. As such, Kimley-Horn has completed this traffic study as an update to the originally analyzed land uses and roadway network.

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

- Stetson Hills Boulevard and Marksheffel Road (Intersection #1)
- Barnes Road and Marksheffel Road (#2)
- Carefree Circle and Marksheffel Road (#3)
- Barnes Road and Banning Lewis Parkway (#4) – Future Intersection

In addition, the four proposed full movement accesses along Barnes Road were also included for evaluation in this study. Regional access to Enclaves at Mountain Vista East will be provided by US-24, I-25, and Powers Boulevard (SH-21). Primary access will be provided by Marksheffel Road, Woodmen Road, and future Banning Lewis Parkway. Direct access will be provided by four accesses along the south side of Barnes Road.

Enclaves at Mountain Vista East is expected to generate approximately 8,378 weekday daily trips, with 488 of these trips occurring during the morning peak hour and 738 of these trips occurring during the afternoon peak hour.

Based on the analysis presented in this report, Kimley-Horn believes Enclaves at Mountain Vista East will be successfully incorporated into the existing and future roadway network. Several improvements are currently being made to the surrounding vicinity, including significant ongoing construction along Marksheffel Road, as well as future roadway extensions of Stetson Hills Boulevard, Barnes Road, and Carefree Circle that are planned to connect to US-24 at full buildout. Banning Lewis Parkway is also planned to be extended several miles to the south of its current termination, including connecting to US-24 and several other major roadways. These improvements are part of broader regional improvements that are expected to provide additional roadway connections in the area as the eastern portion of Colorado Springs continues to develop.

All onsite and offsite improvements should be incorporated into the Civil Drawings and conform to standards of the City of Colorado Springs and the Manual on Uniform Traffic Control Devices (MUTCD) – 11th Edition, 2023. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following project-specific recommendations as shown in the following table:

Project-Specific Recommended Improvements

Intersection	Improvements
Barnes Rd Access 1 (#5)	Roundabout
	EB/WB Approaches: Two Approach Lanes – Shared Left/Through and Shared Through/Right
	NB Approach: One Approach Lane – Shared Left/Through/Right
	SB Approach: Two Approach Lanes – Shared Left/Through Right and Separate Yield-Controlled Bypass Right Turn Lane (needed due to Freestyle Master Plan Traffic)
Barnes Rd Access 2 (#6)	NB Stop-Controlled Approach with Shared Left/Right Turn Lane
	Two EB Through Lanes
	WB Left Turn Lane (225' + 180' Taper)
	EB Right Turn Lane (200' + 180' Taper)
Barnes Rd Access 3 (#7)	NB Stop-Controlled Approach with Shared Left/Right Turn Lane
	Two EB Through Lanes
	WB Left Turn Lane (225' + 180' Taper)
	EB Right Turn Lane (200' + 180' Taper)
Barnes Rd Access 4 (#8)	NB Stop-Controlled Approach with Shared Left/Right Turn Lane
	Two EB Through Lanes
	WB Left Turn Lane (225' + 180' Taper)
	EB Right Turn Lane (200' + 180' Taper)

2.0 INTRODUCTION

Kimley-Horn has prepared this report to document the results of a Traffic Impact Study for Enclaves at Mountain Vista East, proposed to be located to the southeast of the Barnes Road and Marksheffel Road intersection in Colorado Springs, Colorado. A vicinity map illustrating the Enclaves at Mountain Vista East development is shown in **Figure 1**. At this time, it is understood that up to 590 single-family homes could be constructed, that could consist of a mix of single-family detached and single-family attached homes, in addition to a small retail parcel on the northwest corner of the site. For purposes of this traffic study, it is assumed that up to 600 single-family detached homes could be constructed, and the retail parcel was assumed to be up to 50,000 square feet of general retail uses. A conceptual site plan is attached in **Appendix A**. Per discussion with the client for this project, it is expected that full buildout of the project will be completed by 2035; therefore, analysis was conducted for the 2035 short-term buildout horizon as well as the 2050 long-term twenty-year planning horizon. Of note, a traffic study for this site was completed by Kimley-Horn in April 2022, but the land uses, access plans, and general roadway network configuration have since changed. As such, Kimley-Horn has completed this traffic study as an update to the originally analyzed land uses and roadway network.

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

- Stetson Hills Boulevard and Marksheffel Road (Intersection #1)
- Barnes Road and Marksheffel Road (#2)
- Carefree Circle and Marksheffel Road (#3)
- Barnes Road and Banning Lewis Parkway (#4) – Future Intersection

In addition, the four proposed full movement accesses along Barnes Road were also included for evaluation in this study. Regional access to Enclaves at Mountain Vista East will be provided by US-24, I-25, and Powers Boulevard (SH-21). Primary access will be provided by Marksheffel Road, Woodmen Road, and future Banning Lewis Parkway. Direct access will be provided by four accesses along the south side of Barnes Road.

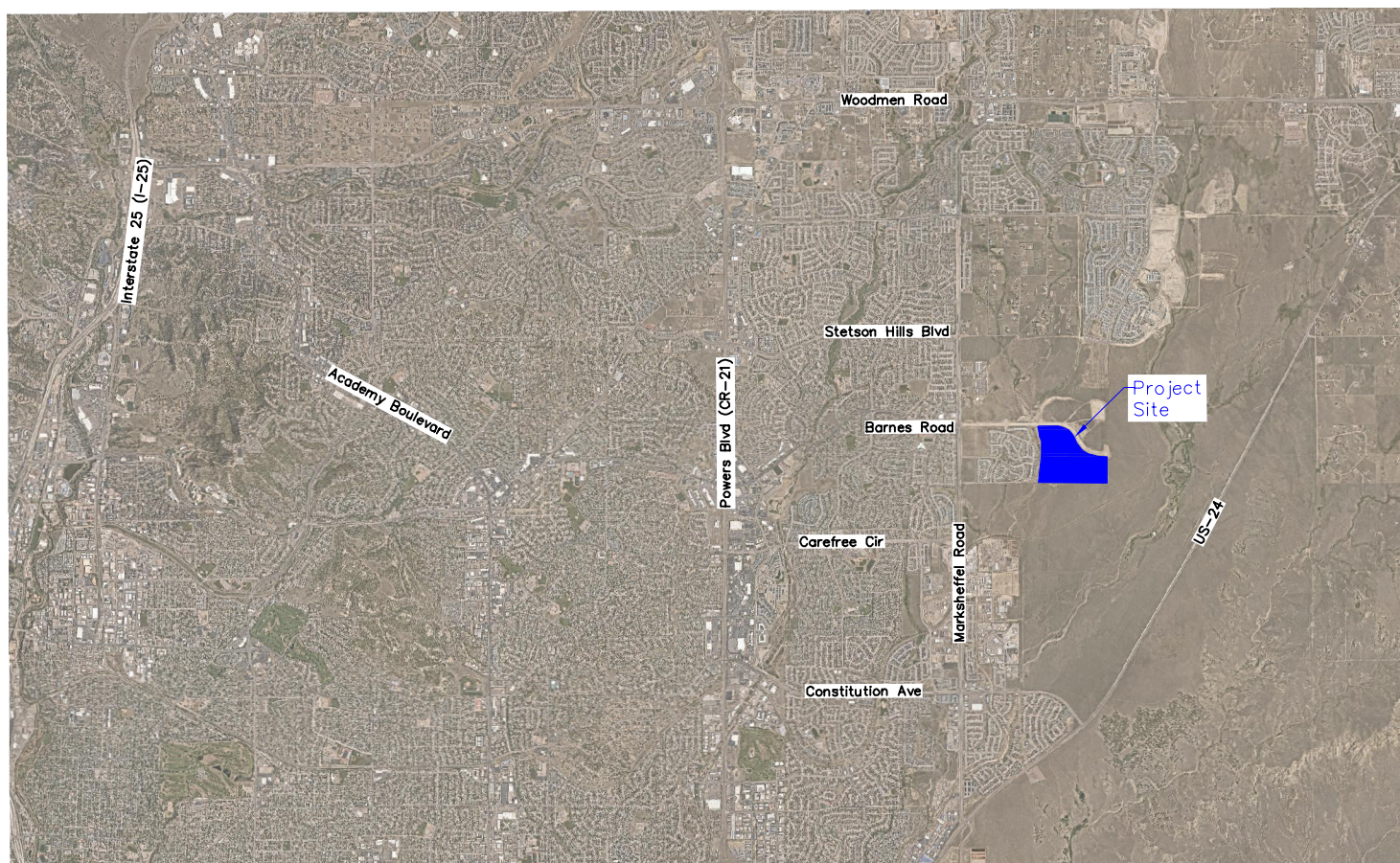


FIGURE 1
Enclaves at Mountain Vista East
Colorado Springs, Colorado
Vicinity Map

3.0 EXISTING AND FUTURE CONDITIONS

3.1 Existing Study Area

The existing site is comprised of vacant land. The area to the west of the site is comprised of residential housing referred to as Enclaves at Mountain Vista. Surrounding the site to the north, east, and west is vacant land. To the northeast of the site is the existing Banning Lewis Ranch development, which is ongoing.

3.2 Existing and Future Roadway Network

Marksheffel Road extends in the north-south direction with one through lane in each direction with some sections providing two through lanes in each direction in the study area. The roadway has a posted speed limit ranging from 45 miles per hour (mph) to 55 mph and is classified as a “Principal Arterial” roadway. The roadway is currently undergoing significant construction for widening of the roadway and it is understood that two through lanes in each direction will be provided in the near future.

Banning Lewis Parkway currently exists from just north of Woodmen Road on the north and terminates at the future Stetson Hills Boulevard extension on the south. At its full buildout, it is proposed to connect from an extension of Briargate Parkway to the north of Woodmen Road on the north, to connect to US-24 and extend further to both State Highway 94 (SH-94) and several additional miles to the south into the City of Fountain. This roadway, if constructed as planned, will serve as an additional critical north-south corridor to alleviate traffic on Powers Boulevard (SH-21), Marksheffel Road, US-24, and other roadways throughout the area. The posted speed limit along the currently constructed portion near the project site is 45 mph and two through lanes in each direction exist. Banning Lewis Parkway is designated as a Principal Arterial roadway.

Stetson Hills Boulevard extends in the east-west direction with a posted speed limit of 45 mph to the west of Marksheffel Road and generally three through lanes in each direction. An extension of Stetson Hills Boulevard is currently being constructed and per the City of Colorado Springs Major Thoroughfare Plan, it is proposed to connect to Banning Lewis Parkway as well as US-24 at Garrett Road once fully built out. Stetson Hills Boulevard is classified as a Principal Arterial. While it is understood that this roadway may provide three through lanes in each direction to the

east of Marksheffel Road at full buildout, for purposes of this study it was assumed that only two through lanes in each direction to the east of Marksheffel Road to provide a conservative analysis.

Barnes Road extends in the east-west direction with three through lanes in each direction and a posted speed limit of 45 mph. Barnes Road is classified as a Principal Arterial and is also planned to connect to both Banning Lewis Parkway and US-24 at full buildout of the roadway. As this roadway to the east of Marksheffel Road is currently under construction, it is believed that three through lanes in each direction will be provided near Marksheffel Road whereas it was assumed that as the roadway continues to extend east, it may provide only two through lanes in each direction as it travels further to the east.

Carefree Circle is an east-west roadway that is classified as a Principal Arterial and has a posted speed limit of 35 mph just to the west of Marksheffel Road. Carefree Circle provides three through lanes in each direction and it is understood that per the City's Major Thoroughfare Plan, that it will extend to the Banning Lewis Parkway extension as well as US-24 in the future. For purposes of this study, it is assumed that Carefree Circle will provide two through lanes in each direction to the east of Marksheffel Road in the future.

The Stetson Hills Boulevard & Marksheffel Road (#1) intersection is signalized and operates with protected-permissive left turn phasing on the northbound approach to the intersection. Of note, the intersection is undergoing significant construction at this time, and as such, the current configuration is temporary. However, at the time this analysis was conducted, the east leg of the intersection was closed, and the lane configuration was as follows. The eastbound approach currently provides separate left and right turn lanes, the southbound approach provides a shared through/right lane, and the northbound approach provides a left turn lane and one through lane. An aerial photo of the existing intersection configuration is below.



Stetson Hills Boulevard & Marksheffel Road (#1)

The Barnes Road & Marksheffel Road (#2) intersection is signalized and operates with protected-only left turn phasing on the northbound approach to the intersection. As with the Stetson Hills Boulevard intersection, this intersection is undergoing significant construction at this time, and as such, the current configuration is temporary. However, at the time this analysis was conducted, the east leg of the intersection was not yet opened to traffic, and the lane configuration was as follows. The eastbound approach currently provides separate left and right turn lanes, the southbound approach provides two through lanes and a right lane, and the northbound approach provides dual left turn lanes and one through lane. An aerial photo of the existing intersection configuration is below.



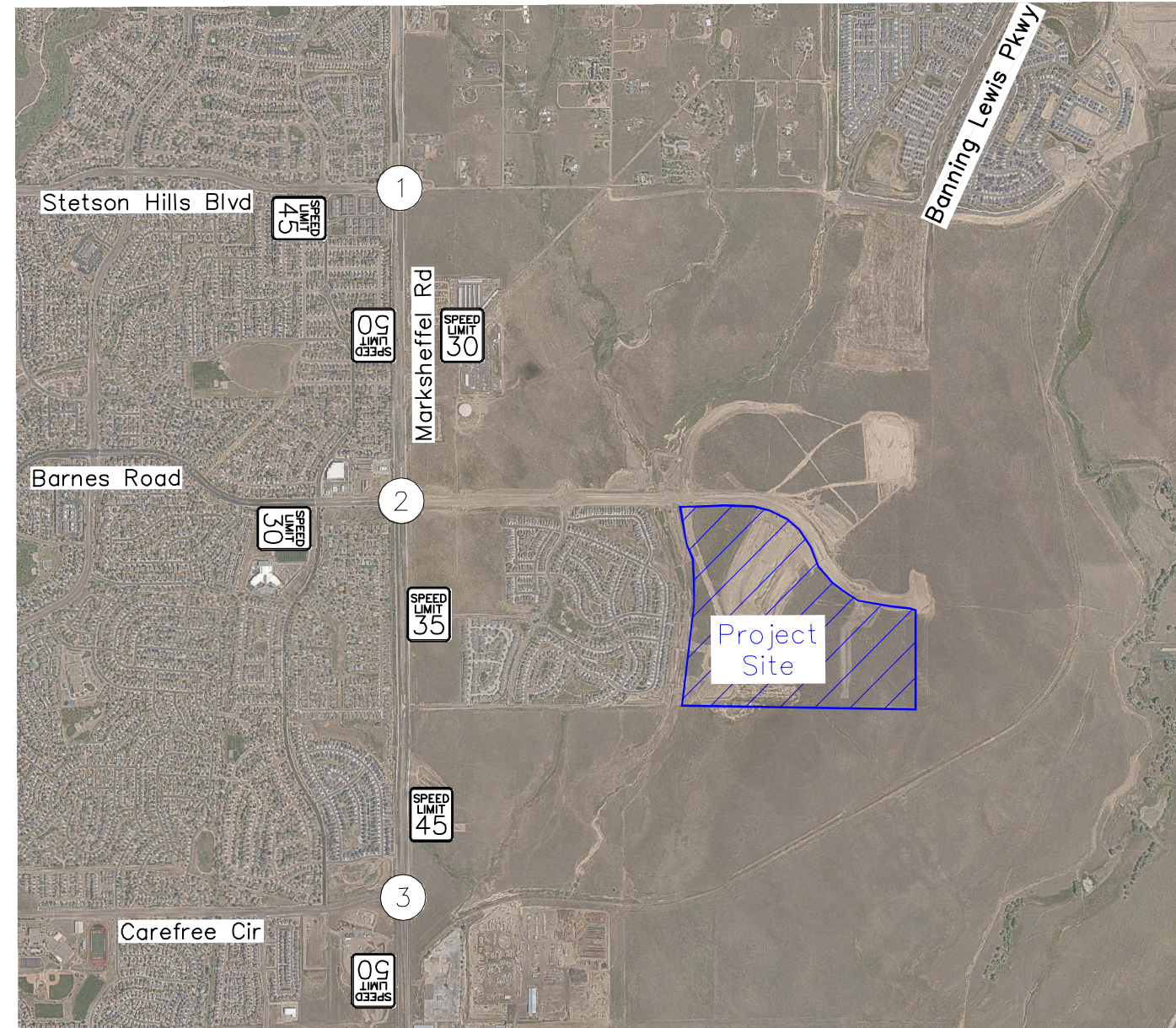
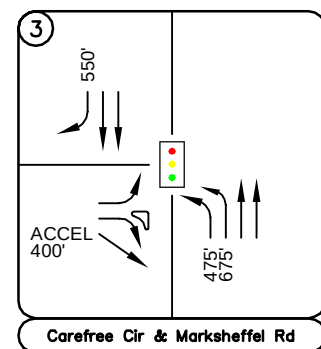
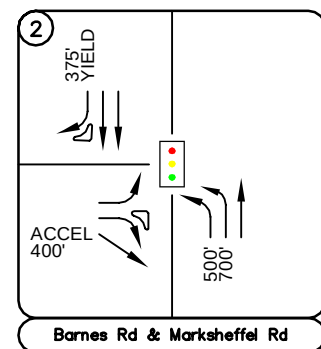
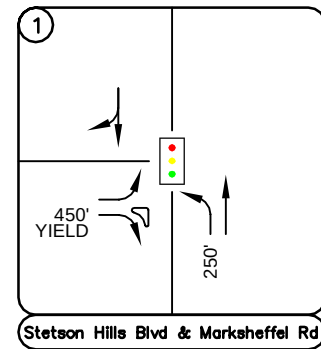
Barnes Road & Marksheffel Road (#2)

The Carefree Circle & Marksheffel Road (#3) intersection is signalized and operates with protected-only left turn phasing on the northbound approach to the intersection. The northbound approach provides dual left turn lanes and two through lanes. The southbound approach provides two through lanes and a right turn lane. The eastbound approach provides separate left and right turn lanes. The eastbound and southbound right turning movements are channelized; the eastbound right turning movement operates with free movement while the southbound right turning movement is yield-controlled. An aerial photo of the existing intersection configuration is below.



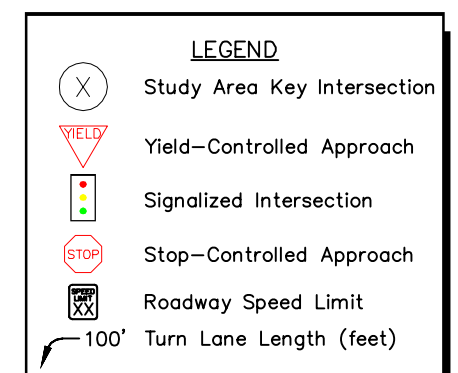
Carefree Circle & Marksheffel Road (#3)

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



Note: some speed limits are posted for ongoing construction.

FIGURE 2
Enclaves at Mountain Vista East
Colorado Springs, Colorado
Existing Geometry and Control



3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the study intersections on Wednesday, August 12, 2026 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

Significant growth is projected to occur in the study area in the future, with construction of this project, additional Banning Lewis Ranch development, and several other projects to be constructed in the area. Kimley-Horn completed traffic studies for multiple proposed future developments in the area and the traffic volumes from each of these developments were added to the background traffic volumes used in this study. These traffic studies include the following:

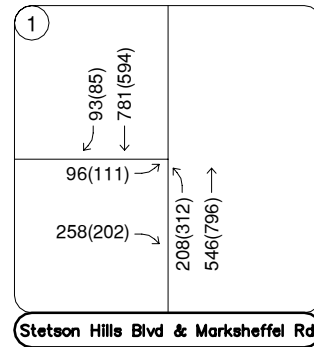
- Mountain Bluffs Traffic Impact Study, April 2022
- Freestyle Master Plan Traffic Impact Study, May 2022
- Marksheffel & Barnes Traffic Impact Study, July 2023

With the proposed extensions of Banning Lewis Parkway, Stetson Hills Boulevard, Barnes Road, and Carefree Circle within the project vicinity, it is anticipated that significant traffic pattern changes will occur in the future. However, the aforementioned traffic studies either did not include the intersections being analyzed in this study, did not include long-term traffic projections of the study intersections, and/or had low proposed traffic volumes for these Principal Arterial roadways. As such, Kimley-Horn contacted the Pikes Peak Area Council of Governments (PPACG) regarding the most recently updated 2050 Long Range Transportation Plan (LRTP). Per communication with PPACG, it is understood that these connections are largely being funded locally and/or by private development as it occurs. As such, traffic projections from PPACG were not available for these roadways in the most recently updated LRTP. However, as it is understood that each of these roadways are projected to be Principal Arterial Roadways, a minimum of 10,000 average daily traffic (ADT) volume in the 2050 horizon was assumed for Stetson Hills Boulevard, Barnes Road, and Carefree Circle, while previous traffic volume projections along Banning Lewis Parkway were generally used for the Banning Lewis Parkway & Barnes Road (#4) future intersection, which generally assumes an ADT along Banning Lewis Parkway of approximately 15,000 ADT or higher near Barnes Road. Kimley-Horn used these assumptions to provide

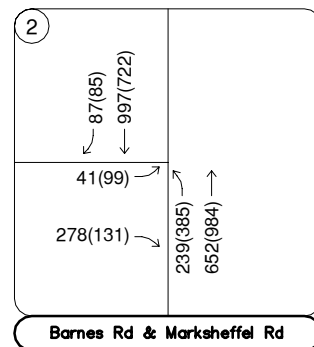
analysis of these intersections with these connections being complete, however, it is recognized that additional work should be done by PPACG and the City of Colorado Springs to provide a comprehensive analysis of future roadway connections in the area, which is not within the scope of this site-specific traffic study associated with Enclaves at Mountain Vista East development.

Once these connections are complete, the demand for north/south traffic volume on Marksheffel Road is not anticipated to be as significant, as Banning Lewis Parkway in particular will be able to distribute traffic to these developments accordingly. To develop traffic volume estimates on Marksheffel Road and the study intersections in this analysis, the general traffic patterns developed in the Freestyle Master Plan were used to derive turning movement volumes at the study area intersections. These roadway connections were all generally assumed to be in place by 2035. In addition to accounting for the Mountain Bluffs, Freestyle Master Plan, and Marksheffel & Barnes traffic study volumes in the background traffic volumes used in this study, the 2050 traffic volumes assumed a one (1) percent average annual growth rate to grow background traffic volumes from the 2035 horizon to the 2050 horizon. This average annual growth rate was also used for any turning movements at intersections that are not expected to be significantly affected by the additional roadway connections in the area in the future. Background traffic volumes for 2035 and 2050 are shown in **Figure 4** and **Figure 5**, respectively. Applicable documents from the adjacent traffic studies are included in **Appendix C**.

Wed, Aug 12, 2026
 7:15 to 8:15AM
 (4:45 to 5:45PM)



Wed, Aug 12, 2026
 7:00 to 8:00AM
 (4:00 to 5:00PM)



Wed, Aug 12, 2026
 7:00 to 8:00AM
 (4:00 to 5:00PM)

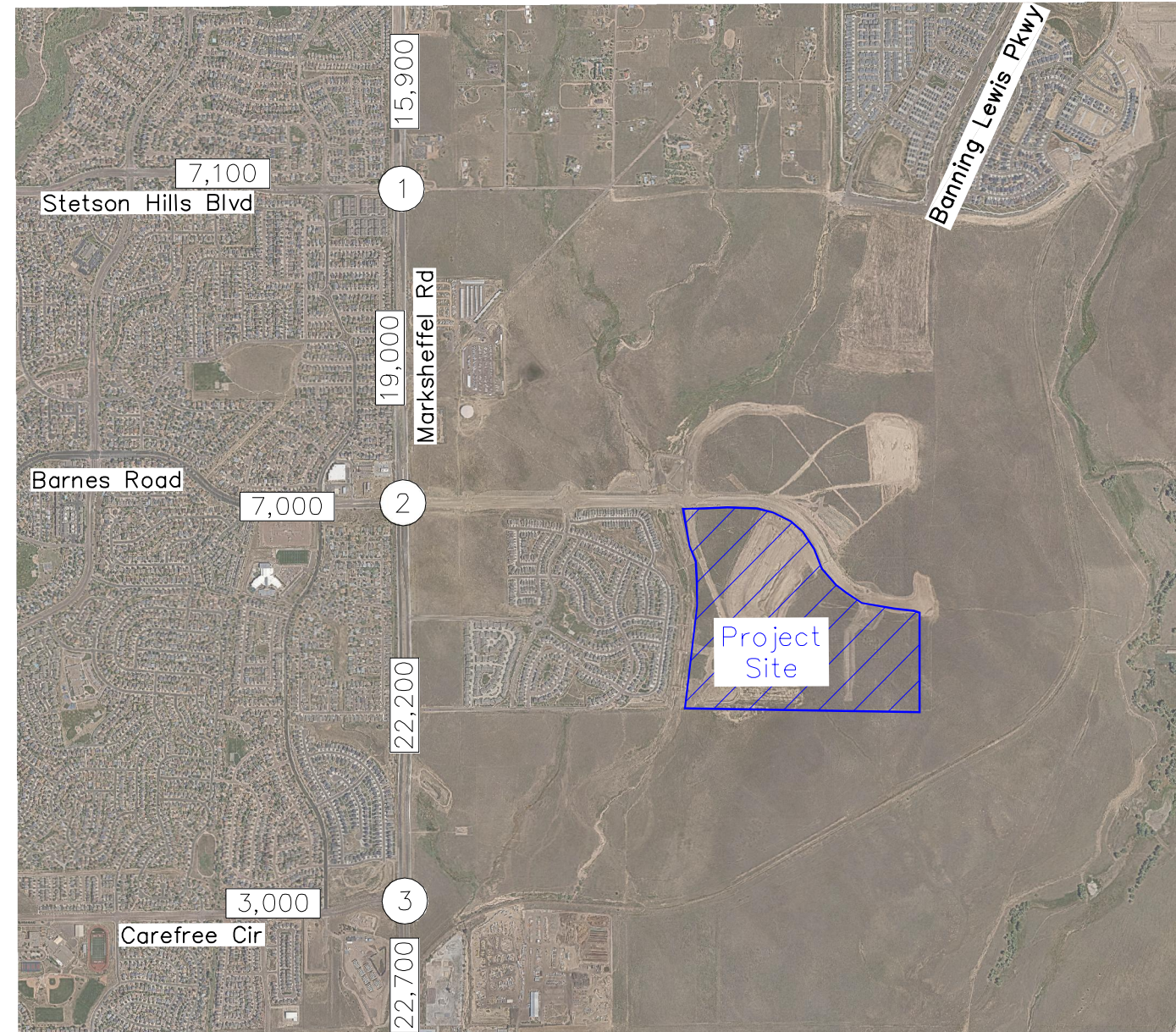
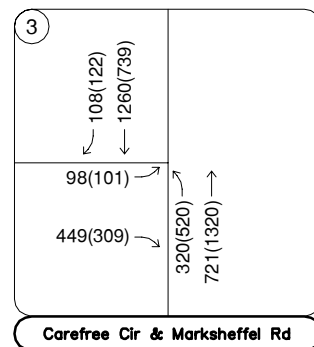
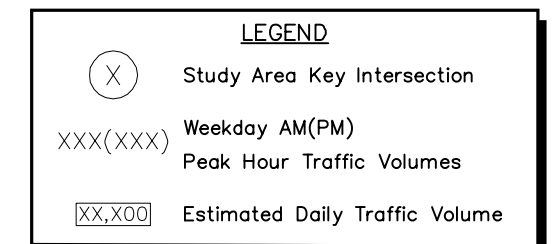


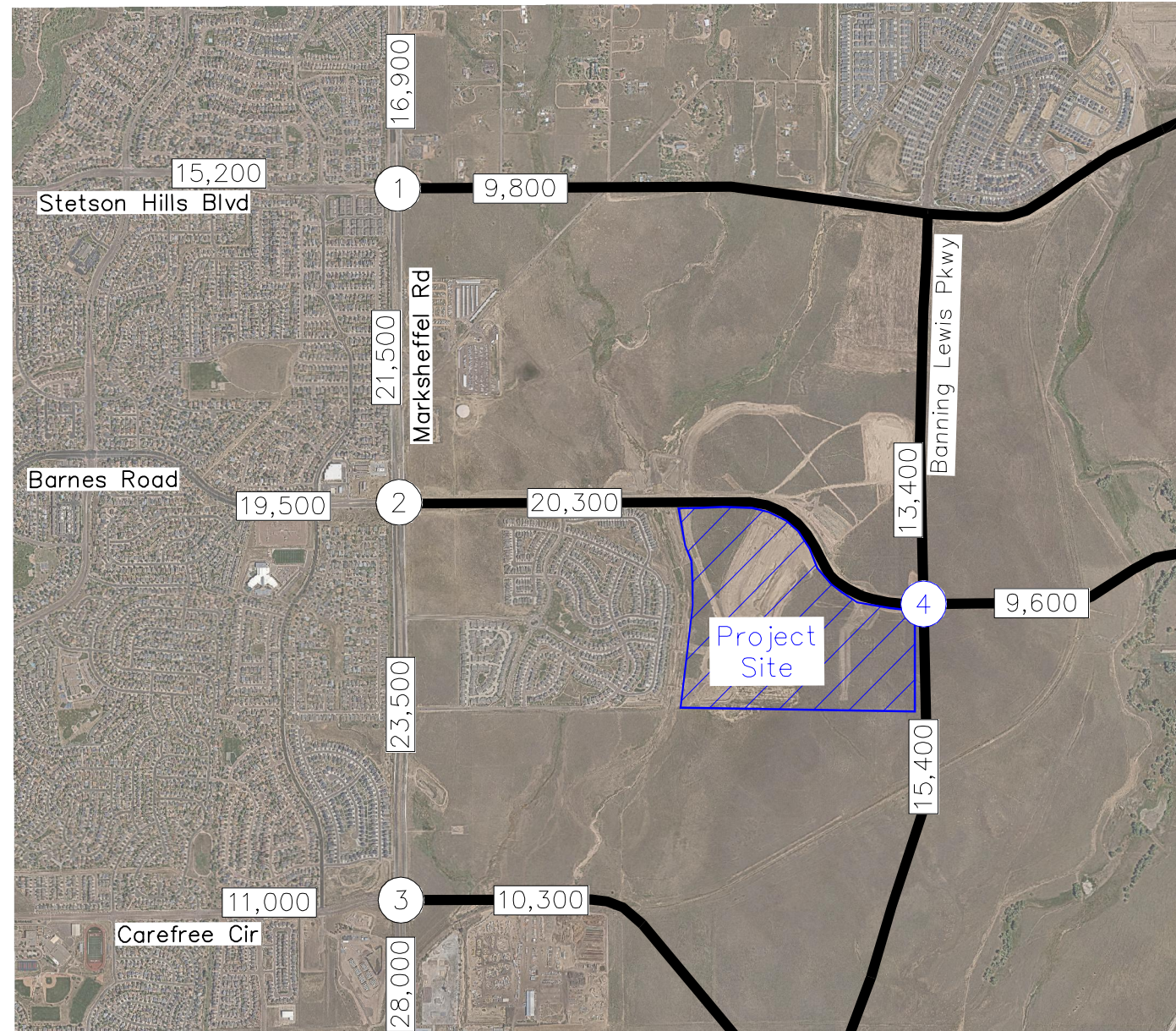
FIGURE 3
 Enclaves at Mountain Vista East
 Colorado Springs, Colorado
 2026 Existing Traffic Volumes



1	131(105) 656(608) 50(75) 75(50) 300(250) 150(100)
	105(184) 300(350) 355(369) 240(260) 630(664) 100(150)
Stetson Hills Blvd & Marksheffel Rd	

2	142(152) 610(413) 217(433) 474(271) 445(291) 449(263)
	163(347) 261(424) 378(447) 221(284) 335(591) 183(351)
Barnes Rd & Marksheffel Rd	

3	83(127) 1225(621) 94(166) 103(70) 250(150) 248(159)
	38(47) 150(250) 391(133) 205(392) 568(1266) 109(232)
Carefree Cir & Marksheffel Rd	



4	29(51) 511(386) 87(108) 104(88) 331(254) 100(75)
	75(100) 262(335) 251(191) 122(185) 285(607) 75(100)
Barnes Rd & Banning Lewis Pkwy	

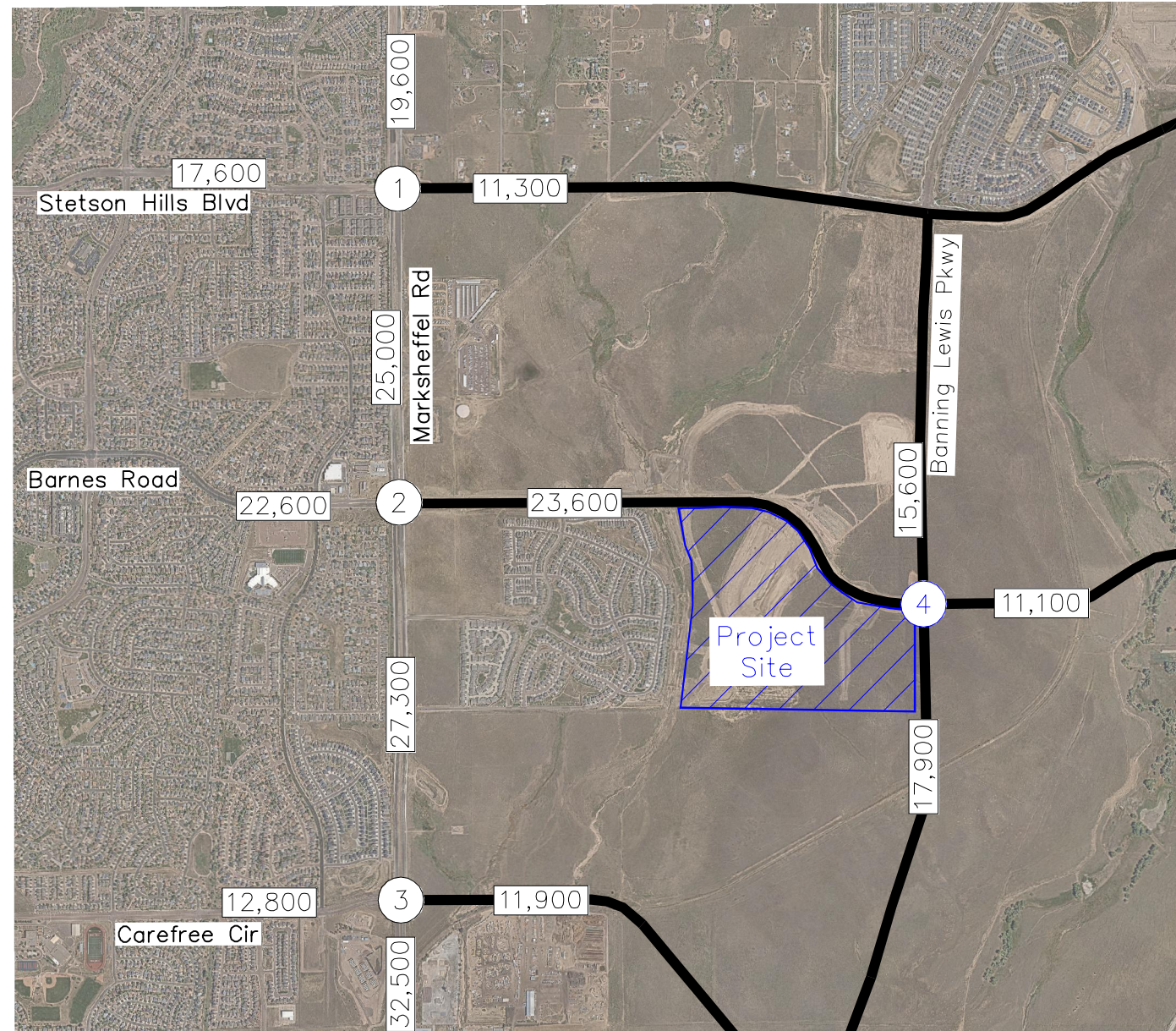
FIGURE 4
Enclaves at Mountain Vista East
Colorado Springs, Colorado
2035 Background Traffic Volumes

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

1	152(122) 762(706) 58(87) 87(58) 348(290) 174(116)
	122(214) 348(406) 412(428) 279(302) 731(771) 116(174)
Stetson Hills Blvd & Marksheffel Rd	

2	165(176) 708(479) 252(503) 550(315) 517(338) 521(305)
	189(403) 303(492) 439(519) 257(330) 389(686) 212(408)
Barnes Rd & Marksheffel Rd	

3	96(147) 1422(721) 109(193) 120(81) 290(174) 288(185)
	44(55) 174(290) 454(154) 238(455) 659(1470) 127(269)
Carefree Cir & Marksheffel Rd	



4	34(59) 593(448) 101(125) 121(102) 384(295) 116(87)
	87(116) 304(389) 291(222) 142(215) 331(705) 87(116)
Barnes Rd & Banning Lewis Pkwy	

FIGURE 5
Enclaves at Mountain Vista East
Colorado Springs, Colorado
2050 Background Traffic Volumes

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

4.0 PROJECT TRAFFIC CHARACTERISTICS

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 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. For this study, Kimley-Horn used the ITE Trip Generation Report average rates and fitted curve equations that apply to Single-Family Detached Housing (ITE Land Use Code 210) and Shopping Plaza (ITE Land Use Code 821) for traffic associated with the development.

While it is understood that the development may be constructed with a mix of single-family detached and single-family attached housing dwelling units, at this time the breakdown of detached versus attached dwelling units is not currently known. As such, to provide a conservative analysis all dwelling units were assumed to be detached homes, as this generates more traffic than single-family attached homes. Additionally, it is understood that between 500 and 590 dwelling units are likely to be constructed on this site, however, to provide a conservative analysis and based on discussion with the client, 600 dwelling units were assumed for this site. For the retail parcel analyzed in this study, it is understood that the proposed retail site is approximately 5.6 acres in size and that there may be a mix of generalized retail uses but that the specific uses are not yet known. As such, Kimley-Horn assumed a floor-to-area (FAR) of 0.20 for these retail uses (5.6 acres * 43,560 SF/acre * 0.20 = 48,787 SF, or ~50,000 SF).

Enclaves at Mountain Vista East is expected to generate approximately 8,378 weekday daily trips, with 488 of these trips occurring during the morning peak hour and 738 of these trips occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 12th Edition – Volume 1: User's Guide and Handbook*, 2025. **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*, Twelfth Edition, Washington DC, 2025.

Table 1 – Enclaves at Mountain Vista East Traffic Generation

Land Use and Size	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single-Family Detached Housing (ITE 210) – 600 Dwelling Units	5,108	110	298	408	310	190	500
Shopping Plaza (ITE 821) – 50,000 Square Feet	3,270	50	30	80	117	121	238
Total Project Trips	8,378	160	328	488	427	311	738

4.2 Trip Distribution

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

4.3 Traffic Assignment

The project's traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 7**.

4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2035 buildout horizon and long-term 2050 twenty-year planning horizon. These total traffic volumes for the study area are illustrated for the 2035 and 2050 horizon years in **Figure 8** and **Figure 9**, respectively.

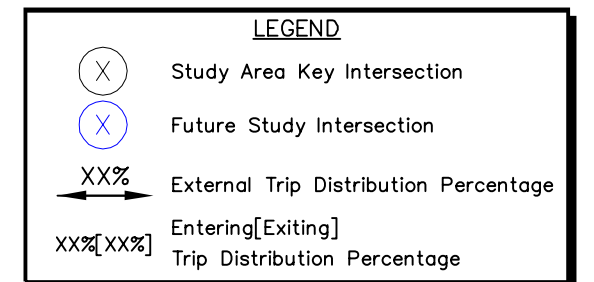
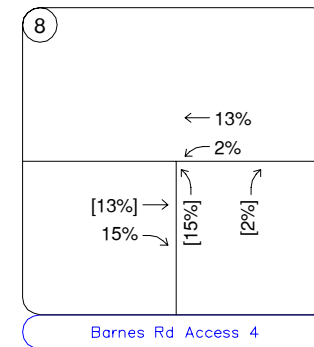
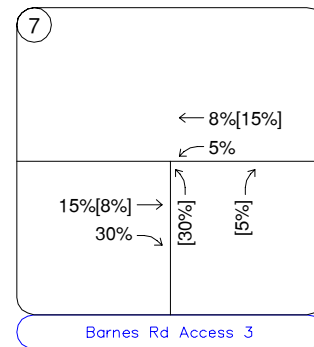
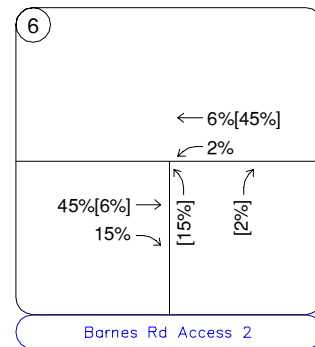
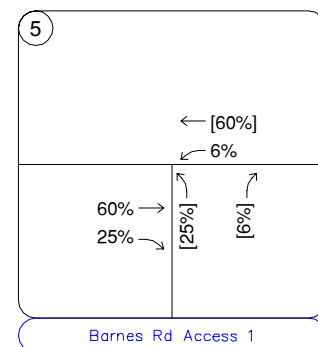
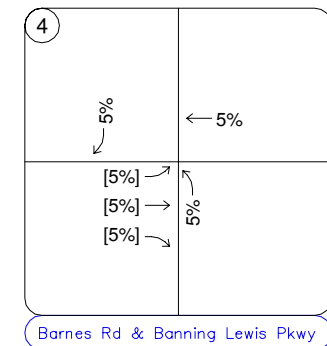
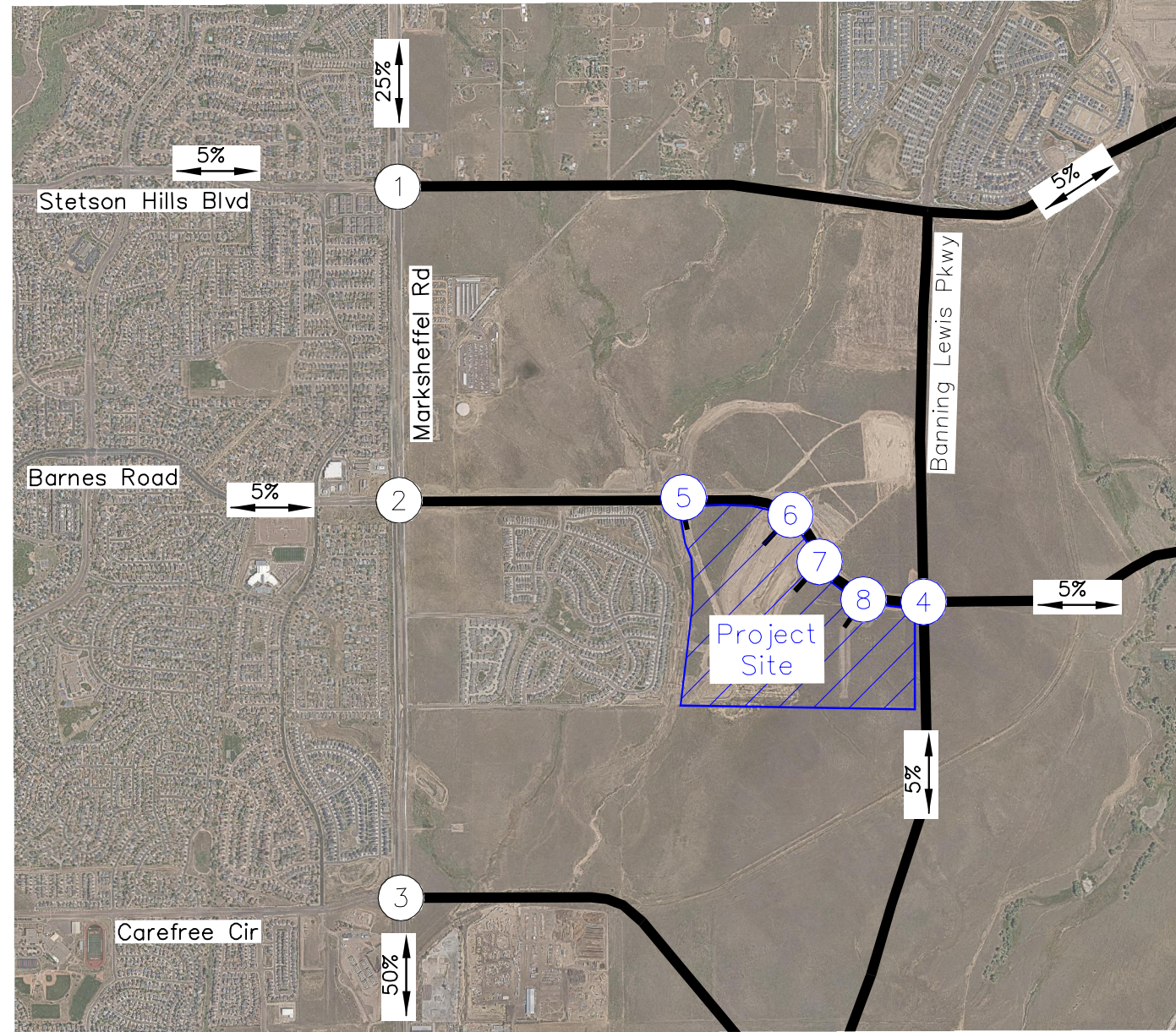
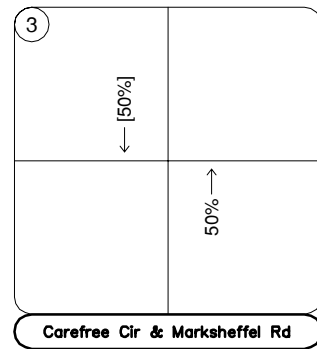
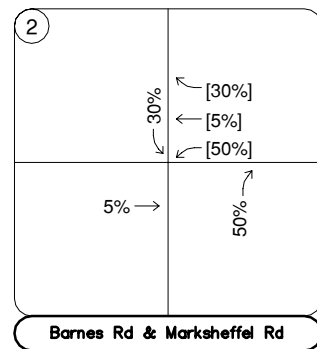
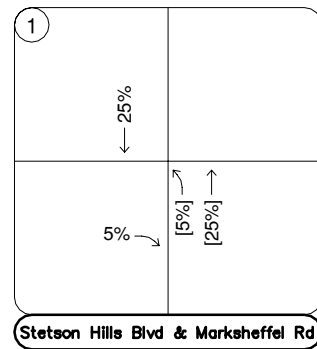


FIGURE 6
Enclaves at Mountain Vista East
Colorado Springs, Colorado
Project Trip Distribution

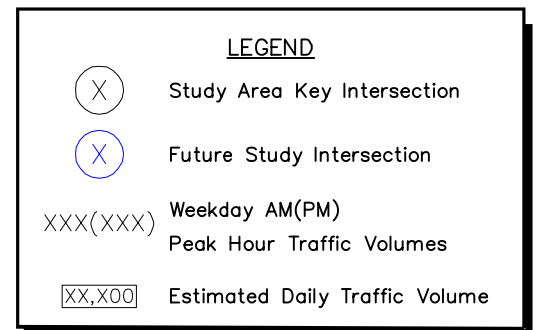
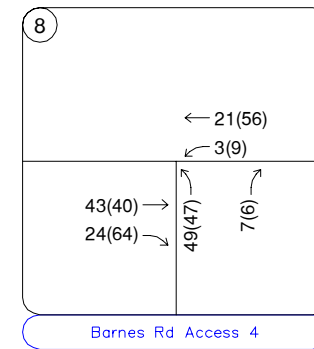
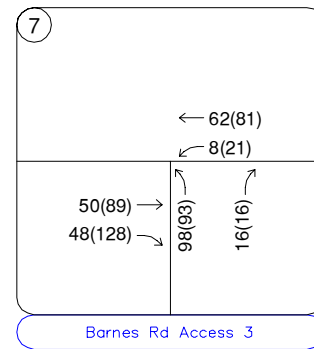
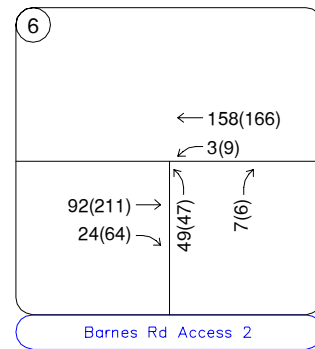
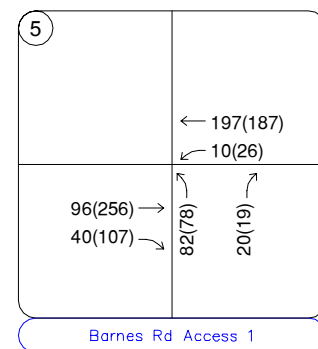
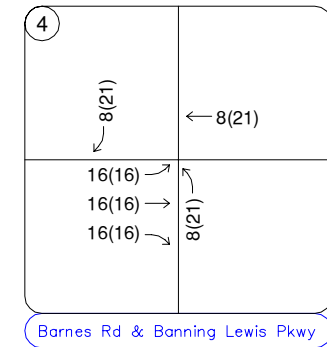
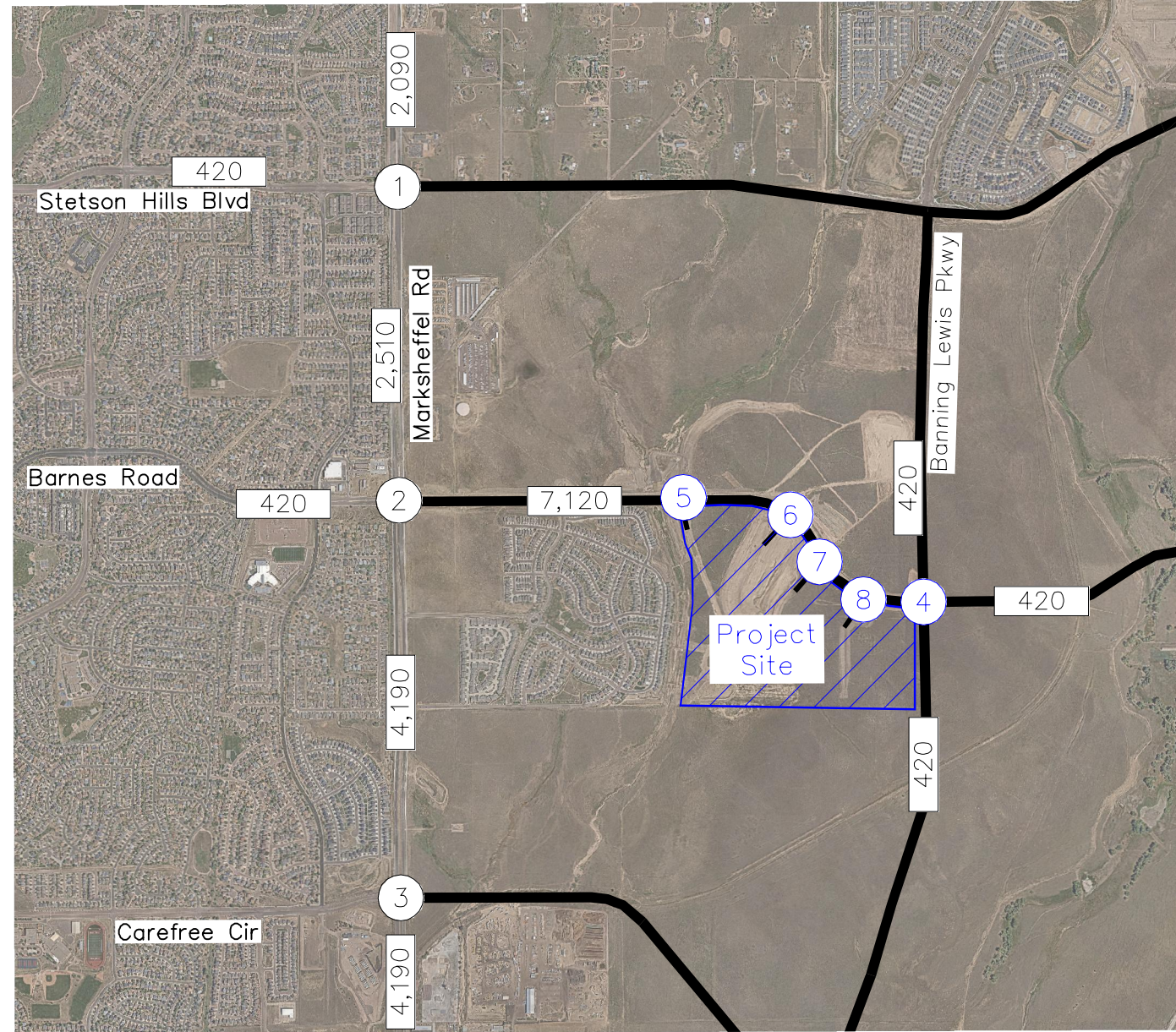
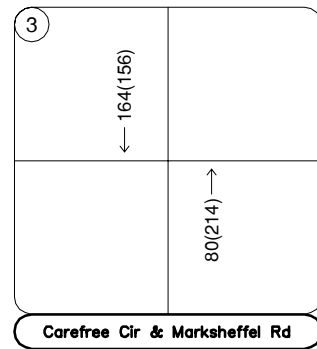
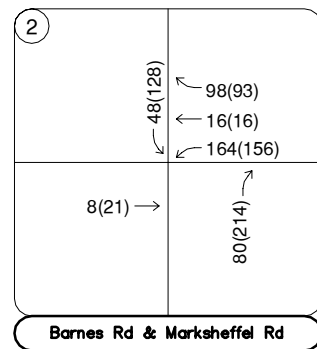
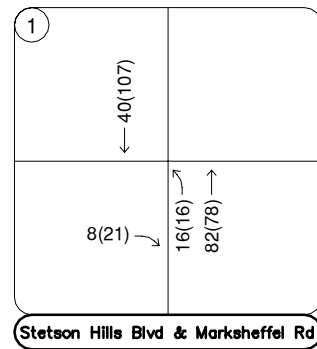
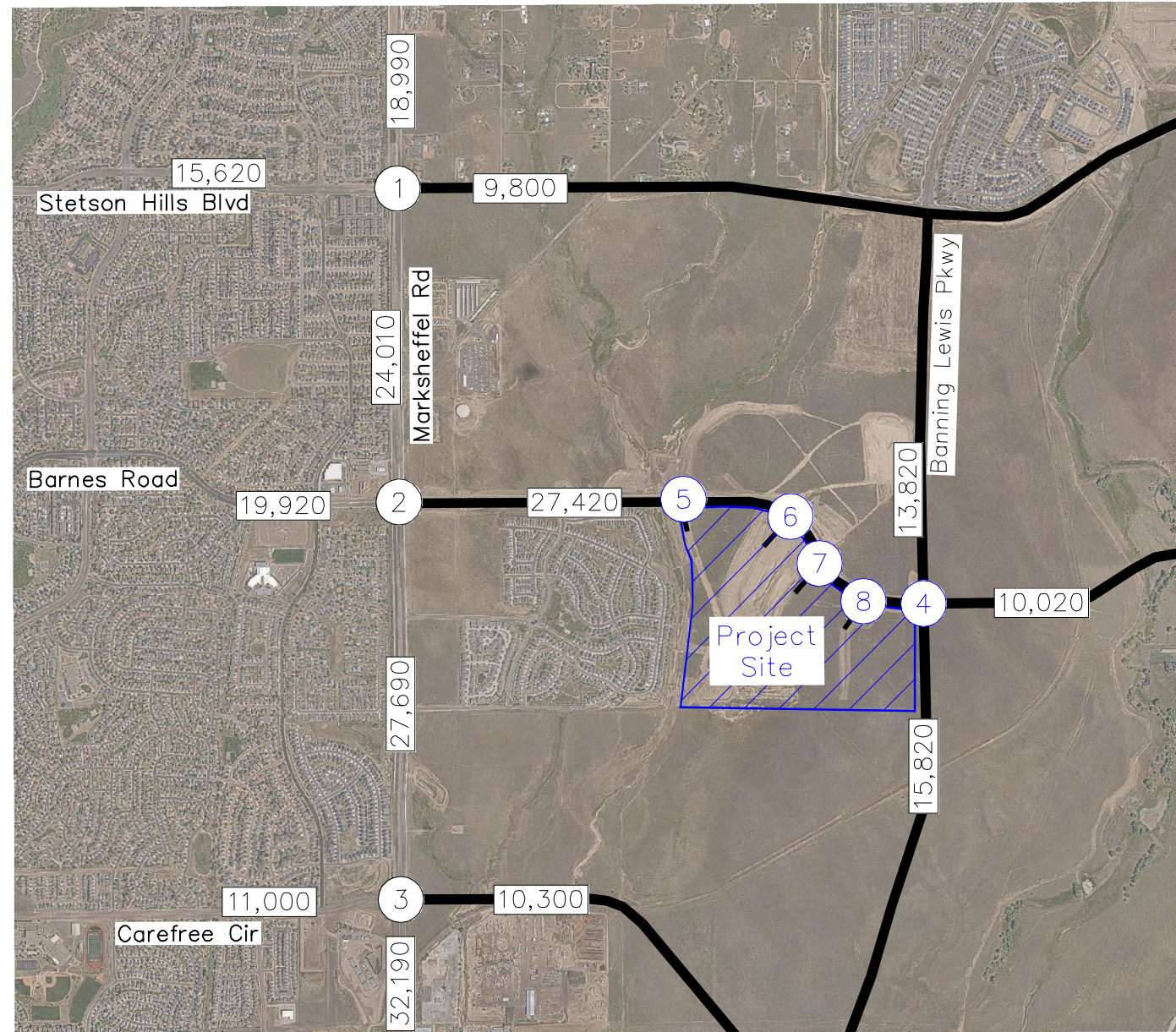


FIGURE 7
Enclaves at Mountain Vista East
Colorado Springs, Colorado
Project Traffic Assignment

1	131(105) 696(715) 50(75) 75(50) 300(250) 150(100) 105(184) 300(350) 363(390) 256(276) 712(742) 100(150)
Stetson Hills Blvd & Marksheffel Rd	

2	142(152) 610(413) 265(561) 572(364) 461(307) 613(419)
Barnes Rd & Marksheffel Rd	

3	83(127) 1389(777) 94(166) 103(70) 250(150) 248(159)
Carefree Cir & Marksheffel Rd	



4	37(72) 511(386) 87(108) 104(88) 339(275) 100(75)
Barnes Rd & Banning Lewis Pkwy	

5	557(280) 15(20) 130(57) 100(80) 679(677) 10(26)
Barnes Rd Access 1	

6	640(656) 3(9) 680(837) 24(64) 49(47)
Barnes Rd Access 2	

7	544(571) 8(21) 638(715) 48(128) 98(93)
Barnes Rd Access 3	

8	503(546) 3(9) 631(666) 24(64) 49(47)
Barnes Rd Access 4	

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

FIGURE 8
Enclaves at Mountain Vista East
Colorado Springs, Colorado
2035 Total Traffic Volumes

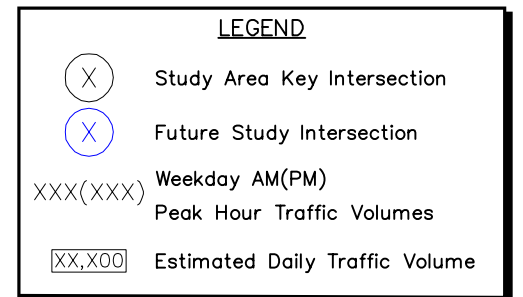
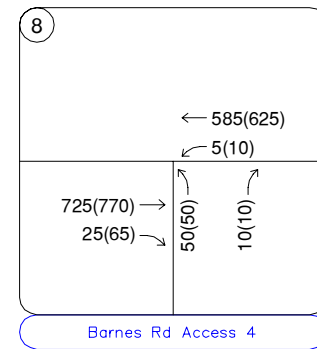
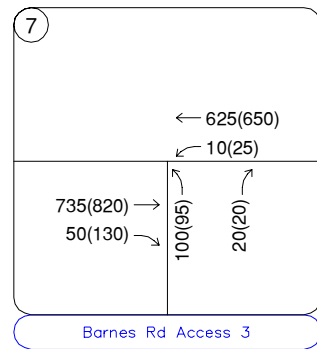
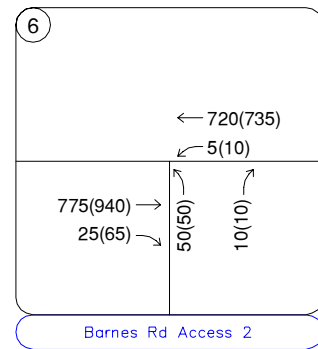
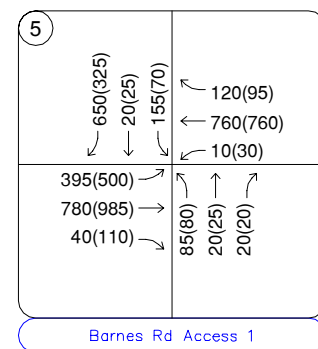
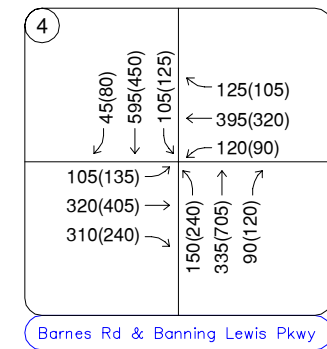
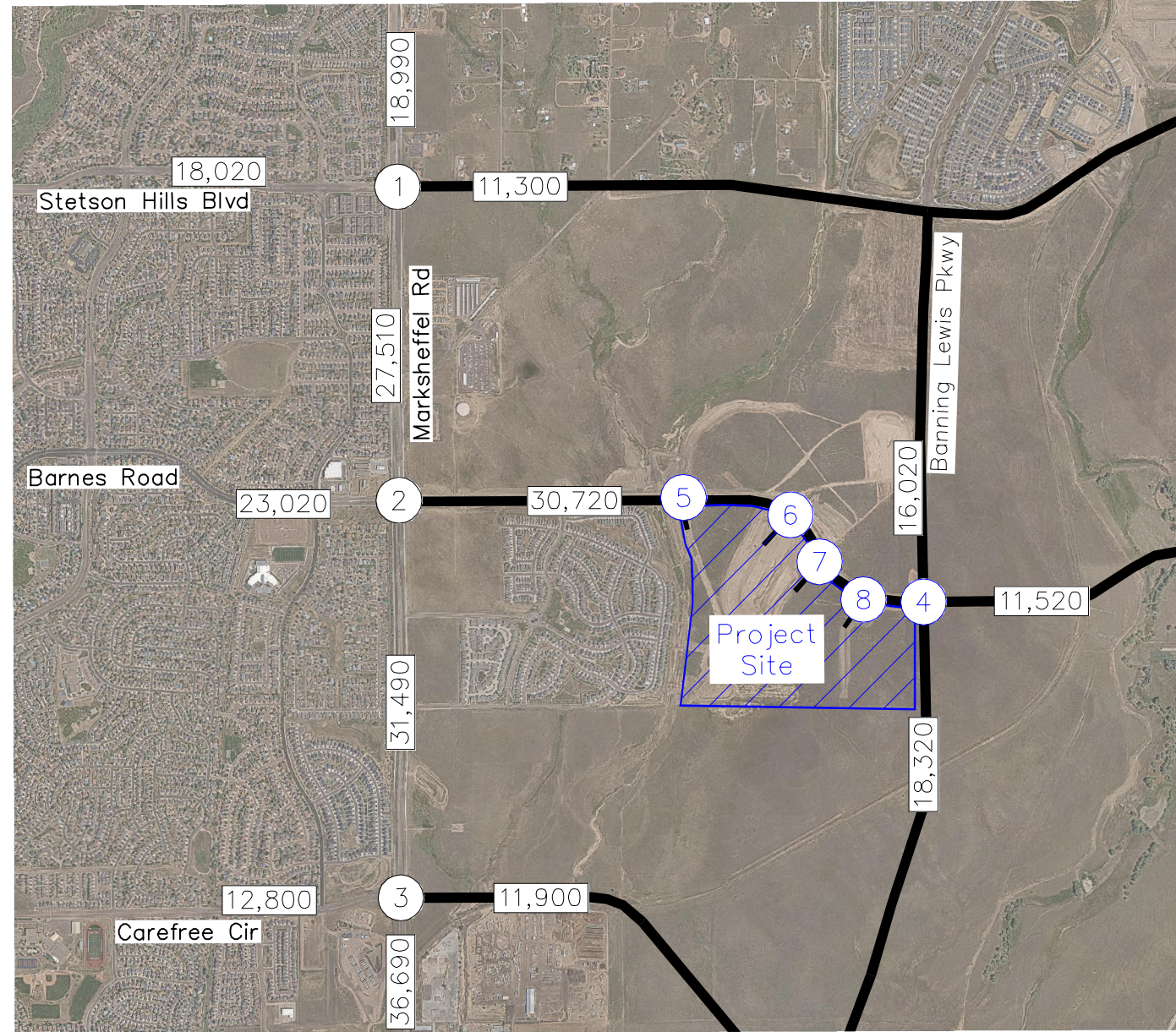
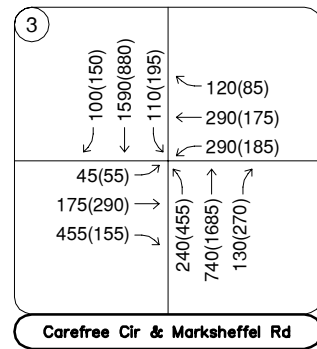
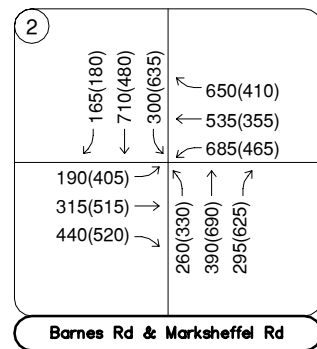
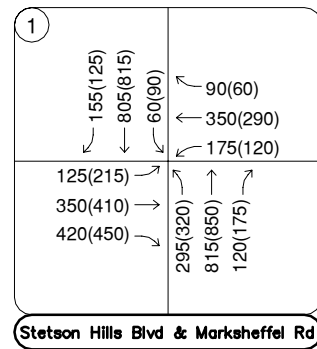


FIGURE 9
Enclaves at Mountain Vista East
Colorado Springs, Colorado
2050 Total Traffic Volumes

5.0 TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2035 and 2050 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). For intersections and roadways in this study area, standard traffic engineering practice recommends overall intersection LOS D and movement/approach LOS E as the minimum desirable thresholds for acceptable operations. **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 Control Delay (sec/veh)	Unsignalized Intersection Average Control 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, Seventh Edition, Transportation Research Board, 2022.

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 critical movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for signalized- and roundabout-controlled intersections are defined for each approach and for the overall intersection.

² Transportation Research Board, *Highway Capacity Manual*, Seventh Edition, Washington DC, 2022.

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 all horizon analysis years. The existing heavy vehicle percentages obtained from the turning movement counts were also used in each horizon year. The signalized intersection analysis utilizes the observed cycle lengths with optimized phasing and timing. Synchro traffic analysis software was used to analyze the signalized and unsignalized key intersections for HCM level of service.

Stetson Hills Boulevard & Marksheffel Road (#1)

The Stetson Hills Boulevard & Marksheffel Road (#1) intersection is signalized and operates with protected-permissive left turn phasing on the northbound approach to the intersection. The east leg of the intersection is currently closed during construction, but it is understood that Stetson Hills Boulevard will be extended in the near future and at its full buildout it will connect to both Banning Lewis Parkway and US-24. In its existing configuration, the intersection operates acceptably at LOS B or better during both peak hours. For purposes of this traffic study and based on the currently ongoing construction, it was assumed that by 2035, all four approaches to this intersection would operate with dual left turn lanes operating with protected-only left turn phasing, two through lanes, and separate right turn lanes that would be channelized and operate with yield-controlled turning movement. Based on the projected traffic volumes and this assumed configuration, the intersection is expected to operate acceptably through the 2050 horizon. **Table 3** provides the results of the LOS analysis conducted at this intersection. Of note, while the number of vehicles increased with project traffic, most of this traffic added was northbound/southbound through vehicles, which experience less delay than the minor street traffic volume, which decreases the overall intersection delay slightly.

Table 3 – Stetson Hills Boulevard & Marksheffel Road (#1) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2026 Existing	10.3	B	9.9	A
2035 Background ¹	37.0	D	38.0	D
2035 Background Plus Project ¹	36.0	D	37.0	D
2050 Background ¹	38.2	D	39.2	D
2050 Background Plus Project ¹	37.7	D	38.8	D

¹New east leg; all four approaches operate with dual left turn lanes, two through lanes, and yield-controlled channelized right turn lanes

Barnes Road & Marksheffel Road (#2)

The Barnes Road & Marksheffel Road (#2) intersection is signalized and operates with protected-only left turn phasing on the northbound approach to the intersection. The east leg of the intersection is not yet opened to traffic but it is understood that Barnes Road will be extended in the near future and at its full buildout it will connect to both Banning Lewis Parkway and US-24. In its existing configuration, the intersection operates acceptably at LOS C or better during both peak hours.

For purposes of this traffic study and based on the currently ongoing construction, it was assumed that by 2035, all four approaches to this intersection would operate with dual left turn lanes operating with protected-only left turn phasing and separate right turn lanes that would be channelized and operate with yield-controlled turning movement. It was assumed that at this intersection, Barnes Road would provide three through lanes in each direction and Marksheffel Road would provide two through lanes in each direction. Based on the projected traffic volumes and this assumed configuration, the intersection is expected to operate acceptably through the 2050 horizon. **Table 4** provides the results of the LOS analysis conducted at this intersection.

Table 4 – Barnes Road & Marksheffel Road (#2) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2026 Existing	13.4	B	20.2	C
2035 Background ¹	47.8	D	50.8	D
2035 Background Plus Project ¹	49.0	D	51.0	D
2050 Background ¹	48.9	D	52.5	D
2050 Background Plus Project ¹	50.7	D	54.0	D

¹New east leg; all four approaches operate with dual left turn lanes and yield-controlled channelized right turn lanes; Barnes Road with three EB/WB through lanes; Marksheffel Road with two NB/SB through lanes

Carefree Circle & Marksheffel Road (#3)

The Carefree Circle & Marksheffel Road (#3) intersection is signalized and operates with protected-only left turn phasing on the northbound approach to the intersection. There is no east leg to this intersection currently, but it is understood that Carefree Circle will be extended in the near future and at its full buildout it will connect to both Banning Lewis Parkway and US-24. In its existing configuration, the intersection operates acceptably at LOS C or better during both peak hours.

For purposes of this traffic study and based on the currently ongoing construction, it was assumed that by 2035, all four approaches to this intersection would operate with dual left turn lanes operating with protected-only left turn phasing, two through lanes, and separate right turn lanes that would be channelized and operate with yield-controlled turning movement. Based on the projected traffic volumes and this assumed configuration, the intersection is expected to operate acceptably through the 2050 horizon. **Table 5** provides the results of the LOS analysis conducted at this intersection. Of note, while the number of vehicles increased with project traffic, most of this traffic added was northbound/southbound through vehicles, which experience less delay than the minor street traffic volume, which decreases the overall intersection delay slightly.

Table 5 – Carefree Circle & Marksheffel Road (#3) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2026 Existing	17.8	C	19.1	B
2035 Background ¹	33.8	C	36.0	D
2035 Background Plus Project ¹	31.3	C	35.7	D
2050 Background ¹	36.2	D	39.2	D
2050 Background Plus Project ¹	36.2	D	41.1	D

¹New east leg; all four approaches operate with dual left turn lanes, two through lanes, and yield-controlled channelized right turn lanes

Barnes Road & Banning Lewis Parkway (#4) – Future Intersection

The Barnes Road & Banning Lewis Parkway (#4) intersection does not yet exist but will be constructed in the near future and will be located on the northeast side of the Enclaves at Mountain Vista East site. For purposes of this traffic study, it was assumed that by 2035, all four approaches to this intersection would operate with a left turn lane operating with protected-permissive left turn phasing, two through lanes, and separate right turn lanes that would be channelized and operate with yield-controlled turning movement. Based on the projected traffic volumes and this assumed configuration, the intersection is expected to operate acceptably through the 2050 horizon. **Table 6** provides the results of the LOS analysis conducted at this intersection.

Table 6 – Barnes Road & Banning Lewis Parkway (#4) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2035 Background ¹	30.9	C	28.2	C
2035 Background Plus Project ¹	31.4	C	29.4	C
2050 Background ¹	31.3	C	29.3	C
2050 Background Plus Project ¹	31.8	C	30.3	C

¹New intersection; all four approaches operate with a left turn lane, two through lanes, and yield-controlled channelized right turn lanes

Project Accesses

With completion of the project, four new full movement accesses are proposed into the development. For purposes of this study, they are referred to from west to east as Access 1 through Access 4. The westernmost access—Access 1—is anticipated to align to an access on the north side of the Barnes Road extension. Based on ongoing construction in the area, it is understood that this access intersection will likely be constructed as a roundabout, with two approach lanes on eastbound/westbound Barnes Road and one approach lane on the northbound/southbound approaches. However, based on the analysis conducted in this study, based on the high southbound right turning volume generated by the Freestyle Master Plan development—particularly during the morning peak hour—it appears that the southbound approach may require two lanes. For purposes of this study, it is recommended that the southbound approach provide a shared left/through/right turn lane, and a separate southbound right turn bypass lane that can operate with yield control. Two scenarios were modeled in the 2035 total scenario, one with a single southbound approach lane, and the second with two

southbound approach lanes. As the two southbound approach lanes provided acceptable operations, this condition was analyzed in all other scenarios.

All other accesses are assumed to have one northbound approach lane to Barnes Road for shared left/right turning movements, a westbound left turn lane, and an eastbound right turn lane. **Table 7** provides the results of the level of service for these project intersections/accesses. As shown in the table and based on the previously recommended lane configuration, the project access intersections are anticipated to have all movements operating with acceptable LOS D or better during the peak hours in both the buildout year 2035 and the 2050 long-term horizons.

Table 7 – Project Access Level of Service Results

Intersection	2035 Total				2050 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
Barnes Rd Access 1 (#5)¹	40.3	E	Not Analyzed					
Eastbound Approach	8.2	A						
Westbound Approach	13.0	B						
Northbound Approach	10.7	B						
Southbound Approach	126.3	F						
Barnes Rd Access 1 (#5)²	12.9	B	11.6	B	20.7	C	15.4	C
Eastbound Approach	8.6	A	10.7	B	10.6	B	13.7	B
Westbound Approach	10.7	B	12.7	B	13.9	B	17.7	C
Northbound Approach	13.4	B	18.6	C	18.2	C	26.9	D
Southbound Approach	21.6	C	10.4	B	43.4	E	13.3	B
Barnes Rd Access 2 (#6)								
Northbound Approach	18.8	C	25.2	D	22.3	C	33.3	D
Westbound Left	9.3	A	10.2	B	9.7	A	10.8	B
Barnes Rd Access 3 (#7)								
Northbound Approach	21.2	C	26.2	D	27.0	D	36.8	E
Westbound Left	9.2	A	10.0	B	9.7	A	10.6	B
Barnes Rd Access 4 (#8)								
Northbound Approach	16.8	C	18.1	C	20.1	C	22.3	C
Westbound Left	9.1	A	9.4	A	9.5	A	9.9	A

¹Roundabout with two EB/WB approach lanes and one NB/SB approach lane;

²Same as Note 1, but with SB approach having a shared SBL/T/R lane and a separate bypass yield-controlled SBR lane

5.3 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 F** for signalized intersections.

Table 8 – Turn Lane Queuing Analysis Results

Intersection Turn Lane	Existing Turn Lane Length	2035 Calculated Queue (AM/PM)	2035 Recommended Length	2050 Calculated Queue (AM/PM)	2050 Recommended Length
Stetson Hills & Marksheffel (#1)					
Eastbound Left	C	82'/130'	325' DL	94'/150'	325' DL
Eastbound Right	C	25'/25'	C	25'/25'	C
Westbound Left	DNE	110'/82'	325' DL	127'/95'	325' DL
Westbound Right	DNE	25'/25'	200'	25'/25'	200'
Northbound Left	450'	181'/171'	425' DL	204'/187'	425' DL
Northbound Right	DNE	25'/25'	200'	25'/25'	200'
Southbound Left	DNE	47'/64'	275' DL	54'/74'	275' DL
Southbound Right	DNE	25'/25'	200'	25'/25'	200'
Barnes & Marksheffel (#2)					
Eastbound Left	C	115'/218'	450' DL	130'/250'	450' DL
Eastbound Right	C	25'/25'	200'	25'/25'	200'
Westbound Left	DNE	341'/262'	625' DL	423'/295'	625' DL
Westbound Right	DNE	25'/25'	200'	25'/25'	200'
Northbound Left	650'/825' DL	151'/188'	650'/825' DL	136'/183'	650'/825' DL
Northbound Right	DNE	25'/25'	200'	25'/25'	200'
Southbound Left	DNE	173'/298'	600' DL	172'/381'	600' DL
Southbound Right	375' C	25'/25'	375' C	25'/25'	375' C
Carefree & Marksheffel (#3)					
Eastbound Left	C	39'/48'	200' DL	45'/52'	200' DL
Eastbound Right	C	25'/25'	200'	25'/25'	200'
Westbound Left	DNE	160'/132'	425' DL	217'/150'	425' DL
Westbound Right	DNE	25'/25'	200'	25'/25'	200'
Northbound Left	650'/825' DL	143'/251'	650'/825' DL	163'/313'	650'/825' DL
Northbound Right	DNE	25'/25'	200'	25'/25'	200'
Southbound Left	DNE	74'/141'	375' DL	85'/166'	375' DL
Southbound Right	550'	25'/25'	550'	25'/25'	550'
Barnes & Banning Lewis (#4)					
Eastbound Left	DNE	89'/104'	350'	99'/136'	350'
Eastbound Right	DNE	25'/25'	200'	25'/25'	200'
Westbound Left	DNE	123'/96'	350'	139'/108'	350'
Westbound Right	DNE	25'/25'	200'	25'/25'	200'
Northbound Left	DNE	81'/128'	350'	98'/156'	350'
Northbound Right	DNE	25'/25'	200'	25'/25'	200'
Southbound Left	DNE	57'/70'	300'	71'/84'	300'
Southbound Right	DNE	25'/25'	200'	25'/25'	200'

Intersection Turn Lane	Existing Turn Lane Length	2035 Calculated Queue (AM/PM)	2035 Recommended Length	2050 Calculated Queue (AM/PM)	2050 Recommended Length
Barnes Access 1 (#5) Southbound Right	DNE	123'/32'	275'	254'/46'	275'
Barnes Access 2 (#6) Westbound Left	DNE	25'/25'	200'	25'/25'	200'
Barnes Access 3 (#7) Westbound Left	DNE	25'/25'	200'	25'/25'	200'
Barnes Access 4 (#8) Westbound Left	DNE	25'/25'	200'	25'/25'	200'

DNE = Does Not Exist; C = Continuous Turn Lane; DL = Dual Left Turn Lanes; **Blue** Text = Recommendation

The City of Colorado Springs Traffic Criteria Manual was used to determine whether turn lanes were warranted, and if so, what the recommended turn lane lengths should be. Based on City standards for Principal Arterials, left turn lanes should be installed when the peak hour left turning movement is 10 vehicles per hour (vph) or greater, whereas right turn deceleration lanes are required when the right turning volume is 25 vph or greater. Right turn acceleration lanes are not required on Principal Arterial roadways. At signalized intersections, the left turn lane storage length is based on the 95th percentile queue length from the Synchro analysis, and the required deceleration lane length is added to that. For roadways with a 35-mph speed limit, the deceleration lane length is 120 feet with a 140-foot taper, whereas at a 45-mph speed limit the deceleration length is 200 feet with a 180-foot taper. All major roadways were assumed to have a posted speed limit of 45 mph, except for the eastbound approach of Carefree Circle, which has an existing posted speed limit of 35 mph and was assumed to remain as such through 2050.

Based on these recommended turn lane lengths, all queues are anticipated to remain within the existing or recommended turn lane lengths through 2050.

5.4 Improvement Summary

Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 10**. Based on the projected traffic volumes and intersection configuration presented in this study, these recommendations would accommodate the anticipated traffic volumes through the 2050 horizon.

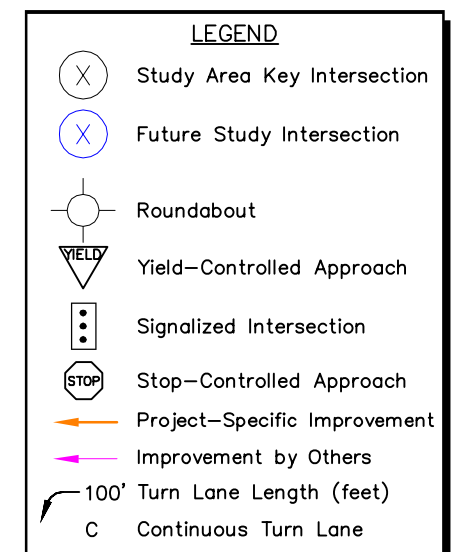
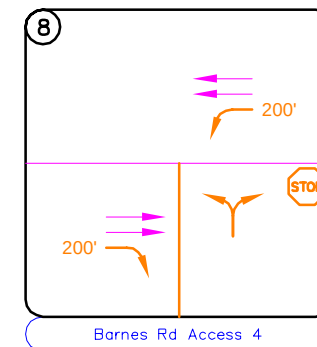
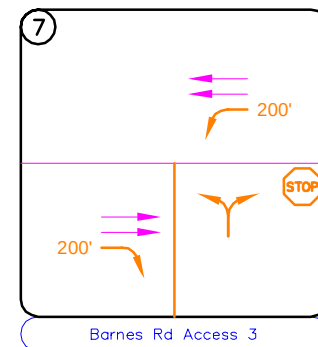
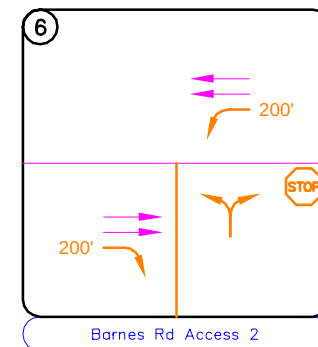
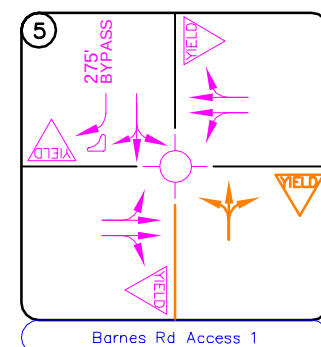
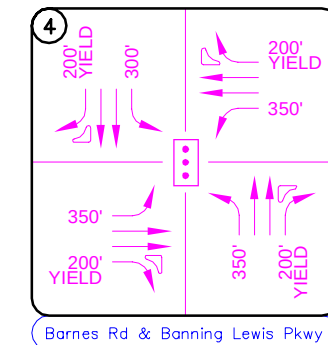
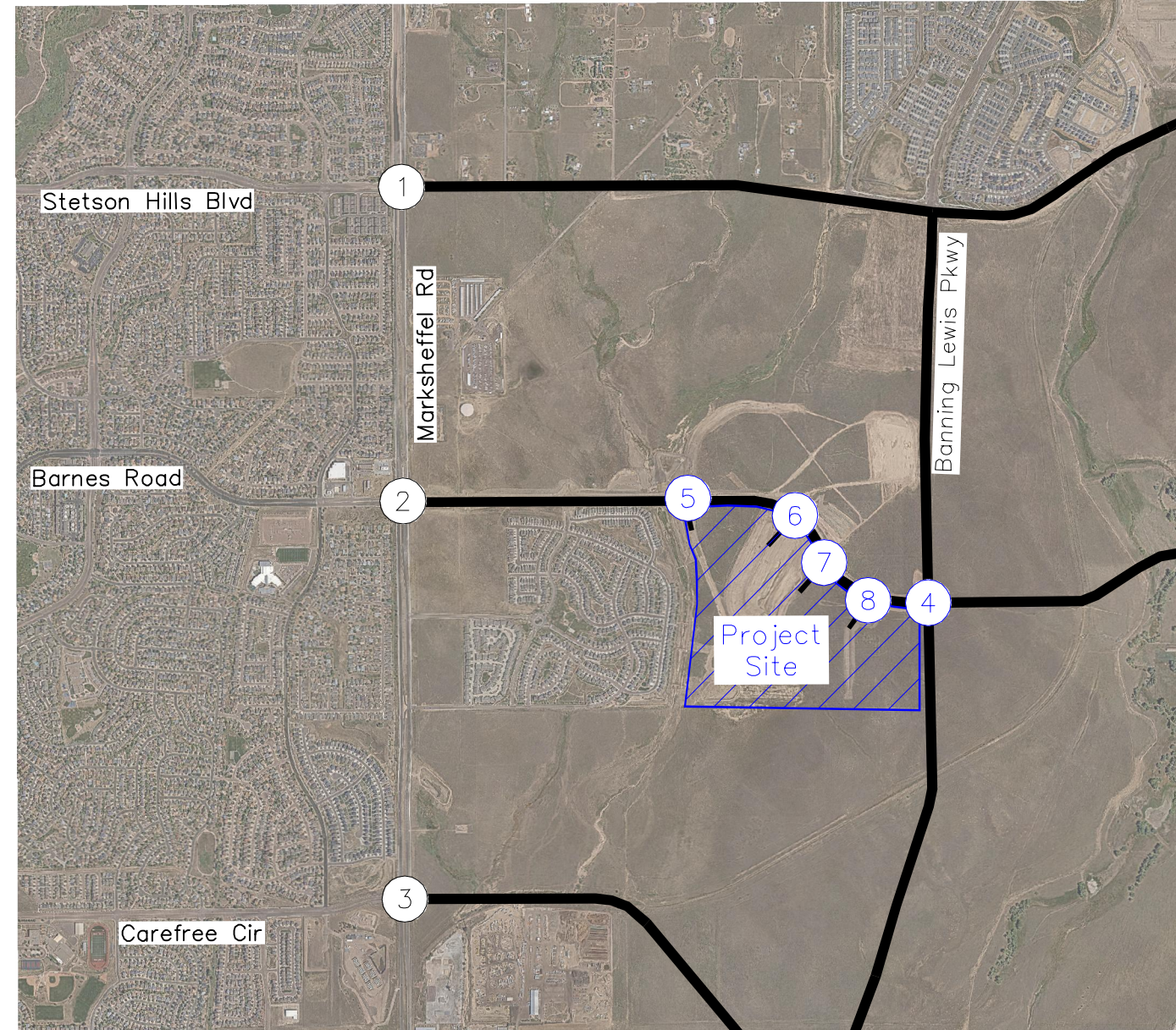
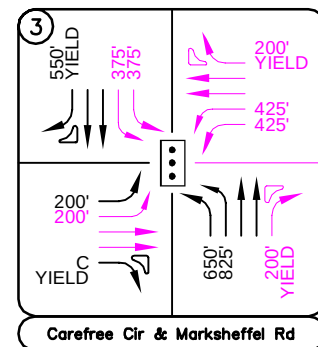
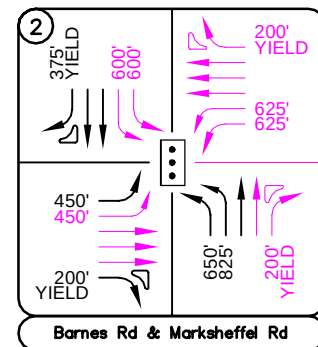
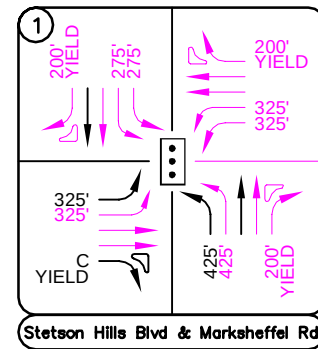


FIGURE 10
Enclaves at Mountain Vista East
Colorado Springs, Colorado
2035 Recommended Geometry and Control

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes Enclaves at Mountain Vista East will be successfully incorporated into the existing and future roadway network. Several improvements are currently being made to the surrounding vicinity, including significant ongoing construction along Marksheffel Road, as well as future roadway extensions of Stetson Hills Boulevard, Barnes Road, and Carefree Circle that are planned to connect to US-24 at full buildout. Banning Lewis Parkway is also planned to be extended several miles to the south of its current termination, including connecting to US-24 and several other major roadways. These improvements are part of broader regional improvements that are expected to provide additional roadway connections in the area as the eastern portion of Colorado Springs continues to develop.

All onsite and offsite improvements should be incorporated into the Civil Drawings and conform to standards of the City of Colorado Springs and the Manual on Uniform Traffic Control Devices (MUTCD) – 11th Edition, 2023. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following project-specific recommendations as shown in the following **Table 9**:

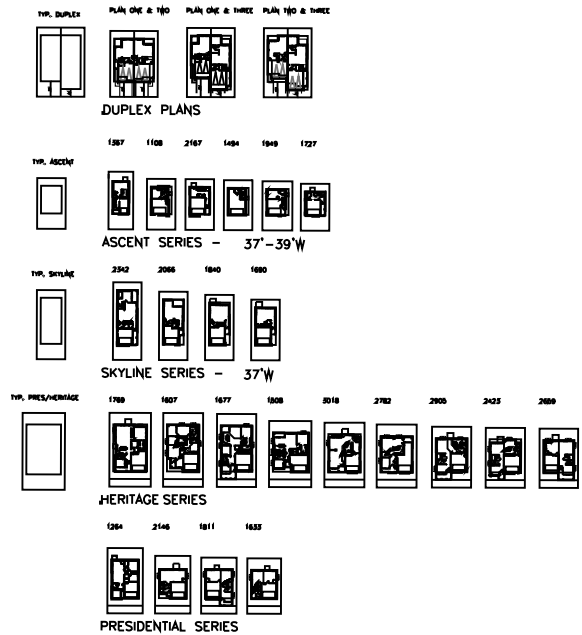
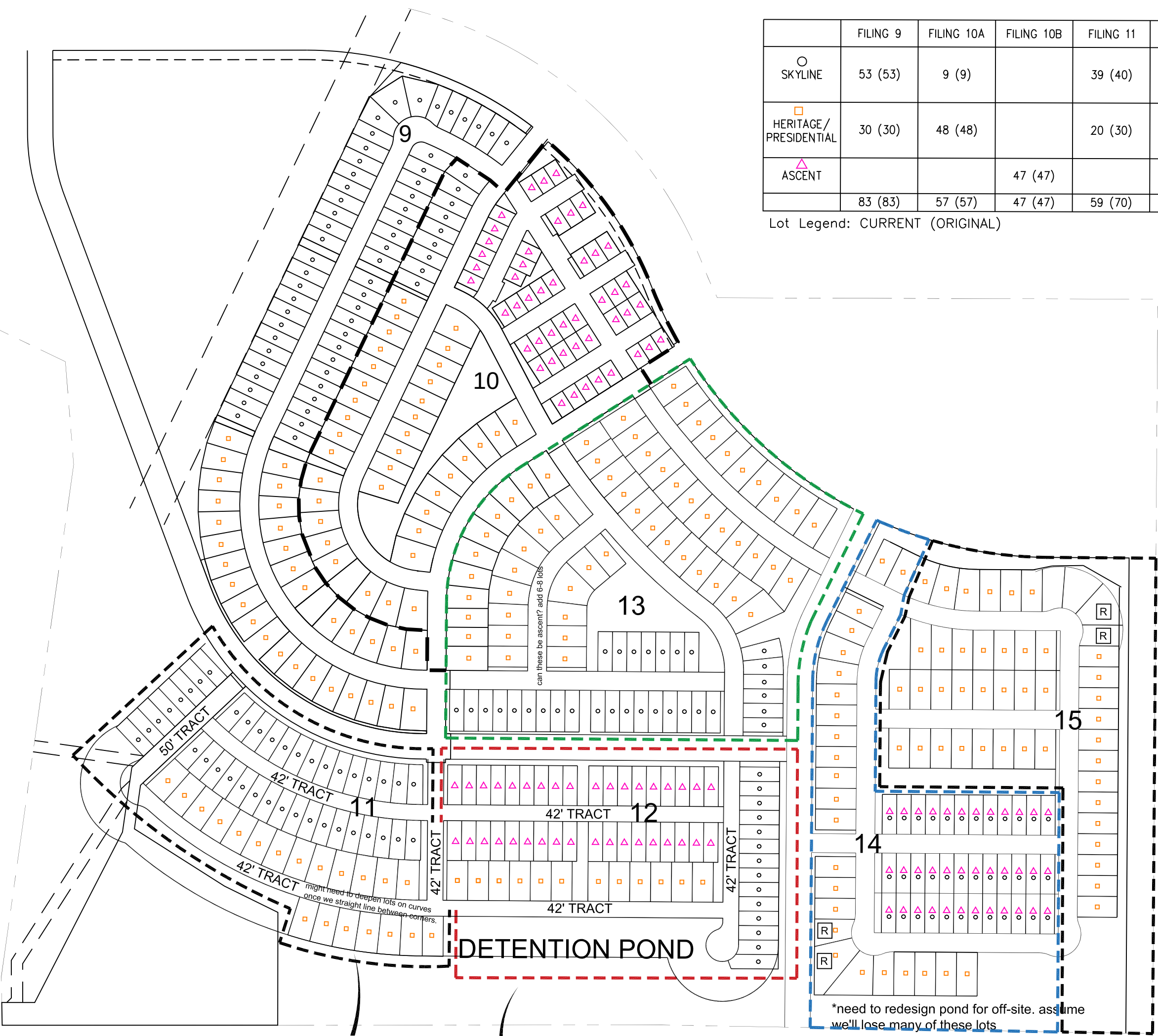
Table 9 – Project-Specific Recommended Improvements

Intersection	Improvements
Barnes Rd Access 1 (#5)	Roundabout
	EB/WB Approaches: Two Approach Lanes – Shared Left/Through and Shared Through/Right
	NB Approach: One Approach Lane – Shared Left/Through/Right
	SB Approach: Two Approach Lanes – Shared Left/Through Right and Separate Yield-Controlled Bypass Right Turn Lane (needed due to Freestyle Master Plan Traffic)
Barnes Rd Access 2 (#6)	NB Stop-Controlled Approach with Shared Left/Right Turn Lane
	Two EB Through Lanes
	WB Left Turn Lane (225' + 180' Taper)
	EB Right Turn Lane (200' + 180' Taper)
Barnes Rd Access 3 (#7)	NB Stop-Controlled Approach with Shared Left/Right Turn Lane
	Two EB Through Lanes
	WB Left Turn Lane (225' + 180' Taper)
	EB Right Turn Lane (200' + 180' Taper)
Barnes Rd Access 4 (#8)	NB Stop-Controlled Approach with Shared Left/Right Turn Lane
	Two EB Through Lanes
	WB Left Turn Lane (225' + 180' Taper)
	EB Right Turn Lane (200' + 180' Taper)

Appendix A: Conceptual Site Plan

	FILING 9	FILING 10A	FILING 10B	FILING 11	FILING 12	FILING 13	FILING 14	FILING 15	TOTALS
SKYLINE	53 (53)	9 (9)		39 (40)	14 (10)	31 (45)			146 (196)
HERITAGE/ PRESIDENTIAL	30 (30)	48 (48)		20 (30)	12 (22)	59 (63)	24 (26)	42 (52)	235 (271)
ASCENT			47 (47)		36 (76)		36 (39)		119 (123)
	83 (83)	57 (57)	47 (47)	59 (70)	62 (108)	90 (108)	60 (65)	42 (52)	500 (590)

Lot Legend: CURRENT (ORIGINAL)

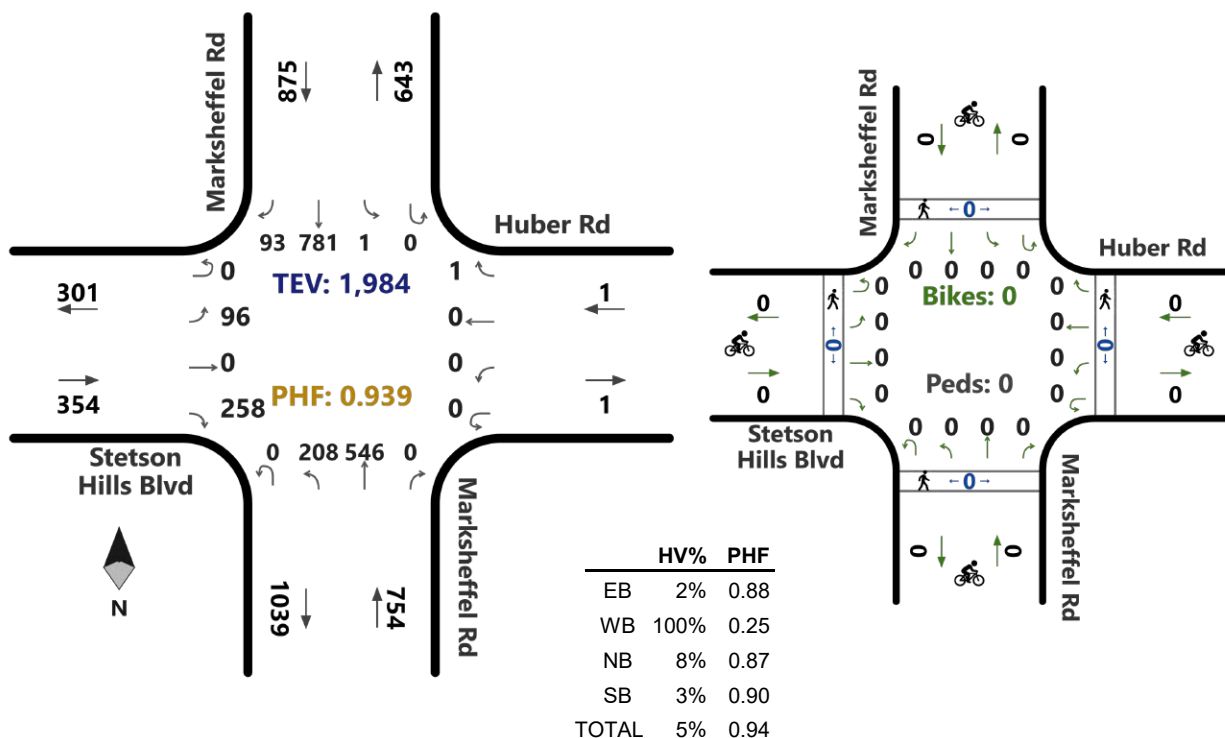


Appendix B: Intersection Count Sheets



Marksheffel Rd & Huber Rd

Date: 08/12/2026
 Count Period: 7:00 AM to 9:00 AM
 Peak Hour: 7:15 AM to 8:15 AM



Peak Hour Count Summaries

Peak Hour Interval Start		Huber Rd				Huber Rd				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:15 AM		0	18	0	65	0	0	0	0	0	51	165	0	0	0	206	16	521	0
7:30 AM		0	23	0	78	0	0	0	0	0	53	131	0	0	1	218	24	528	0
7:45 AM		0	21	0	57	0	0	0	1	0	43	111	0	0	0	199	24	456	0
8:00 AM		0	34	0	58	0	0	0	0	0	61	139	0	0	0	158	29	479	1,984
Pk Hr	All	0	96	0	258	0	0	0	1	0	208	546	0	0	1	781	93	1,984	
	HV	0	3	0	4	0	0	0	1	0	7	57	0	0	1	16	5	94	
	HV%	-	3%	-	2%	-	-	-	100%	-	3%	10%	-	-	100%	2%	5%	5%	

Note: For complete count summary (all intervals), see following pages.

** Heavy Vehicle Classifications include FHWA Classes 4-13.

** Count Summaries 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	E	W	N	S	Total
7:15 AM	4	0	20	3	27	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	16	6	22	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	1	12	8	22	0	0	0	0	0	0	0	0	0	0
8:00 AM	2	0	16	5	23	0	0	0	0	0	0	0	0	0	0
Peak Hour	7	1	64	22	94	0	0	0	0	0	0	0	0	0	0

Count Summaries - All Vehicles

Interval Start		Huber Rd				Huber Rd				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	16	0	80	0	0	0	0	0	51	111	0	0	0	206	8	472	0
7:15 AM		0	18	0	65	0	0	0	0	0	51	165	0	0	0	206	16	521	0
7:30 AM		0	23	0	78	0	0	0	0	0	53	131	0	0	1	218	24	528	0
7:45 AM		0	21	0	57	0	0	0	1	0	43	111	0	0	0	199	24	456	1,977
8:00 AM		0	34	0	58	0	0	0	0	0	61	139	0	0	0	158	29	479	1,984
8:15 AM		0	29	0	47	0	0	0	0	0	40	103	0	0	0	179	17	415	1,878
8:30 AM		0	16	0	39	0	0	0	0	0	51	107	0	0	0	159	11	383	1,733
8:45 AM		0	15	0	37	0	0	0	0	0	39	85	0	0	0	124	14	314	1,591
Count Total		0	172	0	461	0	0	0	1	0	389	952	0	0	1	1,449	143	3,568	
Pk Hr	All	0	96	0	258	0	0	0	1	0	208	546	0	0	1	781	93	1,984	
	HV	0	3	0	4	0	0	0	1	0	7	57	0	0	1	16	5	94	
	HV%	-	3%	-	2%	-	-	-	100%	-	3%	10%	-	-	100%	2%	5%	5%	

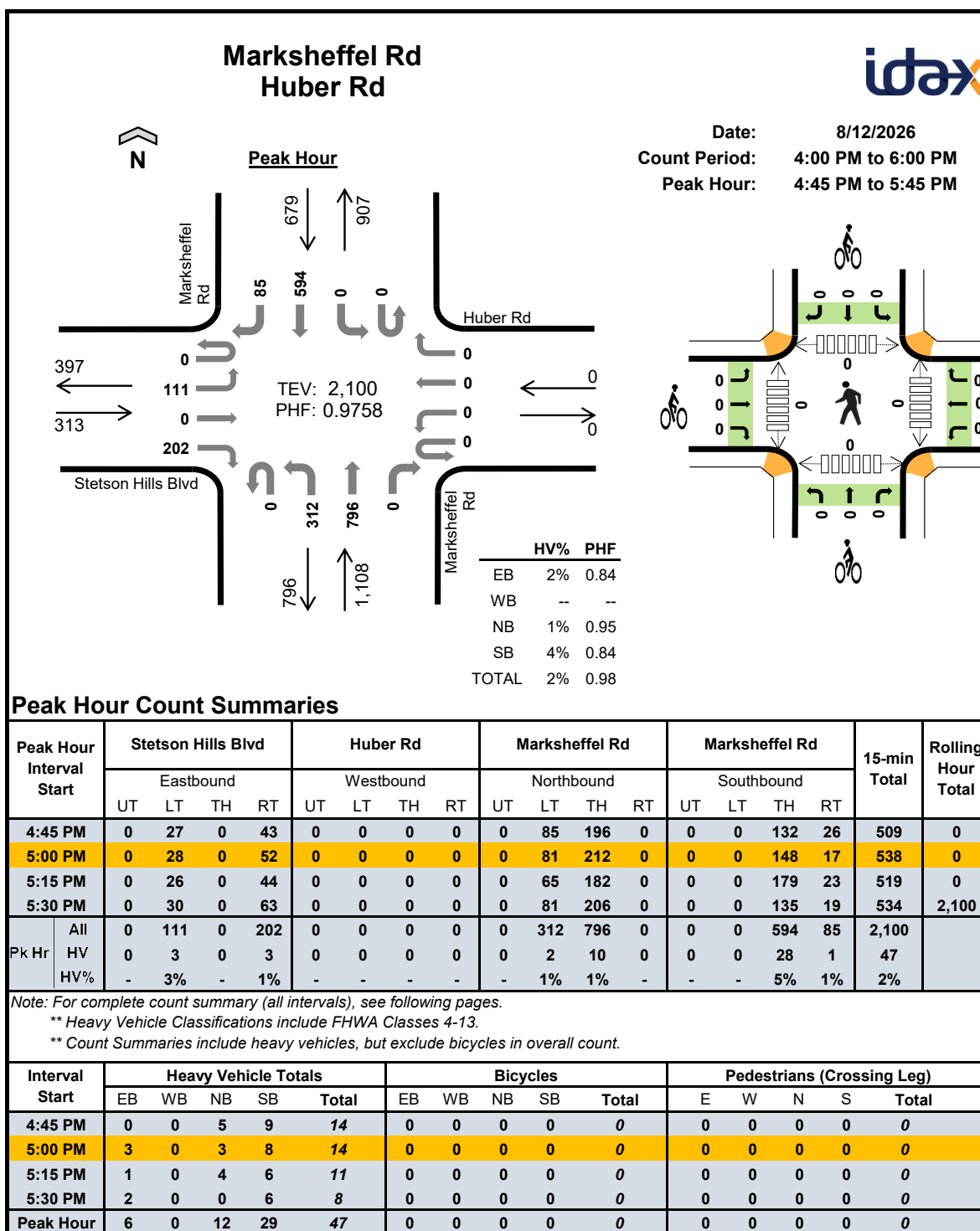
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	2	0	29	4	35	0	0	0	0	0	0	0	0	0	0
7:15 AM	4	0	20	3	27	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	16	6	22	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	1	12	8	22	0	0	0	0	0	0	0	0	0	0
8:00 AM	2	0	16	5	23	0	0	0	0	0	0	0	0	0	0
8:15 AM	5	0	24	6	35	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	19	7	26	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	0	16	7	24	0	0	0	0	0	0	0	0	0	0
Count Total	15	1	152	46	214	0	0	0	0	0	0	0	0	0	0
Peak Hour	7	1	64	22	94	0	0	0	0	0	0	0	0	0	0

Count Summaries - Heavy Vehicles

Interval Start	Huber Rd				Huber Rd				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	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	2	0	0	0	0	0	1	28	0	0	0	4	0	35	0
7:15 AM	0	2	0	2	0	0	0	0	0	4	16	0	0	0	3	0	27	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	1	3	2	22	0
7:45 AM	0	0	0	1	0	0	0	1	0	0	12	0	0	0	5	3	22	106
8:00 AM	0	1	0	1	0	0	0	0	0	3	13	0	0	0	5	0	23	94
8:15 AM	0	4	0	1	0	0	0	0	0	3	21	0	0	0	5	1	35	102
8:30 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	5	2	26	106
8:45 AM	0	0	0	1	0	0	0	0	0	2	14	0	0	0	7	0	24	108
Count Total	0	7	0	8	0	0	0	1	0	13	139	0	0	1	37	8	214	
Pk Hr Heavy	0	3	0	4	0	0	0	1	0	7	57	0	0	1	16	5	94	

Count Summaries - Bikes

Interval Start	Huber Rd				Huber Rd				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	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	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	0	0	0	0
7:45 AM	0	0	0	0	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	0	0	0	0
8:15 AM	0	0	0	0	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	0	0	0	0
8:45 AM	0	0	0	0	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	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		



Count Summaries - All Vehicles

Interval Start		Stetson Hills Blvd				Huber Rd				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	28	0	59	0	0	0	0	0	62	206	0	0	0	155	14	524	0
4:15 PM		0	27	0	66	0	0	0	0	0	80	209	0	0	0	158	20	560	0
4:30 PM		0	27	0	62	0	0	0	0	0	72	178	0	0	0	133	12	484	0
4:45 PM		0	27	0	43	0	0	0	0	0	85	196	0	0	0	132	26	509	2,077
5:00 PM		0	28	0	52	0	0	0	0	0	81	212	0	0	0	148	17	538	2,091
5:15 PM		0	26	0	44	0	0	0	0	0	65	182	0	0	0	179	23	519	2,050
5:30 PM		0	30	0	63	0	0	0	0	0	81	206	0	0	0	135	19	534	2,100
5:45 PM		0	31	0	43	0	0	0	0	0	51	171	0	0	0	143	21	460	2,051
Count Total		0	224	0	432	0	0	0	0	0	577	1,560	0	0	0	1,183	152	4,128	
Pk Hr	All	0	111	0	202	0	0	0	0	0	312	796	0	0	0	594	85	2,100	
	HV	0	3	0	3	0	0	0	0	0	2	10	0	0	0	28	1	47	
	HV%	-	3%	-	1%	-	-	-	-	-	1%	1%	-	-	-	5%	1%	2%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	4	0	11	10	25	0	0	0	0	0	0	0	0	0	0
4:15 PM	3	0	5	13	21	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	0	4	8	13	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	5	9	14	0	0	0	0	0	0	0	0	0	0
5:00 PM	3	0	3	8	14	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	4	6	11	0	0	0	0	0	0	0	0	0	0
5:30 PM	2	0	0	6	8	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	4	5	0	0	0	0	0	0	0	0	0	0
Count Total	14	0	33	64	111	0	0	0	0	0	0	0	0	0	0
Peak Hour	6	0	12	29	47	0	0	0	0	0	0	0	0	0	0

Count Summaries - Heavy Vehicles

Interval Start	Stetson Hills Blvd				Huber Rd				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	2	0	0	0	0	0	1	10	0	0	0	10	0	25	0
4:15 PM	0	0	0	3	0	0	0	0	0	0	5	0	0	0	13	0	21	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	4	0	0	0	8	0	13	0
4:45 PM	0	0	0	0	0	0	0	0	0	1	4	0	0	0	8	1	14	73
5:00 PM	0	1	0	2	0	0	0	0	0	1	2	0	0	0	8	0	14	62
5:15 PM	0	1	0	0	0	0	0	0	0	0	4	0	0	0	6	0	11	52
5:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	6	0	8	47
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	5	38
Count Total	0	5	0	9	0	0	0	0	0	3	30	0	0	0	63	1	111	
Pk Hr Heavy	0	3	0	3	0	0	0	0	0	2	10	0	0	0	28	1	47	

Count Summaries - Bikes

Interval Start	Stetson Hills Blvd				Huber Rd				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	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	0	0	0	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	0	0	0	0
4:45 PM	0	0	0	0	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	0	0	0	0
5:15 PM	0	0	0	0	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	0	0	0	0
5:45 PM	0	0	0	0	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	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

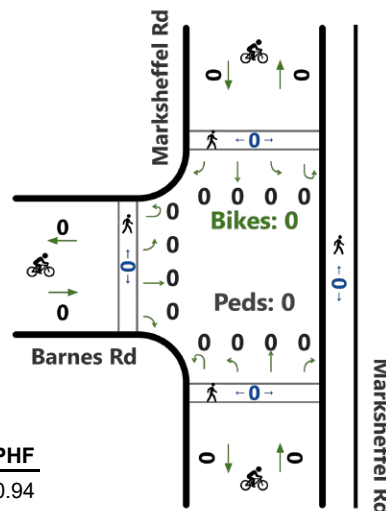
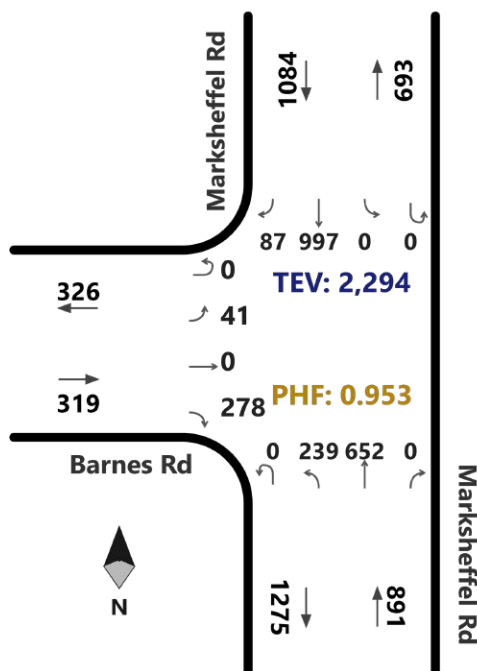


Marksheffel Rd & Barnes Rd

Date: 08/12/2026

Count Period: 7:00 AM to 9:00 AM

Peak Hour: 7:00 AM to 8:00 AM



	HV%	PHF
EB	2%	0.94
WB	--	--
NB	9%	0.93
SB	2%	0.94
TOTAL	5%	0.95

Peak Hour Count Summaries

Peak Hour Interval Start		Barnes Rd				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	7	0	65	0	0	0	0	0	47	164	0	0	0	248	25	556	0
7:15 AM		0	5	0	80	0	0	0	0	0	56	184	0	0	0	256	21	602	0
7:30 AM		0	14	0	71	0	0	0	0	0	71	151	0	0	0	270	17	594	0
7:45 AM		0	15	0	62	0	0	0	0	0	65	153	0	0	0	223	24	542	2,294
Pk Hr	All	0	41	0	278	0	0	0	0	0	239	652	0	0	0	997	87	2,294	
	HV	0	1	0	5	0	0	0	0	0	13	63	0	0	0	19	3	104	
	HV%	-	2%	-	2%	-	-	-	-	-	5%	10%	-	-	-	2%	3%	5%	

Note: For complete count summary (all intervals), see following pages.

** Heavy Vehicle Classifications include FHWA Classes 4-13.

** Count Summaries 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	E	W	N	S	Total
7:00 AM	1	0	31	5	37	0	0	0	0	0	0	0	0	0	0
7:15 AM	2	0	17	3	22	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	0	14	5	21	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	0	14	9	24	0	0	0	0	0	0	0	0	0	0
Peak Hour	6	0	76	22	104	0	0	0	0	0	0	0	0	0	0

Count Summaries - All Vehicles

Interval Start		Barnes Rd				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	7	0	65	0	0	0	0	0	47	164	0	0	0	248	25	556	0
7:15 AM		0	5	0	80	0	0	0	0	0	56	184	0	0	0	256	21	602	0
7:30 AM		0	14	0	71	0	0	0	0	0	71	151	0	0	0	270	17	594	0
7:45 AM		0	15	0	62	0	0	0	0	0	65	153	0	0	0	223	24	542	2,294
8:00 AM		0	17	0	47	0	0	0	0	0	60	179	0	0	0	211	18	532	2,270
8:15 AM		0	13	0	40	0	0	0	0	0	47	129	0	1	0	195	21	446	2,114
8:30 AM		0	14	0	35	0	0	0	0	0	28	126	0	0	0	191	19	413	1,933
8:45 AM		0	16	0	25	0	0	0	0	2	33	107	0	0	0	155	15	353	1,744
Count Total		0	101	0	425	0	0	0	0	2	407	1,193	0	1	0	1,749	160	4,038	
Pk Hr	All	0	41	0	278	0	0	0	0	0	239	652	0	0	0	997	87	2,294	
	HV	0	1	0	5	0	0	0	0	0	13	63	0	0	0	19	3	104	
	HV%	-	2%	-	2%	-	-	-	-	-	5%	10%	-	-	-	2%	3%	5%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	1	0	31	5	37	0	0	0	0	0	0	0	0	0	0
7:15 AM	2	0	17	3	22	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	0	14	5	21	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	0	14	9	24	0	0	0	0	0	0	0	0	0	0
8:00 AM	3	0	24	5	32	0	0	0	0	0	0	0	0	0	0
8:15 AM	2	0	18	5	25	0	0	0	0	0	0	0	0	0	0
8:30 AM	1	0	16	8	25	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	0	18	5	24	0	0	0	0	0	0	0	0	0	0
Count Total	13	0	152	45	210	0	0	0	0	0	0	0	0	0	0
Peak Hour	6	0	76	22	104	0	0	0	0	0	0	0	0	0	0

Count Summaries - Heavy Vehicles

Interval Start	Barnes Rd				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	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	1	0	0	0	0	0	5	26	0	0	0	4	1	37	0
7:15 AM	0	0	0	2	0	0	0	0	0	1	16	0	0	0	3	0	22	0
7:30 AM	0	0	0	2	0	0	0	0	0	2	12	0	0	0	5	0	21	0
7:45 AM	0	1	0	0	0	0	0	0	0	5	9	0	0	0	7	2	24	104
8:00 AM	0	1	0	2	0	0	0	0	0	6	18	0	0	0	5	0	32	99
8:15 AM	0	1	0	1	0	0	0	0	0	2	16	0	0	0	5	0	25	102
8:30 AM	0	0	0	1	0	0	0	0	0	1	15	0	0	0	7	1	25	106
8:45 AM	0	1	0	0	0	0	0	0	0	1	17	0	0	0	5	0	24	106
Count Total	0	4	0	9	0	0	0	0	0	23	129	0	0	0	41	4	210	
Pk Hr Heavy	0	1	0	5	0	0	0	0	0	13	63	0	0	0	19	3	104	

Count Summaries - Bikes

Interval Start	Barnes Rd				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	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	
7:15 AM	0	0	0	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	0	0	0	
7:45 AM	0	0	0	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	0	0	0	
8:15 AM	0	0	0	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	0	0	0	
8:45 AM	0	0	0	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	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

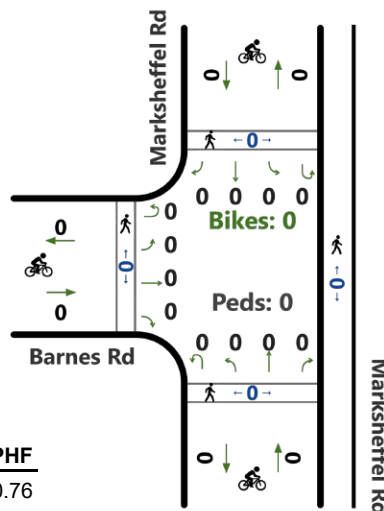
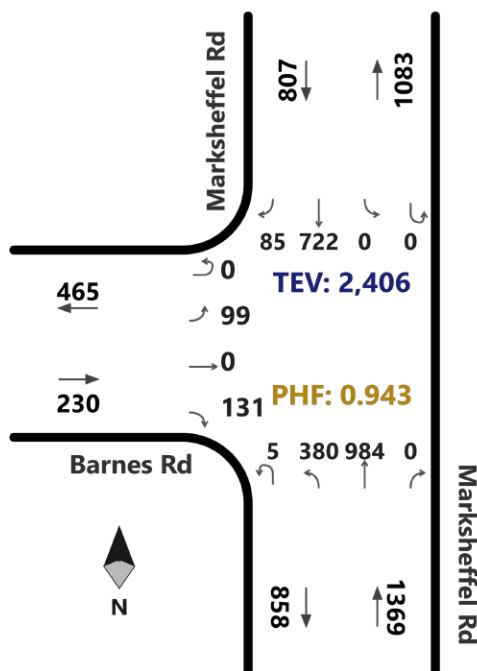


Marksheffel Rd & Barnes Rd

Date: 08/12/2026

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:00 PM to 5:00 PM



	HV%	PHF
EB	4%	0.76
WB	--	--
NB	2%	0.96
SB	6%	0.93
TOTAL	3%	0.94

Peak Hour Count Summaries

Peak Hour Interval Start		Barnes Rd				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	29	0	35	0	0	0	0	1	114	242	0	0	0	195	22	638	0
4:15 PM		0	15	0	23	0	0	0	0	2	103	250	0	0	0	190	25	608	0
4:30 PM		0	25	0	27	0	0	0	0	0	80	232	0	0	0	187	18	569	0
4:45 PM		0	30	0	46	0	0	0	0	2	83	260	0	0	0	150	20	591	2,406
Pk Hr	All	0	99	0	131	0	0	0	0	5	380	984	0	0	0	722	85	2,406	
	HV	0	3	0	6	0	0	0	0	0	7	20	0	0	0	44	2	82	
	HV%	-	3%	-	5%	-	-	-	-	0%	2%	2%	-	-	-	6%	2%	3%	

Note: For complete count summary (all intervals), see following pages.

** Heavy Vehicle Classifications include FHWA Classes 4-13.

** Count Summaries 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	E	W	N	S	Total
4:00 PM	3	0	9	12	24	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	8	15	24	0	0	0	0	0	0	0	0	0	0
4:30 PM	5	0	5	10	20	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	5	9	14	0	0	0	0	0	0	0	0	0	0
Peak Hour	9	0	27	46	82	0	0	0	0	0	0	0	0	0	0

Count Summaries - All Vehicles

Interval Start		Barnes Rd				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	29	0	35	0	0	0	0	1	114	242	0	0	0	195	22	638	0
4:15 PM		0	15	0	23	0	0	0	0	2	103	250	0	0	0	190	25	608	0
4:30 PM		0	25	0	27	0	0	0	0	0	80	232	0	0	0	187	18	569	0
4:45 PM		0	30	0	46	0	0	0	0	2	83	260	0	0	0	150	20	591	2,406
5:00 PM		0	29	0	35	0	0	0	0	1	92	241	0	0	0	173	25	596	2,364
5:15 PM		0	18	0	44	0	0	0	0	1	56	232	0	0	0	189	33	573	2,329
5:30 PM		0	28	0	39	0	0	0	0	1	52	260	0	0	0	173	19	572	2,332
5:45 PM		0	20	0	41	0	0	0	0	0	50	176	0	0	0	172	23	482	2,223
Count Total		0	194	0	290	0	0	0	0	8	630	1,893	0	0	0	1,429	185	4,629	
Pk Hr	All	0	99	0	131	0	0	0	0	5	380	984	0	0	0	722	85	2,406	
	HV	0	3	0	6	0	0	0	0	0	7	20	0	0	0	44	2	82	
	HV%	-	3%	-	5%	-	-	-	-	0%	2%	2%	-	-	-	6%	2%	3%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	3	0	9	12	24	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	8	15	24	0	0	0	0	0	0	0	0	0	0
4:30 PM	5	0	5	10	20	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	5	9	14	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	4	8	12	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	3	3	6	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	1	9	11	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	1	6	7	0	0	0	0	0	0	0	0	0	0
Count Total	10	0	36	72	118	0	0	0	0	0	0	1	0	0	1
Peak Hour	9	0	27	46	82	0	0	0	0	0	0	0	0	0	0

Count Summaries - Heavy Vehicles

Interval Start	Barnes Rd				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	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	3	0	0	0	0	0	2	7	0	0	0	12	0	24	0
4:15 PM	0	0	0	1	0	0	0	0	0	2	6	0	0	0	14	1	24	0
4:30 PM	0	3	0	2	0	0	0	0	0	3	2	0	0	0	10	0	20	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	8	1	14	82
5:00 PM	0	0	0	0	0	0	0	0	0	1	3	0	0	0	7	1	12	70
5:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	52
5:30 PM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	8	1	11	43
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6	0	7	36
Count Total	0	3	0	7	0	0	0	0	0	8	28	0	0	0	68	4	118	
Pk Hr Heavy	0	3	0	6	0	0	0	0	0	7	20	0	0	0	44	2	82	

Count Summaries - Bikes

Interval Start	Barnes Rd				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	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	0	0	0	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	0	0	0	0
4:45 PM	0	0	0	0	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	0	0	0	0
5:15 PM	0	0	0	0	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	0	0	0	0
5:45 PM	0	0	0	0	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	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

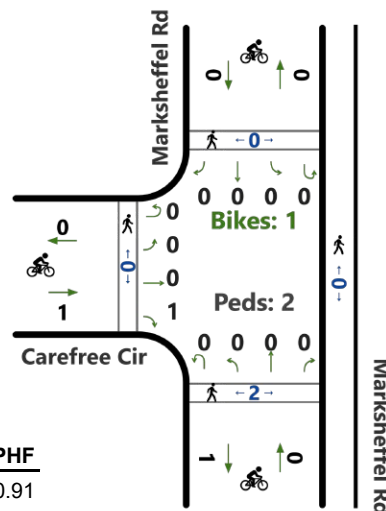
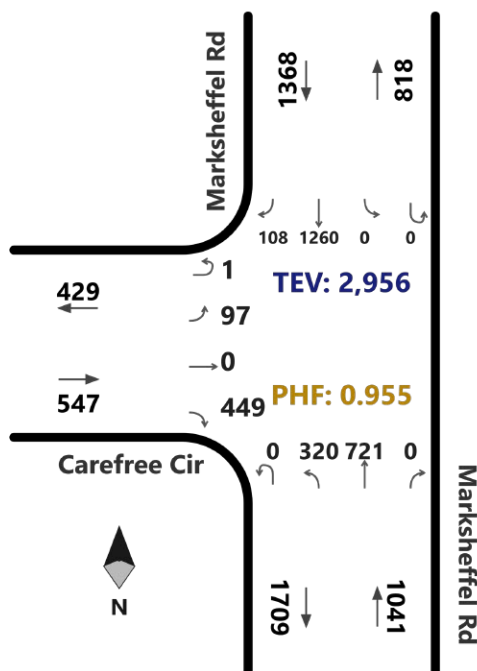


Marksheffel Rd & Carefree Cir

Date: 08/12/2026

Count Period: 7:00 AM to 9:00 AM

Peak Hour: 7:00 AM to 8:00 AM



	HV%	PHF
EB	5%	0.91
WB	--	--
NB	7%	0.86
SB	2%	0.96
TOTAL	4%	0.95

Peak Hour Count Summaries

Peak Hour Interval Start		Carefree Cir				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	30	0	119	0	0	0	0	0	59	166	0	0	0	325	27	726	0
7:15 AM		1	26	0	124	0	0	0	0	0	76	204	0	0	0	325	18	774	0
7:30 AM		0	19	0	107	0	0	0	0	0	74	161	0	0	0	326	32	719	0
7:45 AM		0	22	0	99	0	0	0	0	0	111	190	0	0	0	284	31	737	2,956
P <i>k</i> Hr	All	1	97	0	449	0	0	0	0	0	320	721	0	0	0	1,260	108	2,956	
	H <i>V</i>	0	12	0	15	0	0	0	0	0	12	57	0	0	0	20	1	117	
	H <i>V</i> %	0%	12%	-	3%	-	-	-	-	-	4%	8%	-	-	-	2%	1%	4%	

Note: For complete count summary (all intervals), see following pages.

** Heavy Vehicle Classifications include FHWA Classes 4-13.

** Count Summaries 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	E	W	N	S	Total
7:00 AM	7	0	29	3	39	0	0	0	0	0	0	0	0	2	2
7:15 AM	8	0	14	3	25	0	0	0	0	0	0	0	0	0	0
7:30 AM	5	0	7	8	20	0	0	0	0	0	0	0	0	0	0
7:45 AM	7	0	19	7	33	1	0	0	0	1	0	0	0	0	0
Peak Hour	27	0	69	21	117	1	0	0	0	1	0	0	0	2	2

Count Summaries - All Vehicles

Interval Start		Carefree Cir				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	30	0	119	0	0	0	0	0	59	166	0	0	0	325	27	726	0
7:15 AM		1	26	0	124	0	0	0	0	0	76	204	0	0	0	325	18	774	0
7:30 AM		0	19	0	107	0	0	0	0	0	74	161	0	0	0	326	32	719	0
7:45 AM		0	22	0	99	0	0	0	0	0	111	190	0	0	0	284	31	737	2,956
8:00 AM		0	21	0	104	0	0	0	0	0	54	198	0	0	0	243	33	653	2,883
8:15 AM		1	10	0	78	0	0	0	0	0	67	151	0	0	0	228	24	559	2,668
8:30 AM		0	15	0	62	0	0	0	0	3	36	130	0	0	0	211	17	474	2,423
8:45 AM		0	10	0	40	0	0	0	0	0	52	124	0	0	0	153	27	406	2,092
Count Total		2	153	0	733	0	0	0	0	3	529	1,324	0	0	0	2,095	209	5,048	
Pk Hr	All	1	97	0	449	0	0	0	0	0	320	721	0	0	0	1,260	108	2,956	
	HV	0	12	0	15	0	0	0	0	0	12	57	0	0	0	20	1	117	
	HV%	0%	12%	-	3%	-	-	-	-	-	4%	8%	-	-	-	2%	1%	4%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	7	0	29	3	39	0	0	0	0	0	0	0	0	2	2
7:15 AM	8	0	14	3	25	0	0	0	0	0	0	0	0	0	0
7:30 AM	5	0	7	8	20	0	0	0	0	0	0	0	0	0	0
7:45 AM	7	0	19	7	33	1	0	0	0	1	0	0	0	0	0
8:00 AM	5	0	20	6	31	0	0	0	0	0	0	0	0	0	0
8:15 AM	6	0	22	6	34	0	0	0	0	0	0	0	0	0	0
8:30 AM	4	0	18	10	32	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	18	8	26	0	0	0	0	0	0	0	0	0	0
Count Total	42	0	147	51	240	1	0	0	0	1	0	0	0	2	2
Peak Hour	27	0	69	21	117	1	0	0	0	1	0	0	0	2	2

Count Summaries - Heavy Vehicles

Interval Start	Carefree Cir				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	4	0	3	0	0	0	0	0	5	24	0	0	0	3	0	39	0
7:15 AM	0	4	0	4	0	0	0	0	0	2	12	0	0	0	3	0	25	0
7:30 AM	0	2	0	3	0	0	0	0	0	1	6	0	0	0	7	1	20	0
7:45 AM	0	2	0	5	0	0	0	0	0	4	15	0	0	0	7	0	33	117
8:00 AM	0	0	0	5	0	0	0	0	0	2	18	0	0	0	5	1	31	109
8:15 AM	0	0	0	6	0	0	0	0	0	7	15	0	0	0	5	1	34	118
8:30 AM	0	1	0	3	0	0	0	0	0	2	16	0	0	0	10	0	32	130
8:45 AM	0	0	0	0	0	0	0	0	0	1	17	0	0	0	8	0	26	123
Count Total	0	13	0	29	0	0	0	0	0	24	123	0	0	0	48	3	240	
Pk Hr Heavy	0	12	0	15	0	0	0	0	0	12	57	0	0	0	20	1	117	

Count Summaries - Bikes

Interval Start	Carefree Cir				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	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	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	0	0	0	0
7:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
Pk Hr Bike	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	

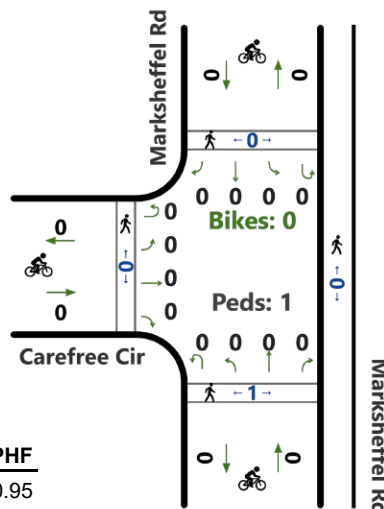
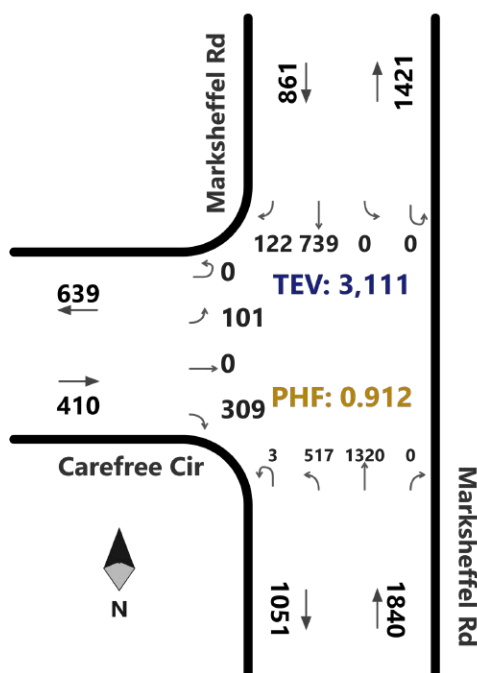


Marksheffel Rd & Carefree Cir

Date: 08/12/2026

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:00 PM to 5:00 PM



	HV%	PHF
EB	1%	0.95
WB	--	--
NB	1%	0.91
SB	6%	0.90
TOTAL	2%	0.91

Peak Hour Count Summaries

Peak Hour Interval Start		Carefree Cir				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	22	0	86	0	0	0	0	1	145	360	0	0	0	211	28	853	0
4:15 PM		0	27	0	69	0	0	0	0	0	111	318	0	0	0	186	29	740	0
4:30 PM		0	27	0	79	0	0	0	0	1	154	320	0	0	0	171	37	789	0
4:45 PM		0	25	0	75	0	0	0	0	1	107	322	0	0	0	171	28	729	3,111
Pk Hr	All	0	101	0	309	0	0	0	0	3	517	1,320	0	0	0	739	122	3,111	
	HV	0	1	0	5	0	0	0	0	0	5	17	0	0	0	40	8	76	
	HV%	-	1%	-	2%	-	-	-	-	0%	1%	1%	-	-	-	5%	7%	2%	

Note: For complete count summary (all intervals), see following pages.

** Heavy Vehicle Classifications include FHWA Classes 4-13.

** Count Summaries 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	E	W	N	S	Total
4:00 PM	5	0	7	18	30	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	7	10	17	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	3	11	14	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	5	9	15	0	0	0	0	0	0	0	0	1	1
Peak Hour	6	0	22	48	76	0	0	0	0	0	0	0	0	1	1

Count Summaries - All Vehicles

Interval Start		Carefree Cir				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	22	0	86	0	0	0	0	1	145	360	0	0	0	211	28	853	0
4:15 PM		0	27	0	69	0	0	0	0	0	111	318	0	0	0	186	29	740	0
4:30 PM		0	27	0	79	0	0	0	0	1	154	320	0	0	0	171	37	789	0
4:45 PM		0	25	0	75	0	0	0	0	1	107	322	0	0	0	171	28	729	3,111
5:00 PM		0	29	0	89	0	0	0	0	0	91	326	0	0	0	163	24	722	2,980
5:15 PM		0	28	0	89	0	0	0	0	0	121	280	0	0	0	201	23	742	2,982
5:30 PM		0	34	0	84	0	0	0	0	0	111	276	0	1	0	160	33	699	2,892
5:45 PM		0	28	0	73	0	0	0	0	0	75	209	0	0	0	200	30	615	2,778
Count Total		0	220	0	644	0	0	0	0	3	915	2,411	0	1	0	1,463	232	5,889	
Pk Hr	All	0	101	0	309	0	0	0	0	3	517	1,320	0	0	0	739	122	3,111	
	HV	0	1	0	5	0	0	0	0	0	5	17	0	0	0	40	8	76	
	HV%	-	1%	-	2%	-	-	-	-	0%	1%	1%	-	-	-	5%	7%	2%	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	5	0	7	18	30	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	7	10	17	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	3	11	14	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	5	9	15	0	0	0	0	0	0	0	0	1	1
5:00 PM	2	0	3	5	10	0	0	0	0	0	0	0	0	0	0
5:15 PM	5	0	1	6	12	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	7	8	0	0	0	0	0	0	0	0	1	1
5:45 PM	3	0	4	8	15	0	0	0	0	0	0	0	0	1	1
Count Total	17	0	30	74	121	0	0	0	0	0	0	0	0	3	3
Peak Hour	6	0	22	48	76	0	0	0	0	0	0	0	0	1	1

Count Summaries - Heavy Vehicles

Interval Start	Carefree Cir				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	0	4	0	0	0	0	0	1	6	0	0	0	11	7	30	0
4:15 PM	0	0	0	0	0	0	0	0	0	2	5	0	0	0	10	0	17	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	10	1	14	0
4:45 PM	0	0	0	1	0	0	0	0	0	2	3	0	0	0	9	0	15	76
5:00 PM	0	2	0	0	0	0	0	0	0	1	2	0	0	0	5	0	10	56
5:15 PM	0	2	0	3	0	0	0	0	0	0	1	0	0	0	6	0	12	51
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7	0	8	45
5:45 PM	0	0	0	3	0	0	0	0	0	2	2	0	0	0	8	0	15	45
Count Total	0	5	0	12	0	0	0	0	0	8	22	0	0	0	66	8	121	
Pk Hr Heavy	0	1	0	5	0	0	0	0	0	5	17	0	0	0	40	8	76	

Count Summaries - Bikes

Interval Start	Carefree Cir				n/a				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling Hour Total
	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	
4:15 PM	0	0	0	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	0	0	0	
4:45 PM	0	0	0	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	0	0	0	
5:15 PM	0	0	0	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	0	0	0	
5:45 PM	0	0	0	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	0	0		
Pk Hr Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Appendix C: Background Traffic Studies

Traffic Impact Study

Mountain Bluffs

Colorado Springs, Colorado

Prepared for:

AMH Development, LLC

Kimley»Horn

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

Mountain Bluffs

Colorado Springs, Colorado

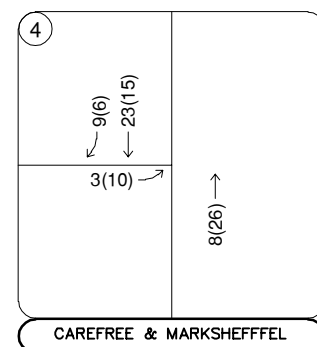
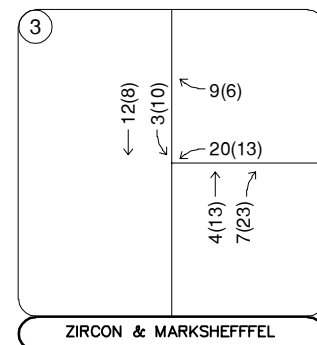
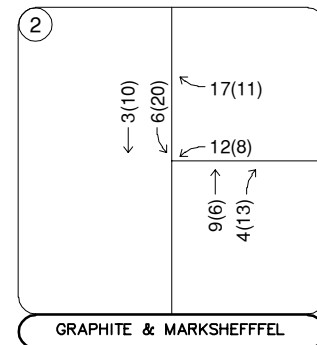
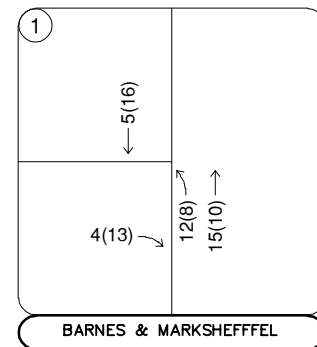
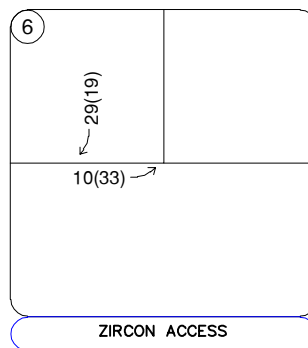
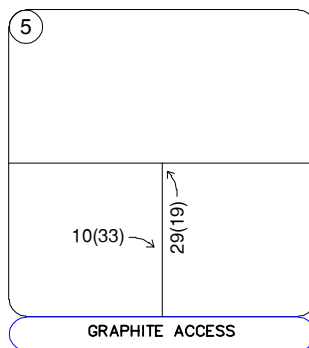
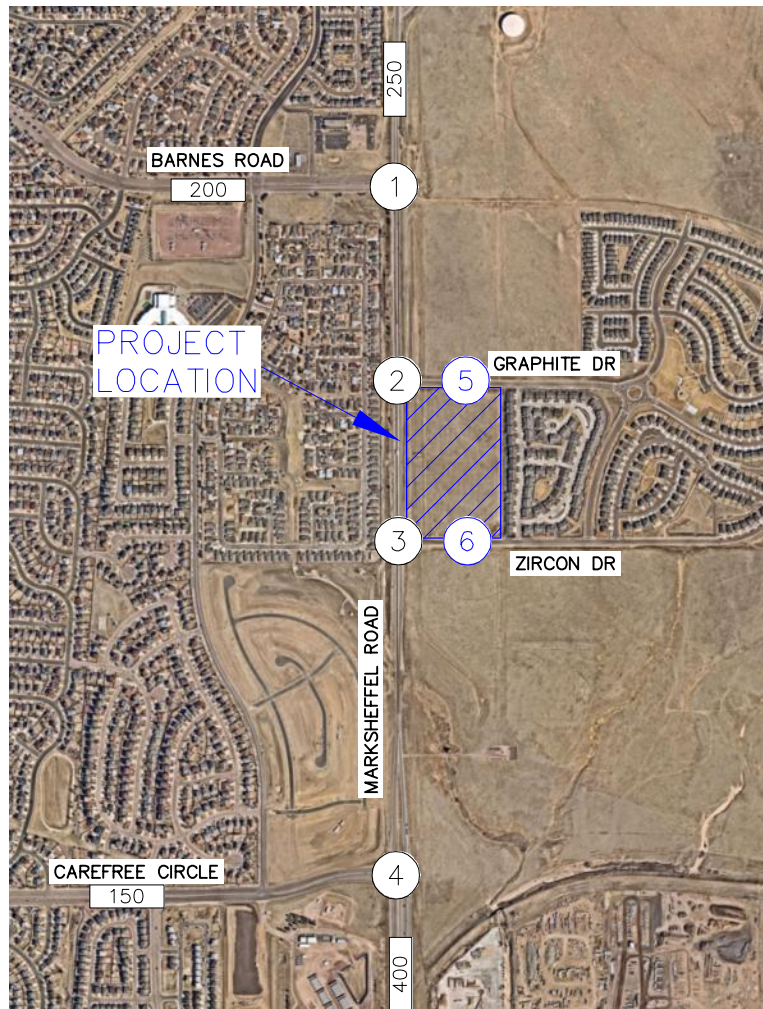
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(719) 453-0180



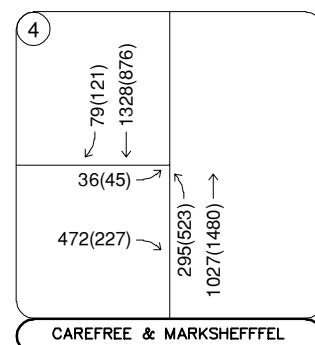
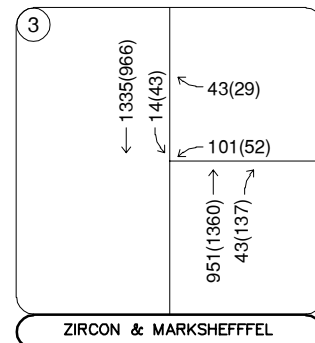
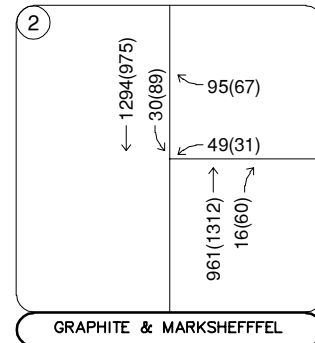
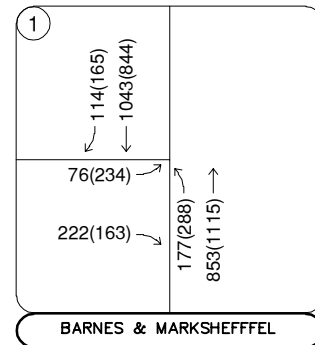
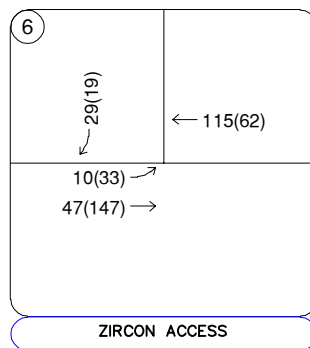
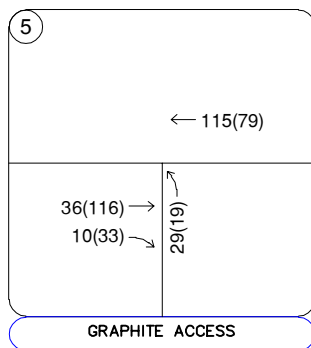
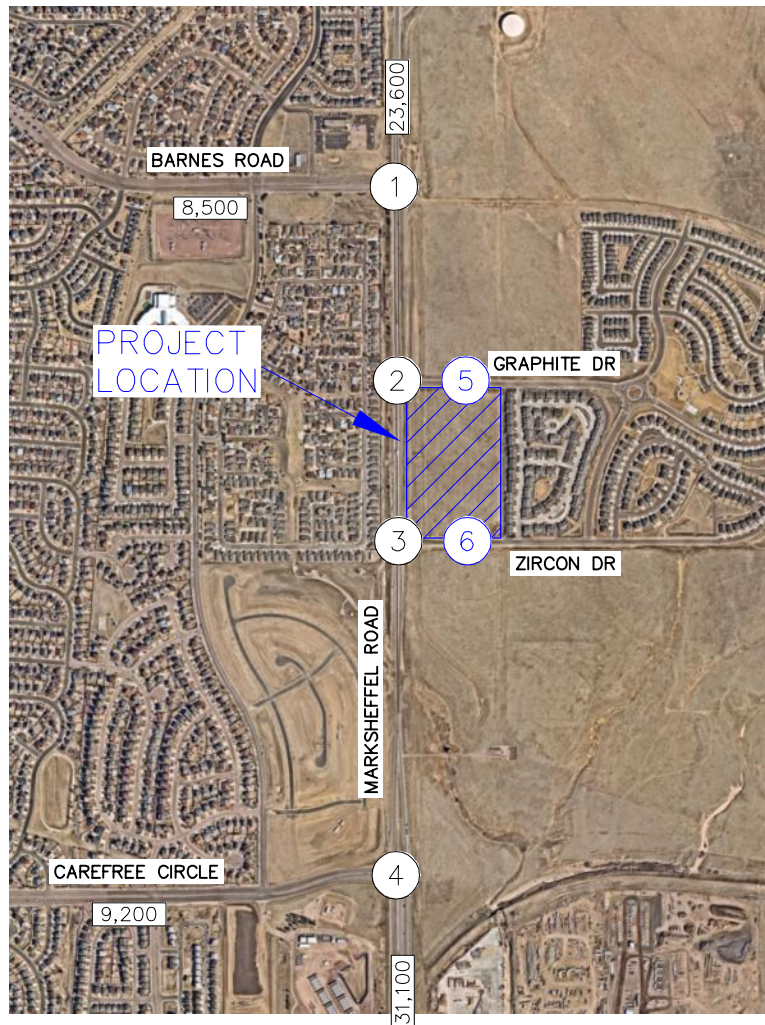
April 2022

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- LEGEND**
- (X) Study Area Key Intersection
 - (X) Project Access Intersection
 - xxx(xxx) Weekday AM(PM)
Peak Hour Traffic Volumes
 - xx,x00 Estimated Daily Traffic Volume

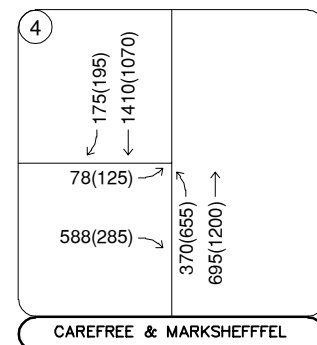
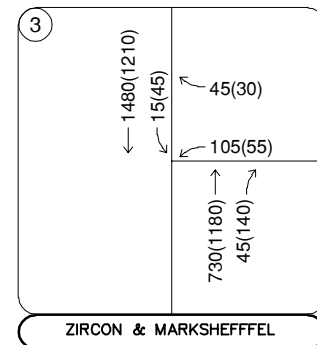
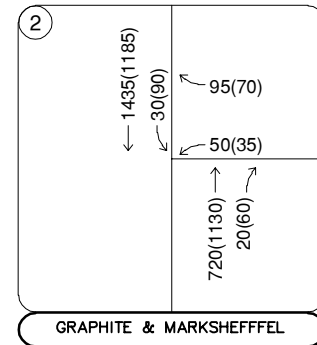
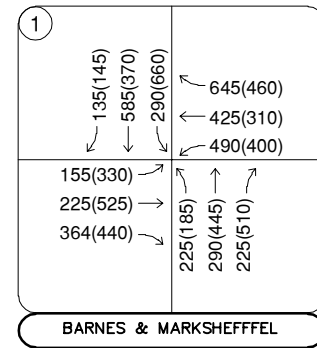
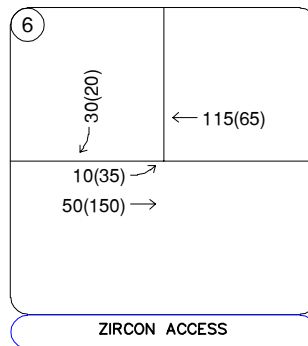
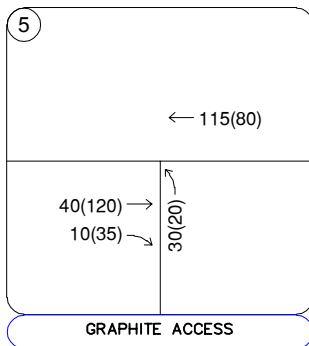
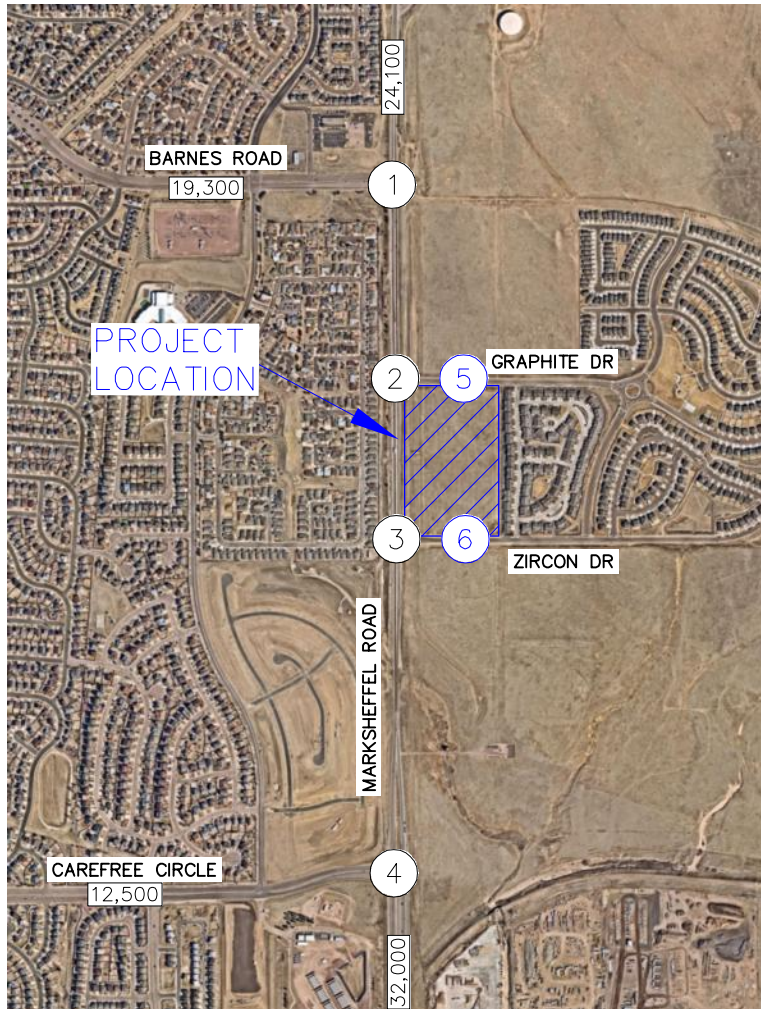
FIGURE 7
MOUNTAIN BLUFFS
COLORADO SPRINGS, COLORADO
PROJECT TRAFFIC ASSIGNMENT



LEGEND

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

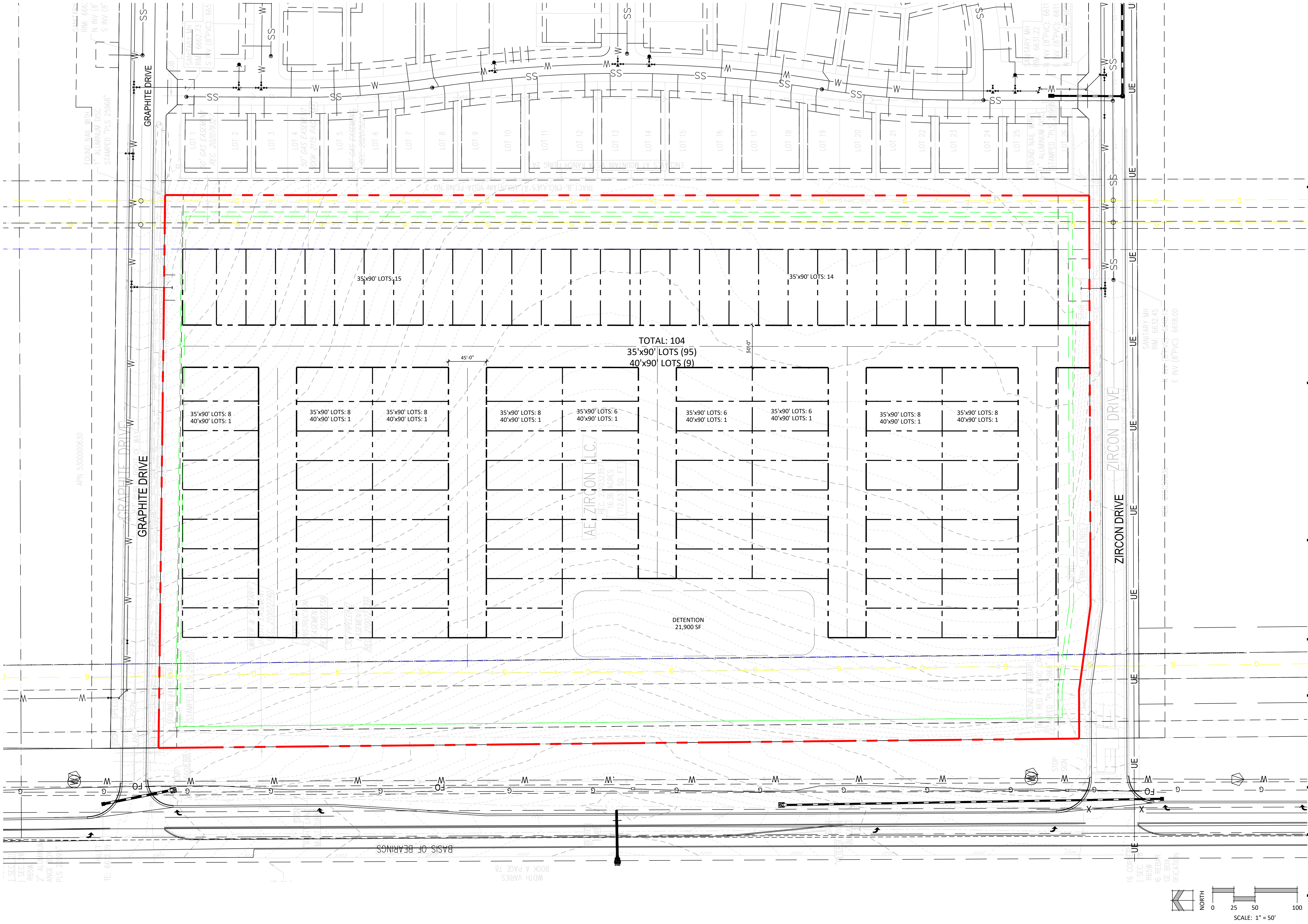
FIGURE 8
MOUNTAIN BLUFFS
COLORADO SPRINGS, COLORADO
2025 TOTAL TRAFFIC VOLUMES



LEGEND

- (X) Study Area Key Intersection
- (X) Project Access Intersection
- xxx(xxx) Weekday AM(PM)
Peak Hour Traffic Volumes
- xx,x00 Estimated Daily Traffic Volume

FIGURE 9
MOUNTAIN BLUFFS
COLORADO SPRINGS, COLORADO
2045 TOTAL TRAFFIC VOLUMES



N.E.S. Inc.
619 N. Cascade Avenue, Suite 200
Colorado Springs, CO 80903

Tel. 719.471.0073
Fax 719.471.0267

www.nescolorado.com

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PLANNER / LANDSCAPE ARCHITECT

IN ASSOCIATION WITH

AMERICAN HOMES 4 RENT

ENCLAVES AT MOUNTAIN VISTA
PROJECT ADDRESS

OTHER INFO

DATE: 03.09.22
PROJECT MGR: J. ROMERO
PREPARED BY: T. KNAB

STAMP

CONCEPT LAYOUT

DATE: BY: DESCRIPTION:

ISSUE / REVISION

CONCEPT LAYOUT

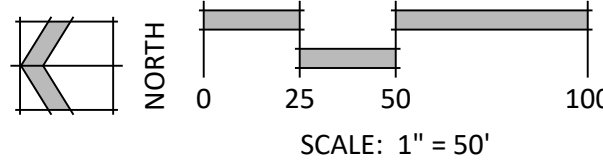
SHEET TITLE

S#

OF

CPC #

SHEET NUMBER



SCALE: 1" = 50'



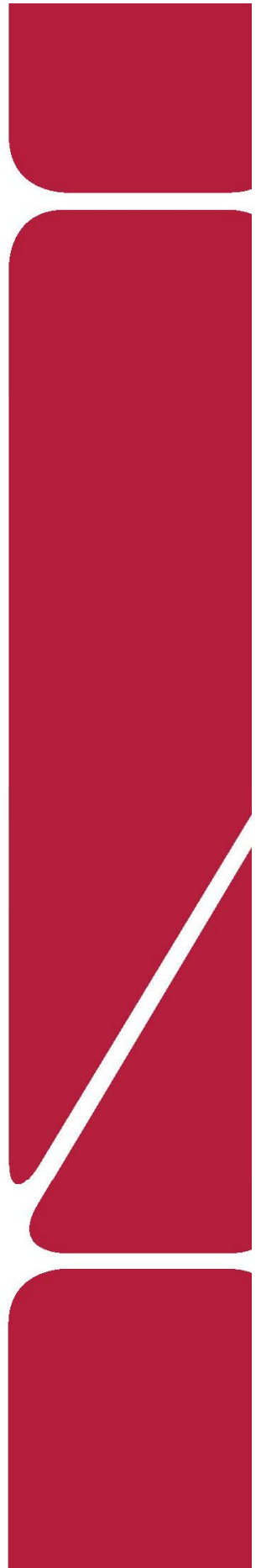
Traffic Impact Study

Freestyle Master Plan

Colorado Springs, Colorado

Prepared for:
Norwood Communities, LLC

Kimley»Horn



Freestyle Master Plan

Colorado Springs, Colorado

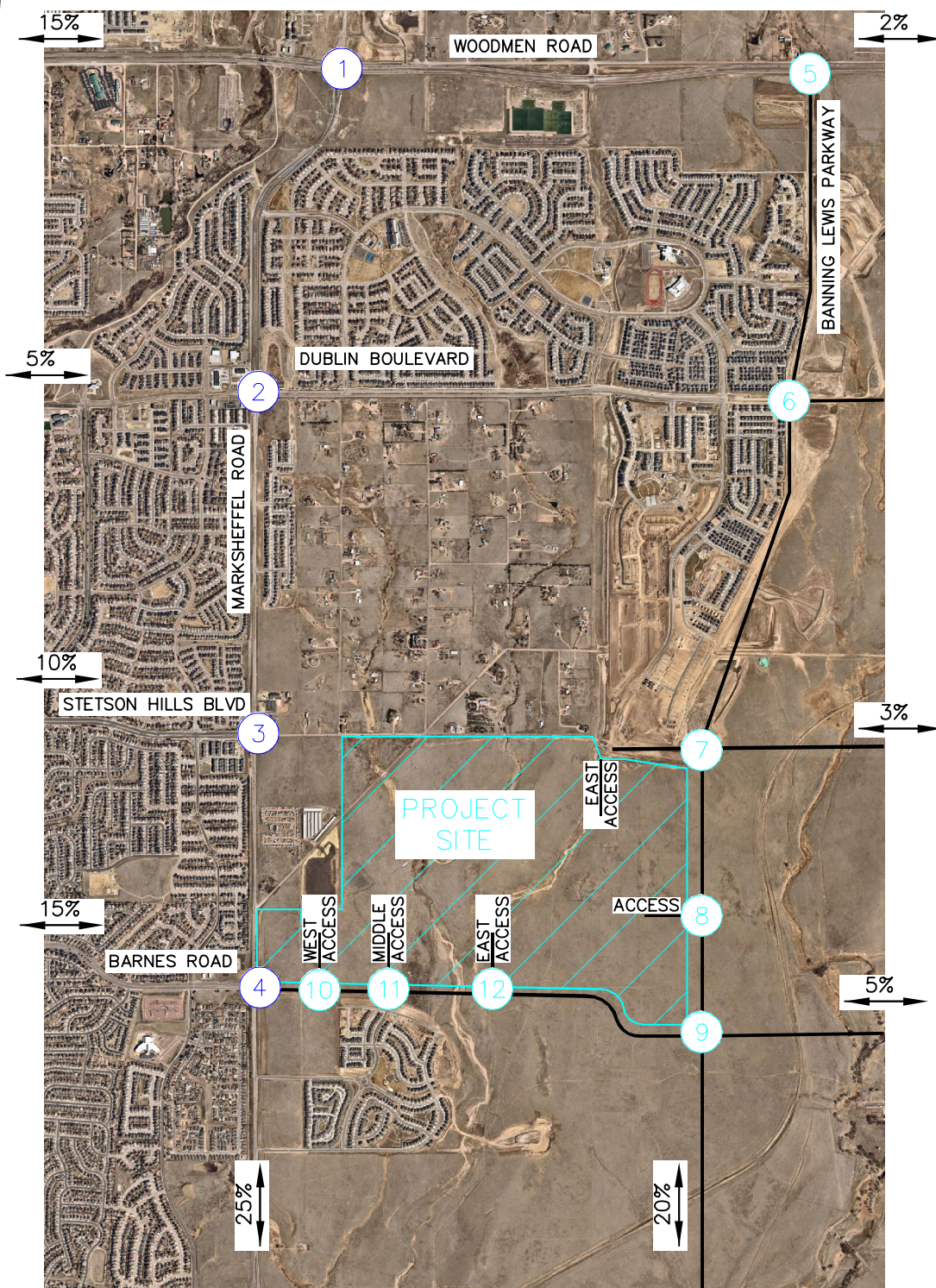
Prepared for
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May 2022

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PROJECT DISTRIBUTION

1	2	3	4	5	6
WOODMEN & MARKSHEFFEL	DUBLIN & MARKSHEFFEL	STETSON HILLS & MARKSHEFFEL	BARNES & MARKSHEFFEL	WOODMEN & BANNING LEWIS	DUBLIN & BANNING LEWIS
7	8	9	10	11	12
STETSON HILLS & BANNING LEWIS	ACCESS & BANNING LEWIS	BARNES & BANNING LEWIS	WEST ACCESS & BARNES	MIDDLE ACCESS & BARNES	EAST ACCESS & BARNES

MIDDLE SCHOOL INTERNAL DISTRIBUTION

7	8	9	10	11	12
STETSON HILLS & BANNING LEWIS	ACCESS & BANNING LEWIS	BARNES & BANNING LEWIS	WEST ACCESS & BARNES	MIDDLE ACCESS & BARNES	EAST ACCESS & BARNES



FIGURE 5
FREESTYLE MASTER PLAN
COLORADO SPRINGS, COLORADO
PROJECT TRIP DISTRIBUTION

LEGEND	
	Study Area Key Intersection
	Project Access Intersection
	External Trip Distribution Percentage



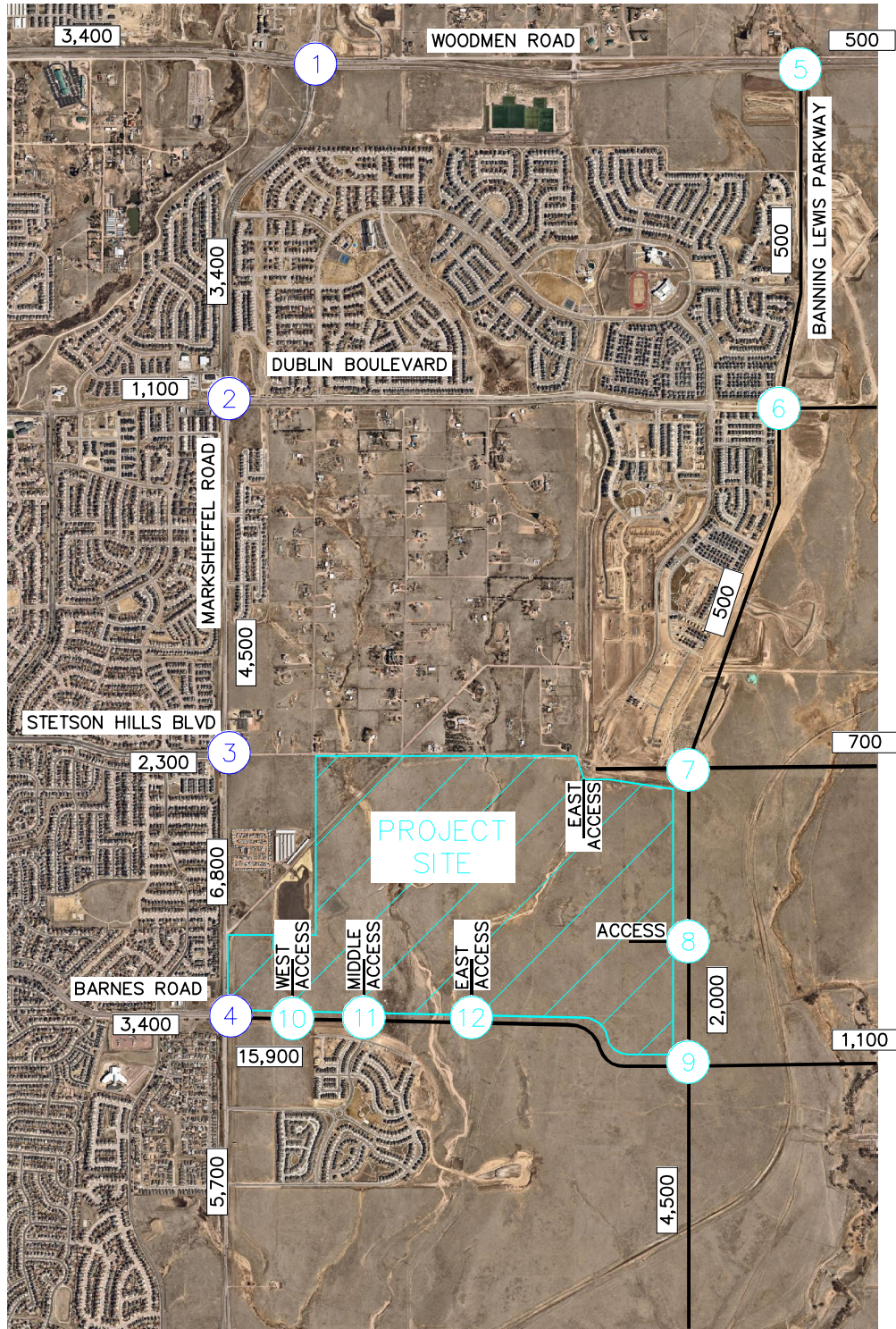
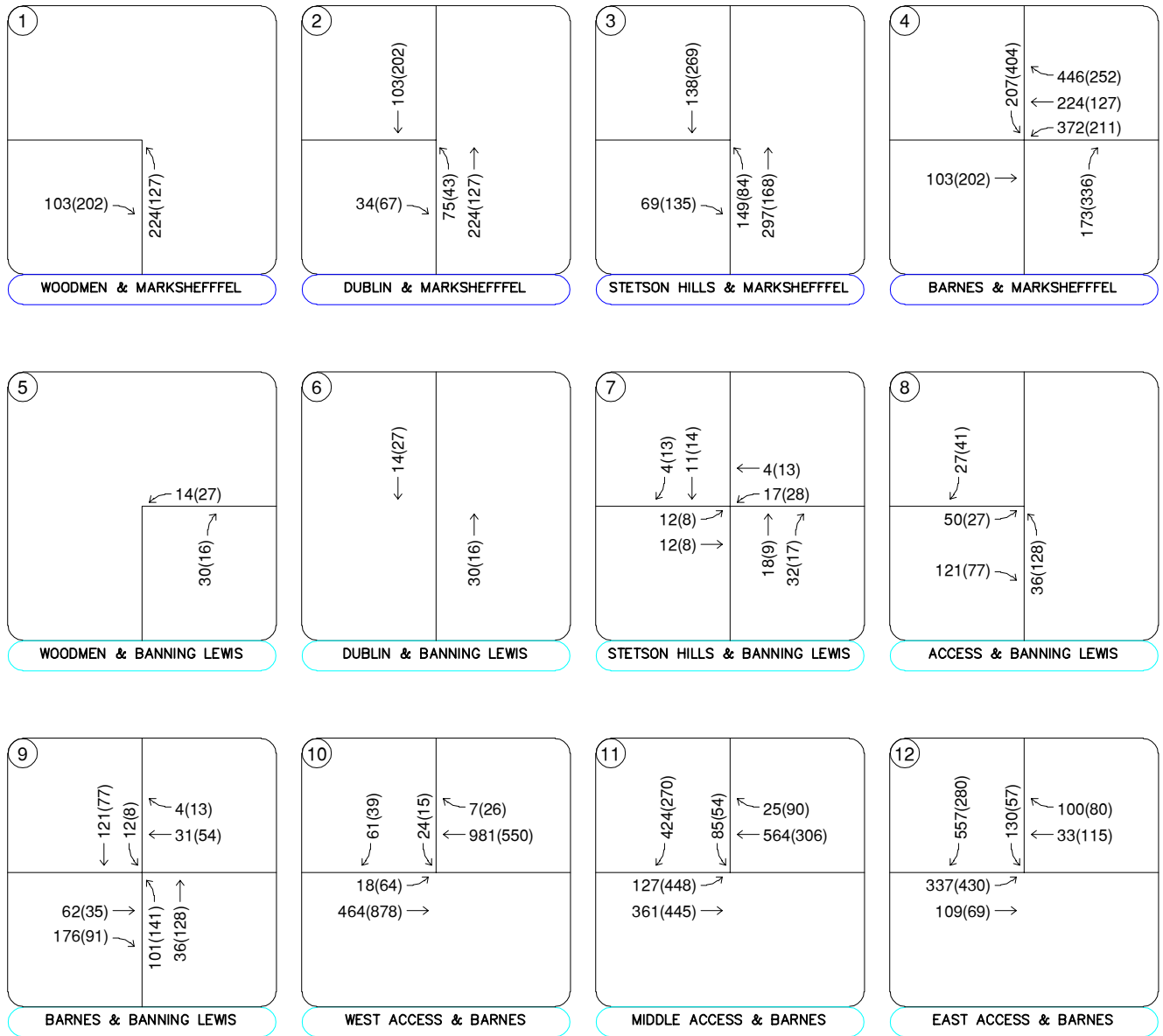


FIGURE 6
FREESTYLE MASTER PLAN
COLORADO SPRINGS, COLORADO
PROJECT TRAFFIC ASSIGNMENT



LEGEND

(X) Study Area Key Intersection

(X) Project Access Intersection

XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes

XX,X00 Estimated Daily Traffic Volume



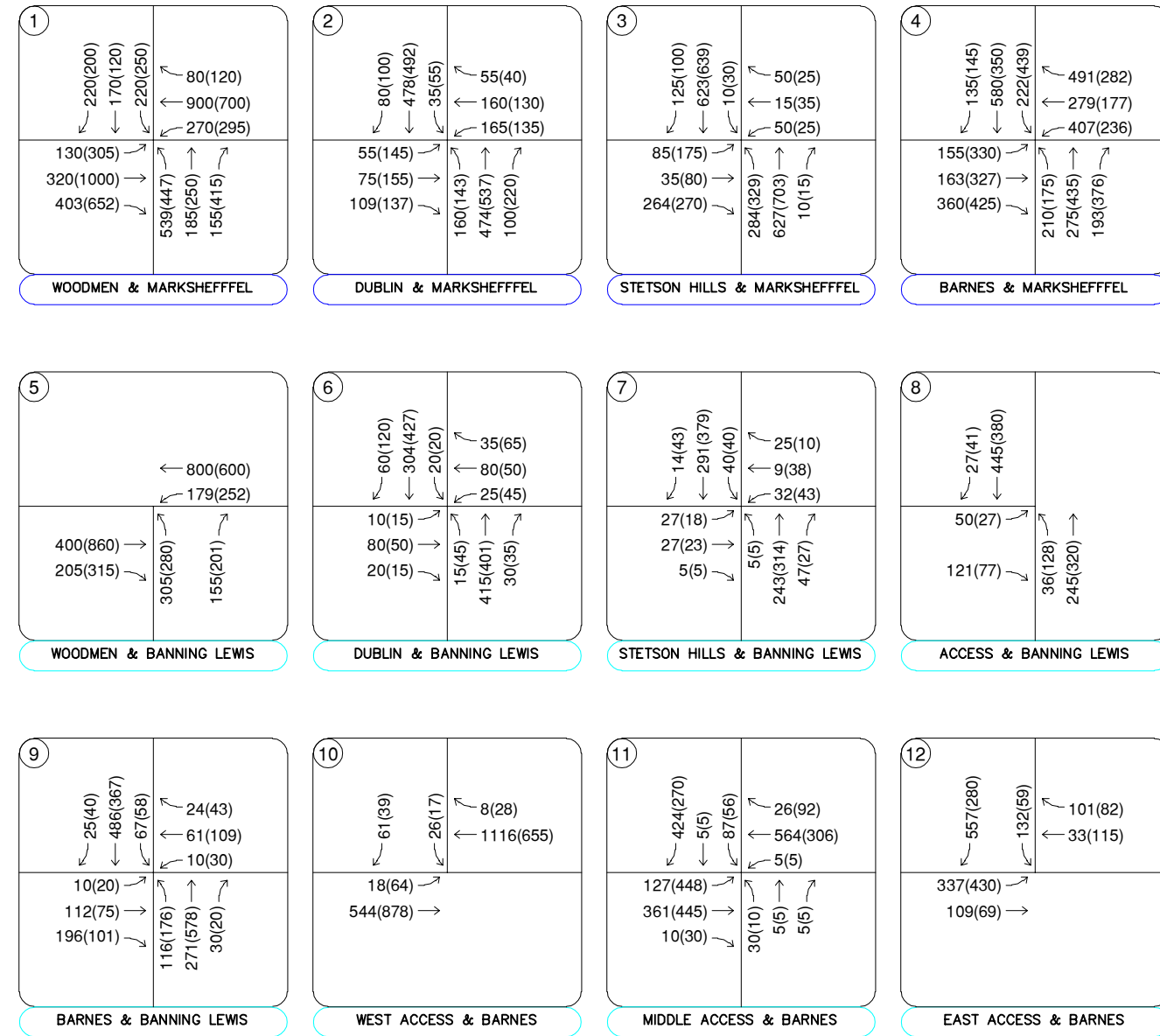
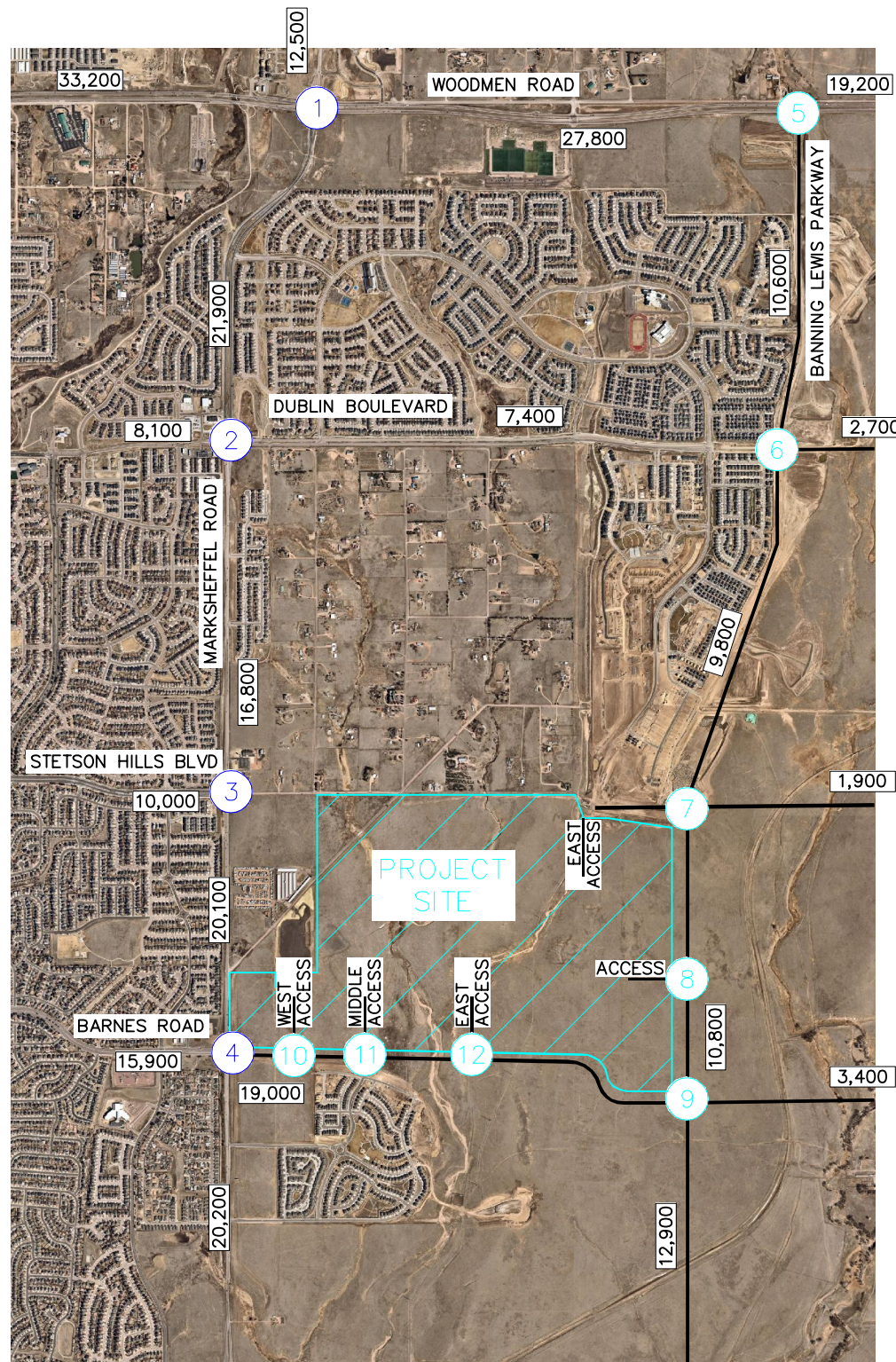


FIGURE 7
FREESTYLE MASTER PLAN
COLORADO SPRINGS, COLORADO
2030 TOTAL TRAFFIC VOLUMES

LEGEND

(X) Study Area Key Intersection

(X) Project Access Intersection

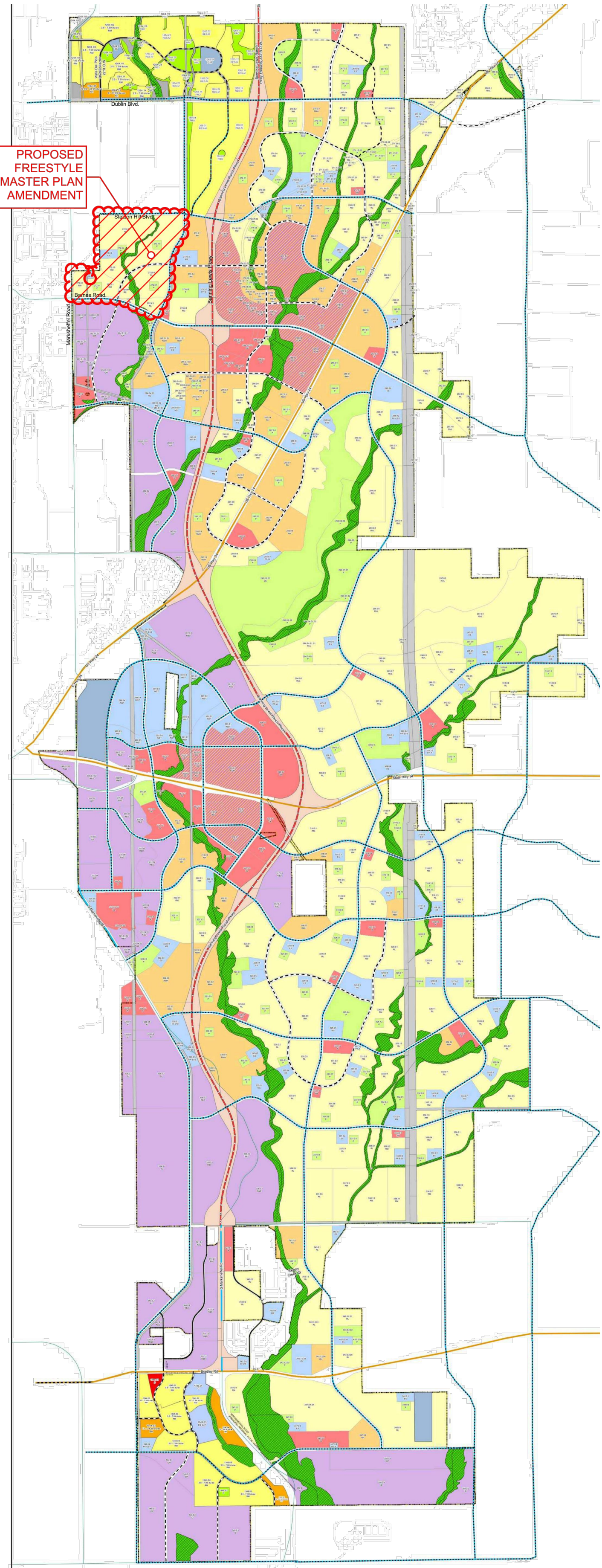
XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes

XX,X00 Estimated Daily Traffic Volume



FREESTYLE COMMUNITY
MASTER PLAN AMENDMENT
AT BANNING LEWIS RANCH

Banning Lewis Ranch
Master Plan
June 2015



- Residential - Low
- Residential - High
- Commercial
- Industrial
- Parks & Open Space
- Public / Institutional
- Vacant
- Streets / Right of Way / Easements
- Flood Plain
- Highway/Expressway - Existing
- Highway/Expressway - Proposed
- Principal Arterial - Existing
- Highway/Expressway - Proposed
- Highway/Expressway - Existing
- Collector - Existing
- Road

1988 Land Use Plan			
Residential, Very Low	Residential, Low	Residential, Medium	Residential, Medium High
Residential, High	Activity Center, Low	Activity Center, Medium	Activity Center, High
Office, Low	Office, Medium	Office, High	Research and Development
Institution	Retail	Neighborhood Retail	Industrial Park
Industrial	Elementary School	Middle School	High School
Open Space	Park	Public Facilities	

Banning Lewis Ranch Master Plan Amendment History

1. Original Master Plan approved by the City Planning Commission on June 3, 1988 and by the City Council on June 14, 1988. The plan provided for a total of 1,000 units of residential development, including 1,000 single-family units, 1,000 townhomes, and 1,000 condominiums. The plan also provided for 1,000 units of commercial development, including 1,000 retail units, 1,000 office units, and 1,000 industrial units. The plan also provided for 1,000 units of public facilities, including 1,000 elementary schools, 1,000 middle schools, and 1,000 high schools. The plan also provided for 1,000 units of open space, including 1,000 parks and 1,000 public facilities.

2. The original plan was amended by the City Planning Commission on June 3, 1988 and by the City Council on June 14, 1988. The amendment provided for a total of 1,000 units of residential development, including 1,000 single-family units, 1,000 townhomes, and 1,000 condominiums. The plan also provided for 1,000 units of commercial development, including 1,000 retail units, 1,000 office units, and 1,000 industrial units. The plan also provided for 1,000 units of public facilities, including 1,000 elementary schools, 1,000 middle schools, and 1,000 high schools. The plan also provided for 1,000 units of open space, including 1,000 parks and 1,000 public facilities.

3. The original plan was amended by the City Planning Commission on June 3, 1988 and by the City Council on June 14, 1988. The amendment provided for a total of 1,000 units of residential development, including 1,000 single-family units, 1,000 townhomes, and 1,000 condominiums. The plan also provided for 1,000 units of commercial development, including 1,000 retail units, 1,000 office units, and 1,000 industrial units. The plan also provided for 1,000 units of public facilities, including 1,000 elementary schools, 1,000 middle schools, and 1,000 high schools. The plan also provided for 1,000 units of open space, including 1,000 parks and 1,000 public facilities.

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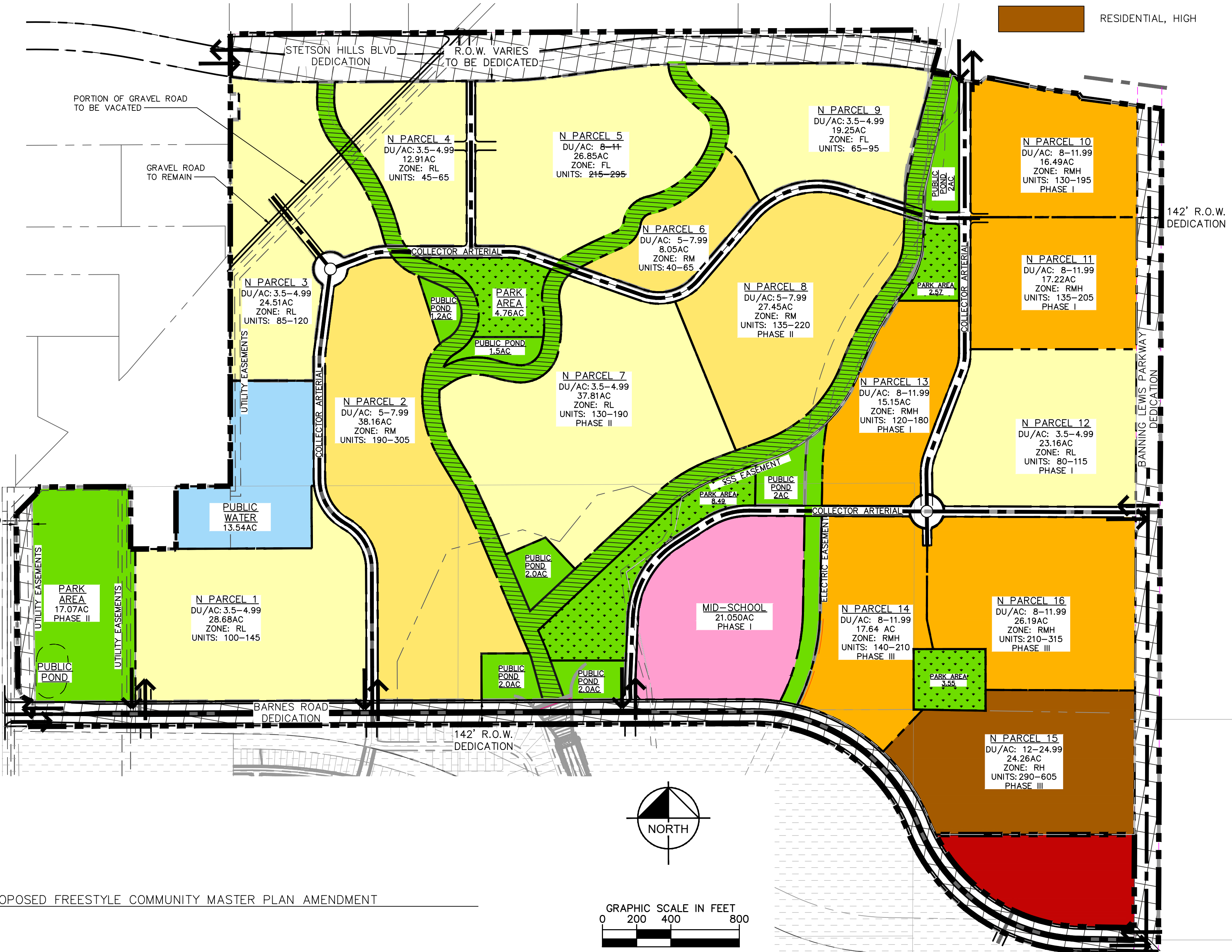
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- LEGEND**
- PROPERTY BOUNDARY
 - CENTERLINE R.O.W.
 - EXISTING EASEMENT LINE
 - PARCEL LINE
 - PHASE LINE
 - DISTRICT BOUNDARY LINE
 - ROUNDABOUT
 - ACCESS
 - OPEN/GREEN SPACE
 - MIDDLE SCHOOL
 - PUBLIC FACILITIES
 - NEIGHBORHOOD RETAIL
 - RESIDENTIAL, LOW
 - RESIDENTIAL, MEDIUM
 - RESIDENTIAL, MEDIUM HIGH
 - RESIDENTIAL, HIGH



A EXISTING BANNING LEWIS MASTER PLAN

B PROPOSED FREESTYLE COMMUNITY MASTER PLAN AMENDMENT

Kimley»Horn

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Traffic Impact Study

Marksheffel & Barnes

Colorado Spring, Colorado

Prepared for:

DHI Communities, a D.R. Horton Company

Kimley»Horn

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

Marksheffel & Barnes

Colorado Springs, Colorado

Prepared for
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July 2023

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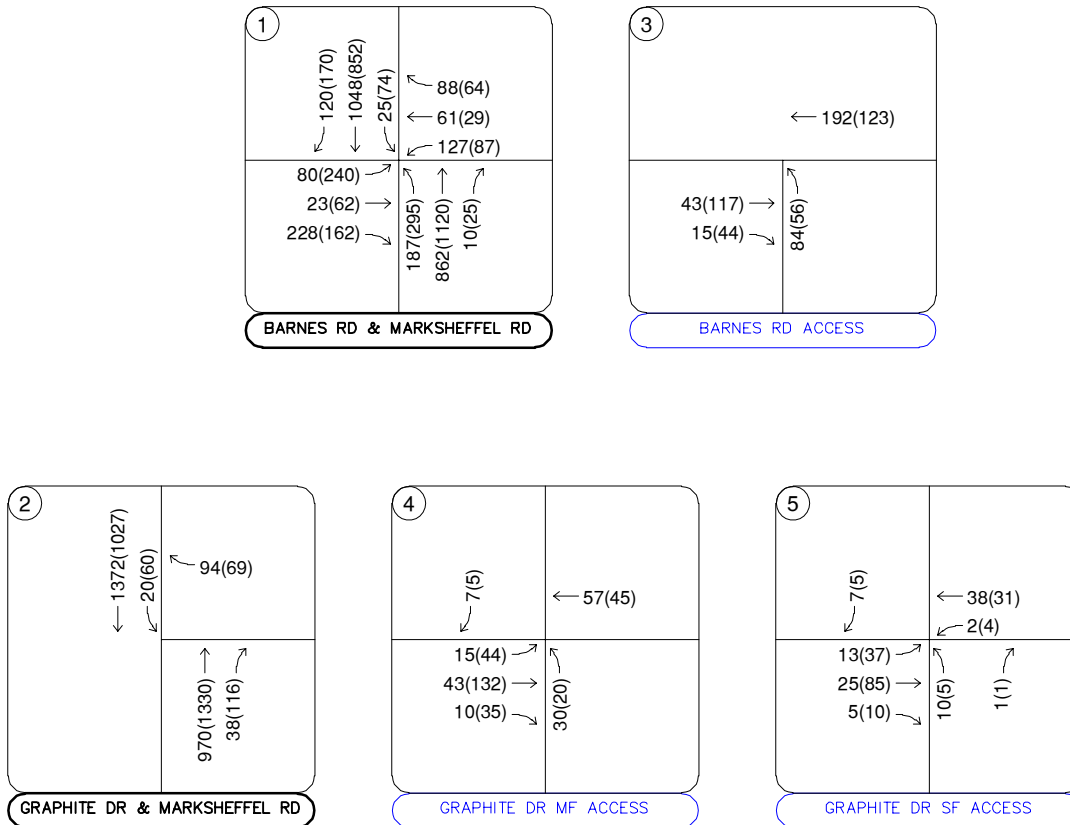
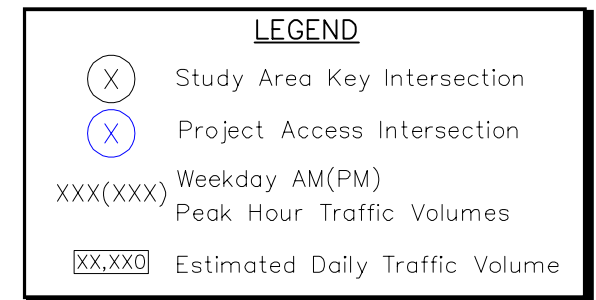


FIGURE 9
MARKSHEFFEL & BARNES
COLORADO SPRINGS, COLORADO
2026 TOTAL TRAFFIC VOLUMES



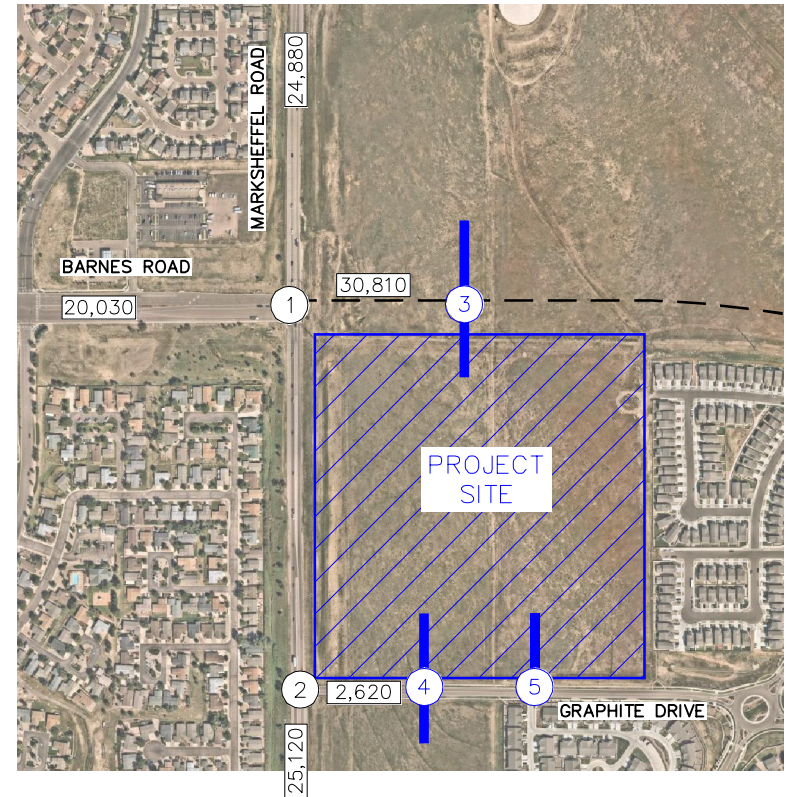
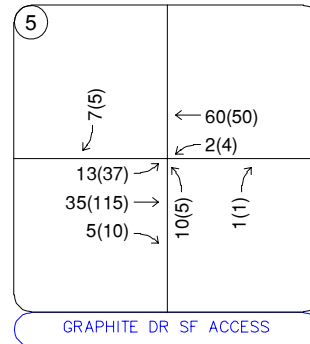
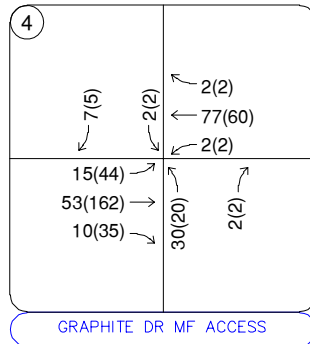
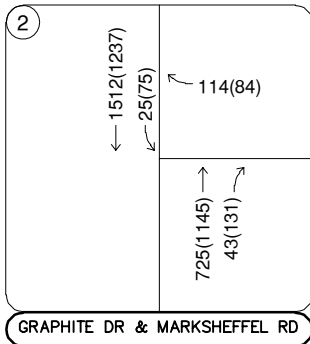
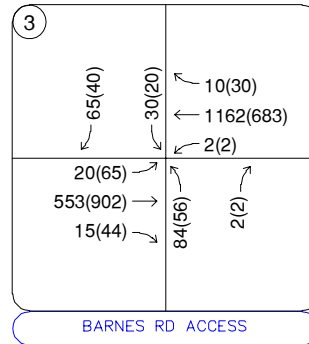
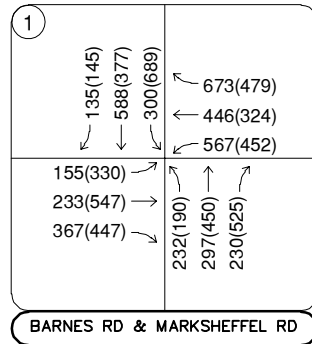
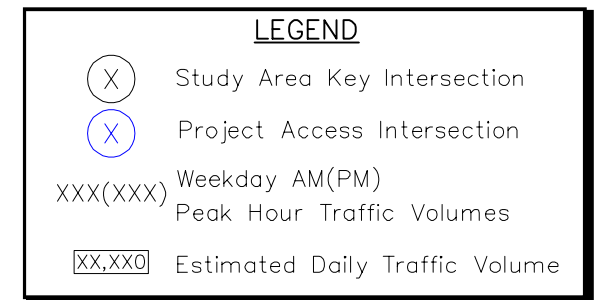
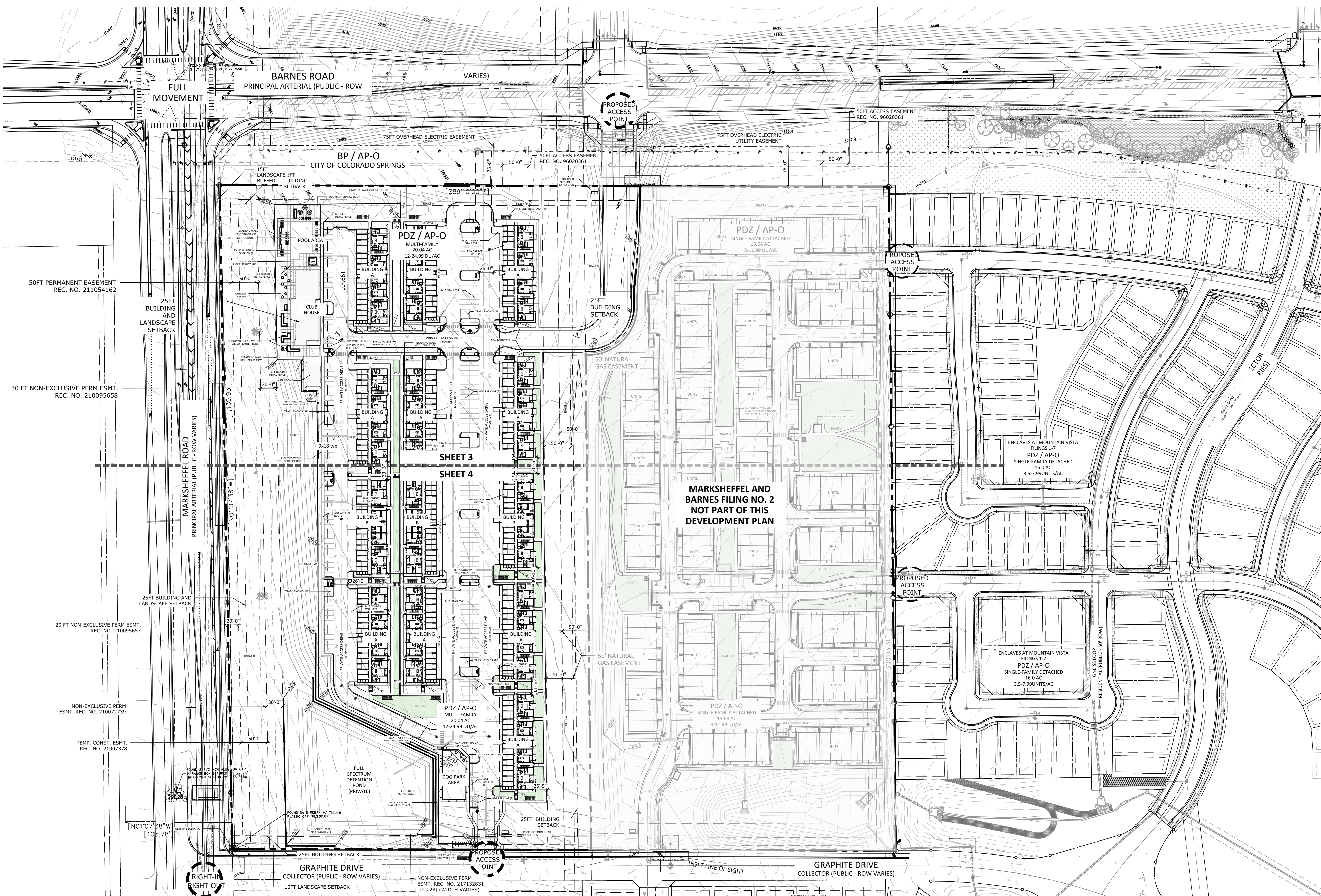


FIGURE 10
MARKSHEFFEL & BARNES
COLORADO SPRINGS, COLORADO
2045 TOTAL TRAFFIC VOLUMES



P:\VH Communities, a D.A. Horton Company\Falcon Trucking Property Multifamily Development\Drawings\DP\MarksheffelBarnes_DP.dwg [02 AP FULL] 8/16/2023 1:42:09 PM knab



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MARKSHEFFEL
AND BARNES

FILING NO. 1

DATE: 06.06.23
PROJECT MGR: A. BARLOW
PREPARED BY: T. KNAB

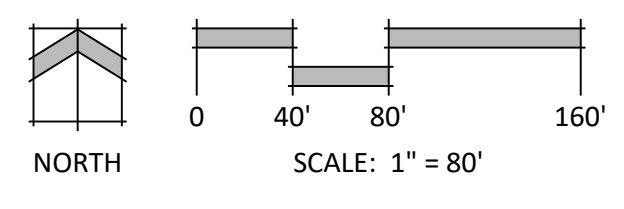
PDZ
DEVELOPMENT
PLAN

DATE: 08.16.23 BY: TK DESCRIPTION: PER CITY COMMENT

PDZ DEVELOPMENT
PLAN

2

2 OF 23



Appendix D: Trip Generation Worksheet

Enclaves at Mountain Vista Update Daily Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total
1	(210) Single-Family Detached Housing	ITE 12th Ed	600	DU	T = 8.07(X) + 265.45	50%	50%	2,554	2,554	5,108
2	(821) Shopping Plaza (40-150k)	ITE 12th Ed	50	LKSF	T = 65.38(X)	50%	50%	1,635	1,635	3,270
Total:								4,189	4,189	8,378

Enclaves at Mountain Vista Update AM Peak Hour Trip Generation Calculations

TRIP GENERATION CHARACTERISTICS						DIRECTIONAL DISTRIBUTION		BASELINE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total
1	(210) Single-Family Detached Housing	ITE 12th Ed	600	DU	T = 0.67(X) + 5.59	27%	73%	110	298	408
2	(821) Shopping Plaza (40-150k)	ITE 12th Ed	50	LKSF	T = 1.59(X)	62%	38%	50	30	80
Total:								160	328	488

Enclaves at Mountain Vista Update PM Peak Hour Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total
1	(210) Single-Family Detached Housing	ITE 12th Ed	600	DU	$\text{Ln}(\text{T}) = 0.92 \text{ Ln}(\text{X}) + 0.33$	62%	38%	310	190	500
2	(821) Shopping Plaza (40-150k)	ITE 12th Ed	50	LKSF	$\text{T} = 4.76(\text{X})$	49%	51%	117	121	238
Total:								427	311	738

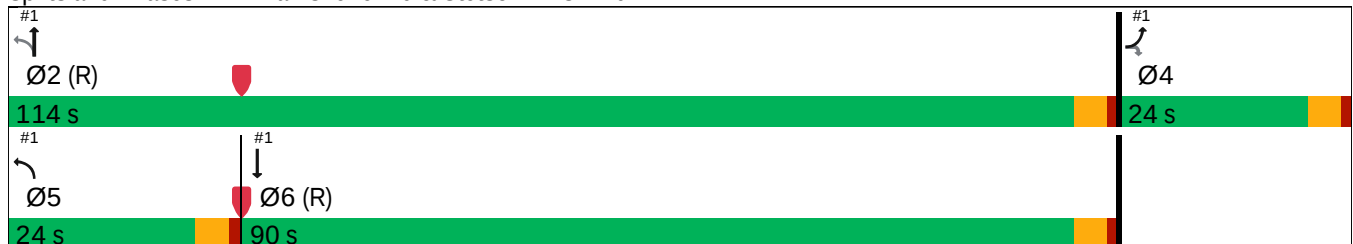
Appendix E: Intersection Analysis Worksheets

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	96	258	208	546	781
Future Volume (vph)	96	258	208	546	781
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4	2		
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	24.0	24.0	114.0	90.0
Total Split (%)	17.4%	17.4%	17.4%	82.6%	65.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138
 Actuated Cycle Length: 138
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd



						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	258	208	546	781	93
Future Volume (veh/h)	96	258	208	546	781	93
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	1781	1781	1856	1856
Adj Flow Rate, veh/h	102	0	221	581	831	99
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	8	8	3	3
Cap, veh/h	126		450	1540	1286	153
Arrive On Green	0.07	0.00	0.04	0.86	0.79	0.79
Sat Flow, veh/h	1781	1585	1697	1781	1627	194
Grp Volume(v), veh/h	102	0	221	581	0	930
Grp Sat Flow(s),veh/h/ln	1781	1585	1697	1781	0	1821
Q Serve(g_s), s	7.8	0.0	3.2	9.1	0.0	30.2
Cycle Q Clear(g_c), s	7.8	0.0	3.2	9.1	0.0	30.2
Prop In Lane	1.00	1.00	1.00			0.11
Lane Grp Cap(c), veh/h	126		450	1540	0	1439
V/C Ratio(X)	0.81		0.49	0.38	0.00	0.65
Avail Cap(c_a), veh/h	252		619	1540	0	1439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.89	0.89	0.00	1.00
Uniform Delay (d), s/veh	63.2	0.0	8.0	1.9	0.0	6.2
Incr Delay (d2), s/veh	11.7	0.0	0.7	0.6	0.0	2.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	2.3	2.3	0.0	10.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	74.9	0.0	8.7	2.5	0.0	8.5
LnGrp LOS	E		A	A		A
Approach Vol, veh/h	102			802	930	
Approach Delay, s/veh	74.9			4.2	8.5	
Approach LOS	E			A	A	
Timer - Assigned Phs	2		4		5	6
Phs Duration (G+Y+Rc), s	123.8		14.2		10.2	113.6
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5
Max Green Setting (Gmax), s	109.5		19.5		19.5	85.5
Max Q Clear Time (g_c+I1), s	11.1		9.8		5.2	32.2
Green Ext Time (p_c), s	4.6		0.1		0.5	10.1
Intersection Summary						
HCM 7th Control Delay, s/veh			10.3			
HCM 7th LOS			B			
Notes						
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.						

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	111	202	312	796	594
Future Volume (vph)	111	202	312	796	594
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4	2		
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.6	24.6	33.0	113.4	80.4
Total Split (%)	17.8%	17.8%	23.9%	82.2%	58.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138
 Actuated Cycle Length: 138
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd



HCM 7th Signalized Intersection Summary
1: Marksheffel Rd & Stetson Hills Blvd

2026 Ex PM
08/31/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	111	202	312	796	594	85
Future Volume (veh/h)	111	202	312	796	594	85
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	121	0	339	865	646	92
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	146		590	1595	1217	173
Arrive On Green	0.08	0.00	0.06	0.85	0.76	0.76
Sat Flow, veh/h	1781	1585	1781	1870	1601	228
Grp Volume(v), veh/h	121	0	339	865	0	738
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1829
Q Serve(g_s), s	9.2	0.0	5.4	17.5	0.0	22.4
Cycle Q Clear(g_c), s	9.2	0.0	5.4	17.5	0.0	22.4
Prop In Lane	1.00	1.00	1.00			0.12
Lane Grp Cap(c), veh/h	146		590	1595	0	1390
V/C Ratio(X)	0.83		0.57	0.54	0.00	0.53
Avail Cap(c_a), veh/h	259		850	1595	0	1390
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.69	0.69	0.00	1.00
Uniform Delay (d), s/veh	62.4	0.0	6.4	2.8	0.0	6.7
Incr Delay (d2), s/veh	11.3	0.0	0.6	0.9	0.0	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	2.6	4.8	0.0	8.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	73.7	0.0	7.0	3.7	0.0	8.1
LnGrp LOS	E		A	A		A
Approach Vol, veh/h	121			1204	738	
Approach Delay, s/veh	73.7			4.6	8.1	
Approach LOS	E			A	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	122.2			15.8	12.9	109.3
Change Period (Y+Rc), s	4.5			4.5	4.5	4.5
Max Green Setting (Gmax), s	108.9			20.1	28.5	75.9
Max Q Clear Time (g_c+l1), s	19.5			11.2	7.4	24.4
Green Ext Time (p_c), s	8.8			0.2	1.0	6.6
Intersection Summary						
HCM 7th Control Delay, s/veh			9.9			
HCM 7th LOS			A			
Notes						
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.						

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	300	355	150	300	75	240	630	100	50	656	131
Future Volume (vph)	105	300	355	150	300	75	240	630	100	50	656	131
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	44.0	44.0	18.0	38.0	38.0	25.0	65.0	65.0	11.0	51.0	51.0
Total Split (%)	17.4%	31.9%	31.9%	13.0%	27.5%	27.5%	18.1%	47.1%	47.1%	8.0%	37.0%	37.0%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd

#1  Ø1	#1  Ø2 (R)	#1  Ø3	#1  Ø4
11 s	65 s	18 s	44 s
#1  Ø5	#1  Ø6 (R)	#1  Ø7	#1  Ø8
25 s	51 s	24 s	38 s

HCM 7th Signalized Intersection Summary
1: Marksheffel Rd & Stetson Hills Blvd

2035 BG AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	300	355	150	300	75	240	630	100	50	656	131
Future Volume (veh/h)	105	300	355	150	300	75	240	630	100	50	656	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1781	1781	1870	1870	1856	1856
Adj Flow Rate, veh/h	112	326	0	163	326	0	255	670	0	54	698	0
Peak Hour Factor	0.94	0.92	0.94	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	8	8	2	2	3	3
Cap, veh/h	166	423		215	474		311	2222		109	2093	
Arrive On Green	0.05	0.12	0.00	0.06	0.13	0.00	0.09	0.66	0.00	0.03	0.59	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3291	3385	1585	3456	3526	1572
Grp Volume(v), veh/h	112	326	0	163	326	0	255	670	0	54	698	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1646	1692	1585	1728	1763	1572
Q Serve(g_s), s	4.4	12.3	0.0	6.4	12.1	0.0	10.5	11.7	0.0	2.1	13.8	0.0
Cycle Q Clear(g_c), s	4.4	12.3	0.0	6.4	12.1	0.0	10.5	11.7	0.0	2.1	13.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	166	423		215	474		311	2222		109	2093	
V/C Ratio(X)	0.67	0.77		0.76	0.69		0.82	0.30		0.49	0.33	
Avail Cap(c_a), veh/h	488	1017		338	863		489	2222		163	2093	
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	0.00	1.00	1.00	0.00	0.82	0.82	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	64.6	59.0	0.0	63.7	57.1	0.0	61.3	10.1	0.0	65.7	14.2	0.0
Incr Delay (d2), s/veh	4.7	3.0	0.0	5.4	1.8	0.0	5.1	0.3	0.0	3.4	0.4	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	2.1	5.7	0.0	3.0	5.6	0.0	4.6	4.4	0.0	1.0	5.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.3	62.0	0.0	69.0	58.9	0.0	66.4	10.4	0.0	69.1	14.6	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	438			489			925			752		
Approach Delay, s/veh	63.8			62.3			25.9			18.5		
Approach LOS	E			E			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	95.1	13.1	20.9	17.5	86.4	11.1	22.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	60.5	13.5	39.5	20.5	46.5	19.5	33.5				
Max Q Clear Time (g_c+I1), s	4.1	13.7	8.4	14.3	12.5	15.8	6.4	14.1				
Green Ext Time (p_c), s	0.0	5.5	0.2	2.2	0.5	5.4	0.2	2.0				

Intersection Summary

HCM 7th Control Delay, s/veh 37.0
HCM 7th LOS D

Notes

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	350	369	100	250	50	260	664	150	75	608	105
Future Volume (vph)	184	350	369	100	250	50	260	664	150	75	608	105
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	25.0	48.0	48.0	15.0	38.0	38.0	26.0	62.0	62.0	13.0	49.0	49.0
Total Split (%)	18.1%	34.8%	34.8%	10.9%	27.5%	27.5%	18.8%	44.9%	44.9%	9.4%	35.5%	35.5%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd

			
Ø1	Ø2 (R)	Ø3	Ø4
13 s	62 s	15 s	48 s
			
Ø5	Ø6 (R)	Ø7	Ø8
26 s	49 s	25 s	38 s

HCM 7th Signalized Intersection Summary
1: Marksheffel Rd & Stetson Hills Blvd

2035 BG PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	350	369	100	250	50	260	664	150	75	608	105
Future Volume (veh/h)	184	350	369	100	250	50	260	664	150	75	608	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	200	380	0	109	272	0	283	722	0	82	661	0
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	258	486		158	383		343	2312		127	2089	
Arrive On Green	0.07	0.14	0.00	0.05	0.11	0.00	0.10	0.65	0.00	0.04	0.59	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	200	380	0	109	272	0	283	722	0	82	661	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	7.8	14.3	0.0	4.3	10.2	0.0	11.1	12.3	0.0	3.2	13.0	0.0
Cycle Q Clear(g_c), s	7.8	14.3	0.0	4.3	10.2	0.0	11.1	12.3	0.0	3.2	13.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	258	486		158	383		343	2312		127	2089	
V/C Ratio(X)	0.78	0.78		0.69	0.71		0.82	0.31		0.65	0.32	
Avail Cap(c_a), veh/h	513	1120		263	863		538	2312		213	2089	
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	0.00	1.00	1.00	0.00	0.80	0.80	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	62.7	57.6	0.0	64.9	59.5	0.0	61.0	10.6	0.0	65.6	14.4	0.0
Incr Delay (d2), s/veh	4.9	2.8	0.0	5.3	2.5	0.0	4.8	0.3	0.0	5.5	0.4	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	3.6	6.6	0.0	2.0	4.7	0.0	5.1	4.9	0.0	1.5	5.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.7	60.4	0.0	70.2	62.0	0.0	65.7	10.9	0.0	71.1	14.8	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	580			381			1005			743		
Approach Delay, s/veh	62.9			64.3			26.3			21.0		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	94.3	10.8	23.4	18.2	85.6	14.8	19.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	57.5	10.5	43.5	21.5	44.5	20.5	33.5				
Max Q Clear Time (g_c+l1), s	5.2	14.3	6.3	16.3	13.1	15.0	9.8	12.2				
Green Ext Time (p_c), s	0.1	5.9	0.1	2.6	0.6	5.0	0.5	1.7				

Intersection Summary

HCM 7th Control Delay, s/veh	38.0
HCM 7th LOS	D

Notes

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

Timings
1: Marksheffel Rd & Stetson Hills Blvd

2035 Total AM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	300	363	150	300	75	256	712	100	50	696	131
Future Volume (vph)	105	300	363	150	300	75	256	712	100	50	696	131
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	23.0	44.0	44.0	18.0	39.0	39.0	25.0	65.0	65.0	11.0	51.0	51.0
Total Split (%)	16.7%	31.9%	31.9%	13.0%	28.3%	28.3%	18.1%	47.1%	47.1%	8.0%	37.0%	37.0%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd

#1  Ø1	#1  Ø2 (R)	#1  Ø3	#1  Ø4
11 s	65 s	18 s	44 s
#1  Ø5	#1  Ø6 (R)	#1  Ø7	#1  Ø8
25 s	51 s	23 s	39 s

HCM 7th Signalized Intersection Summary
1: Marksheffel Rd & Stetson Hills Blvd

2035 Total AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	300	363	150	300	75	256	712	100	50	696	131
Future Volume (veh/h)	105	300	363	150	300	75	256	712	100	50	696	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1781	1781	1781	1856	1856	1856
Adj Flow Rate, veh/h	112	319	0	160	319	0	272	757	0	53	740	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	8	8	8	3	3	3
Cap, veh/h	166	415		212	463		328	2233		108	2086	
Arrive On Green	0.05	0.12	0.00	0.06	0.13	0.00	0.10	0.66	0.00	0.03	0.59	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3291	3385	1510	3428	3526	1572
Grp Volume(v), veh/h	112	319	0	160	319	0	272	757	0	53	740	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1646	1692	1510	1714	1763	1572
Q Serve(g_s), s	4.4	12.0	0.0	6.3	11.8	0.0	11.2	13.5	0.0	2.1	15.0	0.0
Cycle Q Clear(g_c), s	4.4	12.0	0.0	6.3	11.8	0.0	11.2	13.5	0.0	2.1	15.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	166	415		212	463		328	2233		108	2086	
V/C Ratio(X)	0.67	0.77		0.75	0.69		0.83	0.34		0.49	0.35	
Avail Cap(c_a), veh/h	463	1017		338	888		489	2233		161	2086	
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	0.00	1.00	1.00	0.00	0.76	0.76	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	64.6	59.1	0.0	63.7	57.3	0.0	61.0	10.3	0.0	65.7	14.6	0.0
Incr Delay (d2), s/veh	4.7	3.0	0.0	5.4	1.8	0.0	5.8	0.3	0.0	3.4	0.5	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	2.1	5.6	0.0	2.9	5.5	0.0	5.0	5.0	0.0	1.0	6.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.3	62.1	0.0	69.1	59.2	0.0	66.7	10.6	0.0	69.2	15.0	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	431			479			1029			793		
Approach Delay, s/veh	64.0			62.5			25.4			18.7		
Approach LOS	E			E			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	95.6	13.0	20.6	18.2	86.2	11.1	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	60.5	13.5	39.5	20.5	46.5	18.5	34.5				
Max Q Clear Time (g_c+I1), s	4.1	15.5	8.3	14.0	13.2	17.0	6.4	13.8				
Green Ext Time (p_c), s	0.0	6.4	0.2	2.1	0.6	5.8	0.2	2.0				

Intersection Summary

HCM 7th Control Delay, s/veh 36.0
HCM 7th LOS D

Notes

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

Timings

1: Marksheffel Rd & Stetson Hills Blvd

2035 Total PM

08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	350	390	100	250	50	276	742	150	75	715	105
Future Volume (vph)	184	350	390	100	250	50	276	742	150	75	715	105
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	46.0	46.0	14.0	36.0	36.0	25.0	65.0	65.0	13.0	53.0	53.0
Total Split (%)	17.4%	33.3%	33.3%	10.1%	26.1%	26.1%	18.1%	47.1%	47.1%	9.4%	38.4%	38.4%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd

#1  Ø1	#1  Ø2 (R)	#1  Ø3	#1  Ø4
13 s	65 s	14 s	46 s
#1  Ø5	#1  Ø6 (R)	#1  Ø7	#1  Ø8
25 s	53 s	24 s	36 s

HCM 7th Signalized Intersection Summary
1: Marksheffel Rd & Stetson Hills Blvd

2035 Total PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	350	390	100	250	50	276	742	150	75	715	105
Future Volume (veh/h)	184	350	390	100	250	50	276	742	150	75	715	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	200	380	0	109	272	0	300	807	0	82	777	0
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	257	485		157	382		359	2314		127	2074	
Arrive On Green	0.07	0.14	0.00	0.05	0.11	0.00	0.10	0.65	0.00	0.04	0.58	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	200	380	0	109	272	0	300	807	0	82	777	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	7.8	14.3	0.0	4.3	10.2	0.0	11.8	14.1	0.0	3.2	16.1	0.0
Cycle Q Clear(g_c), s	7.8	14.3	0.0	4.3	10.2	0.0	11.8	14.1	0.0	3.2	16.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	257	485		157	382		359	2314		127	2074	
V/C Ratio(X)	0.78	0.78		0.69	0.71		0.84	0.35		0.65	0.37	
Avail Cap(c_a), veh/h	488	1069		238	811		513	2314		213	2074	
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	0.00	1.00	1.00	0.00	0.73	0.73	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	62.7	57.6	0.0	64.9	59.5	0.0	60.7	10.9	0.0	65.6	15.3	0.0
Incr Delay (d2), s/veh	5.0	2.8	0.0	5.4	2.5	0.0	6.0	0.3	0.0	5.5	0.5	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	3.6	6.6	0.0	2.0	4.7	0.0	5.5	5.6	0.0	1.5	6.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.7	60.4	0.0	70.3	62.0	0.0	66.7	11.2	0.0	71.1	15.8	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	580			381			1107			859		
Approach Delay, s/veh	63.0			64.4			26.2			21.1		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	94.3	10.8	23.3	18.8	85.1	14.8	19.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	60.5	9.5	41.5	20.5	48.5	19.5	31.5				
Max Q Clear Time (g_c+I1), s	5.2	16.1	6.3	16.3	13.8	18.1	9.8	12.2				
Green Ext Time (p_c), s	0.1	6.9	0.1	2.6	0.6	6.2	0.4	1.6				

Intersection Summary

HCM 7th Control Delay, s/veh 37.0
HCM 7th LOS D

Notes

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	348	412	174	348	87	279	731	116	58	762	152
Future Volume (vph)	122	348	412	174	348	87	279	731	116	58	762	152
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	23.0	46.0	46.0	17.4	40.4	40.4	24.2	64.2	64.2	10.4	50.4	50.4
Total Split (%)	16.7%	33.3%	33.3%	12.6%	29.3%	29.3%	17.5%	46.5%	46.5%	7.5%	36.5%	36.5%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd

#1  Ø1	#1  Ø2 (R)	#1  Ø3	#1  Ø4
10.4 s	64.2 s	17.4 s	46 s
#1  Ø5	#1  Ø6 (R)	#1  Ø7	#1  Ø8
24.2 s	50.4 s	23 s	40.4 s

HCM 7th Signalized Intersection Summary
1: Marksheffel Rd & Stetson Hills Blvd

2050 BG AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	348	412	174	348	87	279	731	116	58	762	152
Future Volume (veh/h)	122	348	412	174	348	87	279	731	116	58	762	152
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1781	1781	1781	1856	1856	1856
Adj Flow Rate, veh/h	130	370	0	185	370	0	297	778	0	62	811	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	8	8	8	3	3	3
Cap, veh/h	185	474		237	527		351	2149		113	1978	
Arrive On Green	0.05	0.13	0.00	0.07	0.15	0.00	0.11	0.63	0.00	0.03	0.56	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3291	3385	1510	3428	3526	1572
Grp Volume(v), veh/h	130	370	0	185	370	0	297	778	0	62	811	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1646	1692	1510	1714	1763	1572
Q Serve(g_s), s	5.1	13.9	0.0	7.3	13.7	0.0	12.2	15.0	0.0	2.5	18.1	0.0
Cycle Q Clear(g_c), s	5.1	13.9	0.0	7.3	13.7	0.0	12.2	15.0	0.0	2.5	18.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	185	474		237	527		351	2149		113	1978	
V/C Ratio(X)	0.70	0.78		0.78	0.70		0.85	0.36		0.55	0.41	
Avail Cap(c_a), veh/h	463	1069		323	924		470	2149		147	1978	
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	0.00	1.00	1.00	0.00	0.76	0.76	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	64.2	57.9	0.0	63.3	55.9	0.0	60.5	11.9	0.0	65.7	17.3	0.0
Incr Delay (d2), s/veh	4.8	2.8	0.0	8.3	1.7	0.0	8.1	0.4	0.0	4.1	0.6	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	2.4	6.5	0.0	3.5	6.3	0.0	5.5	5.7	0.0	1.1	7.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.1	60.7	0.0	71.5	57.6	0.0	68.6	12.3	0.0	69.9	17.9	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	500			555			1075			873		
Approach Delay, s/veh	62.9			62.2			27.9			21.6		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	92.1	14.0	22.9	19.2	81.9	11.9	25.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.9	59.7	12.9	41.5	19.7	45.9	18.5	35.9				
Max Q Clear Time (g_c+I1), s	4.5	17.0	9.3	15.9	14.2	20.1	7.1	15.7				
Green Ext Time (p_c), s	0.0	6.6	0.2	2.5	0.5	6.3	0.3	2.3				

Intersection Summary

HCM 7th Control Delay, s/veh	38.2
HCM 7th LOS	D

Notes

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

Timings

1: Marksheffel Rd & Stetson Hills Blvd

2050 BG PM

08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	406	428	116	290	58	302	771	174	87	706	122
Future Volume (vph)	214	406	428	116	290	58	302	771	174	87	706	122
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	23.0	48.0	48.0	15.0	40.0	40.0	26.0	62.0	62.0	13.0	49.0	49.0
Total Split (%)	16.7%	34.8%	34.8%	10.9%	29.0%	29.0%	18.8%	44.9%	44.9%	9.4%	35.5%	35.5%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd

			
Ø1	Ø2 (R)	Ø3	Ø4
13 s	62 s	15 s	48 s
			
Ø5	Ø6 (R)	Ø7	Ø8
26 s	49 s	23 s	40 s

HCM 7th Signalized Intersection Summary
1: Marksheffel Rd & Stetson Hills Blvd

2050 BG PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	214	406	428	116	290	58	302	771	174	87	706	122
Future Volume (veh/h)	214	406	428	116	290	58	302	771	174	87	706	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	233	441	0	126	315	0	328	838	0	95	767	0
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	290	554		175	436		388	2210		141	1956	
Arrive On Green	0.08	0.16	0.00	0.05	0.12	0.00	0.11	0.62	0.00	0.04	0.55	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	233	441	0	126	315	0	328	838	0	95	767	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	9.1	16.5	0.0	5.0	11.8	0.0	12.8	16.1	0.0	3.7	17.1	0.0
Cycle Q Clear(g_c), s	9.1	16.5	0.0	5.0	11.8	0.0	12.8	16.1	0.0	3.7	17.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	554		175	436		388	2210		141	1956	
V/C Ratio(X)	0.80	0.80		0.72	0.72		0.85	0.38		0.67	0.39	
Avail Cap(c_a), veh/h	463	1120		263	914		538	2210		213	1956	
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	0.00	1.00	1.00	0.00	0.71	0.71	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	62.1	56.1	0.0	64.5	58.3	0.0	60.1	12.9	0.0	65.3	17.8	0.0
Incr Delay (d2), s/veh	5.3	2.7	0.0	5.4	2.3	0.0	6.4	0.4	0.0	5.4	0.6	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	4.2	7.6	0.0	2.3	5.4	0.0	6.0	6.5	0.0	1.8	7.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.4	58.8	0.0	69.9	60.5	0.0	66.5	13.3	0.0	70.7	18.4	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	674			441			1166			862		
Approach Delay, s/veh	61.7			63.2			28.2			24.1		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	90.3	11.5	26.0	20.0	80.5	16.1	21.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	57.5	10.5	43.5	21.5	44.5	18.5	35.5				
Max Q Clear Time (g_c+I1), s	5.7	18.1	7.0	18.5	14.8	19.1	11.1	13.8				
Green Ext Time (p_c), s	0.1	7.1	0.1	3.0	0.7	5.8	0.4	2.0				

Intersection Summary

HCM 7th Control Delay, s/veh 39.2
HCM 7th LOS D

Notes

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

Timings

1: Marksheffel Rd & Stetson Hills Blvd

2050 Total AM

08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	350	420	175	350	90	295	815	120	60	805	155
Future Volume (vph)	125	350	420	175	350	90	295	815	120	60	805	155
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.6	44.4	44.4	17.4	39.2	39.2	25.2	65.6	65.6	10.6	51.0	51.0
Total Split (%)	16.4%	32.2%	32.2%	12.6%	28.4%	28.4%	18.3%	47.5%	47.5%	7.7%	37.0%	37.0%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd

#1  Ø1	#1  Ø2 (R)	#1  Ø3	#1  Ø4
10.6 s	65.6 s	17.4 s	44.4 s
#1  Ø5	#1  Ø6 (R)	#1  Ø7	#1  Ø8
25.2 s	51 s	22.6 s	39.2 s

HCM 7th Signalized Intersection Summary
1: Marksheffel Rd & Stetson Hills Blvd

2050 Total AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	350	420	175	350	90	295	815	120	60	805	155
Future Volume (veh/h)	125	350	420	175	350	90	295	815	120	60	805	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1781	1781	1781	1856	1856	1856
Adj Flow Rate, veh/h	133	372	0	186	372	0	314	867	0	64	856	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	8	8	8	3	3	3
Cap, veh/h	188	475		238	526		369	2146		114	1956	
Arrive On Green	0.05	0.13	0.00	0.07	0.15	0.00	0.11	0.63	0.00	0.03	0.55	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3291	3385	1510	3428	3526	1572
Grp Volume(v), veh/h	133	372	0	186	372	0	314	867	0	64	856	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1646	1692	1510	1714	1763	1572
Q Serve(g_s), s	5.2	14.0	0.0	7.3	13.7	0.0	12.9	17.4	0.0	2.5	19.7	0.0
Cycle Q Clear(g_c), s	5.2	14.0	0.0	7.3	13.7	0.0	12.9	17.4	0.0	2.5	19.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	475		238	526		369	2146		114	1956	
V/C Ratio(X)	0.71	0.78		0.78	0.71		0.85	0.40		0.56	0.44	
Avail Cap(c_a), veh/h	453	1027		323	894		494	2146		152	1956	
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	0.00	1.00	1.00	0.00	0.66	0.66	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	64.2	57.8	0.0	63.2	55.9	0.0	60.1	12.4	0.0	65.7	18.1	0.0
Incr Delay (d2), s/veh	4.9	2.9	0.0	8.4	1.8	0.0	7.1	0.4	0.0	4.3	0.7	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	2.4	6.5	0.0	3.5	6.3	0.0	5.8	6.6	0.0	1.2	8.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.0	60.7	0.0	71.6	57.7	0.0	67.2	12.8	0.0	70.1	18.8	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	505			558			1181			920		
Approach Delay, s/veh	62.9			62.3			27.3			22.3		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	92.0	14.0	22.9	20.0	81.1	12.0	24.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.1	61.1	12.9	39.9	20.7	46.5	18.1	34.7				
Max Q Clear Time (g_c+I1), s	4.5	19.4	9.3	16.0	14.9	21.7	7.2	15.7				
Green Ext Time (p_c), s	0.0	7.6	0.2	2.5	0.6	6.6	0.3	2.3				

Intersection Summary

HCM 7th Control Delay, s/veh	37.7
HCM 7th LOS	D

Notes

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

Timings

1: Marksheffel Rd & Stetson Hills Blvd

2050 Total PM

08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	410	450	120	290	60	320	850	175	90	815	125
Future Volume (vph)	215	410	450	120	290	60	320	850	175	90	815	125
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.6	47.0	47.0	14.0	38.4	38.4	25.0	64.2	64.2	12.8	52.0	52.0
Total Split (%)	16.4%	34.1%	34.1%	10.1%	27.8%	27.8%	18.1%	46.5%	46.5%	9.3%	37.7%	37.7%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 1: Marksheffel Rd & Stetson Hills Blvd

#1  Ø1	#1  Ø2 (R)	#1  Ø3	#1  Ø4
12.8 s	64.2 s	14 s	47 s
#1  Ø5	#1  Ø6 (R)	#1  Ø7	#1  Ø8
25 s	52 s	22.6 s	38.4 s

HCM 7th Signalized Intersection Summary
1: Marksheffel Rd & Stetson Hills Blvd

2050 Total PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	410	450	120	290	60	320	850	175	90	815	125
Future Volume (veh/h)	215	410	450	120	290	60	320	850	175	90	815	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	234	446	0	130	315	0	348	924	0	98	886	0
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	291	559		179	444		406	2198		145	1930	
Arrive On Green	0.08	0.16	0.00	0.05	0.12	0.00	0.12	0.62	0.00	0.04	0.54	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	234	446	0	130	315	0	348	924	0	98	886	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	9.2	16.7	0.0	5.1	11.7	0.0	13.6	18.5	0.0	3.9	20.9	0.0
Cycle Q Clear(g_c), s	9.2	16.7	0.0	5.1	11.7	0.0	13.6	18.5	0.0	3.9	20.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	291	559		179	444		406	2198		145	1930	
V/C Ratio(X)	0.80	0.80		0.73	0.71		0.86	0.42		0.68	0.46	
Avail Cap(c_a), veh/h	453	1094		238	873		513	2198		208	1930	
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	0.00	1.00	1.00	0.00	0.59	0.59	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	62.1	56.0	0.0	64.5	58.0	0.0	59.8	13.6	0.0	65.2	19.2	0.0
Incr Delay (d2), s/veh	5.8	2.7	0.0	7.3	2.1	0.0	7.0	0.3	0.0	5.5	0.8	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	4.3	7.7	0.0	2.4	5.4	0.0	6.4	7.4	0.0	1.8	8.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.9	58.7	0.0	71.8	60.1	0.0	66.8	13.9	0.0	70.7	20.0	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	680			445			1272			984		
Approach Delay, s/veh	61.8			63.5			28.4			25.0		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	89.9	11.6	26.2	20.7	79.4	16.1	21.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.3	59.7	9.5	42.5	20.5	47.5	18.1	33.9				
Max Q Clear Time (g_c+I1), s	5.9	20.5	7.1	18.7	15.6	22.9	11.2	13.7				
Green Ext Time (p_c), s	0.1	8.1	0.1	3.0	0.6	6.9	0.4	1.9				

Intersection Summary

HCM 7th Control Delay, s/veh	38.8
HCM 7th LOS	D

Notes

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

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	278	239	652	997	87
Future Volume (vph)	41	278	239	652	997	87
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				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)	37.0	37.0	27.0	101.0	74.0	74.0
Total Split (%)	26.8%	26.8%	19.6%	73.2%	53.6%	53.6%
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: 138
 Actuated Cycle Length: 138
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd



						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	278	239	652	997	87
Future Volume (veh/h)	41	278	239	652	997	87
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	1767	1767	1870	1870
Adj Flow Rate, veh/h	43	0	252	686	1049	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	9	9	2	2
Cap, veh/h	56		309	1596	2758	
Arrive On Green	0.03	0.00	0.09	0.90	0.78	0.00
Sat Flow, veh/h	1781	1585	3264	1767	3647	1585
Grp Volume(v), veh/h	43	0	252	686	1049	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1632	1767	1777	1585
Q Serve(g_s), s	3.3	0.0	10.5	8.5	12.9	0.0
Cycle Q Clear(g_c), s	3.3	0.0	10.5	8.5	12.9	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	56		309	1596	2758	
V/C Ratio(X)	0.77		0.82	0.43	0.38	
Avail Cap(c_a), veh/h	420		532	1596	2758	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.65	0.00
Uniform Delay (d), s/veh	66.3	0.0	61.3	1.1	4.9	0.0
Incr Delay (d2), s/veh	19.1	0.0	5.2	0.8	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	4.6	1.3	4.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	85.5	0.0	66.5	1.9	5.2	0.0
LnGrp LOS	F		E	A	A	
Approach Vol, veh/h	43			938	1049	
Approach Delay, s/veh	85.5			19.3	5.2	
Approach LOS	F			B	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	129.1			8.9	17.6	111.6
Change Period (Y+Rc), s	4.5			4.5	4.5	4.5
Max Green Setting (Gmax), s	96.5			32.5	22.5	69.5
Max Q Clear Time (g_c+I1), s	10.5			5.3	12.5	14.9
Green Ext Time (p_c), s	5.9			0.1	0.6	10.2
Intersection Summary						
HCM 7th Control Delay, s/veh			13.4			
HCM 7th LOS			B			
Notes						
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.						



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	99	131	385	984	722	85
Future Volume (vph)	99	131	385	984	722	85
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				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)	24.0	24.0	31.0	114.0	83.0	83.0
Total Split (%)	17.4%	17.4%	22.5%	82.6%	60.1%	60.1%
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: 138
 Actuated Cycle Length: 138
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd



HCM 7th Signalized Intersection Summary
2: Marksheffel Rd & Barnes Rd

2026 Ex PM
08/31/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	99	131	385	984	722	85
Future Volume (veh/h)	99	131	385	984	722	85
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	1841	1841	1870	1870	1811	1811
Adj Flow Rate, veh/h	105	0	410	1047	768	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	2	2	6	6
Cap, veh/h	128		476	1611	2378	
Arrive On Green	0.07	0.00	0.14	0.86	0.69	0.00
Sat Flow, veh/h	1753	1560	3456	1870	3532	1535
Grp Volume(v), veh/h	105	0	410	1047	768	0
Grp Sat Flow(s),veh/h/ln	1753	1560	1728	1870	1721	1535
Q Serve(g_s), s	8.1	0.0	16.0	24.3	12.2	0.0
Cycle Q Clear(g_c), s	8.1	0.0	16.0	24.3	12.2	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	128		476	1611	2378	
V/C Ratio(X)	0.82		0.86	0.65	0.32	
Avail Cap(c_a), veh/h	248		664	1611	2378	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.78	0.00
Uniform Delay (d), s/veh	63.0	0.0	58.2	3.0	8.5	0.0
Incr Delay (d2), s/veh	11.8	0.0	8.3	2.0	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	7.6	6.7	4.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	74.9	0.0	66.5	5.1	8.8	0.0
LnGrp LOS	E		E	A	A	
Approach Vol, veh/h	105			1457	768	
Approach Delay, s/veh	74.9			22.3	8.8	
Approach LOS	E			C	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	123.4			14.6	23.5	99.9
Change Period (Y+Rc), s	4.5			4.5	4.5	4.5
Max Green Setting (Gmax), s	109.5			19.5	26.5	78.5
Max Q Clear Time (g_c+I1), s	26.3			10.1	18.0	14.2
Green Ext Time (p_c), s	13.3			0.1	1.0	6.6
Intersection Summary						
HCM 7th Control Delay, s/veh			20.2			
HCM 7th LOS			C			
Notes						
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.						

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	261	378	449	445	474	221	335	183	217	610	142
Future Volume (vph)	163	261	378	449	445	474	221	335	183	217	610	142
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	23.0	41.0	41.0	33.0	51.0	51.0	21.0	43.9	43.9	20.1	43.0	43.0
Total Split (%)	16.7%	29.7%	29.7%	23.9%	37.0%	37.0%	15.2%	31.8%	31.8%	14.6%	31.2%	31.2%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd

#2 	#2 	#2 	#2 
Ø1	Ø2 (R)	Ø3	Ø4
20.1 s	43.9 s	33 s	41 s
#2 	#2 	#2 	#2 
Ø5	Ø6 (R)	Ø7	Ø8
21 s	43 s	23 s	51 s

HCM 7th Signalized Intersection Summary
2: Marksheffel Rd & Barnes Rd

2035 BG AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	261	378	449	445	474	221	335	183	217	610	142
Future Volume (veh/h)	163	261	378	449	445	474	221	335	183	217	610	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1767	1767	1870	1870	1870	1870
Adj Flow Rate, veh/h	172	284	0	488	484	0	233	353	0	236	642	0
Peak Hour Factor	0.95	0.92	0.95	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	9	9	2	2	2	2
Cap, veh/h	228	422		556	906		284	1820		290	1916	
Arrive On Green	0.07	0.08	0.00	0.16	0.18	0.00	0.09	0.54	0.00	0.08	0.54	0.00
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3264	3357	1585	3456	3554	1585
Grp Volume(v), veh/h	172	284	0	488	484	0	233	353	0	236	642	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1632	1678	1585	1728	1777	1585
Q Serve(g_s), s	6.8	7.5	0.0	19.0	11.9	0.0	9.7	7.4	0.0	9.3	14.0	0.0
Cycle Q Clear(g_c), s	6.8	7.5	0.0	19.0	11.9	0.0	9.7	7.4	0.0	9.3	14.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	422		556	906		284	1820		290	1916	
V/C Ratio(X)	0.75	0.67		0.88	0.53		0.82	0.19		0.81	0.34	
Avail Cap(c_a), veh/h	463	1351		714	1721		390	1820		391	1916	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.84	0.84	0.00
Uniform Delay (d), s/veh	63.3	61.5	0.0	56.6	51.6	0.0	61.9	16.2	0.0	62.2	17.9	0.0
Incr Delay (d2), s/veh	5.0	1.9	0.0	10.0	0.5	0.0	9.5	0.2	0.0	7.9	0.4	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	3.1	3.3	0.0	9.1	5.2	0.0	4.4	3.0	0.0	4.4	5.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.3	63.4	0.0	66.6	52.1	0.0	71.4	16.4	0.0	70.1	18.3	0.0
LnGrp LOS	E	E		E	D		E	B		E	B	
Approach Vol, veh/h	456			972			586			878		
Approach Delay, s/veh	65.2			59.3			38.3			32.2		
Approach LOS	E			E			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.1	79.3	26.7	15.9	16.5	78.9	13.6	29.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.6	39.4	28.5	36.5	16.5	38.5	18.5	46.5				
Max Q Clear Time (g_c+I1), s	11.3	9.4	21.0	9.5	11.7	16.0	8.8	13.9				
Green Ext Time (p_c), s	0.3	2.5	1.1	1.9	0.3	4.5	0.4	3.6				

Intersection Summary

HCM 7th Control Delay, s/veh	47.8
HCM 7th LOS	D

Notes

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	424	447	263	291	271	284	591	351	433	413	152
Future Volume (vph)	347	424	447	263	291	271	284	591	351	433	413	152
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	27.0	43.0	43.0	22.4	38.4	38.4	23.6	40.4	40.4	32.2	49.0	49.0
Total Split (%)	19.6%	31.2%	31.2%	16.2%	27.8%	27.8%	17.1%	29.3%	29.3%	23.3%	35.5%	35.5%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd

#2 	#2 	#2 	#2 
Ø1	Ø2 (R)	Ø3	Ø4
32.2 s	40.4 s	22.4 s	43 s
#2 	#2 	#2 	#2 
Ø5	Ø6 (F)	Ø7	Ø8
23.6 s	49 s	27 s	38.4 s

HCM 7th Signalized Intersection Summary
2: Marksheffel Rd & Barnes Rd

2035 BG PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	347	424	447	263	291	271	284	591	351	433	413	152
Future Volume (veh/h)	347	424	447	263	291	271	284	591	351	433	413	152
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1841	1841	1841	1870	1870	1870	1870	1870	1870	1811	1811	1811
Adj Flow Rate, veh/h	369	451	0	280	310	0	302	629	0	461	439	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	6	6	6
Cap, veh/h	428	622		336	486		359	1748		525	1874	
Arrive On Green	0.13	0.12	0.00	0.10	0.10	0.00	0.10	0.49	0.00	0.16	0.54	0.00
Sat Flow, veh/h	3401	5025	1560	3456	5106	1585	3456	3554	1585	3346	3441	1535
Grp Volume(v), veh/h	369	451	0	280	310	0	302	629	0	461	439	0
Grp Sat Flow(s),veh/h/ln	1700	1675	1560	1728	1702	1585	1728	1777	1585	1673	1721	1535
Q Serve(g_s), s	14.7	11.9	0.0	11.0	8.1	0.0	11.8	15.1	0.0	18.6	9.2	0.0
Cycle Q Clear(g_c), s	14.7	11.9	0.0	11.0	8.1	0.0	11.8	15.1	0.0	18.6	9.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	428	622		336	486		359	1748		525	1874	
V/C Ratio(X)	0.86	0.72		0.83	0.64		0.84	0.36		0.88	0.23	
Avail Cap(c_a), veh/h	555	1402		448	1254		478	1748		672	1874	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.85	0.85	0.00
Uniform Delay (d), s/veh	59.1	58.2	0.0	61.2	60.2	0.0	60.7	21.7	0.0	56.9	16.4	0.0
Incr Delay (d2), s/veh	10.6	1.6	0.0	9.8	1.4	0.0	9.8	0.6	0.0	9.2	0.2	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	7.0	5.2	0.0	5.3	3.6	0.0	5.7	6.5	0.0	8.5	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.8	59.8	0.0	71.0	61.6	0.0	70.6	22.2	0.0	66.1	16.6	0.0
LnGrp LOS	E	E		E	E		E	C		E	B	
Approach Vol, veh/h	820			590			931			900		
Approach Delay, s/veh	64.3			66.0			37.9			42.0		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.1	72.4	17.9	21.6	18.8	79.7	21.9	17.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	27.7	35.9	17.9	38.5	19.1	44.5	22.5	33.9				
Max Q Clear Time (g_c+I1), s	20.6	17.1	13.0	13.9	13.8	11.2	16.7	10.1				
Green Ext Time (p_c), s	1.0	4.2	0.4	3.2	0.5	3.2	0.7	2.1				

Intersection Summary

HCM 7th Control Delay, s/veh	50.8
HCM 7th LOS	D

Notes

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

Timings
2: Marksheffel Rd & Barnes Rd

2035 Total AM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	269	378	613	461	572	221	335	263	265	610	142
Future Volume (vph)	163	269	378	613	461	572	221	335	263	265	610	142
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.6	38.6	38.6	39.0	55.0	55.0	20.0	38.0	38.0	22.4	40.4	40.4
Total Split (%)	16.4%	28.0%	28.0%	28.3%	39.9%	39.9%	14.5%	27.5%	27.5%	16.2%	29.3%	29.3%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd

#2 	#2 	#2 	#2 
Ø1	Ø2 (R)	Ø3	Ø4
22.4 s	38 s	39 s	38.6 s
#2 	#2 	#2 	#2 
Ø5	Ø6 (R)	Ø7	Ø8
20 s	40.4 s	22.6 s	55 s

HCM 7th Signalized Intersection Summary
2: Marksheffel Rd & Barnes Rd

2035 Total AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	269	378	613	461	572	221	335	263	265	610	142
Future Volume (veh/h)	163	269	378	613	461	572	221	335	263	265	610	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1767	1767	1767	1870	1870	1870
Adj Flow Rate, veh/h	172	283	0	645	485	0	233	353	0	279	642	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	9	9	9	2	2	2
Cap, veh/h	228	419		718	1143		283	1621		335	1752	
Arrive On Green	0.07	0.08	0.00	0.21	0.22	0.00	0.09	0.48	0.00	0.10	0.49	0.00
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3264	3357	1497	3456	3554	1585
Grp Volume(v), veh/h	172	283	0	645	485	0	233	353	0	279	642	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1632	1678	1497	1728	1777	1585
Q Serve(g_s), s	6.8	7.4	0.0	25.1	11.2	0.0	9.7	8.4	0.0	10.9	15.4	0.0
Cycle Q Clear(g_c), s	6.8	7.4	0.0	25.1	11.2	0.0	9.7	8.4	0.0	10.9	15.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	419		718	1143		283	1621		335	1752	
V/C Ratio(X)	0.75	0.68		0.90	0.42		0.82	0.22		0.83	0.37	
Avail Cap(c_a), veh/h	453	1262		864	1869		367	1621		448	1752	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.82	0.82	0.00
Uniform Delay (d), s/veh	63.4	61.6	0.0	53.2	45.9	0.0	62.0	20.6	0.0	61.2	21.6	0.0
Incr Delay (d2), s/veh	5.0	1.9	0.0	10.8	0.3	0.0	11.2	0.3	0.0	8.1	0.5	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	3.1	3.3	0.0	12.0	4.8	0.0	4.5	3.4	0.0	5.2	6.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.4	63.5	0.0	64.0	46.2	0.0	73.1	20.9	0.0	69.3	22.1	0.0
LnGrp LOS	E	E		E	D		E	C		E	C	
Approach Vol, veh/h	455			1130			586			921		
Approach Delay, s/veh	65.3			56.4			41.7			36.4		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.9	71.1	33.2	15.8	16.5	72.5	13.6	35.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	17.9	33.5	34.5	34.1	15.5	35.9	18.1	50.5				
Max Q Clear Time (g_c+I1), s	12.9	10.4	27.1	9.4	11.7	17.4	8.8	13.2				
Green Ext Time (p_c), s	0.4	2.3	1.6	1.9	0.3	4.2	0.3	3.7				

Intersection Summary

HCM 7th Control Delay, s/veh	49.0
HCM 7th LOS	D

Notes

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

Timings
2: Marksheffel Rd & Barnes Rd

2035 Total PM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		  	 	
Traffic Volume (vph)	347	445	447	419	307	364	284	591	565	561	413	152
Future Volume (vph)	347	445	447	419	307	364	284	591	565	561	413	152
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	34.6	30.3	30.3	38.7	34.4	34.4	23.5	21.0	21.0	48.0	45.5	45.5
Total Split (%)	25.1%	22.0%	22.0%	28.0%	24.9%	24.9%	17.0%	15.2%	15.2%	34.8%	33.0%	33.0%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd

#2  Ø1	#2  Ø2 (R)	#2  Ø3	#2  Ø4
48 s	21 s	38.7 s	30.3 s
#2  Ø5	#2  Ø6 (R)	#2  Ø7	#2  Ø8
23.5 s	45.5 s	34.6 s	34.4 s

HCM 7th Signalized Intersection Summary
2: Marksheffel Rd & Barnes Rd

2035 Total PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	347	445	447	419	307	364	284	591	565	561	413	152
Future Volume (veh/h)	347	445	447	419	307	364	284	591	565	561	413	152
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1841	1841	1841	1870	1870	1870	1870	1870	1870	1811	1811	1811
Adj Flow Rate, veh/h	369	473	0	446	327	0	302	629	0	597	439	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	6	6	6
Cap, veh/h	437	618		521	741		359	1396		679	1693	
Arrive On Green	0.13	0.12	0.00	0.15	0.15	0.00	0.10	0.39	0.00	0.20	0.49	0.00
Sat Flow, veh/h	3401	5025	1560	3456	5106	1585	3456	3554	1585	3346	3441	1535
Grp Volume(v), veh/h	369	473	0	446	327	0	302	629	0	597	439	0
Grp Sat Flow(s),veh/h/ln	1700	1675	1560	1728	1702	1585	1728	1777	1585	1673	1721	1535
Q Serve(g_s), s	14.6	12.6	0.0	17.4	8.1	0.0	11.8	18.0	0.0	23.9	10.3	0.0
Cycle Q Clear(g_c), s	14.6	12.6	0.0	17.4	8.1	0.0	11.8	18.0	0.0	23.9	10.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	437	618		521	741		359	1396		679	1693	
V/C Ratio(X)	0.84	0.77		0.86	0.44		0.84	0.45		0.88	0.26	
Avail Cap(c_a), veh/h	742	939		856	1106		476	1396		1055	1693	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.80	0.80	0.00
Uniform Delay (d), s/veh	58.8	58.6	0.0	57.1	53.9	0.0	60.7	30.9	0.0	53.3	20.4	0.0
Incr Delay (d2), s/veh	4.5	2.1	0.0	4.8	0.4	0.0	10.0	1.1	0.0	4.5	0.3	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	6.6	5.5	0.0	7.9	3.5	0.0	5.7	8.0	0.0	10.5	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.3	60.6	0.0	61.9	54.3	0.0	70.7	32.0	0.0	57.9	20.7	0.0
LnGrp LOS	E	E		E	D		E	C		E	C	
Approach Vol, veh/h	842			773			931			1036		
Approach Delay, s/veh	61.8			58.7			44.5			42.1		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.5	58.7	25.3	21.5	18.8	72.4	22.2	24.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	43.5	16.5	34.2	25.8	19.0	41.0	30.1	29.9				
Max Q Clear Time (g_c+I1), s	25.9	20.0	19.4	14.6	13.8	12.3	16.6	10.1				
Green Ext Time (p_c), s	2.1	0.0	1.4	2.4	0.5	3.1	1.1	2.1				

Intersection Summary

HCM 7th Control Delay, s/veh 51.0
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	303	439	521	517	550	257	389	212	252	708	165
Future Volume (vph)	189	303	439	521	517	550	257	389	212	252	708	165
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	41.0	41.0	33.0	51.5	51.5	21.0	42.5	42.5	21.5	43.0	43.0
Total Split (%)	16.3%	29.7%	29.7%	23.9%	37.3%	37.3%	15.2%	30.8%	30.8%	15.6%	31.2%	31.2%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd

#2  Ø1	#2  Ø2 (R)	#2  Ø3	#2  Ø4
21.5 s	42.5 s	33 s	41 s
#2  Ø5	#2  Ø6 (R)	#2  Ø7	#2  Ø8
21 s	43 s	22.5 s	51.5 s

HCM 7th Signalized Intersection Summary
2: Marksheffel Rd & Barnes Rd

2050 BG AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	303	439	521	517	550	257	389	212	252	708	165
Future Volume (veh/h)	189	303	439	521	517	550	257	389	212	252	708	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1767	1767	1767	1870	1870	1870
Adj Flow Rate, veh/h	199	319	0	548	544	0	271	409	0	265	745	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	9	9	9	2	2	2
Cap, veh/h	255	464		612	991		321	1709		320	1789	
Arrive On Green	0.07	0.09	0.00	0.18	0.19	0.00	0.10	0.51	0.00	0.09	0.50	0.00
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3264	3357	1497	3456	3554	1585
Grp Volume(v), veh/h	199	319	0	548	544	0	271	409	0	265	745	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1632	1678	1497	1728	1777	1585
Q Serve(g_s), s	7.8	8.4	0.0	21.4	13.3	0.0	11.3	9.4	0.0	10.4	18.2	0.0
Cycle Q Clear(g_c), s	7.8	8.4	0.0	21.4	13.3	0.0	11.3	9.4	0.0	10.4	18.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	255	464		612	991		321	1709		320	1789	
V/C Ratio(X)	0.78	0.69		0.90	0.55		0.84	0.24		0.83	0.42	
Avail Cap(c_a), veh/h	451	1351		714	1739		390	1709		426	1789	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.75	0.75	0.00
Uniform Delay (d), s/veh	62.8	60.8	0.0	55.5	50.2	0.0	61.2	18.9	0.0	61.5	21.5	0.0
Incr Delay (d2), s/veh	5.1	1.8	0.0	12.7	0.5	0.0	13.4	0.3	0.0	7.6	0.5	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	3.6	3.7	0.0	10.4	5.7	0.0	5.3	3.8	0.0	4.9	7.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.9	62.6	0.0	68.2	50.6	0.0	74.5	19.3	0.0	69.1	22.1	0.0
LnGrp LOS	E	E		E	D		E	B		E	C	
Approach Vol, veh/h	518			1092			680			1010		
Approach Delay, s/veh	64.7			59.5			41.3			34.4		
Approach LOS	E			E			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.3	74.7	28.9	17.0	18.1	74.0	14.7	31.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	17.0	38.0	28.5	36.5	16.5	38.5	18.0	47.0				
Max Q Clear Time (g_c+I1), s	12.4	11.4	23.4	10.4	13.3	20.2	9.8	15.3				
Green Ext Time (p_c), s	0.4	2.8	1.0	2.2	0.3	5.0	0.4	4.1				

Intersection Summary

HCM 7th Control Delay, s/veh	48.9
HCM 7th LOS	D

Notes

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	403	492	519	305	338	315	330	686	408	503	479	176
Future Volume (vph)	403	492	519	305	338	315	330	686	408	503	479	176
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	29.9	42.0	42.0	22.0	34.1	34.1	25.6	42.0	42.0	32.0	48.4	48.4
Total Split (%)	21.7%	30.4%	30.4%	15.9%	24.7%	24.7%	18.6%	30.4%	30.4%	23.2%	35.1%	35.1%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd

#2 	#2 	#2 	#2 
Ø1	Ø2 (R)	Ø3	Ø4
32 s	42 s	22 s	42 s
#2 	#2 	#2 	#2 
Ø5	Ø6 (R)	Ø7	Ø8
25.6 s	48.4 s	29.9 s	34.1 s

HCM 7th Signalized Intersection Summary
2: Marksheffel Rd & Barnes Rd

2050 BG PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	403	492	519	305	338	315	330	686	408	503	479	176
Future Volume (veh/h)	403	492	519	305	338	315	330	686	408	503	479	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1841	1841	1841	1870	1870	1870	1870	1870	1870	1811	1811	1811
Adj Flow Rate, veh/h	429	523	0	324	360	0	351	730	0	535	510	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	6	6	6
Cap, veh/h	491	706		377	536		410	1574		592	1726	
Arrive On Green	0.14	0.14	0.00	0.11	0.11	0.00	0.12	0.44	0.00	0.18	0.50	0.00
Sat Flow, veh/h	3401	5025	1560	3456	5106	1585	3456	3554	1585	3346	3441	1535
Grp Volume(v), veh/h	429	523	0	324	360	0	351	730	0	535	510	0
Grp Sat Flow(s),veh/h/ln	1700	1675	1560	1728	1702	1585	1728	1777	1585	1673	1721	1535
Q Serve(g_s), s	17.0	13.8	0.0	12.7	9.4	0.0	13.8	19.9	0.0	21.6	12.0	0.0
Cycle Q Clear(g_c), s	17.0	13.8	0.0	12.7	9.4	0.0	13.8	19.9	0.0	21.6	12.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	491	706		377	536		410	1574		592	1726	
V/C Ratio(X)	0.87	0.74		0.86	0.67		0.86	0.46		0.90	0.30	
Avail Cap(c_a), veh/h	626	1366		438	1095		528	1574		667	1726	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	57.8	56.9	0.0	60.4	59.5	0.0	59.7	26.9	0.0	55.6	20.1	0.0
Incr Delay (d2), s/veh	10.8	1.6	0.0	14.1	1.5	0.0	10.7	1.0	0.0	11.8	0.3	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	8.1	6.0	0.0	6.3	4.1	0.0	6.6	8.7	0.0	10.1	4.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.6	58.5	0.0	74.6	60.9	0.0	70.3	27.9	0.0	67.5	20.5	0.0
LnGrp LOS	E	E		E	E		E	C		E	C	
Approach Vol, veh/h	952			684			1081			1045		
Approach Delay, s/veh	63.0			67.4			41.7			44.5		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.9	65.6	19.5	23.9	20.9	73.7	24.4	19.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	27.5	37.5	17.5	37.5	21.1	43.9	25.4	29.6				
Max Q Clear Time (g_c+I1), s	23.6	21.9	14.7	15.8	15.8	14.0	19.0	11.4				
Green Ext Time (p_c), s	0.8	4.6	0.3	3.6	0.6	3.7	0.9	2.2				

Intersection Summary

HCM 7th Control Delay, s/veh 52.5
HCM 7th LOS D

Notes

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

Timings
2: Marksheffel Rd & Barnes Rd

2050 Total AM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (vph)	190	315	440	685	535	650	260	390	295	300	710	165
Future Volume (vph)	190	315	440	685	535	650	260	390	295	300	710	165
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	39.4	39.4	38.1	55.0	55.0	20.0	36.4	36.4	24.1	40.5	40.5
Total Split (%)	16.3%	28.6%	28.6%	27.6%	39.9%	39.9%	14.5%	26.4%	26.4%	17.5%	29.3%	29.3%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
24.1 s	36.4 s	38.1 s	39.4 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
20 s	40.5 s	22.5 s	55 s

HCM 7th Signalized Intersection Summary
2: Marksheffel Rd & Barnes Rd

2050 Total AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	315	440	685	535	650	260	390	295	300	710	165
Future Volume (veh/h)	190	315	440	685	535	650	260	390	295	300	710	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1767	1767	1767	1870	1870	1870
Adj Flow Rate, veh/h	200	332	0	721	563	0	274	411	0	316	747	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	9	9	9	2	2	2
Cap, veh/h	256	479		781	1254		322	1482		373	1603	
Arrive On Green	0.07	0.09	0.00	0.23	0.25	0.00	0.10	0.44	0.00	0.11	0.45	0.00
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3264	3357	1497	3456	3554	1585
Grp Volume(v), veh/h	200	332	0	721	563	0	274	411	0	316	747	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1632	1678	1497	1728	1777	1585
Q Serve(g_s), s	7.8	8.7	0.0	28.2	12.9	0.0	11.4	10.8	0.0	12.4	20.2	0.0
Cycle Q Clear(g_c), s	7.8	8.7	0.0	28.2	12.9	0.0	11.4	10.8	0.0	12.4	20.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	256	479		781	1254		322	1482		373	1603	
V/C Ratio(X)	0.78	0.69		0.92	0.45		0.85	0.28		0.85	0.47	
Avail Cap(c_a), veh/h	451	1291		841	1869		367	1482		491	1603	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.72	0.72	0.00
Uniform Delay (d), s/veh	62.8	60.6	0.0	52.2	44.1	0.0	61.2	24.5	0.0	60.4	26.3	0.0
Incr Delay (d2), s/veh	5.1	1.8	0.0	14.9	0.3	0.0	15.7	0.5	0.0	7.6	0.7	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	3.6	3.8	0.0	13.8	5.5	0.0	5.4	4.4	0.0	5.8	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.9	62.4	0.0	67.1	44.4	0.0	76.9	25.0	0.0	68.0	27.0	0.0
LnGrp LOS	E	E		E	D		E	C		E	C	
Approach Vol, veh/h	532			1284			685			1063		
Approach Delay, s/veh	64.5			57.2			45.7			39.2		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.4	65.4	35.7	17.4	18.1	66.8	14.7	38.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.6	31.9	33.6	34.9	15.5	36.0	18.0	50.5				
Max Q Clear Time (g_c+I1), s	14.4	12.8	30.2	10.7	13.4	22.2	9.8	14.9				
Green Ext Time (p_c), s	0.5	2.6	1.1	2.2	0.2	4.4	0.4	4.3				

Intersection Summary

HCM 7th Control Delay, s/veh 50.7
HCM 7th LOS D

Notes

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

Timings
2: Marksheffel Rd & Barnes Rd

2050 Total PM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	405	515	520	465	355	410	330	690	625	635	480	180
Future Volume (vph)	405	515	520	465	355	410	330	690	625	635	480	180
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	32.2	32.0	32.0	32.0	31.8	31.8	25.6	33.0	33.0	41.0	48.4	48.4
Total Split (%)	23.3%	23.2%	23.2%	23.2%	23.0%	23.0%	18.6%	23.9%	23.9%	29.7%	35.1%	35.1%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 2: Marksheffel Rd & Barnes Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
41 s	33 s	32 s	32 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
25.6 s	48.4 s	32.2 s	31.8 s

HCM 7th Signalized Intersection Summary
2: Marksheffel Rd & Barnes Rd

2050 Total PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	515	520	465	355	410	330	690	625	635	480	180
Future Volume (veh/h)	405	515	520	465	355	410	330	690	625	635	480	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1841	1841	1841	1870	1870	1870	1870	1870	1870	1811	1811	1811
Adj Flow Rate, veh/h	431	548	0	495	378	0	351	734	0	676	511	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	6	6	6
Cap, veh/h	497	703		560	796		410	1223		747	1545	
Arrive On Green	0.15	0.14	0.00	0.16	0.16	0.00	0.12	0.34	0.00	0.22	0.45	0.00
Sat Flow, veh/h	3401	5025	1560	3456	5106	1585	3456	3554	1585	3346	3441	1535
Grp Volume(v), veh/h	431	548	0	495	378	0	351	734	0	676	511	0
Grp Sat Flow(s),veh/h/ln	1700	1675	1560	1728	1702	1585	1728	1777	1585	1673	1721	1535
Q Serve(g_s), s	17.1	14.5	0.0	19.3	9.3	0.0	13.8	23.6	0.0	27.1	13.3	0.0
Cycle Q Clear(g_c), s	17.1	14.5	0.0	19.3	9.3	0.0	13.8	23.6	0.0	27.1	13.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	497	703		560	796		410	1223		747	1545	
V/C Ratio(X)	0.87	0.78		0.88	0.48		0.86	0.60		0.90	0.33	
Avail Cap(c_a), veh/h	683	1001		689	1010		528	1223		885	1545	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.70	0.70	0.00
Uniform Delay (d), s/veh	57.6	57.3	0.0	56.5	53.1	0.0	59.7	37.4	0.0	52.2	24.6	0.0
Incr Delay (d2), s/veh	8.7	2.6	0.0	11.2	0.4	0.0	10.7	2.2	0.0	8.4	0.4	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	8.0	6.3	0.0	9.3	4.0	0.0	6.6	10.7	0.0	12.3	5.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.3	59.8	0.0	67.8	53.5	0.0	70.3	39.6	0.0	60.6	25.0	0.0
LnGrp LOS	E	E		E	D		E	D		E	C	
Approach Vol, veh/h	979			873			1085			1187		
Approach Delay, s/veh	62.7			61.6			49.5			45.3		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.3	52.0	26.9	23.8	20.9	66.5	24.7	26.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	36.5	28.5	27.5	27.5	21.1	43.9	27.7	27.3				
Max Q Clear Time (g_c+I1), s	29.1	25.6	21.3	16.5	15.8	15.3	19.1	11.3				
Green Ext Time (p_c), s	1.7	1.4	1.0	2.8	0.6	3.7	1.1	2.2				

Intersection Summary

HCM 7th Control Delay, s/veh	54.0
HCM 7th LOS	D

Notes

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

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	98	449	320	721	1260	108
Future Volume (vph)	98	449	320	721	1260	108
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				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)	44.0	44.0	25.0	94.0	69.0	69.0
Total Split (%)	31.9%	31.9%	18.1%	68.1%	50.0%	50.0%
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: 138
 Actuated Cycle Length: 138
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir



						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	98	449	320	721	1260	108
Future Volume (veh/h)	98	449	320	721	1260	108
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	1826	1826	1796	1796	1870	1870
Adj Flow Rate, veh/h	102	0	333	751	1312	113
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	7	7	2	2
Cap, veh/h	126		388	2942	2532	1129
Arrive On Green	0.07	0.00	0.12	0.86	0.71	0.71
Sat Flow, veh/h	1739	1547	3319	3503	3647	1585
Grp Volume(v), veh/h	102	0	333	751	1312	113
Grp Sat Flow(s),veh/h/ln	1739	1547	1659	1706	1777	1585
Q Serve(g_s), s	8.0	0.0	13.6	5.4	23.2	3.0
Cycle Q Clear(g_c), s	8.0	0.0	13.6	5.4	23.2	3.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	126		388	2942	2532	1129
V/C Ratio(X)	0.81		0.86	0.26	0.52	0.10
Avail Cap(c_a), veh/h	498		493	2942	2532	1129
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.0	0.0	59.8	1.7	9.0	6.1
Incr Delay (d2), s/veh	11.4	0.0	11.7	0.2	0.8	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	3.9	0.0	6.4	1.2	8.7	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	74.4	0.0	71.5	1.9	9.8	6.3
LnGrp LOS	E		E	A	A	A
Approach Vol, veh/h	102			1084	1425	
Approach Delay, s/veh	74.4			23.3	9.5	
Approach LOS	E			C	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	123.5			14.5	20.6	102.8
Change Period (Y+Rc), s	4.5			4.5	4.5	4.5
Max Green Setting (Gmax), s	89.5			39.5	20.5	64.5
Max Q Clear Time (g_c+I1), s	7.4			10.0	15.6	25.2
Green Ext Time (p_c), s	6.5			0.3	0.5	14.2
Intersection Summary						
HCM 7th Control Delay, s/veh			17.8			
HCM 7th LOS			B			
Notes						
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.						

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	101	309	520	1320	739	122
Future Volume (vph)	101	309	520	1320	739	122
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				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)	37.0	37.0	42.0	101.0	59.0	59.0
Total Split (%)	26.8%	26.8%	30.4%	73.2%	42.8%	42.8%
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: 138
 Actuated Cycle Length: 138
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir



HCM 7th Signalized Intersection Summary
3: Marksheffel Rd & Carefree Cir

2026 Ex PM
08/31/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	309	520	1320	739	122
Future Volume (veh/h)	101	309	520	1320	739	122
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	1811	1811
Adj Flow Rate, veh/h	111	0	571	1451	812	134
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	6	6
Cap, veh/h	137		651	3050	2192	978
Arrive On Green	0.08	0.00	0.19	0.86	0.64	0.64
Sat Flow, veh/h	1781	1585	3456	3647	3532	1535
Grp Volume(v), veh/h	111	0	571	1451	812	134
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1721	1535
Q Serve(g_s), s	8.5	0.0	22.2	13.5	15.5	4.8
Cycle Q Clear(g_c), s	8.5	0.0	22.2	13.5	15.5	4.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	137		651	3050	2192	978
V/C Ratio(X)	0.81		0.88	0.48	0.37	0.14
Avail Cap(c_a), veh/h	420		939	3050	2192	978
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.7	0.0	54.4	2.3	11.9	10.0
Incr Delay (d2), s/veh	11.0	0.0	6.8	0.5	0.5	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	10.3	3.4	6.0	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	73.7	0.0	61.2	2.9	12.4	10.2
LnGrp LOS	E		E	A	B	B
Approach Vol, veh/h	111			2022	946	
Approach Delay, s/veh	73.7			19.4	12.1	
Approach LOS	E			B	B	
Timer - Assigned Phs	2		4		5	6
Phs Duration (G+Y+Rc), s	122.9		15.1		30.5	92.4
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5
Max Green Setting (Gmax), s	96.5		32.5		37.5	54.5
Max Q Clear Time (g_c+l1), s	15.5		10.5		24.2	17.5
Green Ext Time (p_c), s	18.6		0.3		1.8	7.4
Intersection Summary						
HCM 7th Control Delay, s/veh			19.1			
HCM 7th LOS			B			
Notes						
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.						

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations										
Traffic Volume (vph)	38	150	391	248	250	103	205	568	109	94
Future Volume (vph)	38	150	391	248	250	103	205	568	109	94
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	7	4		3	8		5	2		1
Permitted Phases			4			8			2	
Detector Phase	7	4	4	3	8	8	5	2	2	1
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	9.5	22.5	22.5	9.5	22.5	22.5	9.5
Total Split (s)	22.5	39.0	39.0	19.0	35.5	35.5	18.0	66.0	66.0	14.0
Total Split (%)	16.3%	28.3%	28.3%	13.8%	25.7%	25.7%	13.0%	47.8%	47.8%	10.1%
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	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None

Intersection Summary

Cycle Length: 138

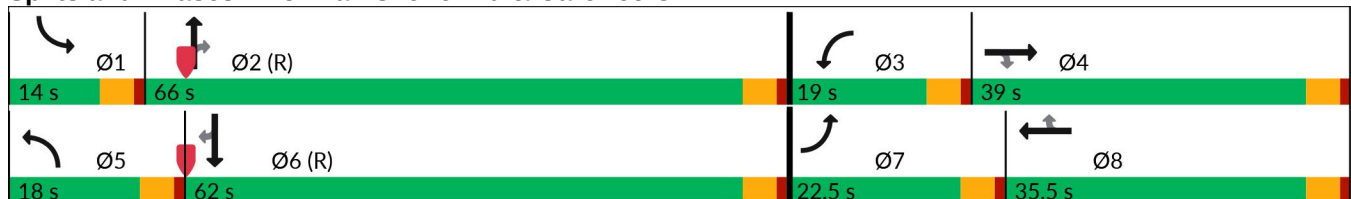
Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir





Lane Group	SBT	SBR
Lane Configurations	↑↑	↗
Traffic Volume (vph)	1225	83
Future Volume (vph)	1225	83
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Detector Phase	6	6
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	22.5	22.5
Total Split (s)	62.0	62.0
Total Split (%)	44.9%	44.9%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.5	4.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	C-Max	C-Max

Intersection Summary

										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations										
Traffic Volume (veh/h)	38	150	391	248	250	103	205	568	109	94
Future Volume (veh/h)	38	150	391	248	250	103	205	568	109	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No			No			No			
Adj Sat Flow, veh/h/ln	1826	1870	1826	1870	1870	1870	1796	1796	1870	1870
Adj Flow Rate, veh/h	40	163	0	270	272	0	214	592	0	102
Peak Hour Factor	0.96	0.92	0.96	0.92	0.92	0.92	0.96	0.96	0.92	0.92
Percent Heavy Veh, %	5	2	5	2	2	2	7	7	2	2
Cap, veh/h	122	236		320	437		263	2277		149
Arrive On Green	0.04	0.07	0.00	0.09	0.12	0.00	0.08	0.67	0.00	0.04
Sat Flow, veh/h	3374	3554	1547	3456	3554	1585	3319	3413	1585	3456
Grp Volume(v), veh/h	40	163	0	270	272	0	214	592	0	102
Grp Sat Flow(s),veh/h/ln	1687	1777	1547	1728	1777	1585	1659	1706	1585	1728
Q Serve(g_s), s	1.6	6.2	0.0	10.6	10.0	0.0	8.8	9.6	0.0	4.0
Cycle Q Clear(g_c), s	1.6	6.2	0.0	10.6	10.0	0.0	8.8	9.6	0.0	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	122	236		320	437		263	2277		149
V/C Ratio(X)	0.33	0.69		0.84	0.62		0.81	0.26		0.68
Avail Cap(c_a), veh/h	440	888		363	798		325	2277		238
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.9	63.0	0.0	61.6	57.5	0.0	62.5	9.3	0.0	65.1
Incr Delay (d2), s/veh	1.5	3.6	0.0	14.9	1.5	0.0	12.1	0.3	0.0	5.4
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
%ile BackOfQ(50%),veh/ln	0.7	2.9	0.0	5.3	4.6	0.0	4.1	3.6	0.0	1.9
Unsig. Movement Delay, s/veh										
LnGrp Delay(d), s/veh	66.4	66.6	0.0	76.5	58.9	0.0	74.7	9.5	0.0	70.5
LnGrp LOS	E	E		E	E		E	A		E
Approach Vol, veh/h	203			542			806			
Approach Delay, s/veh	66.6			67.7			26.8			
Approach LOS	E			E			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8		
Phs Duration (G+Y+Rc), s	10.5	96.6	17.3	13.7	15.4	91.6	9.5	21.5		
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		
Max Green Setting (Gmax), s	9.5	61.5	14.5	34.5	13.5	57.5	18.0	31.0		
Max Q Clear Time (g_c+I1), s	6.0	11.6	12.6	8.2	10.8	30.5	3.6	12.0		
Green Ext Time (p_c), s	0.1	4.7	0.2	1.0	0.2	11.3	0.1	1.6		

Intersection Summary

HCM 7th Control Delay, s/veh	33.8
HCM 7th LOS	C

Notes

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

		
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1225	83
Future Volume (veh/h)	1225	83
Initial Q (Qb), veh	0	0
Lane Width Adj.	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1870	1870
Adj Flow Rate, veh/h	1276	0
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	2243	
Arrive On Green	0.63	0.00
Sat Flow, veh/h	3554	1585
Grp Volume(v), veh/h	1276	0
Grp Sat Flow(s),veh/h/ln	1777	1585
Q Serve(g_s), s	28.5	0.0
Cycle Q Clear(g_c), s	28.5	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	2243	
V/C Ratio(X)	0.57	
Avail Cap(c_a), veh/h	2243	
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	14.7	0.0
Incr Delay (d2), s/veh	1.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	0.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d), s/veh	15.7	0.0
LnGrp LOS	B	
Approach Vol, veh/h	1378	
Approach Delay, s/veh	19.8	
Approach LOS	B	
Timer - Assigned Phs		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	250	133	159	150	70	392	1266	232	166	621	127
Future Volume (vph)	47	250	133	159	150	70	392	1266	232	166	621	127
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.9	22.5	22.5	16.0	28.6	28.6	29.7	82.5	82.5	17.0	69.8	69.8
Total Split (%)	7.2%	16.3%	16.3%	11.6%	20.7%	20.7%	21.5%	59.8%	59.8%	12.3%	50.6%	50.6%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir

#3  Ø1	#3  Ø2 (R)	#3  Ø3	#3  Ø4
17 s	82.5 s	16 s	22.5 s
#3  Ø5	#3  Ø6 (R)	#3  Ø7	#3  Ø8
29.7 s	69.8 s	9.9 s	28.6 s

HCM 7th Signalized Intersection Summary
3: Marksheffel Rd & Carefree Cir

2035 BG PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	250	133	159	150	70	392	1266	232	166	621	127
Future Volume (veh/h)	47	250	133	159	150	70	392	1266	232	166	621	127
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1811	1811	1811
Adj Flow Rate, veh/h	52	275	0	175	165	0	431	1391	0	182	682	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	6	6	6
Cap, veh/h	125	341		225	444		494	2272		231	1946	
Arrive On Green	0.04	0.10	0.00	0.07	0.12	0.00	0.14	0.64	0.00	0.07	0.57	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3346	3441	1535
Grp Volume(v), veh/h	52	275	0	175	165	0	431	1391	0	182	682	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1673	1721	1535
Q Serve(g_s), s	2.0	10.5	0.0	6.9	5.9	0.0	16.9	32.0	0.0	7.4	14.8	0.0
Cycle Q Clear(g_c), s	2.0	10.5	0.0	6.9	5.9	0.0	16.9	32.0	0.0	7.4	14.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	341		225	444		494	2272		231	1946	
V/C Ratio(X)	0.42	0.81		0.78	0.37		0.87	0.61		0.79	0.35	
Avail Cap(c_a), veh/h	135	464		288	621		631	2272		303	1946	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.1	61.1	0.0	63.5	55.4	0.0	57.9	14.7	0.0	63.2	16.3	0.0
Incr Delay (d2), s/veh	2.2	7.4	0.0	9.7	0.5	0.0	10.5	1.2	0.0	9.7	0.5	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	0.9	5.1	0.0	3.3	2.7	0.0	8.1	12.9	0.0	3.5	6.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.3	68.5	0.0	73.2	55.9	0.0	68.4	16.0	0.0	73.0	16.7	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	327			340			1822			864		
Approach Delay, s/veh	68.3			64.8			28.4			28.6		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	92.7	13.5	17.7	24.2	82.5	9.5	21.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	78.0	11.5	18.0	25.2	65.3	5.4	24.1				
Max Q Clear Time (g_c+I1), s	9.4	34.0	8.9	12.5	18.9	16.8	4.0	7.9				
Green Ext Time (p_c), s	0.2	15.3	0.1	0.8	0.9	5.6	0.0	0.8				

Intersection Summary

HCM 7th Control Delay, s/veh	36.0
HCM 7th LOS	D

Notes

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

Timings
3: Marksheffel Rd & Carefree Cir

2035 Total AM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	150	391	248	250	103	205	648	109	94	1389	83
Future Volume (vph)	38	150	391	248	250	103	205	648	109	94	1389	83
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	25.8	40.2	40.2	27.0	41.4	41.4	23.0	58.0	58.0	12.8	47.8	47.8
Total Split (%)	18.7%	29.1%	29.1%	19.6%	30.0%	30.0%	16.7%	42.0%	42.0%	9.3%	34.6%	34.6%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir

 Ø1	 Ø2 (R)	 Ø3	 Ø4
12.8 s	58 s	27 s	40.2 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
23 s	47.8 s	25.8 s	41.4 s

HCM 7th Signalized Intersection Summary
3: Marksheffel Rd & Carefree Cir

2035 Total AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (veh/h)	38	150	391	248	250	103	205	648	109	94	1389	83
Future Volume (veh/h)	38	150	391	248	250	103	205	648	109	94	1389	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1796	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	40	156	0	258	260	0	214	675	0	98	1447	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	2	2	2	7	7	7	2	2	2
Cap, veh/h	122	227		319	432		268	2287		145	2242	
Arrive On Green	0.04	0.07	0.00	0.09	0.12	0.00	0.08	0.67	0.00	0.04	0.63	0.00
Sat Flow, veh/h	3374	3469	1547	3456	3554	1585	3319	3413	1522	3456	3554	1585
Grp Volume(v), veh/h	40	156	0	258	260	0	214	675	0	98	1447	0
Grp Sat Flow(s),veh/h/ln	1687	1735	1547	1728	1777	1585	1659	1706	1522	1728	1777	1585
Q Serve(g_s), s	1.6	6.1	0.0	10.1	9.6	0.0	8.7	11.2	0.0	3.9	35.0	0.0
Cycle Q Clear(g_c), s	1.6	6.1	0.0	10.1	9.6	0.0	8.7	11.2	0.0	3.9	35.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	227		319	432		268	2287		145	2242	
V/C Ratio(X)	0.33	0.69		0.81	0.60		0.80	0.30		0.68	0.65	
Avail Cap(c_a), veh/h	521	897		563	950		445	2287		208	2242	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	64.9	63.1	0.0	61.4	57.5	0.0	62.3	9.4	0.0	65.2	15.8	0.0
Incr Delay (d2), s/veh	1.5	3.7	0.0	4.9	1.4	0.0	5.4	0.3	0.0	5.5	1.4	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	0.7	2.8	0.0	4.7	4.4	0.0	3.9	4.2	0.0	1.8	14.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.4	66.8	0.0	66.3	58.8	0.0	67.7	9.7	0.0	70.7	17.3	0.0
LnGrp LOS	E	E		E	E		E	A		E	B	
Approach Vol, veh/h	196			518			889			1545		
Approach Delay, s/veh	66.7			62.6			23.7			20.7		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	97.0	17.2	13.5	15.7	91.6	9.5	21.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.3	53.5	22.5	35.7	18.5	43.3	21.3	36.9				
Max Q Clear Time (g_c+I1), s	5.9	13.2	12.1	8.1	10.7	37.0	3.6	11.6				
Green Ext Time (p_c), s	0.1	5.5	0.6	1.0	0.4	4.7	0.1	1.7				

Intersection Summary

HCM 7th Control Delay, s/veh	31.3
HCM 7th LOS	C

Notes

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

Timings
3: Marksheffel Rd & Carefree Cir

2035 Total PM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	250	133	159	150	70	392	1480	232	166	777	127
Future Volume (vph)	47	250	133	159	150	70	392	1480	232	166	777	127
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.9	22.5	22.5	14.2	26.8	26.8	29.7	86.3	86.3	15.0	71.6	71.6
Total Split (%)	7.2%	16.3%	16.3%	10.3%	19.4%	19.4%	21.5%	62.5%	62.5%	10.9%	51.9%	51.9%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir

#3 Ø1	#3 Ø2 (R)	#3 Ø3	#3 Ø4
15 s	86.3 s	14.2 s	22.5 s
#3 Ø5	#3 Ø6 (R)	#3 Ø7	#3 Ø8
29.7 s	71.6 s	9.9 s	26.8 s

HCM 7th Signalized Intersection Summary
3: Marksheffel Rd & Carefree Cir

2035 Total PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (veh/h)	47	250	133	159	150	70	392	1480	232	166	777	127
Future Volume (veh/h)	47	250	133	159	150	70	392	1480	232	166	777	127
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1811	1811	1811
Adj Flow Rate, veh/h	52	275	0	175	165	0	431	1626	0	182	854	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	6	6	6
Cap, veh/h	125	341		223	442		494	2277		229	1948	
Arrive On Green	0.04	0.10	0.00	0.06	0.12	0.00	0.14	0.64	0.00	0.07	0.57	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3346	3441	1535
Grp Volume(v), veh/h	52	275	0	175	165	0	431	1626	0	182	854	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1673	1721	1535
Q Serve(g_s), s	2.0	10.5	0.0	6.9	5.9	0.0	16.9	41.8	0.0	7.4	19.8	0.0
Cycle Q Clear(g_c), s	2.0	10.5	0.0	6.9	5.9	0.0	16.9	41.8	0.0	7.4	19.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	341		223	442		494	2277		229	1948	
V/C Ratio(X)	0.42	0.81		0.78	0.37		0.87	0.71		0.79	0.44	
Avail Cap(c_a), veh/h	135	464		243	574		631	2277		255	1948	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.1	61.1	0.0	63.6	55.5	0.0	57.9	16.4	0.0	63.3	17.3	0.0
Incr Delay (d2), s/veh	2.2	7.4	0.0	14.3	0.5	0.0	10.5	1.9	0.0	14.5	0.7	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	0.9	5.1	0.0	3.5	2.7	0.0	8.1	16.9	0.0	3.6	8.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.3	68.5	0.0	77.9	56.0	0.0	68.4	18.4	0.0	77.8	18.0	0.0
LnGrp LOS	E	E		E	E		E	B		E	B	
Approach Vol, veh/h	327			340			2057			1036		
Approach Delay, s/veh	68.3			67.3			28.9			28.5		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.9	92.9	13.4	17.7	24.2	82.6	9.5	21.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	81.8	9.7	18.0	25.2	67.1	5.4	22.3				
Max Q Clear Time (g_c+I1), s	9.4	43.8	8.9	12.5	18.9	21.8	4.0	7.9				
Green Ext Time (p_c), s	0.1	18.5	0.0	0.8	0.9	7.5	0.0	0.8				

Intersection Summary

HCM 7th Control Delay, s/veh 35.7
HCM 7th LOS D

Notes

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	174	454	288	290	120	238	659	127	109	1422	96
Future Volume (vph)	44	174	454	288	290	120	238	659	127	109	1422	96
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.8	34.5	34.5	19.0	43.7	43.7	18.0	73.1	73.1	11.4	66.5	66.5
Total Split (%)	7.1%	25.0%	25.0%	13.8%	31.7%	31.7%	13.0%	53.0%	53.0%	8.3%	48.2%	48.2%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir

#3 	#3 	#3 	#3 
Ø1	Ø2 (R)	Ø3	Ø4
11.4 s	73.1 s	19 s	34.5 s
#3 	#3 	#3 	#3 
Ø5	Ø6 (R)	Ø7	Ø8
18 s	66.5 s	9.8 s	43.7 s

HCM 7th Signalized Intersection Summary
3: Marksheffel Rd & Carefree Cir

2050 BG AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	174	454	288	290	120	238	659	127	109	1422	96
Future Volume (veh/h)	44	174	454	288	290	120	238	659	127	109	1422	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1796	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	46	181	0	300	302	0	248	686	0	114	1481	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	2	2	2	7	7	7	2	2	2
Cap, veh/h	122	253		348	488		295	2217		161	2157	
Arrive On Green	0.04	0.07	0.00	0.10	0.14	0.00	0.09	0.65	0.00	0.05	0.61	0.00
Sat Flow, veh/h	3374	3469	1547	3456	3554	1585	3319	3413	1522	3456	3554	1585
Grp Volume(v), veh/h	46	181	0	300	302	0	248	686	0	114	1481	0
Grp Sat Flow(s),veh/h/ln	1687	1735	1547	1728	1777	1585	1659	1706	1522	1728	1777	1585
Q Serve(g_s), s	1.8	7.0	0.0	11.8	11.1	0.0	10.2	12.2	0.0	4.5	38.7	0.0
Cycle Q Clear(g_c), s	1.8	7.0	0.0	11.8	11.1	0.0	10.2	12.2	0.0	4.5	38.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	253		348	488		295	2217		161	2157	
V/C Ratio(X)	0.38	0.72		0.86	0.62		0.84	0.31		0.71	0.69	
Avail Cap(c_a), veh/h	130	754		363	1009		325	2217		173	2157	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.0	62.6	0.0	61.1	56.1	0.0	61.9	10.6	0.0	64.9	18.3	0.0
Incr Delay (d2), s/veh	1.9	3.7	0.0	18.3	1.3	0.0	16.4	0.4	0.0	11.7	1.8	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	0.8	3.2	0.0	6.1	5.1	0.0	5.0	4.6	0.0	2.2	16.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.9	66.3	0.0	79.4	57.4	0.0	78.3	11.0	0.0	76.6	20.1	0.0
LnGrp LOS	E	E		E	E		E	B		E	C	
Approach Vol, veh/h	227			602			934			1595		
Approach Delay, s/veh	66.4			68.4			28.9			24.1		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	94.1	18.4	14.6	16.8	88.3	9.5	23.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.9	68.6	14.5	30.0	13.5	62.0	5.3	39.2				
Max Q Clear Time (g_c+l1), s	6.5	14.2	13.8	9.0	12.2	40.7	3.8	13.1				
Green Ext Time (p_c), s	0.0	5.7	0.1	1.0	0.1	12.0	0.0	2.0				

Intersection Summary

HCM 7th Control Delay, s/veh 36.2
HCM 7th LOS D

Notes

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	290	154	185	174	81	455	1470	269	193	721	147
Future Volume (vph)	55	290	154	185	174	81	455	1470	269	193	721	147
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	10.2	23.0	23.0	17.0	29.8	29.8	33.0	80.0	80.0	18.0	65.0	65.0
Total Split (%)	7.4%	16.7%	16.7%	12.3%	21.6%	21.6%	23.9%	58.0%	58.0%	13.0%	47.1%	47.1%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir

#3 Ø1	#3 Ø2 (R)	#3 Ø3	#3 Ø4
18 s	80 s	17 s	23 s
#3 Ø5	#3 Ø6 (R)	#3 Ø7	#3 Ø8
33 s	65 s	10.2 s	29.8 s

HCM 7th Signalized Intersection Summary
3: Marksheffel Rd & Carefree Cir

2050 BG PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	290	154	185	174	81	455	1470	269	193	721	147
Future Volume (veh/h)	55	290	154	185	174	81	455	1470	269	193	721	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1811	1811	1811
Adj Flow Rate, veh/h	60	319	0	203	191	0	500	1615	0	212	792	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	6	6	6
Cap, veh/h	125	384		254	516		567	2168		262	1803	
Arrive On Green	0.04	0.11	0.00	0.07	0.15	0.00	0.16	0.61	0.00	0.08	0.52	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3346	3441	1535
Grp Volume(v), veh/h	60	319	0	203	191	0	500	1615	0	212	792	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1673	1721	1535
Q Serve(g_s), s	2.4	12.1	0.0	8.0	6.7	0.0	19.5	44.8	0.0	8.6	19.6	0.0
Cycle Q Clear(g_c), s	2.4	12.1	0.0	8.0	6.7	0.0	19.5	44.8	0.0	8.6	19.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	384		254	516		567	2168		262	1803	
V/C Ratio(X)	0.48	0.83		0.80	0.37		0.88	0.75		0.81	0.44	
Avail Cap(c_a), veh/h	143	476		313	652		714	2168		327	1803	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.2	60.3	0.0	62.9	53.3	0.0	56.4	19.2	0.0	62.6	20.3	0.0
Incr Delay (d2), s/veh	2.8	9.9	0.0	11.3	0.4	0.0	10.5	2.4	0.0	11.6	0.8	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	1.1	6.0	0.0	3.9	3.0	0.0	9.3	18.6	0.0	4.1	8.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.0	70.2	0.0	74.3	53.7	0.0	66.8	21.6	0.0	74.2	21.1	0.0
LnGrp LOS	E	E		E	D		E	C		E	C	
Approach Vol, veh/h	379			394			2115			1004		
Approach Delay, s/veh	69.9			64.3			32.3			32.3		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	88.7	14.6	19.4	27.1	76.8	9.5	24.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.5	75.5	12.5	18.5	28.5	60.5	5.7	25.3				
Max Q Clear Time (g_c+I1), s	10.6	46.8	10.0	14.1	21.5	21.6	4.4	8.7				
Green Ext Time (p_c), s	0.2	15.8	0.2	0.8	1.1	6.6	0.0	1.0				

Intersection Summary

HCM 7th Control Delay, s/veh 39.2
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

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

Timings
3: Marksheffel Rd & Carefree Cir

2050 Total AM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	175	455	290	290	120	240	740	130	110	1590	100
Future Volume (vph)	45	175	455	290	290	120	240	740	130	110	1590	100
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.8	31.7	31.7	19.0	40.9	40.9	18.0	75.8	75.8	11.5	69.3	69.3
Total Split (%)	7.1%	23.0%	23.0%	13.8%	29.6%	29.6%	13.0%	54.9%	54.9%	8.3%	50.2%	50.2%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir

				
Ø1	Ø2 (R)		Ø3	Ø4
11.5 s	75.8 s		19 s	31.7 s
				
Ø5	Ø6 (R)		Ø7	Ø8
18 s	69.3 s		9.8 s	40.9 s

HCM 7th Signalized Intersection Summary
3: Marksheffel Rd & Carefree Cir

2050 Total AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	175	455	290	290	120	240	740	130	110	1590	100
Future Volume (veh/h)	45	175	455	290	290	120	240	740	130	110	1590	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1796	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	47	182	0	302	302	0	250	771	0	115	1656	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	2	2	2	7	7	7	2	2	2
Cap, veh/h	102	253		349	511		297	2214		162	2154	
Arrive On Green	0.03	0.07	0.00	0.10	0.14	0.00	0.09	0.65	0.00	0.05	0.61	0.00
Sat Flow, veh/h	3374	3469	1547	3456	3554	1585	3319	3413	1522	3456	3554	1585
Grp Volume(v), veh/h	47	182	0	302	302	0	250	771	0	115	1656	0
Grp Sat Flow(s),veh/h/ln	1687	1735	1547	1728	1777	1585	1659	1706	1522	1728	1777	1585
Q Serve(g_s), s	1.9	7.1	0.0	11.9	11.0	0.0	10.2	14.1	0.0	4.5	47.4	0.0
Cycle Q Clear(g_c), s	1.9	7.1	0.0	11.9	11.0	0.0	10.2	14.1	0.0	4.5	47.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	253		349	511		297	2214		162	2154	
V/C Ratio(X)	0.46	0.72		0.86	0.59		0.84	0.35		0.71	0.77	
Avail Cap(c_a), veh/h	130	684		363	937		325	2214		175	2154	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.8	62.6	0.0	61.1	55.3	0.0	61.9	11.0	0.0	64.8	20.0	0.0
Incr Delay (d2), s/veh	3.2	3.8	0.0	18.5	1.1	0.0	16.7	0.4	0.0	11.6	2.7	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	0.9	3.3	0.0	6.1	5.0	0.0	5.0	5.4	0.0	2.3	19.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.0	66.4	0.0	79.6	56.4	0.0	78.6	11.4	0.0	76.4	22.8	0.0
LnGrp LOS	E	E		E	E		E	B		E	C	
Approach Vol, veh/h	229			604			1021			1771		
Approach Delay, s/veh	67.0			68.0			27.9			26.2		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	94.0	18.5	14.6	16.8	88.1	8.7	24.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.0	71.3	14.5	27.2	13.5	64.8	5.3	36.4				
Max Q Clear Time (g_c+I1), s	6.5	16.1	13.9	9.1	12.2	49.4	3.9	13.0				
Green Ext Time (p_c), s	0.0	6.6	0.1	1.0	0.1	10.7	0.0	1.9				

Intersection Summary

HCM 7th Control Delay, s/veh 36.2
HCM 7th LOS D

Notes

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

Timings
3: Marksheffel Rd & Carefree Cir

2050 Total PM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	290	155	185	175	85	455	1685	270	195	880	150
Future Volume (vph)	55	290	155	185	175	85	455	1685	270	195	880	150
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	12.4	22.5	22.5	15.5	25.6	25.6	28.4	84.0	84.0	16.0	71.6	71.6
Total Split (%)	9.0%	16.3%	16.3%	11.2%	18.6%	18.6%	20.6%	60.9%	60.9%	11.6%	51.9%	51.9%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 3: Marksheffel Rd & Carefree Cir

#3 	#3 	#3 	#3 
Ø1	Ø2 (R)	Ø3	Ø4
16 s	84 s	15.5 s	22.5 s
#3 	#3 	#3 	#3 
Ø5	Ø6 (R)	Ø7	Ø8
28.4 s	71.6 s	12.4 s	25.6 s

HCM 7th Signalized Intersection Summary
3: Marksheffel Rd & Carefree Cir

2050 Total PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	290	155	185	175	85	455	1685	270	195	880	150
Future Volume (veh/h)	55	290	155	185	175	85	455	1685	270	195	880	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1811	1811	1811
Adj Flow Rate, veh/h	60	319	0	203	192	0	500	1852	0	214	967	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	6	6	6
Cap, veh/h	125	382		252	512		553	2173		261	1821	
Arrive On Green	0.04	0.11	0.00	0.07	0.14	0.00	0.16	0.61	0.00	0.08	0.53	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3346	3441	1535
Grp Volume(v), veh/h	60	319	0	203	192	0	500	1852	0	214	967	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1673	1721	1535
Q Serve(g_s), s	2.4	12.1	0.0	8.0	6.7	0.0	19.6	58.4	0.0	8.7	25.4	0.0
Cycle Q Clear(g_c), s	2.4	12.1	0.0	8.0	6.7	0.0	19.6	58.4	0.0	8.7	25.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	382		252	512		553	2173		261	1821	
V/C Ratio(X)	0.48	0.84		0.81	0.38		0.90	0.85		0.82	0.53	
Avail Cap(c_a), veh/h	198	464		275	543		598	2173		279	1821	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.2	60.4	0.0	63.0	53.4	0.0	56.9	21.8	0.0	62.7	21.3	0.0
Incr Delay (d2), s/veh	2.8	10.7	0.0	15.0	0.5	0.0	16.4	4.5	0.0	16.7	1.1	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	1.1	6.1	0.0	4.0	3.1	0.0	9.8	24.6	0.0	4.3	10.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.0	71.1	0.0	78.0	53.9	0.0	73.3	26.2	0.0	79.3	22.4	0.0
LnGrp LOS	E	E		E	D		E	C		E	C	
Approach Vol, veh/h	379			395			2352			1181		
Approach Delay, s/veh	70.6			66.3			36.3			32.7		
Approach LOS	E			E			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	88.9	14.5	19.3	26.6	77.5	9.5	24.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.5	79.5	11.0	18.0	23.9	67.1	7.9	21.1				
Max Q Clear Time (g_c+I1), s	10.7	60.4	10.0	14.1	21.6	27.4	4.4	8.7				
Green Ext Time (p_c), s	0.1	14.0	0.1	0.7	0.5	8.7	0.0	0.8				

Intersection Summary

HCM 7th Control Delay, s/veh 41.1
HCM 7th LOS D

Notes

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	262	251	100	331	104	122	285	75	87	511	29
Future Volume (vph)	75	262	251	100	331	104	122	285	75	87	511	29
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	14.0	56.0	56.0	14.0	56.0	56.0	20.0	54.0	54.0	14.0	48.0	48.0
Total Split (%)	10.1%	40.6%	40.6%	10.1%	40.6%	40.6%	14.5%	39.1%	39.1%	10.1%	34.8%	34.8%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Banning Lewis Pkwy & Barnes Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
14 s	54 s	14 s	56 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
20 s	48 s	14 s	56 s

HCM 7th Signalized Intersection Summary
4: Banning Lewis Pkwy & Barnes Rd

2035 BG AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	262	251	100	331	104	122	285	75	87	511	29
Future Volume (veh/h)	75	262	251	100	331	104	122	285	75	87	511	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	82	285	0	109	360	0	133	310	0	95	555	0
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	179	415		215	466		620	2313		775	2292	
Arrive On Green	0.05	0.12	0.00	0.07	0.13	0.00	0.04	0.65	0.00	0.04	0.64	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	82	285	0	109	360	0	133	310	0	95	555	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.5	10.6	0.0	7.3	13.5	0.0	3.5	4.6	0.0	2.5	9.1	0.0
Cycle Q Clear(g_c), s	5.5	10.6	0.0	7.3	13.5	0.0	3.5	4.6	0.0	2.5	9.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	179	415		215	466		620	2313		775	2292	
V/C Ratio(X)	0.46	0.69		0.51	0.77		0.21	0.13		0.12	0.24	
Avail Cap(c_a), veh/h	209	1326		218	1326		747	2313		835	2292	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.4	58.5	0.0	49.5	58.0	0.0	7.7	9.2	0.0	7.5	10.3	0.0
Incr Delay (d2), s/veh	1.8	2.0	0.0	1.9	2.8	0.0	0.2	0.1	0.0	0.1	0.3	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	2.6	4.9	0.0	3.4	6.3	0.0	1.3	1.8	0.0	1.0	3.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.3	60.5	0.0	51.3	60.7	0.0	7.9	9.3	0.0	7.6	10.6	0.0
LnGrp LOS	D	E		D	E		A	A		A	B	
Approach Vol, veh/h	367			469			443			650		
Approach Delay, s/veh	58.7			58.5			8.9			10.1		
Approach LOS	E			E			A			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	94.3	13.7	20.6	10.2	93.5	11.7	22.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	49.5	9.5	51.5	15.5	43.5	9.5	51.5				
Max Q Clear Time (g_c+I1), s	4.5	6.6	9.3	12.6	5.5	11.1	7.5	15.5				
Green Ext Time (p_c), s	0.1	2.2	0.0	2.0	0.2	4.2	0.0	2.6				

Intersection Summary

HCM 7th Control Delay, s/veh	30.9
HCM 7th LOS	C

Notes

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	335	191	75	254	88	185	607	100	108	386	51
Future Volume (vph)	100	335	191	75	254	88	185	607	100	108	386	51
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	14.0	56.0	56.0	14.0	56.0	56.0	20.0	54.0	54.0	14.0	48.0	48.0
Total Split (%)	10.1%	40.6%	40.6%	10.1%	40.6%	40.6%	14.5%	39.1%	39.1%	10.1%	34.8%	34.8%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Banning Lewis Pkwy & Barnes Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
14 s	54 s	14 s	56 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
20 s	48 s	14 s	56 s

HCM 7th Signalized Intersection Summary
4: Banning Lewis Pkwy & Barnes Rd

2035 BG PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	335	191	75	254	88	185	607	100	108	386	51
Future Volume (veh/h)	100	335	191	75	254	88	185	607	100	108	386	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	109	364	0	82	276	0	201	660	0	117	420	0
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	219	470		179	420		712	2298		559	2231	
Arrive On Green	0.07	0.13	0.00	0.05	0.12	0.00	0.06	0.65	0.00	0.04	0.63	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	109	364	0	82	276	0	201	660	0	117	420	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.3	13.7	0.0	5.5	10.2	0.0	5.5	11.1	0.0	3.2	6.9	0.0
Cycle Q Clear(g_c), s	7.3	13.7	0.0	5.5	10.2	0.0	5.5	11.1	0.0	3.2	6.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	470		179	420		712	2298		559	2231	
V/C Ratio(X)	0.50	0.77		0.46	0.66		0.28	0.29		0.21	0.19	
Avail Cap(c_a), veh/h	223	1326		209	1326		811	2298		613	2231	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.3	57.9	0.0	50.3	58.2	0.0	7.9	10.6	0.0	8.5	10.8	0.0
Incr Delay (d2), s/veh	1.7	2.8	0.0	1.8	1.8	0.0	0.2	0.3	0.0	0.2	0.2	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	3.4	6.3	0.0	2.6	4.7	0.0	2.1	4.4	0.0	1.3	2.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	51.0	60.6	0.0	52.1	59.9	0.0	8.1	10.9	0.0	8.7	11.0	0.0
LnGrp LOS	D	E		D	E		A	B		A	B	
Approach Vol, veh/h	473			358			861			537		
Approach Delay, s/veh	58.4			58.1			10.3			10.5		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	93.7	11.7	22.8	12.4	91.2	13.7	20.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	49.5	9.5	51.5	15.5	43.5	9.5	51.5				
Max Q Clear Time (g_c+l1), s	5.2	13.1	7.5	15.7	7.5	8.9	9.3	12.2				
Green Ext Time (p_c), s	0.1	5.2	0.0	2.6	0.3	3.0	0.0	1.9				

Intersection Summary

HCM 7th Control Delay, s/veh 28.2
HCM 7th LOS C

Notes

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

Timings
4: Banning Lewis Pkwy & Barnes Rd

2035 Total AM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	278	267	100	339	104	130	285	75	87	511	37
Future Volume (vph)	91	278	267	100	339	104	130	285	75	87	511	37
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	45.0	45.0	18.0	45.0	45.0	23.0	60.0	60.0	15.0	52.0	52.0
Total Split (%)	13.0%	32.6%	32.6%	13.0%	32.6%	32.6%	16.7%	43.5%	43.5%	10.9%	37.7%	37.7%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Banning Lewis Pkwy & Barnes Rd

 Ø1	 Ø2	 Ø3	 Ø4
15 s	60 s	18 s	45 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
23 s	52 s	18 s	45 s

HCM 7th Signalized Intersection Summary
4: Banning Lewis Pkwy & Barnes Rd

2035 Total AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	91	278	267	100	339	104	130	285	75	87	511	37
Future Volume (veh/h)	91	278	267	100	339	104	130	285	75	87	511	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	99	302	0	109	368	0	141	310	0	95	555	0
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	194	452		221	471		612	2276		763	2244	
Arrive On Green	0.06	0.13	0.00	0.07	0.13	0.00	0.04	0.64	0.00	0.04	0.63	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	99	302	0	109	368	0	141	310	0	95	555	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.6	11.2	0.0	7.3	13.8	0.0	3.8	4.7	0.0	2.6	9.4	0.0
Cycle Q Clear(g_c), s	6.6	11.2	0.0	7.3	13.8	0.0	3.8	4.7	0.0	2.6	9.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	194	452		221	471		612	2276		763	2244	
V/C Ratio(X)	0.51	0.67		0.49	0.78		0.23	0.14		0.12	0.25	
Avail Cap(c_a), veh/h	259	1043		276	1043		772	2276		836	2244	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.8	57.4	0.0	48.3	57.9	0.0	8.3	9.8	0.0	8.1	11.1	0.0
Incr Delay (d2), s/veh	2.1	1.7	0.0	1.7	2.9	0.0	0.2	0.1	0.0	0.1	0.3	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	3.1	5.2	0.0	3.4	6.4	0.0	1.5	1.9	0.0	1.0	3.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.8	59.1	0.0	50.0	60.8	0.0	8.5	9.9	0.0	8.2	11.4	0.0
LnGrp LOS	D	E		D	E		A	A		A	B	
Approach Vol, veh/h	401			477			451			650		
Approach Delay, s/veh	57.1			58.3			9.5			10.9		
Approach LOS	E			E			A			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	92.9	13.7	22.1	10.6	91.6	13.0	22.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	55.5	13.5	40.5	18.5	47.5	13.5	40.5				
Max Q Clear Time (g_c+I1), s	4.6	6.7	9.3	13.2	5.8	11.4	8.6	15.8				
Green Ext Time (p_c), s	0.1	2.2	0.1	2.0	0.3	4.2	0.1	2.5				

Intersection Summary

HCM 7th Control Delay, s/veh 31.4
HCM 7th LOS C

Notes

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

Timings
4: Banning Lewis Pkwy & Barnes Rd

2035 Total PM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	351	207	75	275	88	206	607	100	108	386	72
Future Volume (vph)	116	351	207	75	275	88	206	607	100	108	386	72
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	21.0	39.0	39.0	19.0	37.0	37.0	32.0	59.0	59.0	21.0	48.0	48.0
Total Split (%)	15.2%	28.3%	28.3%	13.8%	26.8%	26.8%	23.2%	42.8%	42.8%	15.2%	34.8%	34.8%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Banning Lewis Pkwy & Barnes Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
21 s	59 s	19 s	39 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
32 s	48 s	21 s	37 s

HCM 7th Signalized Intersection Summary
4: Banning Lewis Pkwy & Barnes Rd

2035 Total PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	351	207	75	275	88	206	607	100	108	386	72
Future Volume (veh/h)	116	351	207	75	275	88	206	607	100	108	386	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	126	382	0	82	299	0	224	660	0	117	420	0
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	221	481		178	399		713	2280		556	2194	
Arrive On Green	0.08	0.14	0.00	0.05	0.11	0.00	0.06	0.64	0.00	0.04	0.62	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	126	382	0	82	299	0	224	660	0	117	420	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	8.5	14.4	0.0	5.6	11.3	0.0	6.2	11.3	0.0	3.3	7.1	0.0
Cycle Q Clear(g_c), s	8.5	14.4	0.0	5.6	11.3	0.0	6.2	11.3	0.0	3.3	7.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	221	481		178	399		713	2280		556	2194	
V/C Ratio(X)	0.57	0.79		0.46	0.75		0.31	0.29		0.21	0.19	
Avail Cap(c_a), veh/h	298	888		271	837		954	2280		699	2194	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.9	57.8	0.0	50.9	59.4	0.0	8.0	10.9	0.0	9.0	11.5	0.0
Incr Delay (d2), s/veh	2.3	3.0	0.0	1.9	2.9	0.0	0.2	0.3	0.0	0.2	0.2	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	3.9	6.7	0.0	2.6	5.2	0.0	2.4	4.5	0.0	1.3	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	51.2	60.8	0.0	52.8	62.2	0.0	8.3	11.2	0.0	9.1	11.6	0.0
LnGrp LOS	D	E		D	E		A	B		A	B	
Approach Vol, veh/h	508			381			884			537		
Approach Delay, s/veh	58.4			60.2			10.5			11.1		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	93.0	11.8	23.2	13.3	89.7	15.0	20.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	16.5	54.5	14.5	34.5	27.5	43.5	16.5	32.5				
Max Q Clear Time (g_c+l1), s	5.3	13.3	7.6	16.4	8.2	9.1	10.5	13.3				
Green Ext Time (p_c), s	0.2	5.3	0.1	2.3	0.6	3.0	0.1	1.8				

Intersection Summary

HCM 7th Control Delay, s/veh	29.4
HCM 7th LOS	C

Notes

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	304	291	116	384	121	142	331	87	101	593	34
Future Volume (vph)	87	304	291	116	384	121	142	331	87	101	593	34
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	17.0	43.0	43.0	18.0	44.0	44.0	23.0	63.0	63.0	14.0	54.0	54.0
Total Split (%)	12.3%	31.2%	31.2%	13.0%	31.9%	31.9%	16.7%	45.7%	45.7%	10.1%	39.1%	39.1%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Banning Lewis Pkwy & Barnes Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
14 s	63 s	18 s	43 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
23 s	54 s	17 s	44 s

HCM 7th Signalized Intersection Summary
4: Banning Lewis Pkwy & Barnes Rd

2050 BG AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	87	304	291	116	384	121	142	331	87	101	593	34
Future Volume (veh/h)	87	304	291	116	384	121	142	331	87	101	593	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	95	330	0	126	417	0	154	360	0	110	645	0
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	191	468		231	525		554	2223		715	2184	
Arrive On Green	0.06	0.13	0.00	0.07	0.15	0.00	0.05	0.63	0.00	0.04	0.61	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	95	330	0	126	417	0	154	360	0	110	645	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.3	12.3	0.0	8.3	15.6	0.0	4.4	5.8	0.0	3.2	11.8	0.0
Cycle Q Clear(g_c), s	6.3	12.3	0.0	8.3	15.6	0.0	4.4	5.8	0.0	3.2	11.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	191	468		231	525		554	2223		715	2184	
V/C Ratio(X)	0.50	0.70		0.55	0.79		0.28	0.16		0.15	0.30	
Avail Cap(c_a), veh/h	247	991		271	1017		706	2223		771	2184	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.5	57.3	0.0	47.4	56.8	0.0	9.2	10.8	0.0	9.0	12.5	0.0
Incr Delay (d2), s/veh	2.0	2.0	0.0	2.0	2.8	0.0	0.3	0.2	0.0	0.1	0.3	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	2.9	5.7	0.0	3.9	7.2	0.0	1.7	2.3	0.0	1.2	4.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.5	59.3	0.0	49.4	59.6	0.0	9.5	10.9	0.0	9.1	12.9	0.0
LnGrp LOS	D	E		D	E		A	B		A	B	
Approach Vol, veh/h	425			543			514			755		
Approach Delay, s/veh	57.3			57.2			10.5			12.3		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	90.8	14.8	22.7	11.2	89.3	12.6	24.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	58.5	13.5	38.5	18.5	49.5	12.5	39.5				
Max Q Clear Time (g_c+I1), s	5.2	7.8	10.3	14.3	6.4	13.8	8.3	17.6				
Green Ext Time (p_c), s	0.1	2.6	0.1	2.2	0.3	5.0	0.1	2.7				

Intersection Summary

HCM 7th Control Delay, s/veh	31.3
HCM 7th LOS	C

Notes

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

Timings
4: Banning Lewis Pkwy & Barnes Rd

2050 BG PM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	389	222	87	295	102	215	705	116	125	448	59
Future Volume (vph)	116	389	222	87	295	102	215	705	116	125	448	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	20.0	38.0	38.0	18.0	36.0	36.0	29.0	61.0	61.0	21.0	53.0	53.0
Total Split (%)	14.5%	27.5%	27.5%	13.0%	26.1%	26.1%	21.0%	44.2%	44.2%	15.2%	38.4%	38.4%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Banning Lewis Pkwy & Barnes Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
21 s	61 s	18 s	38 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
29 s	53 s	20 s	36 s

HCM 7th Signalized Intersection Summary
4: Banning Lewis Pkwy & Barnes Rd

2050 BG PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	116	389	222	87	295	102	215	705	116	125	448	59
Future Volume (veh/h)	116	389	222	87	295	102	215	705	116	125	448	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	126	423	0	95	321	0	234	766	0	136	487	0
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	234	524		189	467		656	2194		493	2111	
Arrive On Green	0.08	0.15	0.00	0.06	0.13	0.00	0.07	0.62	0.00	0.05	0.59	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	126	423	0	95	321	0	234	766	0	136	487	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	8.3	15.9	0.0	6.3	11.9	0.0	6.9	14.5	0.0	4.1	8.9	0.0
Cycle Q Clear(g_c), s	8.3	15.9	0.0	6.3	11.9	0.0	6.9	14.5	0.0	4.1	8.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	234	524		189	467		656	2194		493	2111	
V/C Ratio(X)	0.54	0.81		0.50	0.69		0.36	0.35		0.28	0.23	
Avail Cap(c_a), veh/h	300	863		258	811		850	2194		625	2111	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	47.3	56.9	0.0	48.5	57.2	0.0	9.2	12.9	0.0	10.3	13.2	0.0
Incr Delay (d2), s/veh	1.9	3.0	0.0	2.1	1.8	0.0	0.3	0.4	0.0	0.3	0.3	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	3.9	7.4	0.0	2.9	5.5	0.0	2.7	5.9	0.0	1.6	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.3	59.9	0.0	50.6	59.0	0.0	9.5	13.3	0.0	10.6	13.4	0.0
LnGrp LOS	D	E		D	E		A	B		B	B	
Approach Vol, veh/h	549			416			1000			623		
Approach Delay, s/veh	57.5			57.1			12.4			12.8		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	89.7	12.7	24.8	14.0	86.5	14.9	22.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	16.5	56.5	13.5	33.5	24.5	48.5	15.5	31.5				
Max Q Clear Time (g_c+I1), s	6.1	16.5	8.3	17.9	8.9	10.9	10.3	13.9				
Green Ext Time (p_c), s	0.2	6.4	0.1	2.4	0.6	3.6	0.1	1.9				

Intersection Summary

HCM 7th Control Delay, s/veh 29.3
HCM 7th LOS C

Notes

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

Timings
4: Banning Lewis Pkwy & Barnes Rd

2050 Total AM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	320	310	120	395	125	150	335	90	105	595	45
Future Volume (vph)	105	320	310	120	395	125	150	335	90	105	595	45
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	44.0	44.0	18.0	44.0	44.0	23.0	62.0	62.0	14.0	53.0	53.0
Total Split (%)	13.0%	31.9%	31.9%	13.0%	31.9%	31.9%	16.7%	44.9%	44.9%	10.1%	38.4%	38.4%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Banning Lewis Pkwy & Barnes Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
14 s	62 s	18 s	44 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
23 s	53 s	18 s	44 s

HCM 7th Signalized Intersection Summary
4: Banning Lewis Pkwy & Barnes Rd

2050 Total AM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	320	310	120	395	125	150	335	90	105	595	45
Future Volume (veh/h)	105	320	310	120	395	125	150	335	90	105	595	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	114	348	0	130	429	0	163	364	0	114	647	0
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	207	510		240	538		543	2170		699	2126	
Arrive On Green	0.07	0.14	0.00	0.08	0.15	0.00	0.05	0.61	0.00	0.04	0.60	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	114	348	0	130	429	0	163	364	0	114	647	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.4	12.8	0.0	8.5	16.1	0.0	4.9	6.1	0.0	3.4	12.3	0.0
Cycle Q Clear(g_c), s	7.4	12.8	0.0	8.5	16.1	0.0	4.9	6.1	0.0	3.4	12.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	207	510		240	538		543	2170		699	2126	
V/C Ratio(X)	0.55	0.68		0.54	0.80		0.30	0.17		0.16	0.30	
Avail Cap(c_a), veh/h	260	1017		279	1017		690	2170		751	2126	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	46.7	56.1	0.0	46.0	56.5	0.0	10.0	11.7	0.0	9.8	13.6	0.0
Incr Delay (d2), s/veh	2.3	1.6	0.0	1.9	2.8	0.0	0.3	0.2	0.0	0.1	0.4	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	3.5	5.9	0.0	3.9	7.4	0.0	1.9	2.5	0.0	1.4	5.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.0	57.7	0.0	47.9	59.3	0.0	10.3	11.8	0.0	9.9	14.0	0.0
LnGrp LOS	D	E		D	E		B	B		A	B	
Approach Vol, veh/h	462			559			527			761		
Approach Delay, s/veh	55.6			56.6			11.4			13.4		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	88.8	15.0	24.3	11.7	87.0	13.9	25.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	57.5	13.5	39.5	18.5	48.5	13.5	39.5				
Max Q Clear Time (g_c+I1), s	5.4	8.1	10.5	14.8	6.9	14.3	9.4	18.1				
Green Ext Time (p_c), s	0.1	2.7	0.1	2.3	0.3	5.0	0.1	2.8				

Intersection Summary

HCM 7th Control Delay, s/veh 31.8
HCM 7th LOS C

Notes

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

Timings
4: Banning Lewis Pkwy & Barnes Rd

2050 Total PM
08/31/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	405	240	90	320	105	240	705	120	125	450	80
Future Volume (vph)	135	405	240	90	320	105	240	705	120	125	450	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	39.0	39.0	18.0	35.0	35.0	33.0	60.0	60.0	21.0	48.0	48.0
Total Split (%)	15.9%	28.3%	28.3%	13.0%	25.4%	25.4%	23.9%	43.5%	43.5%	15.2%	34.8%	34.8%
Yellow Time (s)	3.5	3.5	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	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	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	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 138

Actuated Cycle Length: 138

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Banning Lewis Pkwy & Barnes Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
21 s	60 s	18 s	39 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
33 s	48 s	22 s	35 s

HCM 7th Signalized Intersection Summary
4: Banning Lewis Pkwy & Barnes Rd

2050 Total PM
08/31/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	135	405	240	90	320	105	240	705	120	125	450	80
Future Volume (veh/h)	135	405	240	90	320	105	240	705	120	125	450	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	147	440	0	98	348	0	261	766	0	136	489	0
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	239	544		192	456		653	2164		487	2058	
Arrive On Green	0.09	0.15	0.00	0.06	0.13	0.00	0.08	0.61	0.00	0.05	0.58	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	147	440	0	98	348	0	261	766	0	136	489	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.7	16.5	0.0	6.5	13.1	0.0	7.9	14.8	0.0	4.3	9.3	0.0
Cycle Q Clear(g_c), s	9.7	16.5	0.0	6.5	13.1	0.0	7.9	14.8	0.0	4.3	9.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	544		192	456		653	2164		487	2058	
V/C Ratio(X)	0.61	0.81		0.51	0.76		0.40	0.35		0.28	0.24	
Avail Cap(c_a), veh/h	313	888		258	785		884	2164		617	2058	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	46.5	56.5	0.0	48.7	58.1	0.0	9.5	13.5	0.0	11.0	14.2	0.0
Incr Delay (d2), s/veh	2.6	2.9	0.0	2.1	2.7	0.0	0.4	0.5	0.0	0.3	0.3	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	4.5	7.6	0.0	3.0	6.1	0.0	3.1	6.0	0.0	1.7	3.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.1	59.4	0.0	50.8	60.8	0.0	9.9	13.9	0.0	11.3	14.4	0.0
LnGrp LOS	D	E		D	E		A	B		B	B	
Approach Vol, veh/h	587			446			1027			625		
Approach Delay, s/veh	56.8			58.6			12.9			13.8		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	88.5	12.9	25.6	15.1	84.4	16.3	22.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	16.5	55.5	13.5	34.5	28.5	43.5	17.5	30.5				
Max Q Clear Time (g_c+l1), s	6.3	16.8	8.5	18.5	9.9	11.3	11.7	15.1				
Green Ext Time (p_c), s	0.2	6.3	0.1	2.6	0.7	3.6	0.2	1.9				

Intersection Summary

HCM 7th Control Delay, s/veh 30.3
HCM 7th LOS C

Notes

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

MOVEMENT SUMMARY

🚦 Site: 5 [2035 Total AM - No Bypass SBR (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: Access 1															
3	L2	All MCs	89	3.0	89	3.0	0.291	13.0	LOS B	1.0	25.1	0.73	0.76	0.84	28.4
8	T1	All MCs	16	3.0	16	3.0	0.291	13.0	LOS B	1.0	25.1	0.73	0.76	0.84	28.9
18	R2	All MCs	22	3.0	22	3.0	0.291	13.0	LOS B	1.0	25.1	0.73	0.76	0.84	28.8
Approach			127	3.0	127	3.0	0.291	13.0	LOS B	1.0	25.1	0.73	0.76	0.84	28.6
East: Barnes Road															
1	L2	All MCs	11	3.0	11	3.0	0.499	11.0	LOS B	3.3	84.2	0.66	0.62	0.91	30.5
6	T1	All MCs	738	3.0	738	3.0	0.499	10.7	LOS B	3.3	84.2	0.66	0.61	0.90	31.2
16	R2	All MCs	109	3.0	109	3.0	0.499	10.4	LOS B	3.3	83.7	0.64	0.60	0.88	31.1
Approach			858	3.0	858	3.0	0.499	10.7	LOS B	3.3	84.2	0.65	0.61	0.90	31.2
North: Access 1															
7	L2	All MCs	141	3.0	141	3.0	1.204	126.3	LOS F	51.7	1322.9	1.00	3.42	8.70	11.8
4	T1	All MCs	16	3.0	16	3.0	1.204	126.3	LOS F	51.7	1322.9	1.00	3.42	8.70	11.9
14	R2	All MCs	605	3.0	605	3.0	1.204	126.3	LOS F	51.7	1322.9	1.00	3.42	8.70	11.9
Approach			763	3.0	763	3.0	1.204	126.3	LOS F	51.7	1322.9	1.00	3.42	8.70	11.9
West: Barnes Road															
5	L2	All MCs	366	3.0	366	3.0	0.490	8.4	LOS A	3.0	77.6	0.43	0.22	0.43	30.3
2	T1	All MCs	743	3.0	743	3.0	0.490	8.1	LOS A	3.0	77.6	0.41	0.21	0.41	32.0
12	R2	All MCs	43	3.0	43	3.0	0.490	8.1	LOS A	3.0	75.9	0.41	0.21	0.41	32.2
Approach			1153	3.0	1153	3.0	0.490	8.2	LOS A	3.0	77.6	0.42	0.21	0.42	31.4
All Vehicles			2901	3.0	2901	3.0	1.204	40.2	LOS E	51.7	1322.9	0.65	1.20	2.76	21.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay; Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

MOVEMENT SUMMARY

🚦 Site: 5 [2035 Total AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: Access 1															
3	L2	All MCs	89	3.0	89	3.0	0.298	13.4	LOS B	1.0	25.7	0.74	0.77	0.86	28.3
8	T1	All MCs	16	3.0	16	3.0	0.298	13.4	LOS B	1.0	25.7	0.74	0.77	0.86	28.8
18	R2	All MCs	22	3.0	22	3.0	0.298	13.4	LOS B	1.0	25.7	0.74	0.77	0.86	28.6
Approach			127	3.0	127	3.0	0.298	13.4	LOS B	1.0	25.7	0.74	0.77	0.86	28.4
East: Barnes Road															
1	L2	All MCs	11	3.0	11	3.0	0.499	11.0	LOS B	3.3	84.1	0.66	0.62	0.91	30.5
6	T1	All MCs	738	3.0	738	3.0	0.499	10.7	LOS B	3.3	84.1	0.66	0.61	0.90	31.2
16	R2	All MCs	109	3.0	109	3.0	0.499	10.4	LOS B	3.3	83.6	0.64	0.60	0.88	31.1
Approach			858	3.0	858	3.0	0.499	10.7	LOS B	3.3	84.1	0.65	0.61	0.90	31.2
North: Access 1															
7	L2	All MCs	141	3.0	141	3.0	0.675	19.6	LOS C	4.8	123.4	0.81	0.98	1.49	26.8
4	T1	All MCs	16	3.0	16	3.0	0.675	19.6	LOS C	4.8	123.4	0.81	0.98	1.49	27.2
14	R2	All MCs	605	3.0	605	3.0	0.675	22.2	LOS C	4.8	123.4	0.82	1.01	1.52	26.6
Approach			763	3.0	763	3.0	0.675	21.6	LOS C	4.8	123.4	0.82	1.01	1.52	26.6
West: Barnes Road															
5	L2	All MCs	366	3.0	366	3.0	0.502	8.8	LOS A	3.1	79.3	0.47	0.26	0.47	30.1
2	T1	All MCs	743	3.0	743	3.0	0.502	8.5	LOS A	3.1	79.3	0.45	0.25	0.45	31.8
12	R2	All MCs	43	3.0	43	3.0	0.502	8.4	LOS A	3.0	77.7	0.45	0.24	0.45	32.0
Approach			1153	3.0	1153	3.0	0.502	8.6	LOS A	3.1	79.3	0.46	0.25	0.46	31.2
All Vehicles			2901	3.0	2901	3.0	0.675	12.9	LOS B	4.8	123.4	0.62	0.58	0.88	29.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Movement Summary

🚦 Site: 5 [2035 Total PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: Access 1															
3	L2	All MCs	85	3.0	85	3.0	0.375	18.6	LOS C	1.3	32.1	0.81	0.87	1.04	26.7
8	T1	All MCs	22	3.0	22	3.0	0.375	18.6	LOS C	1.3	32.1	0.81	0.87	1.04	27.1
18	R2	All MCs	21	3.0	21	3.0	0.375	18.6	LOS C	1.3	32.1	0.81	0.87	1.04	26.9
Approach			127	3.0	127	3.0	0.375	18.6	LOS C	1.3	32.1	0.81	0.87	1.04	26.8
East: Barnes Road															
1	L2	All MCs	28	3.0	28	3.0	0.546	13.1	LOS B	3.7	95.8	0.72	0.75	1.09	29.6
6	T1	All MCs	736	3.0	736	3.0	0.546	12.7	LOS B	3.8	96.4	0.71	0.73	1.08	30.4
16	R2	All MCs	87	3.0	87	3.0	0.546	12.3	LOS B	3.8	96.4	0.70	0.72	1.07	30.3
Approach			851	3.0	851	3.0	0.546	12.7	LOS B	3.8	96.4	0.71	0.73	1.08	30.3
North: Access 1															
7	L2	All MCs	62	3.0	62	3.0	0.323	9.9	LOS A	1.3	32.1	0.65	0.65	0.74	30.3
4	T1	All MCs	22	3.0	22	3.0	0.323	9.9	LOS A	1.3	32.1	0.65	0.65	0.74	30.8
14	R2	All MCs	304	3.0	304	3.0	0.323	10.5	LOS B	1.3	32.1	0.66	0.67	0.77	30.9
Approach			388	3.0	388	3.0	0.323	10.4	LOS B	1.3	32.1	0.66	0.67	0.76	30.8
West: Barnes Road															
5	L2	All MCs	467	3.0	467	3.0	0.636	10.9	LOS B	5.3	135.5	0.50	0.24	0.50	29.3
2	T1	All MCs	959	3.0	959	3.0	0.636	10.6	LOS B	5.3	135.5	0.48	0.23	0.48	30.9
12	R2	All MCs	116	3.0	116	3.0	0.636	10.5	LOS B	5.2	132.9	0.48	0.22	0.48	31.1
Approach			1542	3.0	1542	3.0	0.636	10.7	LOS B	5.3	135.5	0.49	0.23	0.49	30.4
All Vehicles			2909	3.0	2909	3.0	0.636	11.6	LOS B	5.3	135.5	0.59	0.46	0.72	30.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

MOVEMENT SUMMARY

🚦 Site: 5 [2050 Total AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Sat'n	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: Access 1															
3	L2	All MCs	92	3.0	92	3.0	0.384	18.2	LOS C	1.3	33.6	0.81	0.87	1.04	26.8
8	T1	All MCs	22	3.0	22	3.0	0.384	18.2	LOS C	1.3	33.6	0.81	0.87	1.04	27.2
18	R2	All MCs	22	3.0	22	3.0	0.384	18.2	LOS C	1.3	33.6	0.81	0.87	1.04	27.0
Approach			136	3.0	136	3.0	0.384	18.2	LOS C	1.3	33.6	0.81	0.87	1.04	26.9
East: Barnes Road															
1	L2	All MCs	11	3.0	11	3.0	0.603	14.4	LOS B	4.8	123.2	0.75	0.80	1.22	29.2
6	T1	All MCs	826	3.0	826	3.0	0.603	14.0	LOS B	4.9	124.6	0.75	0.78	1.21	29.9
16	R2	All MCs	130	3.0	130	3.0	0.603	13.5	LOS B	4.9	124.6	0.74	0.77	1.19	29.8
Approach			967	3.0	967	3.0	0.603	13.9	LOS B	4.9	124.6	0.74	0.78	1.20	29.9
North: Access 1															
7	L2	All MCs	168	3.0	168	3.0	0.884	39.4	LOS E	9.9	253.6	0.94	1.41	2.57	21.7
4	T1	All MCs	22	3.0	22	3.0	0.884	39.4	LOS E	9.9	253.6	0.94	1.41	2.57	22.0
14	R2	All MCs	707	3.0	707	3.0	0.884	44.5	LOS E	9.9	253.6	0.94	1.41	2.58	21.0
Approach			897	3.0	897	3.0	0.884	43.4	LOS E	9.9	253.6	0.94	1.41	2.58	21.2
West: Barnes Road															
5	L2	All MCs	429	3.0	429	3.0	0.593	10.8	LOS B	4.7	119.9	0.58	0.37	0.63	29.3
2	T1	All MCs	848	3.0	848	3.0	0.593	10.5	LOS B	4.7	119.9	0.56	0.34	0.59	31.0
12	R2	All MCs	43	3.0	43	3.0	0.593	10.3	LOS B	4.3	109.8	0.56	0.33	0.58	31.2
Approach			1321	3.0	1321	3.0	0.593	10.6	LOS B	4.7	119.9	0.57	0.35	0.60	30.4
All Vehicles			3321	3.0	3321	3.0	0.884	20.7	LOS C	9.9	253.6	0.73	0.78	1.33	27.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

MOVEMENT SUMMARY

🚦 Site: 5 [2050 Total PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: Access 1															
3	L2	All MCs	87	3.0	87	3.0	0.489	26.9	LOS D	1.6	41.7	0.87	0.95	1.20	24.4
8	T1	All MCs	27	3.0	27	3.0	0.489	26.9	LOS D	1.6	41.7	0.87	0.95	1.20	24.7
18	R2	All MCs	22	3.0	22	3.0	0.489	26.9	LOS D	1.6	41.7	0.87	0.95	1.20	24.6
Approach			136	3.0	136	3.0	0.489	26.9	LOS D	1.6	41.7	0.87	0.95	1.20	24.5
East: Barnes Road															
1	L2	All MCs	33	3.0	33	3.0	0.669	18.3	LOS C	5.5	139.7	0.81	0.93	1.44	27.7
6	T1	All MCs	826	3.0	826	3.0	0.669	17.7	LOS C	5.6	142.6	0.81	0.92	1.43	28.5
16	R2	All MCs	103	3.0	103	3.0	0.669	17.1	LOS C	5.6	142.6	0.80	0.91	1.42	28.5
Approach			962	3.0	962	3.0	0.669	17.7	LOS C	5.6	142.6	0.81	0.92	1.43	28.4
North: Access 1															
7	L2	All MCs	76	3.0	76	3.0	0.418	12.6	LOS B	1.8	46.4	0.70	0.76	0.94	29.2
4	T1	All MCs	27	3.0	27	3.0	0.418	12.6	LOS B	1.8	46.4	0.70	0.76	0.94	29.7
14	R2	All MCs	353	3.0	353	3.0	0.418	13.5	LOS B	1.8	46.4	0.71	0.78	0.96	29.6
Approach			457	3.0	457	3.0	0.418	13.3	LOS B	1.8	46.4	0.71	0.78	0.96	29.6
West: Barnes Road															
5	L2	All MCs	543	3.0	543	3.0	0.732	14.0	LOS B	8.6	220.9	0.67	0.37	0.72	28.2
2	T1	All MCs	1071	3.0	1071	3.0	0.732	13.6	LOS B	8.6	220.9	0.65	0.34	0.67	29.7
12	R2	All MCs	120	3.0	120	3.0	0.732	13.5	LOS B	7.4	189.1	0.64	0.32	0.65	29.9
Approach			1734	3.0	1734	3.0	0.732	13.7	LOS B	8.6	220.9	0.66	0.35	0.69	29.2
All Vehicles			3288	3.0	3288	3.0	0.732	15.4	LOS C	8.6	220.9	0.72	0.60	0.96	28.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Intersection

Int Delay, s/veh 0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Vol, veh/h	680	24	3	640	49	7
Future Vol, veh/h	680	24	3	640	49	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	739	26	3	696	53	8

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	765
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	844
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	844
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.04	18.84
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	321	-	-	844	-
HCM Lane V/C Ratio	0.19	-	-	0.004	-
HCM Ctrl Dly (s/v)	18.8	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0	-

Notes

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

Intersection

Int Delay, s/veh 0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Vol, veh/h	837	64	9	656	47	6
Future Vol, veh/h	837	64	9	656	47	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	910	70	10	713	51	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	979
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	700
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	700
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.14	25.21
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	235	-	-	700	-
HCM Lane V/C Ratio	0.245	-	-	0.014	-
HCM Ctrl Dly (s/v)	25.2	-	-	10.2	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.9	-	-	0	-

Notes

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

Intersection

Int Delay, s/veh 0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Vol, veh/h	775	25	5	720	50	10
Future Vol, veh/h	775	25	5	720	50	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	842	27	5	783	54	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	870
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	771
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	771
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.07	22.28
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	273	-	-	771	-
HCM Lane V/C Ratio	0.239	-	-	0.007	-
HCM Ctrl Dly (s/v)	22.3	-	-	9.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0	-

Notes

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

Intersection

Int Delay, s/veh 1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Vol, veh/h	940	65	10	735	50	10
Future Vol, veh/h	940	65	10	735	50	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	1022	71	11	799	54	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1092
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	635
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	635
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.14	33.32
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	191	-	-	635	-
HCM Lane V/C Ratio	0.341	-	-	0.017	-
HCM Ctrl Dly (s/v)	33.3	-	-	10.8	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

Notes

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

Intersection

Int Delay, s/veh 1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Vol, veh/h	638	48	8	544	98	16
Future Vol, veh/h	638	48	8	544	98	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	693	52	9	591	107	17

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	746
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	858
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	858
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.13	21.22
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	344	-	-	858	-
HCM Lane V/C Ratio	0.36	-	-	0.01	-
HCM Ctrl Dly (s/v)	21.2	-	-	9.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.6	-	-	0	-

Notes

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

Intersection

Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Vol, veh/h	715	128	21	571	93	16
Future Vol, veh/h	715	128	21	571	93	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	777	139	23	621	101	17

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	916
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	740
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	740
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.36	26.22
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	286	-	-	740	-
HCM Lane V/C Ratio	0.414	-	-	0.031	-
HCM Ctrl Dly (s/v)	26.2	-	-	10	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

Notes

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

Intersection

Int Delay, s/veh 2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Vol, veh/h	735	50	10	625	100	20
Future Vol, veh/h	735	50	10	625	100	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	799	54	11	679	109	22

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	853
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	782
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	782
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.15	27.03
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	291	-	-	782	-
HCM Lane V/C Ratio	0.448	-	-	0.014	-
HCM Ctrl Dly (s/v)	27	-	-	9.7	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	2.2	-	-	0	-

Notes

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

Intersection

Int Delay, s/veh 2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Vol, veh/h	820	130	25	650	95	20
Future Vol, veh/h	820	130	25	650	95	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	891	141	27	707	103	22

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1033
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	669
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	669
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.39	36.82
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	-	-	669	-
HCM Lane V/C Ratio	0.535	-	-	0.041	-
HCM Ctrl Dly (s/v)	36.8	-	-	10.6	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	2.9	-	-	0.1	-

Notes

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

Intersection

Int Delay, s/veh 0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Vol, veh/h	631	24	3	503	49	7
Future Vol, veh/h	631	24	3	503	49	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	686	26	3	547	53	8

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	712
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	884
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	884
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.05	16.77
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	366	-	-	884	-
HCM Lane V/C Ratio	0.166	-	-	0.004	-
HCM Ctrl Dly (s/v)	16.8	-	-	9.1	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Notes

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

Intersection

Int Delay, s/veh 0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	666	64	9	546	47	6
Future Vol, veh/h	666	64	9	546	47	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	724	70	10	593	51	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	793
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	823
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	823
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.15	18.08
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	333	-	-	823	-
HCM Lane V/C Ratio	0.173	-	-	0.012	-
HCM Ctrl Dly (s/v)	18.1	-	-	9.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Notes

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

Intersection

Int Delay, s/veh 0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Vol, veh/h	725	25	5	585	50	10
Future Vol, veh/h	725	25	5	585	50	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	788	27	5	636	54	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	815
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	808
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	808
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.08	20.07
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	304	-	-	808	-
HCM Lane V/C Ratio	0.215	-	-	0.007	-
HCM Ctrl Dly (s/v)	20.1	-	-	9.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0	-

Notes

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

Intersection

Int Delay, s/veh 0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Vol, veh/h	770	65	10	625	50	10
Future Vol, veh/h	770	65	10	625	50	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	200	-	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	837	71	11	679	54	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	908
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	746
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	746
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.16	22.28
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	273	-	-	746	-
HCM Lane V/C Ratio	0.239	-	-	0.015	-
HCM Ctrl Dly (s/v)	22.3	-	-	9.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0	-

Notes

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



Appendix F: Queue Analysis Worksheets

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	112	319	386	160	319	80	272	757	106	53
v/c Ratio	0.46	0.70	0.24	0.56	0.64	0.05	0.69	0.37	0.07	0.28
Control Delay (s/veh)	67.1	65.6	0.4	68.5	61.9	0.1	65.6	16.8	0.1	66.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.1	65.6	0.4	68.5	61.9	0.1	65.6	16.8	0.1	66.0
Queue Length 50th (ft)	51	148	0	73	146	0	134	198	0	24
Queue Length 95th (ft)	82	195	0	110	193	0	181	271	0	47
Internal Link Dist (ft)		722			483			3890		
Turn Bay Length (ft)	250		450	250		200	250		200	250
Base Capacity (vph)	460	1012	1583	335	884	1583	485	2063	1495	190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.32	0.24	0.48	0.36	0.05	0.56	0.37	0.07	0.28

Intersection Summary

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	740	139
v/c Ratio	0.39	0.09
Control Delay (s/veh)	20.9	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	20.9	0.1
Queue Length 50th (ft)	204	0
Queue Length 95th (ft)	300	0
Internal Link Dist (ft)	1409	
Turn Bay Length (ft)		200
Base Capacity (vph)	1877	1568
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.39	0.09

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	200	380	424	109	272	54	300	807	163	82
v/c Ratio	0.60	0.71	0.27	0.50	0.65	0.03	0.70	0.39	0.10	0.38
Control Delay (s/veh)	67.4	63.0	0.4	70.3	65.4	0.0	61.2	22.9	0.1	66.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.4	63.0	0.4	70.3	65.4	0.0	61.2	22.9	0.1	66.7
Queue Length 50th (ft)	91	176	0	50	126	0	142	330	0	37
Queue Length 95th (ft)	130	220	0	82	171	0	171	423	0	64
Internal Link Dist (ft)		722			483			3890		
Turn Bay Length (ft)	250		450	250		200	250		200	250
Base Capacity (vph)	485	1064	1583	236	807	1583	515	2094	1583	230
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.36	0.27	0.46	0.34	0.03	0.58	0.39	0.10	0.36

Intersection Summary

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	777	114
v/c Ratio	0.41	0.07
Control Delay (s/veh)	21.7	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	21.7	0.1
Queue Length 50th (ft)	217	0
Queue Length 95th (ft)	322	0
Internal Link Dist (ft)	1409	
Turn Bay Length (ft)		200
Base Capacity (vph)	1873	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.41	0.07

Intersection Summary

Queues

2050 Total AM

1: Marksheffel Rd & Stetson Hills Blvd

08/31/2026

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	133	372	447	186	372	96	314	867	128	64
v/c Ratio	0.50	0.72	0.28	0.63	0.68	0.06	0.72	0.44	0.09	0.32
Control Delay (s/veh)	67.3	63.9	0.4	70.9	61.4	0.1	65.8	19.2	0.1	66.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.3	63.9	0.4	70.9	61.4	0.1	65.8	19.2	0.1	66.4
Queue Length 50th (ft)	61	173	0	85	170	0	154	252	0	29
Queue Length 95th (ft)	94	218	0	127	220	0	204	411	0	54
Internal Link Dist (ft)		722			483			3890		
Turn Bay Length (ft)	250		450	250		200	250		200	250
Base Capacity (vph)	450	1023	1583	320	889	1583	498	1986	1495	198
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.36	0.28	0.58	0.42	0.06	0.63	0.44	0.09	0.32

Intersection Summary

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	856	165
v/c Ratio	0.49	0.11
Control Delay (s/veh)	25.2	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	25.2	0.1
Queue Length 50th (ft)	268	0
Queue Length 95th (ft)	386	0
Internal Link Dist (ft)	1409	
Turn Bay Length (ft)		200
Base Capacity (vph)	1761	1568
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.49	0.11

Intersection Summary

Queues

2050 Total PM

1: Marksheffel Rd & Stetson Hills Blvd

08/31/2026

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	234	446	489	130	315	65	348	924	190	98
v/c Ratio	0.65	0.74	0.31	0.58	0.68	0.04	0.73	0.46	0.12	0.42
Control Delay (s/veh)	67.5	61.6	0.5	73.0	64.8	0.1	58.8	18.2	0.1	67.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.5	61.6	0.5	73.0	64.8	0.1	58.8	18.2	0.1	67.0
Queue Length 50th (ft)	107	206	0	60	146	0	157	271	0	44
Queue Length 95th (ft)	150	251	0	95	193	0	187	482	0	74
Internal Link Dist (ft)		722			483			3890		
Turn Bay Length (ft)	250		450	250		200	250		200	250
Base Capacity (vph)	450	1089	1583	236	869	1583	529	2001	1583	239
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.41	0.31	0.55	0.36	0.04	0.66	0.46	0.12	0.41

Intersection Summary

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	886	136
v/c Ratio	0.51	0.09
Control Delay (s/veh)	26.3	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	26.3	0.1
Queue Length 50th (ft)	278	0
Queue Length 95th (ft)	406	0
Internal Link Dist (ft)	1409	
Turn Bay Length (ft)		200
Base Capacity (vph)	1748	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.51	0.09

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	172	283	398	645	485	602	233	353	277	279
v/c Ratio	0.57	0.59	0.25	0.85	0.42	0.38	0.66	0.25	0.19	0.68
Control Delay (s/veh)	67.4	64.9	0.4	71.7	38.7	0.8	59.1	22.9	0.3	58.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.4	64.9	0.4	71.7	38.7	0.8	59.1	22.9	0.3	58.6
Queue Length 50th (ft)	78	92	0	287	110	3	113	120	0	129
Queue Length 95th (ft)	115	123	0	341	136	1	151	185	0	173
Internal Link Dist (ft)		720			1570			500		
Turn Bay Length (ft)	250		200	250		200	700		200	250
Base Capacity (vph)	450	1256	1583	858	1860	1583	385	1439	1482	460
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.23	0.25	0.75	0.26	0.38	0.61	0.25	0.19	0.61

Intersection Summary

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	642	149
v/c Ratio	0.41	0.09
Control Delay (s/veh)	29.3	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	29.3	0.1
Queue Length 50th (ft)	233	0
Queue Length 95th (ft)	318	0
Internal Link Dist (ft)	3890	
Turn Bay Length (ft)		250
Base Capacity (vph)	1568	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.41	0.09

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	369	473	476	446	327	387	302	629	601	597
v/c Ratio	0.74	0.69	0.31	0.77	0.41	0.24	0.70	0.52	0.38	0.81
Control Delay (s/veh)	65.6	62.2	0.5	73.8	61.3	0.4	80.8	30.8	0.6	49.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.6	62.2	0.5	73.8	61.3	0.4	80.8	30.8	0.6	49.6
Queue Length 50th (ft)	171	154	0	209	96	0	147	176	0	280
Queue Length 95th (ft)	218	191	0	262	114	0	m188	344	0	298
Internal Link Dist (ft)		720			1570			500		
Turn Bay Length (ft)	250		200	250		200	700		200	250
Base Capacity (vph)	734	932	1553	850	1101	1583	487	1213	1583	1041
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.51	0.31	0.52	0.30	0.24	0.62	0.52	0.38	0.57

Intersection Summary

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

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	439	162
v/c Ratio	0.29	0.11
Control Delay (s/veh)	19.0	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	19.0	0.1
Queue Length 50th (ft)	143	0
Queue Length 95th (ft)	218	0
Internal Link Dist (ft)	3890	
Turn Bay Length (ft)		250
Base Capacity (vph)	1495	1524
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.29	0.11

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	200	332	463	721	563	684	274	411	311	316
v/c Ratio	0.60	0.63	0.29	0.91	0.46	0.43	0.69	0.31	0.21	0.71
Control Delay (s/veh)	67.4	64.5	0.5	78.7	38.5	1.1	65.6	21.6	0.3	55.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.4	64.5	0.5	78.7	38.5	1.1	65.6	21.6	0.3	55.9
Queue Length 50th (ft)	91	108	0	326	126	8	95	147	0	146
Queue Length 95th (ft)	130	141	0	#423	159	8	136	211	0	172
Internal Link Dist (ft)		720			1570			500		
Turn Bay Length (ft)	250		200	250		200	700		200	250
Base Capacity (vph)	447	1285	1583	835	1860	1583	412	1336	1482	502
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.26	0.29	0.86	0.30	0.43	0.67	0.31	0.21	0.63

Intersection Summary

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

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	747	174
v/c Ratio	0.52	0.11
Control Delay (s/veh)	31.3	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	31.3	0.1
Queue Length 50th (ft)	294	0
Queue Length 95th (ft)	402	0
Internal Link Dist (ft)	3890	
Turn Bay Length (ft)		250
Base Capacity (vph)	1447	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.52	0.11

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	431	548	553	495	378	436	351	734	665	676
v/c Ratio	0.78	0.71	0.36	0.82	0.45	0.28	0.75	0.69	0.42	0.86
Control Delay (s/veh)	65.2	60.7	0.6	80.7	46.0	0.4	79.4	38.2	0.7	49.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.2	60.7	0.6	80.7	46.0	0.4	79.4	38.2	0.7	49.7
Queue Length 50th (ft)	199	179	0	236	89	0	161	274	0	319
Queue Length 95th (ft)	250	215	0	295	114	0	m183	m#473	m0	381
Internal Link Dist (ft)		720			1570			500		
Turn Bay Length (ft)	250		200	250		200	700		200	250
Base Capacity (vph)	675	993	1553	684	1005	1583	531	1062	1583	880
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.55	0.36	0.72	0.38	0.28	0.66	0.69	0.42	0.77

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	SBT	SBR
Lane Group Flow (vph)	511	191
v/c Ratio	0.37	0.13
Control Delay (s/veh)	27.7	0.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	27.7	0.2
Queue Length 50th (ft)	199	0
Queue Length 95th (ft)	282	0
Internal Link Dist (ft)	3890	
Turn Bay Length (ft)		250
Base Capacity (vph)	1368	1524
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.37	0.13

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	40	156	407	258	260	107	214	675	114	98
v/c Ratio	0.23	0.54	0.26	0.66	0.46	0.07	0.63	0.33	0.08	0.42
Control Delay (s/veh)	65.6	67.2	0.4	66.9	55.2	0.1	67.6	15.0	0.1	67.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.6	67.2	0.4	66.9	55.2	0.1	67.6	15.0	0.1	67.0
Queue Length 50th (ft)	19	74	0	118	116	0	102	157	0	44
Queue Length 95th (ft)	39	112	0	160	155	0	143	238	0	74
Internal Link Dist (ft)		985			637			1114		
Turn Bay Length (ft)	250		200	250		200	675		200	250
Base Capacity (vph)	514	889	1538	559	946	1583	438	2039	1509	239
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.18	0.26	0.46	0.27	0.07	0.49	0.33	0.08	0.41

Intersection Summary

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	1447	86
v/c Ratio	0.72	0.05
Control Delay (s/veh)	25.8	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	25.8	0.1
Queue Length 50th (ft)	486	0
Queue Length 95th (ft)	695	0
Internal Link Dist (ft)	1858	
Turn Bay Length (ft)		550
Base Capacity (vph)	2012	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.72	0.05

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	52	275	146	175	165	77	431	1626	255	182
v/c Ratio	0.39	0.69	0.09	0.74	0.30	0.05	0.79	0.76	0.16	0.69
Control Delay (s/veh)	73.3	68.2	0.1	81.3	53.2	0.1	66.7	23.0	0.2	76.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	73.3	68.2	0.1	81.3	53.2	0.1	66.7	23.0	0.2	76.0
Queue Length 50th (ft)	24	128	0	81	71	0	196	561	0	86
Queue Length 95th (ft)	48	176	0	#132	107	0	251	660	0	#141
Internal Link Dist (ft)		985			637			1114		
Turn Bay Length (ft)	250		200	250		200	675		200	250
Base Capacity (vph)	134	461	1583	241	587	1583	626	2150	1583	268
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.60	0.09	0.73	0.28	0.05	0.69	0.76	0.16	0.68

Intersection Summary

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

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	854	140
v/c Ratio	0.47	0.09
Control Delay (s/veh)	22.4	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	22.4	0.1
Queue Length 50th (ft)	262	0
Queue Length 95th (ft)	347	0
Internal Link Dist (ft)	1858	
Turn Bay Length (ft)		550
Base Capacity (vph)	1800	1524
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.47	0.09

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	47	182	474	302	302	125	250	771	135	115
v/c Ratio	0.37	0.58	0.31	0.85	0.50	0.08	0.66	0.38	0.09	0.46
Control Delay (s/veh)	73.0	67.3	0.5	82.6	55.2	0.1	66.6	15.5	0.1	67.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	73.0	67.3	0.5	82.6	55.2	0.1	66.6	15.5	0.1	67.0
Queue Length 50th (ft)	22	87	0	141	135	0	118	190	0	52
Queue Length 95th (ft)	45	126	0	#217	180	0	163	263	0	85
Internal Link Dist (ft)		985			637			1114		
Turn Bay Length (ft)	250		200	250		200	675		200	250
Base Capacity (vph)	128	677	1538	360	933	1583	388	2029	1509	249
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.27	0.31	0.84	0.32	0.08	0.64	0.38	0.09	0.46

Intersection Summary

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

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	1656	104
v/c Ratio	0.84	0.07
Control Delay (s/veh)	31.2	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	31.2	0.1
Queue Length 50th (ft)	637	0
Queue Length 95th (ft)	#868	0
Internal Link Dist (ft)	1858	
Turn Bay Length (ft)		550
Base Capacity (vph)	1975	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.84	0.07

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	60	319	170	203	192	93	500	1852	297	214
v/c Ratio	0.33	0.75	0.11	0.76	0.34	0.06	0.87	0.89	0.19	0.76
Control Delay (s/veh)	67.8	70.5	0.1	80.4	53.9	0.1	72.5	31.9	0.3	79.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.8	70.5	0.1	80.4	53.9	0.1	72.5	31.9	0.3	79.8
Queue Length 50th (ft)	27	148	0	94	83	0	229	757	0	103
Queue Length 95th (ft)	52	202	0	#150	123	0	#313	890	0	#166
Internal Link Dist (ft)		985			637			1114		
Turn Bay Length (ft)	250		200	250		200	675		200	250
Base Capacity (vph)	196	461	1583	273	575	1583	596	2076	1583	284
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.69	0.11	0.74	0.33	0.06	0.84	0.89	0.19	0.75

Intersection Summary

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

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	967	165
v/c Ratio	0.56	0.11
Control Delay (s/veh)	25.8	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	25.8	0.1
Queue Length 50th (ft)	336	0
Queue Length 95th (ft)	406	0
Internal Link Dist (ft)	1858	
Turn Bay Length (ft)		550
Base Capacity (vph)	1718	1524
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.56	0.11

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	99	302	290	109	368	113	141	310	82	95
v/c Ratio	0.46	0.60	0.18	0.44	0.72	0.07	0.25	0.15	0.05	0.13
Control Delay (s/veh)	51.3	60.4	0.5	44.8	64.3	0.1	10.0	14.4	0.1	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.3	60.4	0.5	44.8	64.3	0.1	10.0	14.4	0.1	9.3
Queue Length 50th (ft)	52	87	0	79	171	0	42	64	0	28
Queue Length 95th (ft)	m89	118	1	123	217	0	81	106	0	57
Internal Link Dist (ft)	1292		1155				575			
Turn Bay Length (ft)	200	200		200	200		200	200		200
Base Capacity (vph)	246	1038	1583	268	1038	1583	640	2068	1583	737
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.29	0.18	0.41	0.35	0.07	0.22	0.15	0.05	0.13

Intersection Summary

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

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	555	40
v/c Ratio	0.27	0.03
Control Delay (s/veh)	16.4	0.0
Queue Delay	0.0	0.0
Total Delay (s/veh)	16.4	0.0
Queue Length 50th (ft)	128	0
Queue Length 95th (ft)	199	0
Internal Link Dist (ft)	602	
Turn Bay Length (ft)		200
Base Capacity (vph)	2032	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.27	0.03

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	126	382	225	82	299	96	224	660	109	117
v/c Ratio	0.50	0.73	0.14	0.40	0.65	0.06	0.34	0.32	0.07	0.24
Control Delay (s/veh)	41.6	56.4	0.2	44.1	63.8	0.1	10.6	16.5	0.1	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.6	56.4	0.2	44.1	63.8	0.1	10.6	16.5	0.1	10.2
Queue Length 50th (ft)	63	157	0	59	138	0	69	154	0	34
Queue Length 95th (ft)	104	212	0	96	182	0	128	239	0	70
Internal Link Dist (ft)	1292			1155			575			
Turn Bay Length (ft)	200		200	200		200	200		200	200
Base Capacity (vph)	287	884	1583	256	833	1583	762	2059	1583	590
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.43	0.14	0.32	0.36	0.06	0.29	0.32	0.07	0.20

Intersection Summary

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	420	78
v/c Ratio	0.21	0.05
Control Delay (s/veh)	17.2	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	17.2	0.1
Queue Length 50th (ft)	96	0
Queue Length 95th (ft)	161	0
Internal Link Dist (ft)	602	
Turn Bay Length (ft)		200
Base Capacity (vph)	1970	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.21	0.05

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	114	348	337	130	429	136	163	364	98	114
v/c Ratio	0.52	0.62	0.21	0.51	0.74	0.09	0.33	0.18	0.06	0.18
Control Delay (s/veh)	53.7	63.2	0.5	44.6	63.0	0.1	12.0	16.6	0.1	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.7	63.2	0.5	44.6	63.0	0.1	12.0	16.6	0.1	10.8
Queue Length 50th (ft)	69	130	3	92	198	0	53	83	0	36
Queue Length 95th (ft)	m99	163	5	139	246	0	98	133	0	71
Internal Link Dist (ft)	1292			1155			575			
Turn Bay Length (ft)	200		200	200		200	200		200	200
Base Capacity (vph)	244	1012	1583	269	1012	1583	570	1971	1583	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.34	0.21	0.48	0.42	0.09	0.29	0.18	0.06	0.17

Intersection Summary

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

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	647	49
v/c Ratio	0.34	0.03
Control Delay (s/veh)	19.4	0.0
Queue Delay	0.0	0.0
Total Delay (s/veh)	19.4	0.0
Queue Length 50th (ft)	167	0
Queue Length 95th (ft)	251	0
Internal Link Dist (ft)	602	
Turn Bay Length (ft)		200
Base Capacity (vph)	1929	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.03

Intersection Summary

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Group Flow (vph)	147	440	261	98	348	114	261	766	130	136
v/c Ratio	0.56	0.75	0.16	0.47	0.69	0.07	0.44	0.39	0.08	0.32
Control Delay (s/veh)	53.4	69.0	0.2	44.0	63.2	0.1	13.0	19.5	0.1	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.4	69.0	0.2	44.0	63.2	0.1	13.0	19.5	0.1	12.4
Queue Length 50th (ft)	95	216	0	69	161	0	90	201	0	43
Queue Length 95th (ft)	m136	269	m0	108	208	0	156	300	0	84
Internal Link Dist (ft)	1292			1155			575			
Turn Bay Length (ft)	200		200	200		200	200		200	200
Base Capacity (vph)	297	884	1583	242	782	1583	706	1960	1583	516
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.50	0.16	0.40	0.45	0.07	0.37	0.39	0.08	0.26

Intersection Summary

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

		
Lane Group	SBT	SBR
Lane Group Flow (vph)	489	87
v/c Ratio	0.26	0.05
Control Delay (s/veh)	20.5	0.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	20.5	0.1
Queue Length 50th (ft)	125	0
Queue Length 95th (ft)	201	0
Internal Link Dist (ft)	602	
Turn Bay Length (ft)		200
Base Capacity (vph)	1846	1583
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.26	0.05

Intersection Summary